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Lessons Learned from The Integration of Strategic Environmental Assessment with Transport Planning in Athens Dublin and London

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A thesis submitted to the University of Dublin in fulfilment of the requirements for the Degree of Doctor of Philosophy (Environmental Science)

University of Dublin, Trinity College Dublin
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October 2000

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SUMMARY

Strategic Environmental Assessment (SEA) refers to the identification and evaluation of the positive and negative effects of actions at a higher decision making level than development projects such as programmes, plans and policies (PPPs). Its usefulness lies in its ability to aid decision making, enhance the effectiveness of project environmental assessment and ultimately contribute towards Sustainable Development. It is for these characteristics that the concept is currently the subject of a European Union draft Directive 'on the assessment of the effects of certain plans and programmes on the environment' [96/0304 (COD)] or SEA Directive.

Although it first appeared some thirty years ago, practical application and research on this environmental management tool is still in its infancy. A particularly unexplored area, is its relationship with the PPP process. Although it is recognised in the literature that an integrated form of SEA is necessary to adequately address the requirements for Sustainable Development, integration is rarely practised and minimally researched. Transport planning is a PPP sector with limited experience on SEA application world-wide, and even less experience with SEA integration.

In this study, the elements required for an integrated SEA/transport planning model are proposed and tested in three European Union regions with various experience with SEA, namely Greater Athens, Greater Dublin and Greater London. This was undertaken by an extensive review of the literature which resulted in the development of an 'integrative SEA framework' within which integration of SEA with transport-related strategic actions can be evaluated. It consists of an array of procedural, methodological, institutional and human resources requirements common to both processes. A number of criteria were assigned to these requirements in order to render them quantifiable for research purposes. The integrative framework provided the basis for the research methods used to evaluate the experience on integration in the examined regions, and for the recommendations of transference of experience among them. The research methods were document review, and interview and postal survey of all transport-related PPPs in the three regions. Three case studies, characteristic of the level of integration in each region were also carried out. These addressed the specific reasons for the existence or absence of integration in the particular regions.

The study demonstrates that the integrative SEA framework developed, can be successfully used as a general guide for the review of effective practice on integration. Its application

in a specific planning context would require that the selection of representative criteria for describing the elements of integration are country specific. Guidelines and research therefore (especially with regard to impact monitoring and human resources integration), should focus on the particular methodological, institutional and cultural circumstances of the planning systems in a given country/region.

The comparison of the practice of SEA integration in the three regions reveals that although strengths and shortcomings were evidenced, the overall practice is poor. The main factor limiting its effectiveness is the lack of guidelines. In Athens, SEA implementation (let alone its integration with transport planning) is almost non-existent. It is recommended that future efforts should concentrate on the anticipation of the future enactment of the proposed SEA Directive. In Dublin, a type of policy-SEA is emerging (*i.e.* Eco-Audit). The trickle-down of Eco-Audit to the transport part of land-use planning where experience is minimal, and the adaptation of the British guidelines on the 'Environmental Appraisal of Development Plans' to the Irish planning system, will be a fundamental step towards the introduction of integrative SEA patterns. In London, there is considerable experience at the land-use planning level, but not at the regional and national decision making level. It is suggested that the newly exercised 'Sustainability SEA of Regional Planning Guidance', be linked to land-use and national levels, and that the relevant guidelines incorporate all the requirements of the proposed SEA Directive.

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ABBREVIATIONS

6th EAP	6th Environmental Action Programme
ALG	Association of London Government
ATHOC	Athens Olympic Committee
C	Agency Consultation
CBA	Cost Benefit Analysis,
CEC	Council of the European Community
CIA	Cumulative Impact Assessment
CNG	Compressed Natural Gas
CO	Carbon Monoxide
CPZs	Controlled Parking Zones
CSF	Community Support Framework
DETR	Department of the Environment, Transport and the Regions
DG XI	Directorate General for the Environment, Nuclear Safety and Civil Protection
DGVII	European Commission's Directorate-General for Transport
DoELG	Department of the Environment and Local Government
DTI	Dublin Transportation Initiative
DTO	Dublin Transportation Office
e.g.	*exempli gratia*
EA	Environmental Assessment
EADP	Environmental Appraisal of Development Plans
EAR	Environmental Appraisal Report
EC	European Commission
EIA	Environmental Impact Assessment
EISs	Environmental Impact Statements
EPA	Environmental Protection Agency
et al	*et alii*
ETHEL	Athens Bus Company
EU	European Union
GDP	Gross Domestic Product
GIS	Geographical Information System
GLA	Greater London Authority
GLC	Greater London Council
GNP	Gross National Product
GOSE	Government Office for the South East
GUPs	General Urban Plans
i.e.	*id est*
IAIA	International Association for Impact Assessment
IEA	Integrated Environmental Assessment
IEM	Integrated Environmental Management
ILPAP	Athens and Piraeus Trolley-Bus Company
inter alia	amongst other things
IOC	International Olympic Committee
IPC	Integrated Pollution Control
IPEA	Integrated Planning and Environmental Assessment
ISAP	Athens and Piraeus Electric Railway Company
IT	Information Technology
km	kilometre
km^2	square kilometre
LIP	Local Implementation Plans
LPAC	London Planning Advisory Committee
LPG	Liquid Petroleum Gas
LT	London Transport
m	metre
m^2	square metres
MCA	Multi Criteria Analysis
MEPPPW	Ministry of the Environment, Physical Planning and Public Works
NDP	National Development Plan

NGOs	Non-Governmental Organisations
NO_2	Nitrogen Dioxide
NO_x	Nitrogen Oxide
NTUA	National Technical University of Athens
OASA	Athens Public Transport Organisation
OP	Operational Programme
OPEPA	Organisation of Planning and Environmental Protection of Athens
p.	page
PM	Particulate Matter
PNR	Private Non-Residential
PP	Public Participation
PPG	Planning Policy Guidance
PPP	Policy, Plan and Programme
RPG	Regional Planning Guidance
SA	Sustainability Appraisal
SD	Sustainable Development
SDS	Sustainable Development Strategy
SEA	Strategic Environmental Assessment
SEI	Stockholm Environment Institute
SERPLAN	London and South East Regional Planning Conference
SIA	Social Impact Assessment
SO_2	Sulphur Dioxide
SOCOG	Sydney Organising Committee for the Olympic Games
SO_x	Sulphur Oxide
SRB	Single Regeneration Budget
TEN	Trans European Network
TfL	Transport for London
UDPs	Unitary Development Plans
UK	United Kingdom
UPSs	Urban Planning Studies
VOCs	Volatile Organic Compounds
WELL	West London Leadership
WWF	World Wide Fund for Nature
WWW	World Wide Web

1. Introduction

1.1. Rationale for research

The first formal adoption of environmental assessment legislation was the passing of the National Environmental Protection Act in the United States in 1969 (Glasson *et al*, 1994). Its provisions made it obligatory for certain proposals for development to submit a report which outlined possible environmental impacts of the development and where possible to explore possible alternatives. Within the European Union (EU), the initiative for drafting a Directive for project-orientated Environmental Impact Assessment (EIA) started during the early 70s. At that time, the scope of these legislative initiatives was comprehensive (*i.e.* covering projects, programmes, plans and policies) but it was eventually restricted to specific projects. During the late 80s, the terminology of Strategic Environmental Assessment (SEA) was initiated and the first legislative attempts for the extension of EIA from projects to more strategic levels of decision making such as policies, plans and programmes (PPPs) appeared through a series of proposals for an EU-wide Directive on SEA.

Initially, EIA practice remained project-specific. However, since the early 90s, practice and legislative initiatives on SEA slowly emerged in the EU as a consequence of the realisation of the importance of incorporating greater environmental components into PPPs. At an international level, experience on SEA is still at its infancy and as experience accumulates, the use of SEA is progressively extending from the environmental appraisal of comprehensive land use plans, to include environmental appraisals of government policies. Since the late 80s, considerable interest in the role of SEA within the PPP process emerged. As the proceedings of a recent Conference (IAIA, 1999) on SEA highlighted, the quest for the 'ideal' relationship of SEA with the PPP process and methodology is of paramount importance in understanding the contribution of SEA to Sustainable Development (SD). Inevitably, the discussion was focused on the concept of 'integration' and the nature of relationships that enable the common consideration of environmental and socio-economic concerns. In turn, 'integration' is envisaged to be the first step towards the promotion of sustainable PPPs.

Interest towards the 're-examination' of the role of SEA in the PPP process raises the following question: What are the merits and obstacles towards the development of an integrated PPP/SEA model? The integration debate dates from the late 80s. At that time, arguments were expressed about the use of appropriate documentation of SEA, which was considered important if it was to perform its environmental protection role in a fully integrated planning schema (Wood, 1998). In the early 90s, it was considered that the

demands placed on SEA as a tool for integrated planning policy, would have required major changes in planning culture and practice (Partidario, 1992). During the late 90s, it was considered that the successful integration had more to do with the nature of decision making (*i.e.* whether other socio-economic considerations dominate over the environmental ones), rather than on technical and methodological designs (Sadler, 1996). This 'integration' debate has continued at a EU level throughout the drafting of the proposed SEA Directive (CEU and EP, 2000).

The literature on SEA generally recognises that a new 'integrated' form of SEA is necessary to address the requirements for Sustainable Development. An integrated socio-economic assessment would, however, require a change in identities of both SEA and the process with which it is integrated. Transport planning is a PPP sector that has limited experience with SEA practice and, moreover, with 'SEA/transport-planning' integration theory. A framework of integration of SEA with the transport planning process will therefore comprise elements of both processes. There is minimal reference in the literature to these elements. A recent study showed that practical experience of SEA in the transport sector worldwide is limited (Steer Davies Gleave, 1996). In addition, there is no experience on the integration of different transport planning and environmental management policies in EU member states.

1.2. ***Research Objectives***

The aim of this research is to recommend the elements required for an integrated SEA/transport planning model, and test these in three EU regions with various experience with SEA. These are the Greater Athens, Greater Dublin and Greater London regions. The research has three purposes. First, to provide planners, SEA practitioners, environmental managers, administrators and researchers with an insight into the effective application of SEA, and thus maximising its benefits as an environmental management tool. Second, to provide transport planning with an incentive to take environmental and sustainability concerns into account, and thus to become a more environmentally integrated form of planning. Third, to contribute towards knowledge, information exchange, and transference of experience on integration between EU regions with different transport planning and SEA practice. This attempt to unify current practice at an EU level, will be beneficial for the future enactment of the draft European Commission's (EC) Directive on SEA and contribute towards a proactive anticipation of the implementation of the Directive's spirit.

In order to meet the above aim, the research has the following objectives:

- develop a framework within which integration of SEA with transport-related strategic actions can be evaluated,
- apply this framework to a number of transport-related documents prepared by public and private bodies in Greater Athens, Greater Dublin and Greater London regions,

- examine why and how SEA is, or is not, integrated with transport planning practice in each of the regions examined,
- modify the framework in the light of the research results in order to make it applicable across EU member states,
- recommend transference of experience on SEA-integration among the regions examined.

The research adopted a dynamic view on integration, whereby the SEA process is applied to all stages of transport planning, and a holistic environmental and socio-economic approach to planning/assessment issues is envisaged. The adoption of a Sustainable Development approach to integration requires the identification of what it is meant by the term 'integration'. In the thesis, such a definition will include a number of procedural, methodological, institutional and social characteristics of both transport planning and environmental assessment processes. The identification of these characteristics and their translation to measurable 'elements of integration' has been a major challenge throughout the preparation of this research study.

The following section of this chapter describes the basic concepts that the thesis addresses. Therefore, a discussion regarding the terms SEA, transport planning and their role in the formulation of EU's environmental policy follows. The section also clarifies the terms 'environment' and 'integration', as they are used in this thesis.

1.3. Concepts' clarification

1.3.1. A concept of the 'environment'

Over the past thirty years, the term 'environment' has been used in a variety of ways and in different contexts. Since the term forms the core issue of the thesis, it is important to understand the different ways that is used in the literature, and present the definition that is adopted in this thesis.

Traditionally, science has regarded the environment as a summation of various components. Descartes' view of scientific knowledge entails an analytical process whereby complex entities of the natural world are broken down into their constituent parts in order that all aspects of complex phenomena be understood (Capra, 1983). This compartmentalisation of knowledge has not only lead to an overstated perception of an 'objective' and 'value free' scientific knowledge, but also facilitated nature's vast exploitation. As Rolston (1990, p. 70) puts it: '*practically and prescriptively* [nature] *often pronounced to be valueless, except in so far as it can be used instrumentally as a resource ... The logic of all this is that a valueless nature can be put to any cultural use we please*'.

Further, the definition of the term 'environment' as well as its protection is also influenced by the traditionally antagonistic relationship between environment and growth, an issue that forms the core of the debate surrounding Sustainable Development.

According to Collins dictionary, environment is defined by '*the external conditions or surroundings*'; '*the external surroundings in which a plant or animal lives, which influence its development*'; or '*the state of being in a surrounding area, region, the suburbs or outskirts of a city*'. The term in its generic sense denotes the surrounding of 'something' whether that is objects, individuals or processes which interact in some way with whatever is being surrounded (Silvertown and Sarre, 1990). Therefore, the definition of the term depends on the particular surroundings of the 'object' in question. It could be either that of an individual in general, or of society.

The individual's environment includes its life support system such as food, water, air, shelter as well as companionship and human interaction. All living things' environment embraces physical objects and processes (Silvertown and Sarre, 1990). Although this interpretation may seem narrow, a range of people who conceptualise the term by its biological and ecological features favours it. Human beings' environment comprises natural, physical and biological processes altered by society. The term is often used, usually in natural sciences, in order to cover the physical attributes of the effects of man's activities on his surroundings (Partidario, 1992).

This thesis argues that society's environment (man-made capital), is not separate from the wider earth's environment (natural capital) but forms part of it, assuming that human society's existence, depends on earth's physical and biological processes. Thus 'environment', as used in this thesis, constitutes a comprehensive and dynamic system, embracing an array of closely interrelated socio-economic, institutional, political and physical/ecological parameters.

1.3.2. Strategic Environmental Assessment: An overview

1.3.2.1. Defining SEA

Strategic Environmental Assessment is a new and rapidly evolving concept and considerable confusion exists regarding its definition and implementation. Participants at a Conference on Impact Assessment, seemed to agree that there is disagreement in relation to what SEA actually means: '*The impediments to the implementation of SEA ... did not seem related to practical reasons alone, but also to nitty-gritty fighting over definitions and terminology ...*' (IAIA, 1998, p.2).

There is relative consensus, however, in that SEA constitutes a systematic and preventative environmental management process that provides an early assessment of environmental issues of programme, planning and policy decisions, looks at a range of possible alternatives and ensures the integration of issues in the total environment including biophysical, economic, social, and political considerations[1] (Partidario, 1996; Therivel *et al*, 1992; Therivel and Partidario, 1996).

Another area of confusion stems from the scope of SEA. Since it is a decision aiding process, it should be able to apply in a flexible way to the decision cycle, which entails programmes, plans, and policies. A more linear perception of the decision making process is quoted in the literature (Therivel and Partidario, 1996; Wood, 1995; Sadler and Verheem, 1996; DoE, 1991). In that view, SEA is seen to apply in a 'tiered' way which *'... the formulation of a policy at the upper level, is followed by a plan at the second stage and by a programme at the end'* (Wood, 1995, p. 266). The final stage of the development process involves the construction of individual projects.

TABLE 1.1: A DEFINITION OF PPPS

The 3 Ps: Policies, programmes and plans may have a national (government-wide), sectoral or spatial focus. Often these terms are used in a sequential or interchangeable manner.

- Policy: a general course of action or proposed overall direction that a government is, or will be, pursuing and which guides ongoing decision making,
- Programme: a coherent, organised agenda or schedule of commitments, proposals, instruments and/or activities that elaborates and implements policy,
- Plan: a purposeful, forward looking strategy or design, often with co-ordinated priorities, options and measures, that elaborates and implements policy.

Source: Adopted from Sadler and Verheem, 1996

In reality, the sequence of these levels can be quite fragmented (*e.g.* Nooteboom and Wieringa, 1999; Marsh, 1994). For example in Greece, a specific type of plan (*i.e.* Plan Serving Private Purposes) is regarded by the relevant Environmental Impact Assessment legislation as a project. As such, an Environmental Impact Statement is required for this type of plan, but not for plans at a higher and lower tier of the planning system. Though recognising the impediments involved in reconciling 'rational thinking' with real life conditions (Marsh, 1994; Mitchell, 1997) a categorisation of PPPs is useful if SEA practice and legislation is to be gradually communicated between member states (Table 1.1). The most frequently quoted rationale for the utilisation of SEA, is its application at a higher, strategic level than the project-EIA, in order to prevent deficiencies related to this latter type of assessment.

[1] For further perceptions on SEA see Lee and Walsh, 1992; UNECE, 1992; Sadler, 1996.

1.3.2.2. Role of SEA

Several authors have argued that the benefits of SEA are closely related to the specific context that it is expected to serve (Therivel *et al*, 1992; Lee and Walsh, 1992; Sheate, 1996; UNECE, 1992; Fisher, 1998; Wood and Djeddour, 1992; IAIA, 1998; Wilson, 1994; 1993 1994; CEC, 1997b; 1997d; Sadler, 1996). Attention has been drawn to the nature of SEA as an extension of project-EIA, as a facilitator of Sustainable Development and as a tool for aiding decision-making.

Enhancing project-EIA effectiveness

In methodological terms, the assessment of certain types of impacts that are not taken into account in project-EIA, and the consideration of alternatives for project design at an early stage of decision-making, provides an indication of the proactive character of SEA in comparison with project-EIA. Assessment at an early stage, will assist data collection for future EIAs, allow relevant experts to become fully involved in the planning process, encourage consultation with environmental groups and the public, and initiate measures for impact mitigation and compensation of affected parties (Therivel *et al*, 1992; Wood and Djeddour, 1992; Sadler and Verheem, 1996).

Promoting Sustainable Development

SEA has also a role in promoting SD (*e.g.* CEU and EP, 2000; CEPA, 1994; Therivel and Partidario, 1996; Sadler, 1996). As is the case with SEA, there have been many attempts in the literature to both define SD as well as to identify how it can be put into effect. Although the term was in use in the late 70s (Pirages, 1977; Pezoli, 1997), it was in the 1987 'Brundtland Report' of the World Commission for the Environment and Development (WCED, 1987) that the concept received widespread acceptance (Jacobs, 1991). The Brundtland Commission defined SD as '*... development that meets the needs of the present, without compromising the ability of future generations to meet their own needs.*' (WCED, 1987, p. 43).

There are three interrelated elements at the core of SD and are frequently reiterated in the literature. The first element relates to the notion of *inter-generational equity*[2] (Jacobs, 1991; Pearce, 1993; Smith, 1993; Thomas, 1994; Blowers, 1992). For Jacobs (1993), a society that sets itself the goal of SD should minimise those activities, the costs of which are borne by future generations. In case that this is economically or socially unavoidable, it should at least compensate the future generations for these costs.

[2] By inter-generational equity, it is meant the fair distribution of environmental costs and benefits between generations (Jacobs, 1991).

The second element arises from the interpretation of the term 'development'. As Jacobs (1991) argues, there is a deliberate use of this word in the Brundtland report instead of 'economic growth'. While the latter consists of financial components alone (such as increases in national income), the former includes something wider that cannot be measured in Gross Domestic Product (GDP) or Gross National Product (GNP) terms. This could embrace environmental as well as societal factors such as land degradation, the beauty of natural landscape, education and the cohesiveness of the communities. SD recognises that resources are dynamic, reflecting human values, economic decisions, technologies and political aspirations (Rees, 1990).

The adaptation of SD in planning, requires a number of measures including the setting of quantitative targets, the strengthening of procedures and assessment methods within a holistic socio-economic and environmental balance sheet, the consideration of 'demand management' policies, and the monitoring of the planning outcome through appropriate indicators.

The third essential element of SD, is the integration of environmental concerns in economic policy making (Jacobs, 1991; Collis *et al*, 1992). This entails the integration of economic, social and environmental considerations into development planning. It is in this way that the integration of SEA with land use planning can deliver tangible benefits in promoting environmentally SD.

Aiding decision-making

A third utility of environmental assessment when it applies at a strategic level of decision making, is that it determines whether a specific initiative and proposal is actually needed, and if so, what are the alternative ways it can put forward in order to satisfy a number of predetermined goals *e.g.* economic efficiency, widespread distribution of environmental and other benefits derived from the activity. Decision making at this level is characterised by a plurality of views. Nevertheless, the incorporation of a wide variety of views sometimes generates confusion about what the problem actually is. The lack of accountability of the political and organisational system, and the unwillingness of decision makers to define a clear set of goals in order to achieve adopted policies developed through plan making complicate issues further (Marsh, 1994).

Furthermore, the capacity of a SEA system to deliver substantial benefits (Table 1.2) depends on the legal, institutional and procedural framework in place. Therefore, before examining the integration of SEA with existing planning mechanisms, the following country-

specific parameters of an institutional and administrative system should be clarified, (IAIA, 1998):

Different levels and responsibilities:

- who makes, takes and implements decisions?
- are responsibilities delegated? (subsidiarity and devolution),
- interests and values,
- procedures for public participation.

TABLE 1.2: BENEFITS DERIVED FROM APPLYING SEA INTO THE TOWN AND COUNTRY PLANNING SYSTEM

- SEA is an aid to project-EIA as it considers environmental issues earlier in the decision making process;
- the identification of the environmental impacts of the plans' policies adds to its overall effectiveness, and therefore minimises the controversial and damaging applications latter in the planning control process;
- SEA stimulates public participation and environmental awareness of the relevant actors involved. In the long term, this could reduce public conflict over development;
- it enables the environmental implications of separate policies to be brought together and identify their cumulative effects;
- it provides the opportunity for a 'tiering' approach to Sustainable Development by linking environmental considerations between regional and local planning levels;
- SEA, if properly integrated in the planning process, it can enhance the conventional methodology and practice of plan making. In particular, it can extend the scope of planning to cover a more systematic consideration of socio-economic impacts in a holistic manner. It can also improve the procedural/technical aspects of planning processes by fostering the systematic collection of information, assessment of planning options and presentation of results;
- SEA can promote environmentally Sustainable Development by setting the ecological limits within which the plans' policies should operate. It can be proactive in influencing the formulation of planning policies, minimising the adverse environmental impacts of present development on future generations, rather than intervening at a late stage where important developmental decisions have already been determined.
- It can provide a cost-effective tool for business as a means of anticipating local opposition to environmentally undesirable developments.

Source: Therivel et. al, 1992; 1994; Therivel and Partidario, 1996; Sheate, 1996; Lichfield, 1996a; Zagorianakos, 1996

Different scales of uncertainty:

- data requirements for SEA (quantity, quality and access to information),
- methodologies available.

Different sectors and planning approaches:

- co-ordinated versus uncoordinated,
- in co-operation or 'stand-alone',
- comprehensive or sectoral,
- consideration of alternatives.

1.3.2.3. International and European status of SEA and transport-SEA

Many countries have developed SEA systems or are in the process of doing so. These, differ in scope, methodology, comprehensiveness and statutory obligation (Sadler, 1996; Sadler and Verheem, 1996). As yet, only a few countries and international agencies have established SEA systems *i.e.* in which process and practice is formally organised. On a wider front however, there is growing recognition of the importance of increasing and

broadening SEA application (Sadler, 1996; Sadler and Verheem, 1996). The most well developed systems and guidelines are in Australia, New Zealand, Canada, Denmark, Hong Kong, UK, European Commission, World Bank, the United States, and the Netherlands (Wood, 1995; Sadler, 1996). Both Australia and New Zealand have legal provisions for more strategic forms of environmental assessment with direct links to sustainability considerations, although these are seldom put into practice (OECD, 1995; Sadler, 1996).

The study undertaken by the EIA Centre of the University of Manchester has reviewed the status of the SEA legislation and practice in the eighteen member states of the EU and in Norway (Lee and Hughes, 1995). There were limitations in the information regarding Greece, as the responses from Greek representatives were incomplete in their coverage. The study revealed a great variability in formal provisions for the environmental assessment of PPPs both between countries and between different sectors within a country. Examples of SEA practice were found in most countries at various planning levels, though few examples at the level of policies. SEA is mostly developed in the area of land use planning, but can also be found in sectoral activities such as agriculture, industry, tourism, energy and transport. Major deficiencies in the application of SEA include failure of consultation and public participation, lack of integration of SEA processes within decision making procedures, and weaknesses in the documentation of the SEA exercise. In most countries, SEA provisions have been incorporated into existing regulatory frameworks, rather than forming separate legislation. The implementation of these initiatives has been mostly through cabinet and ministerial decisions, circulars and advice notes. The European countries that have made considerable SEA provisions are Belgium, Finland, Denmark, Germany, UK, France, Sweden, the Netherlands. In the Central and Eastern European countries, interest in SEA is slowly emerging (Lee and Hughes, 1995; OECD, 1995).

The range and extent of transport-SEA worldwide is contradicting. The international study of the effectiveness of Environmental Assessment, maintains that the transport sector is one of the three development sectors where SEA seems to be applied most often[3] (Sadler, 1996).

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[3] The other two development sectors that SEA applies most frequently are energy and waste management. Other sectors such as tourism, housing and settlement, appear to be subject to SEA through their inclusion in regional development and land use plans rather than targeted directly (Sadler, 1996).

TABLE 1.3: SELECTED ENVIRONMENTAL EFFECTS OF PRINCIPAL TRANSPORT MODES

Principal Transport Modes	Air	Water Resources	Land Resources	Solid Waste	Noise	Risk of Accidents	Other Impacts
Marine and inland water transport	Air pollution	Modification of water systems during port construction and canal cutting and dredging	Land taken for infrastructure; dereliction of absolete port facilities and canals	Vessels and craft withdrawn from service		Bulk transport of fuels and hazardous substances	
Rail transport	Primary air pollution from diesel traction; secondary air pollution from power stations	Modification of water systems by railway construction	Land taken for rights of way and terminals; dereliction of obsolete facilities	Abandoned lines, equipment and rolling stock	Noise and vibration around terminals and along railway lines	Derailment or collisions of freight carrying hazardous substances; deaths or injuries from rail accidents; risks of structural failure in old or work rail facilities	Partition or destruction of neighbourhoods, farmland and wildlife habitats and protected areas
Road transport	Air pollution (CO, HC, NOx, particulates and fuel additives such as lead)	Pollution of surface water and ground water by surface run-off; modification of water systems by road building	Land taken for infrastructure; extraction of road building materials	Abandoned spoil tips and rubble from road works; road vehicles withdrawn from service; waste oil	Noise and vibration from cars, motorcycles and lorries along roads	Deaths, injuries and property damaged from road accidents; risk of transport of hazardous substances; risks of structural failure in old or worn road facilities	Partition or destruction of neighbourhoods, farmland and wildlife habitats and protected areas
Air transport	Air pollution	Modification of water tables, river courses and field drainage in airport construction; surface run-of	Land taken for infrastructure; dereliction of obsolete facilities	Aircraft withdrawn from service	Noise around airports	Deaths and injuries from aircraft accidents	Secondary impacts related to surface access

Source: Steer Davies Gleave, 1996, p. 11.

Furthermore, it was reported in a review of existing SEA methodology that ' *... hundreds of SEAs have been made world wide*' and that '*in Europe ... there are between 50 and 200 reported SEA experiences*' (CEC, 1994, p. 25). According to the Steer Davies Gleave (1996) report, however, there is no evidence to support this account of widespread SEA practice since '*the* [CEC] *report only actually identifies some 30 studies world wide (of which six came from the transport sector).*' (Steer Davies Gleave, 1996, p. 23).

Some countries such as the United States and Canada have established regulatory requirements for the environmental assessment of PPPs. A statutory framework of SEA is however generally lacking. This is particularly evident in the transport sector, and is partly responsible for the limited implementation of transport SEAs. The report on the 'State of the Art on SEA Infrastructure' by Steer Davies Gleave (1996) concluded that transport SEAs have had a wide variety of methodologies, have usually been undertaken as part of a broader study, have generally lacked a specific SEA report, and their strategic environmental elements are not identified as distinct from other socio-economic impacts. Furthermore, there are few examples of integrated-SEAs worldwide (Sadler, 1996).

1.3.3. Transport planning

1.3.3.1. Sectoral compared with comprehensive planning

This research adopts a sectoral, as opposed to a comprehensive, approach to SEA, by focusing on transport planning. In sectoral plans the specific activity is the main focus whilst the other activities are considered only as they affect or are affected by the main activity. In land use comprehensive plans, complexity increases as all activities become equally important and their relationships must be considered. (Partidario, 1992). There is a widespread perception, that it is this increased complexity of comprehensive or 'multi-activity' planning, which is responsible for the limited application of SEA to comprehensive land use plans, compared to sectoral plans (Kleinschmidt and Wagner, 1996; Partidario, 1992). In an integrated framework, sectoral planning inevitably looses the advantage of single focus simplicity. Integrated SEA/transport planning needs to equally consider environmental and socio-economic impacts of transport. This examination of the interrelations between impacts involves similar degrees of complexity, as encountered in comprehensive land use planning. This complexity is an inherent characteristic of any integrated exercise and a challenge that needs to be tackled. The frequent use of compatibility matrices in environmental appraisals and sustainability SEAs in Britain can be explained as a way to deal with complexity that arises in integrated planning.

1.3.3.2. Transport-related actions

The above perception of integration helps define the limits of comprehensive and

sectoral planning used in this thesis. An 'indicators' approach to integrated land use planning, for example, requires that transport indicators play an equal role throughout the preparation of policies as with integrated sectoral planning. Similarly, an integrated transport study would consider environmental and socio-economic impacts in other sectors as a result of transport activities, and *vice versa*. Therefore, within an integrated planning framework, comprehensive and sectoral planning approaches tend to 'superimpose' upon eachother. As such, the thesis had to extend its scope to cover statutory land use plans where transport was one sector amongst others.

1.3.4. Transport, SEA and the EU Environment

1.3.4.1. Environmental impacts of transport infrastructure

Although a variety of literature exists on the environmental impacts of transport policy (*e.g.* DETR, 1998g; Streer Davies Gleave, 1996; Kroon, 1990), it is also recognised that the more scheme-specific interactions between transport and the environment are still not well understood by transport planners (Streer Davies Gleave, 1996). Different transport modes have a variety of environmental impacts (Table 1.3). A selection of these is briefly presented below.

Road transport

The effects of vehicle emissions can be distinguished between those affecting human health and those affecting the environment as a whole, between short-term and long-term effects, between 'local' and transboundary effects, between those occurring during construction and a scheme's lifetime. Those affecting human health are:

- nuisance: noise, odour, haze and decrease in visibility owing to mild smog,
- irritation of respiratory systems, eyes and skin, by nitrogen oxides (NO_x), sulphur oxides (SO_x), oxidants, particulates,
- toxic systematic action: carbon monoxide (CO), lead compounds, certain hydrocarbons,
- mutagenic/carcinogenic action: particulates, asbestos and certain hydrocarbons (polycyclic hydrocarbons, dioxins, benzene) (Kroon, 1990).

The long-term environmental effects of road traffic include widespread ecological damage (*e.g.* consumption of resources and disturbance of habitats), general land use effects (*e.g.* land-take, sealing of surfaces, bridges, dams, and visual impacts on landscapes), acidification, and photochemical air pollution[4] (ozone formation). Acidification and photochemical oxidation are also transboundary phenomena with strong damaging effects on nature, forests, agriculture and man-made goods such as monuments and archives.

[4] Athens is a city known internationally for its poor air quality caused mainly by photochemical air pollution

Guidance in identifying the environmental impacts of highway schemes is available in a number of countries including Ireland (EPA, 1995) and Britain (DoT, 1993).

Railways

According to Lee and Lewis (1991) and Ferrary (1990), the key environmental impacts of rail transport are severance, noise, vibration, energy use and conservation, air pollution, visual impacts, historical and archaeological features, nature conservation and accidents.

Aviation

The major environmental impacts associated with aviation are ozone generation and depletion, emissions of other pollutants, and contribution to global warming (Barret, 1994; Ferrary and Hewitt, 1993).

Inland waterways and marine transport

In general terms, the most commonly quoted environmental impacts of inland waterways and marine transport are gaseous or particulate engine emissions from boats, paint, anti-foulant or other chemicals applied to outer surfaces of boats, leakage of liquids including fuel and lubricants, accident spillage of freight loads, and sewage and refuse (ERM, 1991).

Overall, the key environmental impacts associated with, and common to, various modes of transport are emissions of gaseous pollutants affecting air quality, water resources, land resources (including direct effects on ecology), and noise.

1.3.4.2. Transport and the Environment in the European Union

In 1998, annual transport growth in the EU was 2% for passenger transport, and 4% for freight transport. This was similar to growth in GDP (2.7%) over the same period[5]. In total, between 1985 and 1998, passenger kilometres have increased by more than 50%. This rapid growth in transport activities has negative environmental consequences, in particular in relation to the use of resources, the generation of air pollution, and noise.

Use of resources

Transport accounts for 26% of the total emissions from fossil fuels in the EU, the second highest figure after electricity and heat production (*i.e.* 30%) (Eurostat and EEA, 1999). The annual consumption of resources owing to transport has increased from 29.5% in 1985, to 30.2% in 1996, equivalent to 1.8% growth per year. Air transport has the highest growth per year (*i.e.* 3.6%) followed by road (*i.e.* 1.7%), rail (*i.e.* 1.6%) and inland navigation (*i.e.* 0,5%)[6].

Air pollution

(*e.g.* Kroon, 1990, p. 114).

[5] These figures take into account 5 modes in passenger transport (pkm) *i.e.* passenger cars, buses and coaches, tram and metro, railways and air, and 5 modes of freight transport (tkm) *i.e.* road, rail, inland water ways, pipelines and sea.

[6] Sea transport (fuel from maritime bunkers) is not included in the consumption figures.

As a result of a significant increase in atmospheric pollution related to transport between 1970 and 1990[7], a number of measures and policies (*e.g.* the use of catalytic converters lead to reduction of total NO_x, HC and CO emissions in absolute terms in EU) were introduced at an EU level after 1990 that resulted in the gradual decrease of air pollutants after 1990. In particular, between 1990 and 1996, NO_x emissions have decreased by 12%, CO by 23%, Volatile Organic Compounds (VOC) by 24%, and SO_2 by 20% (Eurostat and EEA, 1999).

Emissions of CO_2 from EU member states accounted for 14% of the world's CO_2 emissions in 1995, which was the second highest in the world after the United States (24%). Transport accounted for 26% of EU emissions. In the transport sector, unlike other sectors, the level of CO_2 is rising faster than economic growth in the EU (DG VII, 2000). This is partly owing to the rise in the proportion of road transport. Between 1985 and 1995, there was a rise of nearly 36% in CO_2 emissions generated by road transport. It is characteristic that from 1970 until 1997, the number of passenger cars per 1000 inhabitants in the EU escalated from 184 to 457, a rise of 247%. It is not surprising therefore, that private cars are responsible for some 50% of road transport emissions and that urban traffic generates half of all CO_2 emissions in the EU.

The second major contributor to CO_2 emissions in the EU is air transport. In 1995 this contributed 12% of transport-related CO_2 emissions, but has increased by 57% over the period 1985-1995, and there are projections for a further increase of 6% a year. The other modes of transport are less energy intensive. In 1995, EU, railways and inland navigation were responsible for only 30 grams/tonne kms of CO_2 emissions, and pipeline transport for only 7, compared with road freight, which generated an average of 190 grams/tonne kms. Overall, the proportion of total CO_2 emissions generated by transport in the EU rose from 19% in 1985 to 26% in 1995. There are predictions that if this trend continues, that figure may well reach 40% by 2010 (DG VII, 2000). There is also growing concern that unless this marked growth in CO_2 emissions generation is slowed, it will be very hard for EU to meet the reduction targets agreed at the 1997 Kyoto summit. It is characteristic that from the six gases covered by the Kyoto protocol, CO_2 is the most important, accounting for some 80% of potential global warming. (DG VII, 2000).

The EU has set up a strategy on CO_2 emissions from passenger cars, which aims at reaching an average CO_2 emission figure of 120 g/km for all new passenger cars marketed in the EU. The objective is to be achieved by the utilisation of three instruments.

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[7] Between 1970 and 1990, air pollution from road transport has increased in the EU by 76% for CO_2, by 68% for NO_x, by 106% for particulates, and by 41% for hydrocarbons (HC) (DG VII, 2000).

Agreements committing the automobile industry to improve vehicle technology (ACEA, 1998), market-oriented measures to influence motorists' choice towards more fuel efficient cars, and improvements in consumer information on the fuel-economy of cars. A Community-wide monitoring system was installed in order to assess the effectiveness of the strategy and report annually. In the medium to longer term (*i.e.* after 2010), EU's policy making will be heavily influenced by the utilisation of 'economically viable' technological solutions to air pollution, such as the large scale introduction of hybrid cars, fuel cells and alternative fuels (DG XVII, 2000). A selection of current EU actions to improve the air quality is shown in Table 1.4.

Noise

Noise consists of all unwanted sound, and sound that is loud, unpleasant or unexpected. The effects of noise can vary from one individual to another. A report commissioned by the World Health Organisation entitled 'Community Noise - Environmental Health Criteria', published in 1996, highlights such effects as disturbance of sleep, auditory or physiological effects (basically cardio-vascular) and interference with communication. According to one estimate, around 20% of the population of Western Europe (some 80 million people) suffer from unacceptable noise. This noise is caused by traffic as well as industrial and recreational activities (Kroon, 1990).

TABLE 1.4: A SELECTION OF CURRENT EU ACTIONS TO IMPROVE AIR QUALITY

- Introduction of an environmental impact assessment Directive for land use planning
- Adoption of a new framework Directive on air quality and plans for so-called 'daughter directives'
- Tightening of legislation relating to vehicle emissions, fuel composition and noise control. Agreement with the oil and automobile industries on the 'auto-oil programme' to reduce noxious emissions
- Promotion of good practices in sustainable transport. For example, the European Commission supports the car free cities network which currently comprises 60 members, including Amsterdam, Barcelona, Copenhagen and Palermo, has working groups on commercial traffic, public transport, car sharing, road pricing, commuting, less polluting urban vehicles, and cycling and walking. The EC also supports ELTIS, the European local transport information service, an on-line database of good practice
- Evaluation and development of new technology, including road pricing and route guidance throughout the EU
- Promotion of cycling as a mode of transport, for example through the Eurovelo programme with its planned Trans-European network of cycle paths

Source: DG XI, 1999, p. 12, box 1.

Legislation fixing maximum sound levels for certain types of vehicles (cars, aeroplanes) was introduced in the 70s. The EU's 5th Environmental Action Programme included noise abatement targets to be achieved by the year 2000 (CEC, 1992a). The first stage of the EC's noise abatement programme, was the Green Paper of 4 November 1996 on future noise policy [COM96(450) final]. For the first time, noise was treated as an environmental issue. The Commission puts forward two lines of action against noise; the establishment of a framework for noise policy and measures for reducing emissions at source including road, rail and air traffic.

1.3.4.3. What can SEA do?

Environmental protection is one of the major challenges facing Europe and is therefore a European Union objective. The term 'integration' appeared in this context as early as the Single European Act. Recently (*i.e.* on 22 May 1998), the Luxembourg European Council called on the Commission to put forward a strategy for implementing Article 6 of the consolidated EC Treaty. The Treaty states that a horizontal integration to environmental policy should be introduced into all Community policies. In addition, the 5th Environmental Action Programme, as well as the proposed 6th Environmental Action Programme (6th EAP) have set as an overriding objective the promotion of Sustainable Development. According to the rationale of both programmes, the promotion of Sustainable Development is closely related to the integration of the environment into sectoral activities and policies. One of the 6th EAP's policy approaches is to 'encourage and support the successful development and implementation of integration strategies for the relevant sectoral policies, with a view to promoting Sustainable Development' (CEC, 1996). One of the horizontal tools in the Programmes' policy for reinforcing integration is strategic environmental impact assessment and environmental appraisal of major Commission policy proposals. The EC refers to SEA for policies, plans and programmes as a process that 'ensures that significant environmental impacts are identified, assessed and respected in the decision making process in which the public can participate.' (CEC, 1996).

The importance of SEA in enabling environmental integration in transport as a way to promote sustainable mobility is also recognised. At a practical level, one of the measures set by an EU Council strategy for the integration of environment and Sustainable Development into transport policy, is to develop and submit a report on the application of SEA in respect of the Trans European Networks (TENs) by 2001 (CEU, 1999c). At a general policy level, the Finnish presidency concluded with specific strategies for integrating the environmental dimension into three sectors including transport (FPW, 1999). Integration is also a central theme in the DG VII's Common Transport Policy and there is a 'commitment on strengthening the environmental assessments of policy initiatives with important environmental effects' (DG VII, 1998). At a legislative level, the EU Council on 13 and 14 December 1999, formally adopted the common position on a Directive 'on the assessment of the effects of certain plans and programmes on the environment' (CEU and EP, 2000), which also provides for sectoral plans and programmes including transport (section 4.5.4.1).

The draft SEA Directive, is extremely relevant to transport policy since its enactment will require an obligatory environmental impact assessment to be carried out for all plans and programmes in a number of sectors as well as comprehensive land use plans. The

common position (Appendix 5), which at the time of writing was forwarded to the European Parliament for a second reading in accordance with the co-decision procedure, aims at setting the framework for:

- the implementation of projects covered by the EIA Directive (CEC, 1997a), or
- for projects of which, given the impact which they are liable to have on the sites involved, an assessment is required by virtue of the 'Habitats' Directive[8].

There is no doubt that the implementation of the project-EIA Directive, promoted growth in project-EIA practice in the three regions examined in this thesis. A similar situation is likely to occur with the implementation of the proposed SEA Directive. This is especially the case with Ireland and Greece, as they have limited experience on SEA. It is for these reasons that the thesis will provide conclusions regarding the regions' preparedness to abide with the Directive's provisions.

1.3.5. A definition of 'integration'

Definitions and interpretations of the term 'integration' found in various SEA-related texts often differ. While it is commonly accepted that the integration of environmental considerations in the decision making process through SEA, can facilitate the promotion of Sustainable Development, the way this is realised is determined by the specific field of application each author has in mind. The relationship between PPPs and SEA was considered, until recently, to be 'ideal' and therefore difficult to implement. This, in combination with the inherent inter-disciplinary nature of the 'integration' concept, poses difficulties for a commonly accepted definition. The situation becomes more complicated when this also relates to transport planning, where the term has a strong spatial/land use and infrastructural/inter-modal side.

The definition of the 'integration of SEA with transport planning' used in this thesis is based on the existence of certain groups of 'elements of integration' which characterise the common SEA and transport planning process. An integrated SEA/transport planning process is therefore one that exhibits a number of procedural, external, methodological, documentation, social and human resources categories of elements of integration. In particular an 'integrated SEA/transport planning' model can be broken down to the following sub-categories of integration:

Procedural integration: Three facets of this type of integration can be distinguished. First, 'vertical integration', that is the embodiment of as many stages of the SEA process as

[8] Directive 92/43/EEC of 21 May 1992 on the conservation of natural habitats and of wild fauna and flora.

possible within the equivalent PPP stages. Second, 'temporal integration' which is the incorporation of SEA at an early stage in the PPP process. Third, the integrated process, has to be iterative in order to allow for a 'sieving' of issues through their re-examination at various stages of the process, as well as continuous so that SEA can be extended to the monitoring and review of the PPP. If the above conditions apply within weak organisational administrative structures, the process runs the danger of being cost-ineffective. This is as a result of possible duplication of assessment activities. Therefore, the existence of a flexible and highly organised planning procedure is required.

External integration: This type of integration entails the sharing of experience with SEA and PPP-making among authorities that prepare PPPs, in the same or different planning hierarchy. Here, SEA is perceived to operate in a 'tiered' system of planning, which includes a sequence of environmental assessment activities, ranging from the national to the regional and local PPP level, and *vice versa*. Also a connectivity is established among authorities with the same or surrounding geographical boundaries, as well as between authorities and PPPs with different status and scope (*e.g.* private and public sector bodies). This type of integration is especially relevant for Sustainable Development since the resulting connectivity of methodologies, objectives and procedures, is viewed by both its vertical (*i.e.* a 'tiered' top-down or bottom up approach to PPP and SEA), and its horizontal dimension.

Methodological integration: This type of integration entails the participation of SEA alongside other planning and socio-economic impact assessment methods, and environmental management tools. The experience with current transport planning and SEA, is that SEA is usually undertaken as an 'one off' exercise and, as such, there is an 'ad hoc' nature to its effect on decision making. This can have a strong influence on the way that the outcome of SEA is taken into account in decision making. It is therefore a great challenge for SEA to participate on equal terms in an integrated socio-economic and environmental methodological framework. What is the optimum methodological role of SEA that promotes effective integration with other management tools, while at the same time allowing better integration of the environment in PPP making, monitoring and review? An 'integrated/sustainability' oriented approach to SEA is slowly evolving based on the establishment of indicators and targets, and applied both at an early stage and in parallel with the PPP process.

Substantive integration (*i.e.* documentation of SEA): Experience on SEA is at a relatively formative stage. This is one of the reasons that the impact of SEA on policy making is open to wide interpretation. At a government level for example, it is not always clear whether

policy decisions are informed or guided by SEA. This ambiguity in turn affects the search for the appropriate indicators for the detection of SEA's environmental protection capacity. This 'element of integration' (*i.e.* substantive integration), searches for the appropriate criteria that describe the link between SEA and decision making *i.e.* the extent to which the results of a SEA are taken into account in decisions. Two criteria were chosen in order to indicate the existence of substantive integration: the documentation of the SEA exercise, and provisions for follow up after the adoption of the PPP in question (chapter 2).

Social integration: This is the co-operation of social partners, which comprise statutory agencies and organised groups (such as competent authorities, government agencies, organisations, organised local groups, environmental NGOs), and the public in general. The role of the public is widened in integrated-SEA to take in views throughout all stages of the processes, scoping, impact identification, modelling, and impact monitoring. It is important that proactive ways of public participation are used for all types of PPPs, especially at a higher government policy level. It is also important, that NGOs and especially environmental NGOs are invited for consultation. The documentation of both public participation and consultation can further increase transparency in the whole process.

Integration of human resources (Co-operation and communication amongst the planning and assessment teams): There is a need, for organisational integration *i.e.* bringing together the private and public implementing agencies into a unified management approach. The purpose is the development of a collaborative and co-ordinated environment, within which the achievement of common goals is facilitated. As Armour (1989, p. 9) states, '*Integration from a public administration perspective, can be defined as a philosophy of management expressed as a process in government that requires a high degree of co-ordination, involving many people from all levels*'. The building of organisational capacity will require the close co-operation of scientists in disciplines that would not normally interact, and possible bias resulting from different 'scientific rationalities' should be addressed. The promotion of an interdisciplinary working environment depends on the areas of expertise comprising the planning/assessment team, the experts' employment status within the organisation undertaking the PPP/SEA, and the individuals' interpretation of the degree of co-operation experienced within the team.

1.4. ***Thesis Outline***

The thesis consists of nine chapters. The first chapter provides the introduction. It puts forward the rationale for the research, its objectives, and briefly describes the key concepts used in the thesis. The methodology of the research is presented in the second chapter.

The third chapter offers an in depth examination of the literature. There, various perceptions of the role of an integrated form of SEA are discussed. The review of the literature provided the background material for the development of the evaluative framework used in the thesis to answer the research questions. Chapter four presents background information about Athens, Dublin and London. It highlights geographical and institutional differences between the three regions, as far as they are relevant to this study, and outlines their perspective transport-related environmental policies. Chapters five, six and seven are more technical. They present and critically analyse the research findings stemming from testing the evaluative framework in the three regions. They conclude with the experience of each region in relation to SEA integration. Chapter eight discusses three case studies. This answers further questions that arose from the research results presented in chapters 5-7, and provides specific recommendations for the promotion of 'good' practice on integration in Athens, Dublin and London. The final chapter summarises the work undertaken in previous chapters. It suggests useful transference of experience between the three regions and recommends changes to the evaluative framework. It also identifies areas of research outside the confines of this thesis. The purpose of this being to add to the limited body of research regarding the integration of SEA with transport planning, by suggesting directions for future research.

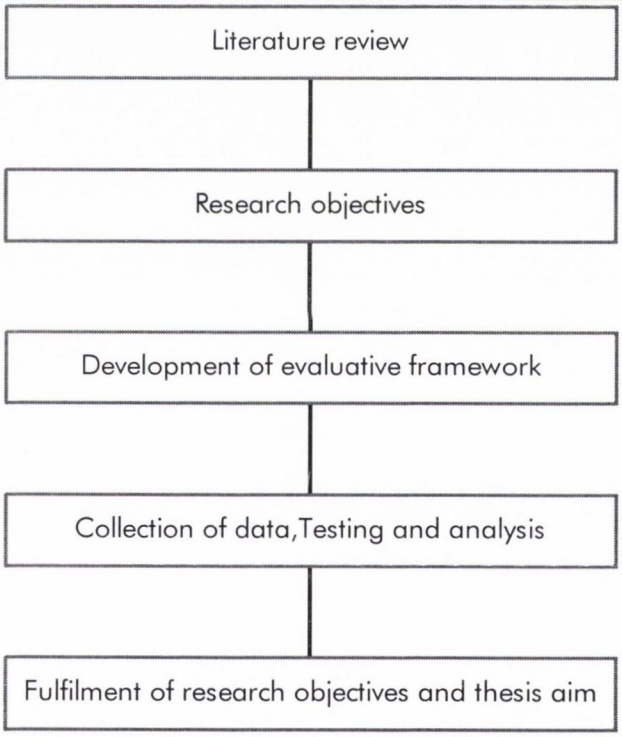
2. Research Methodology

2.1. ***Introduction***

In this chapter, the research techniques used to realise the thesis objectives will be examined in detail. In particular, the following topics will be discussed:

- the research methods used for the collection of evidence,
- cross-regional comparison, and
- development of an evaluative framework for comparison of the experience on integration amongst the regions selected.

FIGURE 2.1: STAGES OF THE RESEARCH METHODOLOGY



2.2. ***The research methodology***

According to Remenyi and Williams (1995, p. 192), '*Research methodology refers to the procedural framework within which research is conducted*'. After a review of the literature, the aim of the thesis was selected and translated into research objectives (chapter 1).

In order to satisfy this aim, a research methodology was used (Figure 2.1). This methodology was based on a combination of empirical and theoretical research. The subjective nature of the topic and the lack of established theories found in the literature

review regarding the issues examined, are the two main reasons why a 'passive observation' type of research was adopted which is problem generating.

TABLE 2.1: THE EVALUATIVE FRAMEWORK
A) Procedural integration of SEA into the Policy, Plan and programme (PPP) process: A_1) Vertical integration *i.e.* the existence of as many of the SEA procedural stages[1] as possible throughout the transport PPP procedure [*questions in the questionnaire (Appendix 4): 1-11*] A_2) Horizontal integration *i.e.* iterativeness or the recurrence of more than one of the SEA procedural stages in one or more stages of the PPP procedure A_3) Temporal integration *i.e.* early integration (*i.e.* the existence of one or more of the SEA procedural stages at a transport planning stage prior to the deposit stage) *(questions in the questionnaire: 1b)* B) External integration (*i.e.* tiering of environmental objectives): Setting of similar environmental objectives, adopted by PPPs and SEAs prepared at a higher, lower or same tier in the transport planning hierarchy *(questions in the questionnaire:* 1a) C) Methodological integration: Use of other environmental management tools (approaches) alongside SEA *(questions in the questionnaire:* 12, 13) D) Substantive integration (documentation of SEA): a) Is the outcome of the SEA exercise documented? *(Questions in the questionnaire:* 14, 15, 18-22, 26, 30, 31, 33, 34) b) Was there any follow up after the adoption of the PPP? *(Questions in the questionnaire:* 8a, 9d) E) Social integration: Involvement of competent authorities, government agencies, organisations, organised local groups, environmental NGOs and the public in general *(questions in the questionnaire:* 10a, 11a, 10b, 11b, 10c, 11c, 10d, 11d, 11e) F) Integration of human resources: Co-operation and communication amongst the planning and assessment teams a) The assessment team consists of experts within the organisation responsible for preparing the transport PPP; i) The experts are part of the planning team ii) The experts are part of a separate team within the planning team b) The assessment team consists of experts outside the organisation responsible for preparing the transport-PPP (*i.e.* environmental consultants) *(questions in the questionnaire:* 14, 15, 16) Minimum integration (Proposed SEA Directive's procedural requirements) *(questions in the questionnaire:* 5, 5a, 4, 4a, 1a, 6, 7, 5b, 10aii, 10d, 11aii, 11d, 9bi, 9ci)

Rather than formulating workable and testable hypotheses and developing a refined theory, the approach used was based on the generation of a grounded theory. Glassier and Strauss (1967) developed the concept of 'grounded theory' which is defined as '*an inductive, theory discovery methodology that allows the researcher to develop a theoretical account of the general features of a topic while simultaneously grounding the account in empirical observations or data.*' (Glassier and Strauss 1967, in Remenyi and Williams, 1995). In order to develop this 'theoretical account' an examination of the debate surrounding SEA and its integration with policies, plans and programmes (PPPs) (including transport PPPs) was undertaken throughout the review of the literature (chapter 3). The literature review resulted in the development of an evaluative or integrative framework (Table 2.1). For the thesis objectives to be fulfilled, research was conducted that collected and analysed relevant data.

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[1] SEA procedural stages: 1) setting of environmental objectives 2) screening (*i.e.* is the SEA necessary?) 3) scoping (*i.e.* what are the significant issues to be considered in the assessment?) 4) identification of the baseline environment 5) alternatives 6) documentation of the environmental impacts 7) impact monitoring 8) public participation, and 9) consultation of interested and relevant bodies. PPP procedure: PPP review, draft PPP, deposit, monitoring.

The aim of the thesis is to recommend the elements required for an integrated SEA/transport planning model (chapter 1). The validity of these elements was tested by applying the evaluative framework (which consists of the elements of an integrated SEA/PPP model) to review practice on integration of transport planning and SEA in certain geographical areas, and to compare these findings with SEA experience documented in the literature. The assumption was made that areas with considerable experience in SEA (especially at a land use and transport planning level) will demonstrate a higher degree of integration of both SEA/transport planning processes, than will be the case with areas with limited experience on SEA. The confirmation (or rejection) of the evaluative framework was based on the similarity (or not), of the research findings on integration, with experience in SEA on comprehensive land use planning in the examined regions. This cannot be realised in a measurable way, since current and past research have employed different research methods, cover different geographical areas and aim to answer different research questions. It can only be tested in a qualitative way throughout the comparison of the relative countries experience on EIA/SEA and integration, and their institutional structures regarding SEA as reflected in the current and previous research.

2.3. Research methods

Six research methods were used to fulfil the research objectives, namely literature review, comparative study of national/regional procedures and legislation, document review, interview and postal survey and case study review.

2.3.1. Literature review

The review of the literature related to SEA, sustainability, transport planning and the suggested types of integration of SEA with plan making, was undertaken early in the evolution of the thesis. The knowledge obtained, led to the formulation of an evaluative framework that guided the research process. The third chapter of the thesis deals with these issues in more detail. In brief, the literature review highlighted the reasons that the research was needed and provided the basis for the development of the evaluative framework through the construction of a 'typology' of integration. By 'typology', it is meant that the established theories on integration were presented and the elements of what constitutes a successful integration were selected. These elements were then fed into the evaluative framework in the form of a 'checklist questionnaire' (Appendix 4), which measured the degree of integration in the three studied regions. Also, background data on the institutional context of the current environmental management and transport planning practice of these regions, was collected and discussed in chapter 4.

2.3.2. Cross-regional comparison

Before a three-way transference of experience between the studied regions is attempted (see research objectives in chapter 1) four inter-related problems regarding cross-regional comparison, should be discussed.

2.3.2.1. Study Context

First, the context within which the phenomenon under investigation is observed should be clearly identified. Masser (1984, p. 142), in discussing the merits of a selective approach to a cross-country comparison, notes that '*... it is impossible to discuss ... aspects of each country's experience in isolation from the general context in which planning operates within that country*'. The selection of Athens, London and Dublin as the regions appropriate for testing the validity of the evaluative framework requires the study of national environmental legislation and decision making procedures regarding transport planning and SEA. It is against this background information that the comparison of the three regions experience on integration was discussed (chapter 4).

Second, the concepts and terms used in the thesis may have different meanings and be interpreted differently in the regions studied. The differentiation in the interpretation of these 'conceptual structures' can become problematic when their translation into different languages is required (Cropper, 1986). This was the case with this research since there are hardly any official translations of the Greek relevant transport planning and administrative terms into English[2].

Third, similar definitional difficulties were experienced regarding the comparability and availability[3] of background data. According to Cheshire *et al* (1996) there are at least two types of variation amongst spatial units that determine data compatibility. The first type relates to the different definitions given to relevant indicators by national statistics offices and international organisations. Cheshire *et al* (1996) notes that, for example, GDP might not be measured in the same way in France as in the United Kingdom. The fact that individual countries have different criteria and procedures to collect statistical information might influence the direct comparability of the examined regions (Zetter, 1986). The second type relates to a far less recognised problem in the literature *i.e.* the spatial definition of the units themselves (Cheshire *et al*, 1996). As far as city boundaries are concerned, the

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[2] In that respect, the manual of International Legal and Administrative Terminology (IILAT, 1993) has been a useful bibliographic source.

[3] Cheshire *et al* (1996, p. 48) describes the difficulties involved in cross-regional comparative studies as a result of the lack of data availability at a European Union level. Although in principle, he notes, the data are not too difficult to collect, '*Their absence means that far less is known about the spatial distribution of skills, real living standards or poverty in the European Union than, for example the distribution of different types of livestock.*'

selection of say, the City of London, would require less documents for review than would be the case if the Greater London Area was selected. The differences in the population of the regions examined might suggest difficulties when comparison is attempted. In the thesis however, it is the administrative units of the regions that will determine the collection of data rather than any spatial characteristics of the regions in question.

Fourth, the realisation of one of the research's objectives (chapter 1) requires that the transferability of the three regions experiences have to be safeguarded. It might therefore be the case that recommended changes in planning practice based on experience gained from abroad *'... may be dependent for its success upon a chain of circumstances which does not apply at home'* (Booth, 1986, p.1). Transferability is dependent on the scope of the study and the similarities and differences of the wider national institutional contexts within which comparisons are made.

By 'scope', it is meant the number of the selected regions, the types of transport-related documents to be reviewed, and the research framework within which the study resides. The larger the number of the regions and the types of transport-related documents there are, the more difficult it becomes to evaluate the research findings from a 'common comparative standpoint' (Masser, 1984). The thesis was restricted to three regions, and a number of selection criteria were adopted, in order to restrict the transport related documents to be reviewed. The reason for not further restricting the focus of the study (*i.e.* selection of two regions, and one category of documents) can be attributed to the role that the comparative study research plays, in the thesis. This is not only the 'transference of experience', but also the testing of the validity of the evaluative framework. It was for the second reason that *'a sufficient number of examples had to be investigated by the comparative methodology'* (Masser, 1984, p.138), and, as such, more than the minimum amount of regions and types of documents had to be investigated.

Finally, the drawing of the boundaries of the research will influence the transferability of knowledge. Masser (1984, p. 143) notes that the evaluation of the research findings within a broad research framework, has the advantage of allowing for flexibility *'... with respect to the planning and execution of the transfer of experience. Within this framework it is possible to accommodate a considerable diversity of inputs without jeopardising the success of the exercise as a whole.'* The exploratory type of research involved in the thesis provided this broad framework within which the research objectives were realised. This 'broad framework' approach however, can have its weaknesses. As Masser (1984, p. 139) argues, the greater the frame of reference is, *'the greater the difficulties are likely to be in applying*

its generalities to anything in particular.' Therefore, the conceptual boundaries of the thesis' evaluative framework are confined by the identification of criteria for a) regions and case studies selected, and b) transport-related documents to be reviewed. An effort, therefore, was made to strike a balance between the broadening and narrowing of the research framework, so that the attempt to transfer the results of the findings among the regions did not restrict the plurality of their interpretation.

The evaluation of the research findings in order to determine the rationale for integration, and highlight recommendations, requires the existence of a common comparative framework. The similarities and differences of the administrative, cultural and political institutions governing transport planning and environmental management in the three regions has partially determined the degree of transferability of the research findings. For example, all three regions share common transport-related environmental problems (such as congestion, air pollution, lack of efficient pubic transport) and have incorporated in their national legislation a number of uniform minimum requirements for project-Environmental Impact Assessment, imposed by an EU Directive (CEC, 1985). Furthermore, Greece and Ireland have similar administrative and decision making powers regarding the allocation of EU financial aid, and Ireland and Britain have similar local government structures and institutional bodies relating to transport management and the environment (Grist, 1995).

The common drive in the three regions for change and innovation of transport infrastructure and policy making has however different origins. Athens, as host to the Olympic Games 2004, is under pressure to complete certain transport infrastructural projects on time. In Dublin, the development and implementation of a Dublin Transportation Strategy and its linkage with land use and regional planning can be attributed to the unprecedented economic growth of recent years and the country's commitments arising from international agreements (such as the Kyoto Conference). In London, the intense focus on integrated transport policy was strongly influenced by the new institutional structures (such as the Strategic Rail Authority and the newly elected Mayor of London) and central government politics (*e.g.* election of the New Labour government in 1997). Therefore, the selection of the three regions was undertaken bearing in mind the regions' differences and similarities against a group of indicators[4]. These were:

- levels of socio-economic development in the three regions, and their comparison within an EU and national context. Indicators (quantitative): average income, unemployment, population density and degree of centralisation (region

[4] These comparative variables were influenced by the classification schemes suggested by Friedman (1967) and Cheshire *et al* (1996).

population/nation population), allocation of structural funds, physical environment, transport infrastructure, *etc.*,

- characteristics of the countries' planning system and in particular transport planning. Indicators (qualitative): existence or not of a flexible planning system, local government structures; resources and political power of local authorities, current and forthcoming planning and environmental legislation, experience in EIA/SEA,
- attitude of the public to environmental issues.

Finally, these regions were selected because the author, studied the examined issues for five years, in all three countries, and therefore, was in a position to develop the comparative dimension of these regions in a more sustained manner, than might have been the case if different regions were selected.

2.3.3. Document review

A variety of documents were collected and analysed using the evaluative framework. A selective approach was deemed necessary in order to choose the appropriate transport-related documents in accordance with time availability and financial restrictions. This approach involved the adoption of certain criteria for the selection of documents. Therefore, the transport related actions that the documents refer to, should:

- set objectives and suggest measures that have clear transport relevance for the study regions (such as the restriction of car access in the city centres or the use of clean technology cars);
- apply at a higher, than the project level of decision making;
- incorporate within their planning process, at least two of the commonly found planning stages (*i.e.* review of the previous plan and preparation of a draft plan, deposit plan, modification plan, approval and monitoring);
- the documentation of the planning outcome should be available (*i.e.* planning reports and ancillary technical volumes).

The documents that have been reviewed include government programmes, county and urban plans, National Development Plans, transport strategies, and planning legislation Acts.

2.3.4. Interview survey

One of the research objectives of the thesis is to apply the elements of the evaluative framework to a number of transport-related documents prepared by public and private bodies in Greater Athens, Greater Dublin and Greater London regions. These elements, in the majority of cases, were documented in the transport planning report, and the review of these reports (which was undertaken for all transport related actions reviewed) would have

been sufficient to produce a reliable data collection exercise. Throughout the elaboration of the pilot questionnaire survey, it became evident that some elements of the questionnaire were not documented in the relevant report (or any ancillary documentation), even though they actually took place throughout plan making. It was decided therefore, that an interview survey should be undertaken, in order to cover all the documents reviewed. It was also decided that the review of the documents, should provide the background information for the interviews and thus provide a control mechanism against which the validity of the questionnaire used throughout the interview survey (Appendix 4) could be checked (Oppenheim, 1986, p. 72; Moser and Kalton, 1971). In order to promote better understanding of the issues contained in the evaluative framework, semi-structured interviews were chosen as opposed to a structured questionnaire survey. This is particularly relevant in this research, where experience with SEA (and thus comprehensiveness of terms such as SEA) was limited among interviewees in the studied regions[5].

Semi-structured interviews provide a less formal approach to interview surveys than is the case with structured interviews, which place heavy reliance on the interview schedule (Moore, 1987). The reason for the selection of this research method for the collection of evidence lies in the dual purpose for carrying out the interviews. On the one hand, the interview schedule has to be quantifiable enough to document the existence or not of certain 'elements of integration' in the examined transport-related planning procedures. On the other, discursive information was sought regarding the elements of integration in the evaluative framework that was not referred to in the relevant planning documents, and areas of 'good' or/and 'bad' practice regarding the issues discussed. In the second case, the aim was the selection of case studies aimed at further focusing on these specific issues through the elaboration of in-depth interviews.

Compared to other research methods, there are a number of quite concrete arguments in favour of using a semi-structured interview survey as the main research method. These are:
A) The use of a structured postal questionnaire survey (Appendix 4) sent to all relevant actors in the three regions, offered a consistent and rigorous quantification of the results obtained and thus enabled a more reliable comparison between the regions. The use of this method, however, did not necessarily guarantee that the responses reflected the existence of all elements included in the evaluative framework. This can be explained by the lack of familiarity of the respondents with some of the terms included in the evaluative framework[6]. Interviews offered a better understanding of the issues contained in the

[5] This is especially the case in Athens and to a lesser extent in Dublin.
[6] This is especially the case with Athens and Dublin.

evaluative framework to the interviewees. In addition, previous research experience with the potential implementation of the proposed SEA Directive in Greek local planning authorities (Zagorianakos, 1998), has shown that the response of Greek respondents to a postal questionnaire survey, was likely to be minimal to justify the representation of the population.

B) The use of a uniform e-mail survey in the three examined regions, though initially considered, was not possible owing to the lack of an Information Technology (IT) infrastructure in two of the regions. The application of such a research technique would only be possible in Greater London where the majority of authorities and organisations relevant to the study, were found to have official web sites on the World Wide Web (WWW). The utilisation of e-mail services for research purposes has certain financial, temporal and data availability advantages. Given the fast expansion of the appropriate IT infrastructure in the regions examined, similar technologically driven solutions to research problems, should be particularly considered by future researchers.

C) The use of a less formal open-interview survey required the development of a questionnaire structure that, as a result of the subjectivity of the research topic and the limited awareness of the actors interviewed, would have run the danger of rendering unreliable results.

TABLE 2.2: RESEARCH METHODS USED IN THE REGIONS EXAMINED

Cases reviewed in each region	Research Methods → / Regions↓	Document review	Postal Survey	Interviews		Pilot interviews
				Semi-structured interviews	Case study focused Interviews	
59LA+12T	Athens	59LA+12T	-	6 LA+12T	6	2LA+3T
15LA+9T	Dublin	15LA+9T	15LA+9T	4 LA+9 T	5	2LA+2T
29LA+14T	London	29LA+14T	29 LA	14 T	2	3LA+3T
138 cases	←Total→	138 cases	53	45	13	15 (LA+T)

LA: Local Authority plans
T: Other transport-related documents

Between April 1999 and February 2000, 29 interviews were conducted in Greater Athens Area and 22 in Greater Dublin Area. As regards Greater London, the interviews were conducted between October 1999 and March 2000 and involved 22 interviewees (Table 2.2). The sessions lasted for a minimum of forty-five minutes and they were recorded to minimise bias resulting from a written record, especially since part of the interviews, were not conducted in the author's mother tongue.

2.3.5. Case studies

Case studies are especially relevant to emphasise the differences between countries with different transport planning and environmental assessment traditions. They also highlight both 'good' and 'problematic' practice on the integration of SEA and planning processes, and consequently point to the areas for transference of experience between the studied regions. Yin (1994) notes that case studies provide the appropriate context to answer the 'why' and 'how' questions posed by an exploratory type of research. In the thesis a 'characteristic' case study from each region was selected for analysis, to determine the experience of integration of the planning process, both within and between regions. The analytical framework used, was that of the evaluative framework (Table 2.1).

The inclusion of case studies supplements the quantitative survey (chapters 5-7). There is limited research in the transport-SEA field and, in particular, in relation to integration. Furthermore, there is limited experience of both research and practice of SEA in Greece and Ireland. This will have negative implications for the enactment of the proposed SEA Directive. The use of case studies can elucidate the differences between countries with strong planning traditions such as the UK and Ireland and weak planning traditions such as Greece (Partidario and Eggenberger, 1999).

Taking into account the research objectives stated in chapter 1 and the degree of integration in the three regions, as discussed in chapters 5-7, the case study objectives were:

- the application of the evaluative framework in order to detect the reasons for the existence, or lack of integration of transport planning with SEA in the selected case studies,
- the recommendation of ways to promote better practice on integration, and specific measures for transference of experience in Athens, Dublin and London,
- to suggest measures to facilitate the future enactment of the proposed SEA Directive,
- to answer the more specific questions that arose from the research results presented in chapters 5-7 regarding the degree of integration of SEA with transport planning in the three regions. In Athens, the low degree of integration in land use plans and the contrast between the low degree of integration in land use plans and the high degree of integration in strategic PPPs is an issue that requires closer investigation. In Dublin, a close examination of transport-related strategic PPPs is necessary to explain the lack of tiering of SEA from the national/regional level to land use plannng level. In London, analysis should focus on the absence of integration at the

strategic level of transport planning (and in particilar at the regional level) although there is evidence of research and implementation experience on SEA.

A criterion was used to determine how 'characteristic' the case studies were of each region's experience on integration. This is that the case study profile (*i.e.* elements of integration evidenced in the case studies) and the region's profile (*i.e.* elements of integration evidenced in the respective region) are similar. This condition will be met if the elements of integration in the evaluative framework that have relative frequency of more than 0.5 (or 50%) in the population of each region, are also existent in the case study selected for the region. This condition was met in the three case studies selected. Other, more practical selection criteria included:

- the significance of the case study and whether it is of general research interest (*i.e.* whether it answers questions arising from the general SEA literature), whether the underlying issues are nationally important (Yin, 1994), and whether it provides answers to the issues arising from the quantitative part of the research presented in chapters 5-7,
- the availability of actors to be interviewed and the availability of documents to be reviewed.

In view of the above selection criteria, the case studies chosen were: the Transportation Plan included in the Olympic Games 2004 dossier which was submitted as part of Greece's candidature, the Eco-Audit of the Irish National Development Plan, and the Sustainability Appraisal of the Regional Development Strategy for the South East of England.

The selected case studies in Athens and Dublin are of national significance. The transport policies included, have direct implications for the future transport infrastructure in these regions. The Athens 2004 Olympic Games Transportation Plan is a representative example of the limitations of the Greek transport planning system to accommodate SEA requirements. This is especially relevant to the potential implementation difficulties that will arise from the enactment of the proposed SEA Directive. Bearing in mind these difficulties, however, this case study is a 'good example' of the existence and development of positive elements of integration. As such, it highlights the opportunities for further integration in the future.

The Eco-Audit of the Irish National Development Plan demonstrates efforts that have been made to establish a system of policy-SEA in Ireland. It also provides the methodological and institutional starting point for the extension of experience on SEA integration to land-use planning level.

The Sustainability Appraisal of the Regional Development Strategy for the South East of England can be seen as the application of theoretical considerations on SEA at a regional level through the utilisation of experience on research gained in the last 15 years. The explicit focus of the Appraisal on Sustainable Development, and the use of SEA to promote this, can also be seen in light of a possible redrafting or a different interpretation of the European Commission's approach to the proposed SEA Directive.

The methodology adopted in the case studies is as follows:

- document review to determine how characteristic the case study is for the specific region,
- brief research on the transport planning, socio-economic and institutional background of the three regions through the review of documents (chapter 4),
- pilot interviews to determine the availability of interviewees and test the applicability of the questionnaire (Table 2.2),
- the development of contacts and interviews held with the main agents in the process such as members of the planning team and the lead authority (Appendix 2), and
- systematic analysis of the plan using the evaluative framework.

2.3.5.1. Research methods used in the case studies

Evidence for the case studies was provided by focused interviews, which was also supplemented by document review. The transport-related planning documents that were relevant to the specific case study were obtained either by the interviewees or other sources (*e.g.* libraries) prior to conducting an interview. In addition to this direct type of documentation, other sources of evidence were utilised such as newspaper and Journal articles, proceedings from Conferences, and the WWW.

Guided or focused interviews are the type of research method in which '... the interviewer, whilst allowing the respondent a good deal of freedom, aims to cover a given set of topics in a more or less systematic way.' (Moser and Kalton, 1971, p. 298). The study protocol, that was used to give focus to the research issues, was the evaluative framework that was developed throughout the research i.e. the elements of integration of SEA with transport planning practice (Table 2.1). The technique used to identify suitable informants was that of 'snowball sampling' (Remenyi and Williams, 1995). Since in this type of research method (i.e. case study) the generalisation of the results is not a priority, the collection of evidence was not exercised through a 'random sampling of possible interviewees', but from a 'group of qualified respondents'. Specifically, one suitable informant was identified through a telephone inquiry and interviewed. This informant was then asked to nominate another

suitable informant within the same or another organisation. This approach was considered appropriate to safeguard the 'completeness' of the case studies i.e. 'that the critical pieces [of available evidence] have been given 'complete' attention.' (Yin, 1994, p. 148-149). It also covers different peoples' perspectives on the issues and thus presents the views of most of the major actors involved. The interviews were also recorded in order to '... provide a more accurate rendition of any interview than any other method' (Yin, 1994, p.86).

Finally, the results of the quantitative region-wide interview survey that was undertaken earlier in the research process were reviewed and analysed alongside the case study findings. This enabled an increased validity of the research conclusions through the combination of both qualitative and quantitative information, by utilising multiple sources of evidence (Yin, 1994).

The qualitative data collected through interviews was analysed and integrated into the case-based discussion according to the following procedure. Prior to the elaboration of the focused interviews, the appropriate documents for each case study were obtained either through an initial face-to-face or telephone contact with the interviewee, or through the author's own document search in libraries and relevant organisations. The interviewees were asked to express their views on each aspect of the evaluative framework, focusing on the 'strong' and 'weak' elements of the SEA conducted. Where the existence of SEA elements of integration was minimal to justify an integrated SEA/PPP exercise (as was the case in Athens), the interviewees were asked to focus on the reasons for this absence, the difficulties that might be posed and the benefits to be felt by the organisation from the undertaking of an SEA. The notes produced from the de-recording of the interviews was compared i) with each-other in order to highlight possible conflicts of opinions and different views, ii) with the documents obtained, iii) with the results from the quantitative part of the research regarding the overall degree of integration in the three regions (chapters 4-7), and (where appropriate), iv) with the experience on SEA at similar settings (*i.e.* Athens 2004 -Sidney 2000 Olympics). The cross-examination of the interviewees views, with the documents obtained and the research previously undertaken, led to a discussion with a view to fulfilling the case studies objectives (para. 2.3.5). In chapter 8, each case study incorporates the main points of the above described analysis, structured in an 'evaluative framework' form, and concludes by answers to each of the case study questions/objectives.

2.4. The evaluative framework

2.4.1. Evaluation methodology

Since this thesis is largely an exercise for the development of an evaluative framework, it is necessary to give a short overview of evaluation methodology in general. According to Devuist (1994, p. 59) '*the purpose of evaluation research is to measure the effects of a policy, process, programme or procedure against the goals set out to accomplish as a means of contributing to subsequent decision making about improving the situation in the future.*' In the thesis, the purpose of the evaluative framework was to identify, and where possible, measure the characteristics of transport planning and SEA common procedures against the principles of integration.

Three types of evaluation methods can be distinguished. A formative evaluation produces information that is fed back to the evaluated subject to help improve it. Summative evaluation is done when everything is finished. Transactive evaluation is a hybrid approach that is concerned with the overall effectiveness of the review process. Its purpose is to gain an understanding of the underlying reasons for the proper operation or not of certain aspects of the process: '*This approach considers results in terms of processes and takes into account the context on which these operate. A dynamic rather than a static perspective is gained, which highlights the factors that influence the activity being evaluated. ... This approach also recognises that goals are often vague, fluctuate and resist objectification. At the same time, a systematic attempt is made to grapple with the problems of how to measure and organise 'soft' or qualitative data.*' (Devuist, 1994, p. 60). In the research, evaluation has a rather transactive nature, since the integrated transport planning/SEA process is perceived to be continuous. There is an inherent difficulty in measuring all elements of the evaluative framework, and the information resulting from the evaluation can be used to increase the effectiveness of the process.

Evaluations usually comprise five major activities:

Formulating questions, criteria and standards: Evaluation criteria are the focus of any rigorous evaluation. It is suggested that the evaluator should become familiar with the subject to be evaluated, its sponsors and participants.

Selecting designs and sampling procedures: This is the next step in an evaluation exercise where the evaluator chooses between experimental, quasi-experimental and non-experimental designs. The classic design for evaluators has been the experimental model, which uses experimental and control groups. Using this approach, the evaluation of a programme for example starts with the random selection of units out of the target population. These units are chosen to be in either the group that gets the programme or

the 'control group' that does not. Measures are then taken of the relevant criterion variable before the programme starts and after it ends. Differences are computed and the programme is deemed a success if the experimental group has improved more than the control group (Devuist, 1994). Using this approach in SEA is very difficult, as it might not always be possible to form experimental and control groups. Moreover, the time duration of the cyclical integrated planning, monitoring and review process might be more than five years, which makes comparison difficult. Quasi-experimental designs generally leave one or several threats to validity uncontrolled and have the advantage of being practical when conditions prevent true experimentation. Non-experimental designs offer more information than would have been available without any study at all. This approach leaves considerable room for differing interpretations of how much change has occurred and how much of the observed change was due to the evaluated action (Devuist, 1994).

Collecting information: The data obtained by the evaluator has to be reliable (*i.e.* consistent over time) and valid (*i.e.* accurate and truly reflect the concepts, ideas or purposes being evaluated). The instruments and strategies for collecting data include questionnaires, observations, interviews, written achievement or competency tests, performance tests, record reviews and diaries.

Analysing information: Analytical techniques for evaluation range from statistical methods to scholarship methods.

Reporting information: The evaluation report has to be believable, truthful and comprehensive. It should document what was done, how it was done and why it was done (Devuist, 1994).

One of the most exciting although controversial features of evaluation research is its close connectivity with the political process. The technical requirements are increased if the political nature of the evaluation endeavour is realised. The evaluator therefore has to be as careful as possible in the design and analysis part of the exercise. Also it might happen that those who commission evaluation research may hold strong feelings about its outcomes. They may therefore, put pressure on the evaluator both by supervising his or her work too closely and by putting unnecessary constraints on his or her efforts (Devuist, 1994).

2.4.2. Form and context of evaluative framework

Throughout the interview survey and the review of the relevant documents, the evaluative framework was used to document experience on integration in the three regions. The evaluative framework has the form of a 'checklist', which '*contains terms which the respondent understands and which more briefly and succinctly express his views ...*' (Oppenheim, 1984, p. 81). The biggest difficulty however, that has to be addressed in

using this research technique is the interpretation of the research results. Its validity therefore will depend on the answers to the following questions: i) what are the questions the evaluative framework is trying to answer, and ii) how will these answers be used?

The assignment of a positive answer (*i.e.* Yes) to an element of the evaluative framework represents the incorporation of the specific requirement into the relevant transport planning process reviewed and receives the score (1). Consequently, the assignment of a negative answer (*i.e.* No) to an element of the evaluative framework, represents the absence of the specific requirement into the relevant transport planning process reviewed and receives the score (0). In case the responses were 'I do not know'/ 'I am not sure', further information and clarification about the examined question was provided. If the interviewee remained uncertain, he/she was prompted to recommend others in the same or other organisation, who might provide a better insight into the question being examined[7]. This process was, where necessary, repeated until a satisfactory response (*i.e.* a response with adequate degree of certainty) was elicited. The answers reflect the existence or not, of certain requirements for integration. These requirements have to be either documented in the planning report under review and supporting technical documents that accompanied the main report, or their existence (or absence) should be expressed with a high degree of certainty by the interviewees. It is for the second reason that in some cases more than one person was interviewed for the document concerned.

It has to be noted that the answers indicate the existence of the requirements throughout a specific plan making exercise, which involves past or future events. The research adopts the view that the questions included in the evaluative framework are not the only elements of integration of SEA with transport planning. Owing to the lack of information on integration, the current research only provides an indicative framework within which the degree of integration can be measured.

It is also important to note that the evaluative framework was developed both as a heuristic device to structure the empirical study, and as a framework that can be developed and tested in other settings. In the latter instance, the subsequent empirical analysis sought not only to draw from the framework but also to ground it empirically and to inform its further development. Therefore, in the last chapter of the thesis (*i.e.* chapter 9), the evaluative framework is revisited and amended for use in the wider context of SEA's field of application. The proposed final form is based on the input provided by the empirical testing

[7] Also, at that stage, a reference to the relevant documentation was made.

of the initial form of the framework to the transport-planning context of SEA-integration in Athens, Dublin and London.

2.4.3. Rating scale

In order to quantify the responses to the evaluative framework, a rating scale should be assigned. Oppenheim (1986, p. 83) defines the purpose of rating as the assignment of '... *a numerical value to some kind of judgement*'. A scale should be checked for its reliability and validity. The distinction between reliability and validity involved in questionnaire techniques, is that reliability '... *refers to consistency, to obtaining the same results again*' whereas validity '*tells us whether the question or item really measures what it is supposed to measure*' (Oppenheim, 1986, p. 71). The reliability level depends on the homogeneity of the items of the evaluative framework (*i.e.* elements of integration). Therefore, the breadth of the scale was restricted to the minimum level *i.e.* 'Yes' or 'No'. This also helped to reduce the degree of subjectivity involved in the interpretations of the results. Where objective (or factual) assessments are undertaken (as opposed to subjective assessments that require the measurement of attitudes) such as the current research, it is dangerous to give ranking labels such as 'not integrated', 'inadequately integrated', 'adequately integrated', 'excellent integration' to the different grades. The danger is that the labels can be interpreted differently by the various raters (Oppenheim, 1986). Another characteristic that influences the level of reliability is the number of items to be used. Therefore, a large number of items were used in the evaluative framework (Table 2.1) to measure the degree of integration of SEA with transport planning in the examined regions (Moser and Kalton, 1971).

Finally, a number of 'internal checks' were conducted throughout the elaboration of interviews in order to ascertain the reliability of the responses obtained (Oppenheim, 1986). This meant that, when the relevant question was asked, the interviewees were offered a list of activities that represent the criteria against which consistency can be checked. These criteria (Appendix 3) were based on the review of the literature and experience that was built up throughout the elaboration of the pilot studies.

Validity is another attribute needed in scale. Moser and Kalton, (1971, p. 355) define validity as '... success of the scale in measuring what it sets out to measure, so that differences between individuals' scores can be taken as representing true differences in the characteristic under study.' One way that the researcher can test the validity of scale (i.e. construct validity) is to 'postulate the types and degrees of association between the scale and other variables and he then examines these associations to see whether they conform to his expectations' (Moser and Kalton, 1971, p. 356). The reason that the testing of the

validity of scale is of importance in the thesis is that it is highly dependent on the testing of the thesis conceptual generalisations. The evaluative framework that was developed throughout the review of the literature and observations made throughout the pilot studies has to be valid, if this is to be adopted for the purposes of the thesis. That means that it has to be safeguarded so that the evaluative framework measures what it sets out to measure i.e. the elements of integration of SEA with transport-related actions.

The assignment of certain criteria for each of the questions in the evaluative framework, in order to ascertain validity in the responses obtained, will also increase confidence in the scale. Another action taken to support evidence on the selection of a valid scale was the comparison of the scores for each region on integration with background information on SEA experience in these regions or other regions in the same country. This information was based on research undertaken in the past, and was found throughout the review of the literature. The rationale of this approach is that, if the degree of integration found in each of the regions examined, was similar to the level of SEA experience documented in the literature in the same or different regions within each country, then an increased confidence in the scale is assumed. The difficulty, however, in the case of the current research is that the review of the literature revealed that there is no similar past research that deals with integration issues; a fact that justifies the originality of the thesis. Previous research close to the thesis' topic entitled 'elements of SEA that exist in comprehensive land use planning in England, Wales, Scotland and Greece between 1995 and 1998' is substantially different to this topic: 'integration of elements of SEA and transport planning in Greater Athens, London and Dublin regions in 1999'.

The question therefore arises as to how much these two research outcomes are related. The answer is that there is direct association between them, owing to the fact that the evaluative framework includes elements of a basic SEA process. In addition, the three examined regions are capital cities and, as such, it can safely be assumed that they represent SEA experience found in other parts of the same country. The comparison was made in a qualitative manner rather than quantitative, since the research methods (*e.g.* questionnaire, scale) and scope (*e.g.* geographical area covered, theoretical framework used) was different in the research projects concerned. The qualitative comparison of these research outcomes revealed that, the degree of integration in the regions examined in the thesis, follows the patterns of SEA experience in the wider geographical areas where the examined regions reside, as documented in the past literature (chapter 4). It can therefore be concluded that the research results would increase confidence in the scale, and consequently, the evaluative framework can be accepted as valid as it provides an accurate

measurement of the degree of integration of SEA with transport planning in the three regions.

In order to ensure that the information was collected in a consistent manner, all interviews were conducted by one person (*i.e.* the author). This however, does not eradicate the injection of subjectivity on the interviewer's behalf, which remains a possibility in this kind of research.

2.4.4. Sampling

One of the research objectives is the application of the evaluative framework to a number of transport-related documents prepared by public and private bodies in Greater Athens, London and Dublin regions (chapter 1). In order to avoid sampling errors that can occur in data-collection procedures, the evaluative framework was applied to the entire population of transport related documents in the three regions examined. Two issues were:

- the danger of inconsistencies in the selection of data owing to the different sampling strategy employed in the case of local planning authorities in Athens,
- whether and to what degree the wider generalisation of the results to cover other European regions should be attempted (chapter 9).

In relation to the local planning authorities in Athens, a systematic sampling process was undertaken in order to collect data throughout semi-structured interviews. A pilot study showed that carrying out interviews with planning officers in all these planning authorities would not be feasible within the duration of the thesis. Of all 59 local planning authorities in Athens where letters were sent to request an interview, only 2 were returned, one of which included a positive answer. This indicates the difficulties that this type of research faces in countries likes Greece where awareness of issues such as SEA is limited. Therefore, a random sample was taken. The uniformity of the results obtained from these local authorities and the sufficient number of cases in the sample, points to the fact that the sample was representative of the total population. This uniformity of the results can be explained by the strict application of the government specifications for land use plans by local planning authorities in Greece (Zagorianakos, 1998).

The carrying out of the systematic sampling process (Harnett and Murphy, 1985) involved the selection of a random starting point in the population of local authorities in Athens, and then every 10^{th} local authority encountered thereafter was chosen for interview. This random starting point was decided to be the first local authority-planning officer on a list of local authorities arranged in alphabetical order who agreed to be interviewed. The request was made by phone and a list of the local authorities' addresses and phone numbers was

obtained from the Association of Municipalities and Local Communities of Attica Prefecture. The fact that there is no periodicity to the elements of the population since the list from where they were selected was arranged in an alphabetical order eliminated bias that sometimes results from this type of sampling method. Experience gained from previous research conducted in local authorities in Athens (Zagorianakos, 1998), and the relatively small population for this type of research, indicated that the selection of 6 local authorities would be a sample size that is representative of the whole population (*i.e.* 10% of the 59 local authorities). It was, however, clear from the first few interviews, that there was a remarkable uniformity in the internal structure of transport plan making at that level of government. As a planning officer noted: *'The requirement for strict enforcement of the planning specifications by the central government and the limited finances of our department leaves no room for innovations in planning methodology and implementation. That's why, in terms of structure, if you have reviewed one planning document, you've reviewed them all.'*.

2.5. ***Research database***

The data collected for the research methods used throughout the thesis, was organised and filed in the library of Environmental Science Unit, Trinity College Dublin. The rationale for the development of the database is twofold. On the one hand, the reliability of the methods used will be increased if the database was the subject of separate and independent analysis by the potential reader of the thesis. In this way, the opportunity is given to the potential reader to reach an independent judgement regarding the quality of the analysis. On the other hand, the development of a formal, presentable database could be reviewed directly by other researchers in this academic field, without being restricted to the written thesis (Yin, 1994). This is especially important since (as it is revealed throughout the review of the literature) this type of research in the regions examined is either minimal (*i.e.* in Greater London) or non-existent (*i.e.* in Greater Athens and Greater Dublin).

The database documentation consists of the following:

- Tape-recorded material from case study and survey interviews (that are available with the prior authorisation of the author of the thesis and the interviewee in question for reasons of confidentiality),
- Documents relevant to the thesis collected during the course of the research (such as literature review documents, transport-planning and comprehensive land use planning reports, SEA reports *etc.*),
- A Microsoft Word file containing lists of contact addresses (postal and e-mail) of people and organisations relevant to the research topic, and

- Computer software files (*i.e.* SPSS version 8 and 10) where data on the interview and e-mail survey were stored and analysed.

3. Literature Review

3.1. Introduction

This chapter presents the outcome of the review of the literature. It begins with a brief presentation of the evolution of the concept of Environmental Assessment (EA), which encompasses the concept of SEA that the thesis deals with. It continues with the interpretation of the term 'integration' and the identification of the different types of relationships between EA and SEA, and planning in a broader sense, as suggested in the documents reviewed. A discussion of the integration of SEA and planning then follows, and a selection of integrated frameworks of impact assessment is further presented. The chapter concludes with a synthesis of the review material, which lead to the construction of the thesis' evaluative framework.

The term 'integration' is a familiar one and easily defined as 'to bring parts together into a whole, to unify' (Armour, 1989). When however, an attempt is made to apply this simple definition to PPP-making and decision process, the true complexity of the concept begins to emerge. In SEA and PPP-making, 'to integrate' takes on many different meanings. It is these meanings or elements of integration, and the barriers to a more effective integration that this chapter discusses.

3.2. The evolution of Environmental Assessment

EA is often used interchangeably with Environmental Impact Assessment (EIA). Both terms are also understood to encompass all, or part of other domains of Impact Assessment. In the 80s, EA ceased to be merely 'environmental' with the advent of Social Impact Assessment, Community Impact Assessment, Environmental Health Impact Assessment, Risk Analysis, Technology Assessment, and Adaptive Environmental Assessment and Management (NATO/CCMS, 1995; Smith, 1993). As used in this thesis, EA is a generic approach to development planning. It encompasses both EIA, as conventionally institutionalised at the project level[1], and Strategic Environmental Assessment, which is the EA of PPPs.

According to Smith (1993), the predominant rationale in developing various forms of EA has been a concern regarding the poor level and quality of science within existing assessments. Science was seen as not providing the ability to achieve a mandate for environmental protection within impact assessment. However, during the last quarter of the

[1] In this thesis, the terms project-EIA and project-specific EIA, are used interchangeably with the term EIA.

century, EA has undergone rapid expansion, from a mere policy instrument to a tested process for development planning and decision making.

Two institutional benchmarks can be distinguished: the United States Environmental Policy Act of 1970 which introduced EIA, and the Rio Declaration on Environment and Development in 1992 which called for its universal approach. In the interim, several phases of development can be recognised. SEA was initially developed in the 70s. During that time, the basic principles were introduced, as well as the institutional arrangements and analytical techniques for conducting EA. In the late 70s until the early 80s, the progressive inclusion of social, risk, health, and related factors, improved existing opportunities for public participation, and fostered a greater focus on impact management. During the mid-late 80s, a major redirection of the EA process took place. In particular, there were increasing efforts to address cumulative effects, to integrate project-EIA with policy, planning and regulatory frameworks, and to establish monitoring, audit and other follow up procedures. EA theory and practice was inevitably influenced during the 90s by the development of the sustainability paradigm. This decade marked the emergence of three major initiatives. New requirements for project-EIA were established by international conversions, consensus-based dispute settlements procedures were introduced, and SEA emerged (NATO/CCMS, 1995). For example, in 1991, the UN Economic Commission for Europe's convention in EIA in a Transboundary Context identified principles and provisions for project-EIAs and activities with transboundary effects. Furthermore, additional requirements were placed on EA by the UN Conventions on Climate Change and Biological Diversity (NATO/CCMS, 1995).

EA has evolved from a relatively narrow, technically based process of impact analysis, towards a more integrated, multidimensional approach to development planning and decision making. The following sections focus on the strategic part of EA *i.e.* SEA, and explore previous and current developments towards the theory and practice of an interdisciplinary, integrative approach to EA and SEA.

3.3. The term 'integration'

The literature review that follows, demonstrates that a diverse body of literature has been built up, pertinent to the integration of environmental assessment with PPP-making. To better comprehend this literature, an effort was made to divide it into categories.

In various texts, the term 'integration' has a procedural meaning, since there are frequent references to the 'integration of environmental concerns in policy making and appraisal'.

This is especially the case in the thinking around Sustainable Development. Although there are not always direct references to the use of management tools to achieve Sustainable Development, by integration it is meant that assessment processes should be integrated in the decision making process of a PPP. As Franks (1996, p. 3) notes when discussing the links between project appraisal and decision making: '*The pressing need of the end of the twentieth century is not in fact, the integration of environmental concerns within socio-economic appraisal, but to integrate the appraisal process (project planning and analysis) into decision making and development.*'

The term 'integration' also bears a methodological meaning in the SEA literature. As Sadler (1995b, p. 5) notes when discussing the challenges SEA faces at the beginning of the Twenty First Century, '*Looking ahead, a 'second generation' process is required, in which EA is deployed in concert with a range of other policy and scoping instruments as part of an integrated approach to environment and development decision making*'. This implies that SEA is one of the management tools and instruments used in the PPP-making process to foster Sustainable Development through the incorporation of environmental issues. In order, however, for SEA to promote that role, it has to adopt an attitude that incorporates other themes that are traditionally outside its scope of competence. It is necessary, therefore, that SEA expands its thematic and methodological scope to include socio-economic as well as environmental issues. As such, there is a thematic interpretation of the term integration in the SEA literature. Under that view, SEA is seen as being able to fulfil an 'integrative' type of assessment and identify environmental, social and economic considerations (Sadler, 1996). This notion of integration has been adopted by international organisations such as the European Commission of the EU. For example, a study has been published that provides the basis for making recommendations for research projects within the EU. One of the research areas that has been identified was 'the integration of SEA and socio-economic appraisal in the overall appraisal of PPPs' (CEC, 1997d).

3.4. ***Types of relationships between SEA and Planning***

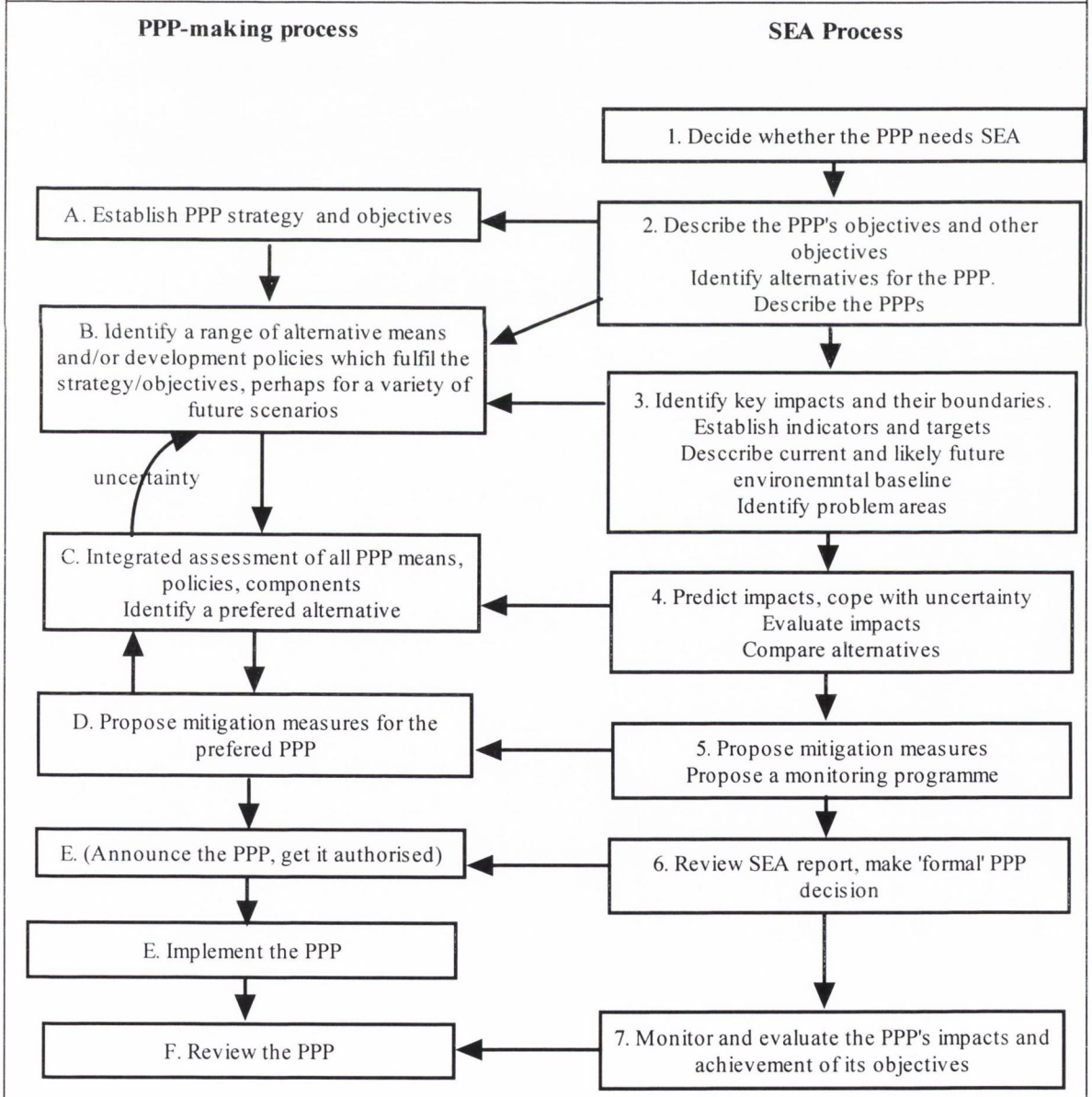
There are at least two references in the literature on the similarities of EA/SEA and planning. According to Rickson *et al* (1989), there are at least three similarities between EA and planning in its broader sense (*i.e.* the allocation of resources to make maximum use of them). These include the:

- initial investigation of conditions which would be affected by projects or policies,
- analysis and predictions of desired change through to mediation of conflicting interests, and
- mitigation of undesirable consequences.

According to Rickson *et al* (1989), any dynamic planning model should necessarily include these dimensions. Furthermore, Partidario and Eggenberger (1999), in their attempt to establish an 'integrated planning framework', identify at least four fundamental similarities between SEA and spatial planning. These are the overall goal of Sustainable Development, the guiding principle of integration, and various procedural and institutional aspects such as assessment of alternatives and public participation.

Therivel and Partidario (1996) have identified three general approaches to SEA, which reflect SEA's relationship with planning (Figure 3.1).

FIGURE 3.1: STAGES IN AND LINKS BETWEEN PPP-MAKING AND SEA



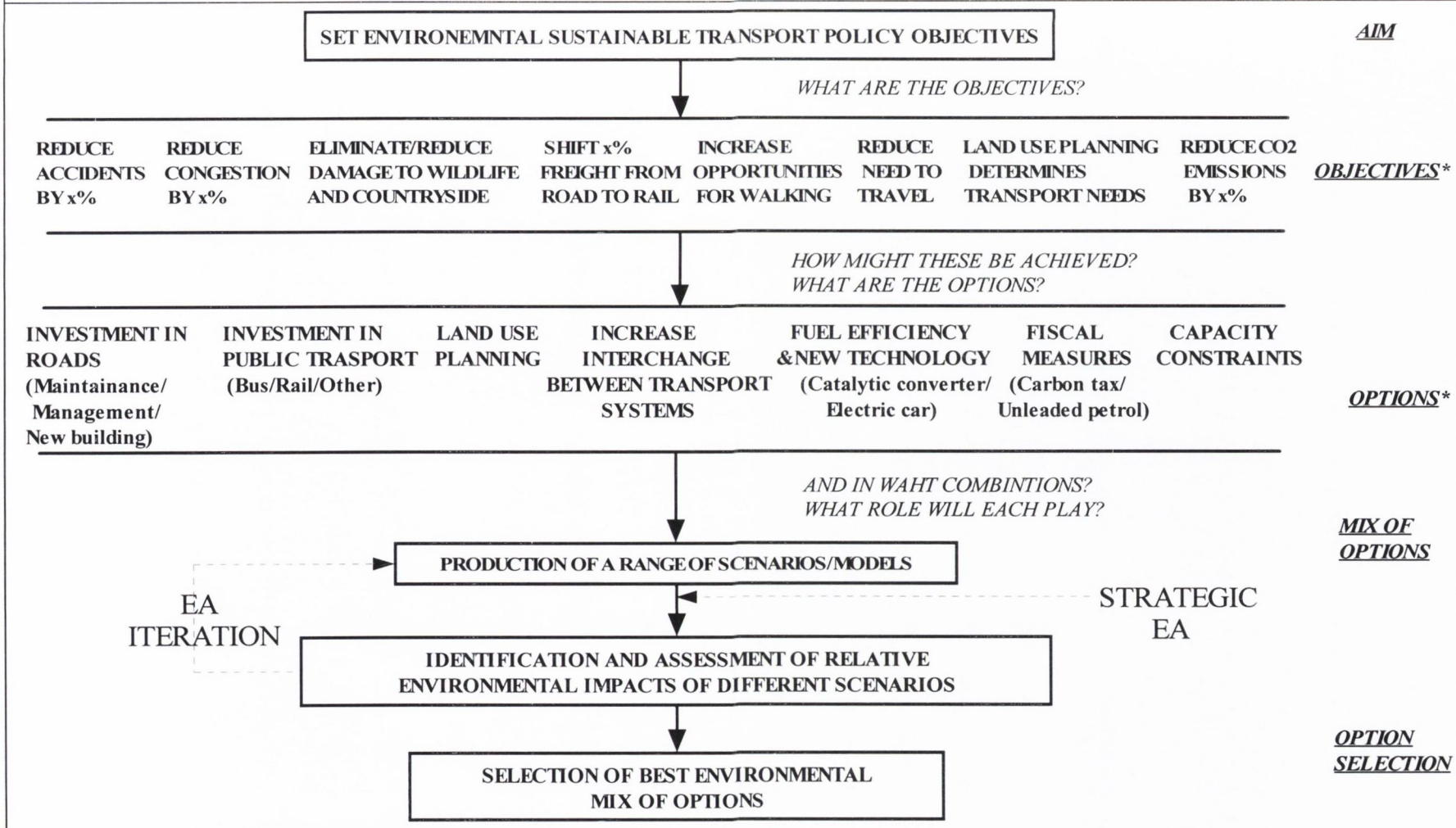
Source: Therivel and Partidario, 1996, Figure 1.1, page 6

First, there is the 'consent-related' model of SEA, which is closely related to project-EIA. It corresponds to the Environmental Appraisal or Evaluation approach to SEA as described by Wilkinson *et al* (1994) and to the 'application of EA to land use planning' model described by Partidario (1992), Armour (1989) and Wood (1988). It includes a formal decision making stage, and a SEA stage similar to project-EIA which informs decision making. It can be found in land use plans and environmental profiles (Structural Funds regulations).

Second, the 'integrated' model applies a type of procedural integration similar to the one adopted in this thesis *i.e.* SEA is integrated into every stage of the PPP process. In Figure 3.1, it corresponds to an emphasis on all the links between the PPP-making and SEA process. Third, the formalisation of the 'integrated' model represents a rather 'utopian situation not yet seen in practice' (Therivel and Partidario, 1996). It attempts to readjust PPP-making into a more strategic, transparent and objectives-led process. It involves three general stages: a) the establishment of sustainability benchmarks as an overriding objective which is then 'trickled-down' through the various tiers of PPPs, b) the establishment of clear top-down approach that links policies to plans to programmes, and c) the identification of clear decision making stages for each of these PPP tiers. Although this model is considered ideal, an attempt has been made to apply it to current regional planning practice (*e.g.* SERPLAN, 1998a; SERPLAN, 1996a).

Wilkinson *et al*, (1994), have categorised the approaches to SEA, as they are suggested and practised in the UK and the EU. They identify a SEA approach that includes what is called in this thesis, an 'element of external integration'. The authors of the report call this approach to SEA, the 'sustainability approach'. Their review of the work undertaken by the UNECE and the European Commission, by independent experts and environmental NGOs, revealed at least four broad approaches to SEA: i) Full SEA (a systematic approach developed from the procedures and methodology applied to projects-EIAs), ii) Environmental Appraisal or Evaluation, iii) Policy Appraisal using the techniques of CBA, and iv) Incremental SEA (involving the application of project-EIA in a rather broader context). Full SEA and Environmental Appraisal are both further sub-divided into the 'sustainability' and the 'classic' approaches. The 'sustainability' approach has a strong integration element in that it requires that environmental objectives should be included within the overall socio-economic objectives of the plan or programme, thus penetrating the whole assessment process: '*Strategic Environmental Assessment (or appraisal) then becomes the process of selecting between options to determine which best secures the attainment of objectives which already incorporate environmental considerations*' (Wilkinson *et al*, 1994, p. 8).

FIGURE 3.2: SEA IN 'OBJECTIVES-LED' TRANSPORT POLICY FORMULATION



*** The objectives and options indicated are suggestions only; there may be many more or fewer in any particular case**

Source: Wilkinson et al, 1994, Annex I

On the contrary, in the 'classic model', SEA applies to policies 'that are normally driven by non-environmental objectives'. An example of the adaptation of the 'sustainability' model in transport planning is shown in Figure 3.2. Another systematic attempt has been made to classify all possible relationships between EA and the land use planning process (Partidario, 1992; Armour, 1989; Wood, 1988).

First, EA is seen as forming part of the land use planning process. This is the option, which is more likely to be accepted by professional planners. It is a frequently adopted view that planning is a long established activity that has always incorporated physical, social and economic issues, which were then evaluated in a comprehensive manner. The evaluation procedure applied however, is a not systematic one, and in practice, the decision is usually based on the planner's perception. It is argued, therefore, that if this option is followed, the whole purpose of EA might be neglected in planning practice, and planning might continue to operate in its traditional manner (Partidario, 1992).

Second, land use planning can be part of the EA process. This is an easily refuted option since EA does not have a resource allocation role and therefore, land use planning could never be carried out as part of the EA process (Partidario, 1992).

Third, EA can have an end-process role by being applied to land use planning. This is the most frequent type of relationship found in recent practice, since it is a straightforward extension of the project-EIA concept to planning. Indicative examples are the proposed Directive for a SEA of plans and programmes advocated by the European Commission (CEU and EC, 2000), and the UK guidance on the Environmental Appraisal of Development Plans (DoE, 1993). This option has been criticised on a number of fronts. In particular, it is feared by planners, that the formalisation of the EA process will impose unnecessary procedural delays, additional resource requirements, and bureaucracy to the already cumbersome decision making process (Zagorianakos, 1999; Partidario, 1992). Furthermore, experience in the last two decades with EA has shown that the initiation of the EA process at a late stage in the planning process (*i.e.* when alternatives have been identified and decisions are about to be taken), will deprive EA from its proactive role as a decision-aiding tool. As Armour (1989, p. 5) notes, '*It is standard practice for impact assessment to be conducted as a separate process and apart from the planning process, as a means of justifying planning decisions rather than contributing in any meaningful way to them.*' Finally, the participation of EA in only one, or several planning stages, rather than in every stage, is unlikely to provide a significant step towards the promotion of sustainability. Inclusion of SEA in isolated stages of planning might fragment public input in the assessment exercise. This might also result in fragmentation of methods and expertise

and ultimately, in institutional fragmentation, as proponent agencies and organisations may be discouraged to co-operate in order to achieve common goals.

Fourth, the integration of the two processes, is the option this thesis examines. An integrative-SEA, as defined in this thesis, incorporates the objectives, procedures, methods and institutional frameworks of both EA and planning. According to Partidario (1992, p. 57), this is a radical option '*but which, nevertheless, must be considered as the ultimate objective in the long-term, for greater efficiency and improvement of the environmental management and planning processes.*'.

3.5. Integration of SEA and Planning

Various reports reveal that the application of SEA is most frequent at a comprehensive land use/spatial planning level. It is not surprising that the SEA/planning literature is larger than other fields of application of SEA and, as such, the quest for an integrative framework reflects the experience gained in the planning field.

Rikson *et al* (1989), in their discussion on the integration of Planning and Impact Assessment, identified two approaches to the incorporation of impact assessment into planning. The first approach involves changes in both administrative and institutional processes. Here, the role that organisations (*e.g.* business and industry, government agencies, NGOs) and professionals play in the development process is of concern. The second approach, which is strongly related to the first, refers to a 'substantive' type of integration. It asks the question: what are changes in attitude and the 'ways of doing business' needed, in order to achieve integration?[2] Rikson *et al* (1989) also argue that planning practice throughout the last two or three decades has shown that social and economic concerns are in competition with economic goals. This competition however has proved to be in favour of the economic goals: '*Still, a considerable stumbling block has been that professional planners and the politicians that they serve are more responsive to short-run economic objectives and tax enhancing measures than to social needs and long-run environmental goals.*' (Rikson, *et al*, 1989, p. 349).

The institutional and political constraints involved in integrating impact assessment and planning, inhibit substantial integration, *i.e.* the taking into account the outcome of the assessment by the decision makers. Since substantial integration is difficult to detect, let alone safeguarded through institutional arrangements, the documentation of the outcome of the assessment and the environmental or social grounds for taking a certain decision,

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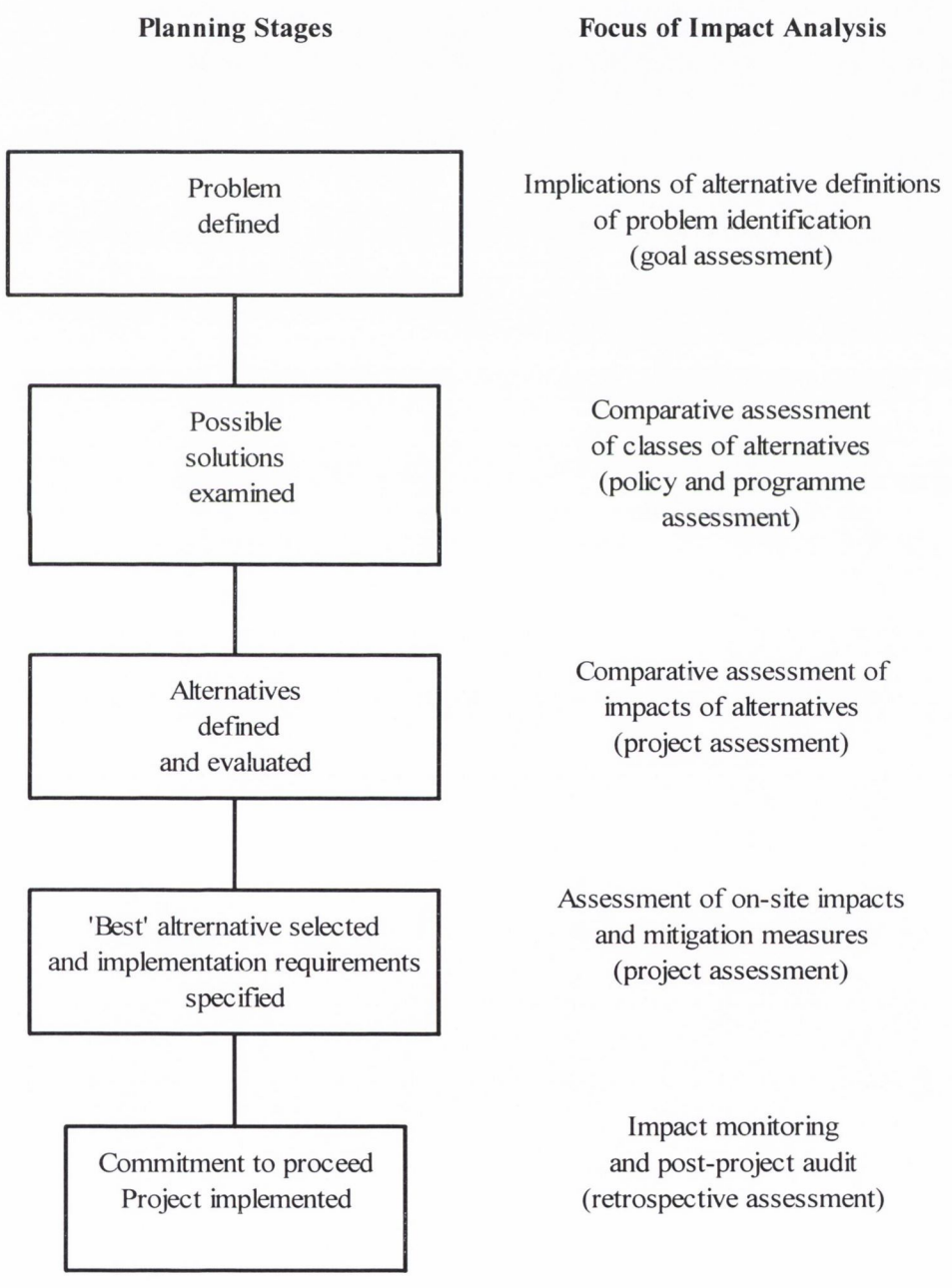
[2] Here, by integration, Rickson *et al* (1989) means the incorporation of social and environmental effects into all stages of decision making, from the initiation of plans through to their implementation.

might be an acceptable alternative. This is the way that the proposed SEA Directive has dealt with this issue (CEU and EP, 2000). The social component to the integration of impact assessment and planning requires the widest form of stakeholders' and public participation in the process is of paramount importance (Rikson, *et al*, 1989).

FIGURE 3.3: PROCEDURAL INTEGRATION OF PLANNING AND IMPACT ANALYSIS



Source: Armour, 1989, Figure 2, page 8.

Armour (1989) distinguishes several barriers to the successful integration of EA with the planning process. First, there is the procedural aspect of the relationship between the two concepts. Armour (1989) advocates a move away from current practice where EA

intersects the planning process at a discreet point, usually in the form of a specific EA report. Armour suggests that EA should participate in every stage of the planning process (Figure 3.3). Therefore, according to Armour (1989, p. 5), integration is about the formulation of the planning process '*such that environmental impact considerations are integral to it from start to finish*'. Integration is perceived as the process where EA merges with the process of planning so that they become one. Second, integration also includes documentation requirements. The EA report, whether separate or not, should synthesise the outcome of the integrated exercise, rather than being isolated from the planning documentation. Third, there is a need for 'consultative' integration, which means the bringing together of competing interests and perspectives into a unifying socio-political process.

Two sets of questions with methodological, institutional and political implications should be asked in this context, if 'effective integrated planning' is to be obtained:

- is consultation meaningful? *i.e.* Who should be consulted and when? What are the best methods to facilitate such consultation? and how the information obtained throughout consultation can be channelled into the planning and decision making-process? *i.e.* How much weight should be given to alternate viewpoints and the values that underlie them?
- How should conflicts be resolved? and Who should decide on these matters?

Fourth, there is the need for 'organisational' integration, that is, the bringing together of private and public implementing agencies into a unified management approach. An important element of this type of integration is the development of collaborative, co-ordinated action directed toward the achievement of common goals. Barriers to this approach are the existence of multiplicity of agencies, fragmented jurisdictions and ever-increasing specialisation. Fifth, the achievement of what Armour (1989) calls 'technical or disciplinary' integration is required. This is about bringing together disparate ecological, social and economic factors into a unified analytical assessment/planning framework that reflects a holistic perspective on the issues being assessed. Obstacles relevant to this type of integration are data incompatibility and lack of integrative evaluation methods. Finally, there is a need to integrate all the above types of integration into an overall unified framework of planning and decision process. This is, however, the most difficult task of all: '*Why integration is important and what it should involve, can be easily articulated; what is more difficult to prescribe is how to actually make it happen.*' (Armour, 1989, p. 10).

The most well known recent endeavour to devise an integrative framework for SEA and spatial planning has been provided by Partidario and Eggenberger (1999). At a recent

Conference organised by the International Association for Impact Assessment (IAIA), a call was made to participants to contribute '*to the establishment of an integrated planning framework which will ensure early consideration of environmental, social, economic and institutional issues, thus enabling more sustainable planning practices*' (Partidario and Eggenberger, 1999, p. 2). Here, SEA is promoted as a environmental management tool that provides the context for integrated decision making, 'within which to address synergistic and long-term induced effects' (Table 3.1). Partidario and Eggenberger (1999) also note that spatial planning and SEA have many overlaps. It is these similarities that will greatly facilitate the establishment of the 'integrated planning framework' shown in Table 3.1.

TABLE 3.1: SEA AND INTEGRATED SPATIAL PLANNING FRAMEWORK

The planning and assessing development and its impact on our living space, can be divided into five different forms of integration:

Substantive:
- The integration of physical or biophysical issues with social and economic issues
- The integration of emerging issues such as health, risks, biodiversity, climate change etc.
- The (appropriate) integration of global and local issues

Methodological:
- The integration of environmental, economic, and social (impact) assessment approaches such as cumulative impact assessment, risk assessment, technological assessment, cost/benefit analysis, multi-criteria analysis, etc.
- The integration of the different applications, and experiences with the use of particular tools such as GIS
- The integration and clarification of (sector) terminologies

Procedural:
- The integration of environmental, social, economic planning/assessment and spatial planning
- The integration of sector approval/licensing processes and spatial planning
- The adoption of co-ordination, co-operation and subsidiarity as guiding principles for (governmental) planning at different levels of decision making
- The integration of affected stakeholders (public, private, NGOs) in the decision making process
- The integration of professionals in a truly interdisciplinary team

Institutional:
- The provision of capacities to cope with the emerging issues and duties
- The definition of a governmental organisation to ensure integration
- The exchange of information and possibilities of interventions between different sectors
- The definition of leading and participating agencies and their respective duties and responsibilities

Policy:
- The integration of 'Sustainable Development' as overall guiding principle of (spatial) planning

The integration of sector regulations
- The integration of sector strategies
- The timing and provisions for political interventions
- Accountability of government

Source: Partidario and Eggenberger, 1999, p. 4-6.

3.6. Selected integration frameworks

The review of the literature revealed a variety of proposed frameworks for the environmental assessment of PPPs. The cases that follow, represent three disciplinary fields of application *i.e.* policy assessment, environmental management, and project and land use development planning.

3.6.1. Integrated Environmental Assessment

The only analytical tool for policy assessment that comes closer to the definition of integration that this thesis adopts, is Integrated Environmental Assessment (IEA). This methodological framework has been suggested in the 1996 research study on IEA methods, prepared for the European Commission (DG XII) by the Stockholm Environment Institute (SEI) (Bailey *et al*, 1996). The study is a contribution of the EU Environment and Climate RTD Programme, to the overall development of integrated assessment methodologies.

TABLE 3.2: EXISTING ENVIRONMENTAL ASSESSMENT METHODOLOGIES

ASSESSMENT TECHNIQUE	ORIGINATING DISCIPLINE	COMMENTS
ASSESSMENT FRAMEWORKS		
Environmental Indicators	Natural and social sciences	Typically simplified physical, biological and social measures of environmental conditions
Technology Assessment	Engineering, technology and social science	Consideration of the impact of a particular technology upon society and the environment
Life-Cycle Assessment	Engineering, technology and social science	A framework based upon the aggregation and cross comparison of the diverse impacts of products
Environmental Auditing	Professional consultancy	Predominately concentrated at the business level
Risk Assessment	Several	A combination of risk determination and risk evaluation
Multi-Criteria Decision Analysis	Operations research	Offers mathematical techniques for modelling decision makers' goals and conflicts
Computer modelling	Systems analysis	The evaluation of data and/or processes using computer software
Delphi Method	Several	Methodological issues of exploring future structures and relationships
Environmental management	Several (especially ecology, law, economics and politics)	An interdisciplinary framework suitable for considering many aspects of IEA
Project Environmental Impact Assessment	Several	The traditional application of EIA that focuses upon an individual project
Strategic Environmental Assessment	Several	Environmental Assessment of policies and programmes
Regional Assessment	Several	A framework for the assessment of regional environmental issues
DISCIPLINARY APPROACHES		
Cost Benefit Analysis	Economics	All (environmental losses) and gains collapsed to a single metric (money)
General Equilibrium Analysis	Economics	Simultaneous consideration of all sectors and markets in an economy
Economic Sector Analysis	Economics	Concentrates on markets, exrta-market environmental impacts treated as externalities
Ecological economics	Economics	Attempts to look at stocks as well as flows and go beyond neo-classical economics
Geographical Information Systems	Geography	A computational tool for analysing spatial data
Systems Ecology	Ecology	Considers the processes and interrelationships driving ecosystems

Source: Bailey et al, 1996, table 3.1, p. 15.

The study undertakes an overview of alternative environmental assessment techniques (Table 3.2) in order to help analyse whether IEA '*is truly a new area or an elaboration of techniques*' (Bailey *et al*, 1996, p. 12). Bailey *et al* (1996) did not identify an existing or past impact assessment methodology that completely fulfils the requirements of IEA. The relevant study, therefore, concluded with recommendations for the establishment of a European network and forum of IEA practitioners and users for the development of good practice within IEA.

The driving force behind this endeavour was similar to that of the establishment of a SEA system of PPPs. As such, the IEA system or framework aims at fulfilling the considerations that are at the root of the concern within the European Commission and elsewhere *i.e.* '*to encourage and improve methods for including environmental considerations into decision making process*' (Bailey *et al*, 1996, p. v). These considerations are included in the EU's 5th Environmental Action Programme (EAP), and are expressed *inter alia* in the proposed SEA Directive (CEU and EP, 2000) and the Structural Funds regulations regarding the 'Environmental Profiles for Regional Development Plans' (CEC, 1993b; Gosling, 1996; Bradley, 1996).

TABLE 3.3: COMPARING SEA WITH IEA

CHARACTERISTICS	SEA	IEA
User (client)	Secroral authority or spatial planning authority	Environmental authority or international public environmental body
Goal	Integration of the environment into sectoral policies by evaluation *ex ante* (before approving a particular PPP)	Support of environmental policy by evaluation *ex ante* (before all societal trends and government actions having environmental consequences)
Assessor	Initiator of PPP or commissioned by initiator	Independent scientific organisation
Frame of reference	Environmental policy and input of stakeholders	Previous environmental policies and scientific input
Quality checks	Public review	Peer review
Approach to environmental issues	Analysis of PPPs, identifying and assessing their main impacts	Analysis of environmental problems, identifying and addressing their main causes
Support to target setting	For driving forces and pressures in sectors	For environmental states, leading to targets necessary for different sectors
Analysis of alternatives	Options and measures within the responsibility of the agency that is responsible for the PPP	Options and measures within the responsibility of any relevant agency or actor
Assessment tools	Indicators, baseline assessment, LCA, GIS, scenarios, models	Indicators, baseline assessment, LCA, GIS, scenarios, models
Economic evaluation	Comparison of cost-effectiveness of alternative measures within the sector (in relative assessment)	Comparison of cost effectiveness analysis in different sectors (in relatively less detail)

Source: Nooteboom and Wieringa, 1999, table 1, p. 8.

Furthermore, there are inherent methodological similarities between SEA and IEA (Table 3.3). The authors of the SEI study, when discussing the various environmental assessment techniques applied in order to analyse environmental problems, state that Environmental

Assessment, deals with many of the issues that IEA is attempting to address and that 'strategic environmental assessment covers very similar areas'. The study concluded that, Environmental Assessment, and as a consequence SEA, are closely related methodologies and the communities involved in both should be aware of the ideas and methods each are developing (Bailey *et al*, 1996).

The concept of IEA as an analytical tool has attracted attention for its application to the development of strategies, especially at a government level. It claims to offer a policy response to complex regional and global environmental issues, such as acid rain problems, global climate change and transboundary pollution. According to the authors of the report, IEA is an emerging field of study and, as such, no agreement has been reached on a definition. Similar to SEA when it first appeared, the newness of the IEA concept is reflected in the different definitions quoted in the existing limited literature (Table 3.4).

TABLE 3.4: DEFINITIONS AND FEATURES OF INTEGRATED ENVIRONMENTAL IMPACT ASSESSMENT

Definition A: Integrated Environmental Assessment consists of procedures to arrive at an informed judgement on different courses of action with regard to environmental problems. The information required refers to physical, chemical, biological, psychological, socio-economic and institutional phenomena, including the relevant decision making processes.'

Definition B: Integrated Environmental Assessment is the interdisciplinary process of identification, analysis and appraisal of all natural and human processes and their interactions which determine both the current and future state of environmental quality and resources on appropriate spatial and temporal scales thus facilitating the framing and implementation of policies and strategies.

Features required for Integrated Environmental Assessment:

- Inclusion of quantitative and qualitative knowledge from the natural and social sciences
- Incorporation of Integrated Assessment models as a component of the overall IEA as appropriate
- Consideration of methodological aspects such as treatment of uncertainty, different scales and issues of distribution
- Adaptation to the needs of the users of the IEA, such as regulators, business, the mass media and non-governmental organisations
- Inclusion of informal information both from the scientific and non-scientific communities
- Incorporation of mechanisms for social discourse between the IEA practitioners and the stakeholders
- Provision of a means of shaping the direction of the IEA, including adaptation of Integrated Assessment Models, as the needs of users alter and the knowledge of the practitioners develops
- Communication of the insights of the assessment to the IEA community and within the broader decision making process

Source: Bailey et al, 1996; Jaeger, 1994; Nooteboom and Wieringa, 1999; EEA, 1995.

The IEA model recognises the complexity of regional and global issues with large environmental components, and aims to provide an assessment framework that goes 'beyond traditional natural and social science disciplinary boundaries' (Nooteboom and Wieringa, 1999). Since IEA acknowledges that no single discipline has the capacity to represent the broad range of inter and intra linkages that characterise complex environmental situations, it intends to incorporate the methodological tools of the natural and social sciences into an overall assessment framework. As such, SEA can be seen as potentially providing an essential building block for IEA, and this thesis puts forward a research proposition showing how SEA can participate in an integrated planning

framework, in tandem with IEA's principles. What however are the conceptual boundaries (*i.e.* similarities and differences) between an integrated SEA, as it is defined in this thesis, and IEA as it is defined in SEI's study?

At least four similarities can be distinguished. First, both integrated SEA and IEA are general methodological frameworks rather than disciplinary assessment techniques. Similar to integrated-SEA, IEA facilitates the development of integrated environmental policies that are based on strategies that minimise the total societal costs and maximise the environmental benefits (Nooteboom and Wieringa, 1999). Second, they are both considered to be appropriate tools for integrating environmental concerns at a strategic level of decision making and, as such, can have practical implications for strategic policy making, as well as for environmental legislation initiatives at an EU and member state level.

Third, they are both decision aiding tools. There is a methodological as well as a communicative and, as such, political side to this decision aiding function. On the one more technical side, they provide a multi-disciplinary methodological field for policy impact assessment tools in their quest for a better-informed decision making. On the other side, the tools and techniques are valuable, but their use alone, does not constitute an integrated exercise (Margerum and Born, 1995). They are therefore also concerned as much with the legitimacy and quality of the assessment as with their usefulness to societal decision making. As Bailey *et al* (1996, p. 2) notes,

> *'IEA methodologies are not intended to provide the solution which scientists, thinking objectively, would advise bureaucrats, acting in the public interest, to implement. Rather, IEA methodologies can provide a means of combining scientific analysis with other forms of politically relevant discourse. Any recommendations which emerge should be defensible to, and find a resonance with, the technical expert, but also to politicians, the media and the various other stakeholders. This does not imply that a consensus will be reached. Indeed, the possibility of irreconcilable differences is recognised and catered for by promoting a plurality of approaches'.*

It is exactly this 'plurality of approaches' in the integrated-SEA (developed in this thesis), that extends the concept of SEA beyond the confines of procedural integration, to take in institutional structures (external integration), social co-operation as opposed to consultation (*i.e.* social integration), administrative arrangements and expert communication (*i.e.* human resources integration).

Fourth, both SEA and IEA recognise that environmental issues impact potentially on all aspects of society. Methodologies should, therefore, incorporate information not only from members of the scientific community, but also from the society as a whole. Funtowicz and Ravetz (1991) go as far as to suggest that a 'quality assurance' of the assessment

process can be provided by the inclusion of 'softer' information that may originate beyond the boundaries of the scientific community, to include 'extended peer communities' such as community activists, lawyers, legislators and journalists in the assessment process. This inclusion of non-technical views in the assessment process is seen as an answer to the 'crisis of scientific expertise that has been commenced upon recently in Europe' (Horlick-Jones and De Marchi, 1995; Franks, 1996).

A number of differences between SEA and IEA can also be distinguished. There is no distinction in the study's text (Bailey *et al*, 1996) regarding the different levels of the application of IEA. Taking into account however, its policy-relevant origins with a clear global assessment scope, it can be assumed that it is mainly policy-oriented. It has to be noted that the IEA model is still at its 'gestation' period and, as such, is amenable to change. Integrated SEA on the one hand, distinguishes between different levels of detail of assessment, and as a consequence, different levels of PPPs in which SEA is integrated and ultimately, it distinguishes between different levels of decision making where a 'tiered' vertical schema of interconnected SEAs are taking place. IEA on the other hand, is mostly interested in the interdisciplinary aspect of the exercise, and in particular, the methodological gap between the social and natural sciences. It therefore distinguishes between the different temporal and spatial scales of the overall assessment, as this is a disintegration factor for different scientific disciplines in their attempt to work together:

> *'Social sciences work within the horizon of 'historical times' which are usually much shorter than geophysical times. Ecologists, climatologists and political scientists may well focus on different spatial scales to examine the causes and impacts of the same environmental problem. The challenge is how to integrate these different spatial and temporal scales onto the overall assessment; an acceptance that different spatial or temporal scales suit different areas of enquiry is important for the success of IEA.'* (Bailey *et al*, 1996, p. 6).

These temporal characteristics of IEA, bring the whole concept closer to the concept of SD. Although there is no reference in the text (Bailey *et al*, 1996) to the term SD, it can be observed that this is an additional similarity between the two frameworks. It is quite difficult to investigate the differences between two assessment frameworks that are both new and where arguments over definitions and identities are still developing. Their major difference is in their different 'scope', in other words, their different fields of application. IEA is mostly concerned with, and probably adapted to suit, the policy level of assessment. Integrated-SEA follows the scope of SEA, and its field of application would probably suit planning and programming levels of decision making.

3.6.2. Integrated Planning and Environmental Assessment

Nathaniel and Dalia Lichfield have discussed the integration of environmental and social

concerns in project and land use development planning, in the early 90s (Lichfield, 1996b; Lichfield and Lichfield, 1992). In particular, the Integrated Planning and Environmental Assessment (IPEA) method that was used in project-EIA and adapted for use in land use development and regional planning, follows similar principles found in other integrated exercises. IPEA is more of a 'unified framework' as well as a methodology, which combines social and environmental analysis of impacts. The methodology is based on EIA requirements, as reflected in the UK Town and Planning (Assessment of Environmental Effects) Regulations 1988, economic impact analysis (*i.e.* CBA), and social impact analysis (*i.e.* Community Impact Assessment) (Lichfield, 1996a; Lichfield and Lichfield, 1992). The methodology consists of the following steps:

i) the changes which the proposed activities will introduce to the physical environment are identified and expressed as effects,

ii) the groups of people who would experience each effect are identified,

iii) the negative and positive impacts experienced from each group are established, which include residential, business, local community, city-wide and nation-wide interests,

iv) the impacts of the proposal are compared with that of alternative options, and the benefits of the groups from the various options are assessed.

The authors maintain that the benefits derived from the application of this integrated framework are that decisions are well informed, accountable and justifiable. The method is quite flexible as it gives decision makers the discretion to place their own values on each impact and group. In addition, IPEA is iterative as it is open to continued amendments and can be modified as new groups surface or retract, and as information about effects and impacts is being fine-tuned. The resulting complexity stemming from the inclusion of too many types of impacts and groups might however make analysis both technically difficult and politically controversial. The benefit arising from developing a transparent process might in practice coincide with the expression of dissatisfaction on behalf of the decision makers and planners involved, as it might bring about delays in plan making and authorisation procedures.

Perhaps the most important element of this planning/SEA type of integration is its social integration. Indeed, the identification of impacts for each social group enables members of the public to identify themselves amongst the groups represented. As such, it provides an appropriate framework for public participation, and ultimately, better acceptability of the proposed action through the increased awareness of the wider public. IPEA however, is most appropriately applied to project and land use planning, since the complexity and the political repercussions of social distribution of impacts, might render its application at a government policy level methodologically difficult and possibly controversial. Furthermore,

IPEA does not engage itself in a discussion on the conditions and difficulties involved, when the groups' perceptions on the distribution of impacts are used in decision making.

3.6.3. Policy Assessment

Boothroyd (1995) suggests the concept of Policy Assessment as an answer to the limitations of SEA, which is limited by:

Formality. The theoretical formality and democratisation proposed for SEA tend to be perceived by politicians and policy analysts as unrealistic. This means, that the formality of the procedures hampers the realisation of meaningful public involvement.

Narrowness. Thematically, SEA is limited to externalities related to the environment. Social impacts tend to be ignored, or when considered, these are undertaken in a non-systematic manner. In addition, SEA's field of application is limited to policies governing the building and operation of physical projects, excluding economic, cultural or defence policies *i.e.* policies which have important long-term and transboundary/global impacts.

Linear partialising process. SEA addresses major social goals sequentially, partially and therefore individually. Wood and Dejeddour's (1992) idea of 'tiering' was criticised as being at odds with reality. This linear conception of governance is rarely implemented in a complex, uncertain, changing world where explicit policy is not always realised, and policies contradict eachother. This linear process also inhibits public involvement throughout the SEA process. Similar to the situation with project-EIA practice, even if parochial political pressures, national budget constraints, technical difficulties of impact prediction, and timing problems are all overcome, the momentum and disposition of powerful interests usually prevail when they initiate policies according to their mandate goals. Policy Assessment therefore is seen as a continuous and simultaneous process, which occurs alongside policy making.

Low policy level. Partly, as an inevitable consequence of the need for clearly stated proposals, SEA in practice usually applies at a plan and programme level (Therivel, 1993).

Short impact horizon. The immediate focus and narrow scope of SEAs can be explained by the reactionary concern for partial externalities, rather than proactively adopting integrative approaches.

In view of these suggested limitations of SEA, Policy Assessment aims at filling these gaps in assessment methodology and procedure. This newly emerged concept is defined as '*the process by which fundamental policy options are continuously identified and assessed in terms of all highest level societal goals*' (Boothroyd, 1995, p. 105). The term is developed around three conceptual needs. In particular, there is a need for the conception of an assessment process that:

- simultaneously involves assessment in terms of objectives, higher goals and externalities,
- comprehensively assesses fundamental policies, implicit as well as explicit, existing as well as proposed, and thereby broadens the possibilities for initiating assessment,
- is both integrated with policy design and scrutinises design.

Policy assessment is flexible in order to accommodate integrative approaches to environmental assessment. Unlike SEA, Policy Assessment recognises the fluidity of decision making and the complexity of relations among decisions. It therefore encourages the initiation of an assessment '*at any time, at any policy level from the general to the specific, at any point in the stream of causes and effects from policy to activities, in any policy sphere, by any party*' (Boothroyd, 1995, p. 116). Public involvement is also of paramount importance. Unlike SEA where the role of the public is 'to make sure that scientists do their job satisfactorily and to put values on their findings', Policy SEA aims at putting procedural mechanisms in place so that the public can identify the needs for policy change and scrutinise alternative options. Suggested methods vary from public audits of existing policies, to structured participatory processes, to provisions for public systematic monitoring of day-to-day decision making.

3.6.4. Integrated Environmental Management

Integrated Environmental Management (IEM) is a term that originates from the literature regarding the management of environmental systems, which includes concepts like integrated resources management, ecosystem management, integrated catchment management and watershed approach. Margerum and Born (1995) argue that these approaches have developed in response to a narrowly focused, incremental, and disjointed environmental management process. They therefore suggest a more interactive and interconnected approach to environmental decision making that takes into account the variety of ecosystem components, functions and affected entities. Dixon and Easter (1986) define IEM as: '*the process of formulating and implementing a course of action involving natural and human resources in an ecosystem, taking into account the social, political, economic, and institutional factors operating within the ecosystem in order to achieve specific societal objectives*'.

Previous reviews of the environmental management literature, have identified four themes in IEM (Born and Margerum, 1993; Born and Sonzoni, 1991; Margerum and Born, 1995):
Inclusion. In contrast to the rational-comprehensive planning and management where inclusion refers to 'planning for all things simultaneously', in the environmental

management literature, the adoption of an inclusive view means taking a holistic or ecosystem view, so that the full range of issues are considered.

Inter-connectiveness. The examination of the interconnections in a system to determine how different component parts and sub-systems relate to eachother, is necessary when the complexity of the issues is too great to be broken down and handled individually. This is the case with the examination of environmental problems, and the use of the appropriate analytical tools and techniques (such as GIS) play an important role in managing complexity.

Reduction. The concept of 'reduction' has to be applied to the above themes, if an integrated approach to environmental management is to be successfully implemented. Various planning models such as reduced planning, strategic planning and mixed-scanning, have incorporated the theme of reduction to deal with complexity. What this actually means, and in that sense is conceptually similar to scoping as it is used in SEA, is that planners should narrow down the focus of assessment to key aspects of systems and concentrate efforts on the tasks that achieve system goals. The adoption of both the 'inclusion' and 'reduction' theme in an integrated management/assessment exercise, will therefore require the adoption of a dual perspective. On the one hand, 'inclusion' stresses the need for a broad view that covers the salient parts of the system under analysis. On the other hand, 'reduction' stresses the need for a narrower view that focuses on key sectors, identified in the broader analysis.

Goal-focused. Another way of dealing with the complexity of issues imposed by the 'inclusion' and 'inter-connectiveness' themes is the agreement by participants on common goals for the system being analysed.

In practice, the concept of 'interaction' is at the core of the environmental management debate. An integrated view of environmental issues requires contribution from a variety of stakeholders. Interaction should be continuous in that it should occur at every stage, from scoping to implementation. Two types of mechanisms are important in that respect. Those that communicate and share information amongst the various stakeholders and those that resolve differences and conflicts.

3.6.5. Integrative Framework for Sustainable Resource Management

Smith (1993) has devised an integrative framework for sustainable resource management, which embodies three elements, institutional arrangements, interest representation, and impact assessment. According to Smith's (1993) view, institutional arrangements provide the ground for the integration of interest representation with the process of impact assessment.

Important factors relating to institutional arrangements are legitimisation, functions, administrative structures, processes and mechanisms, and culture and attitudes. Interest representation, involves the communication of management agencies with various stakeholders such as pressure groups, lay citizens and selected interests within the resource management process.

Smith (1993) distinguishes three principal approaches to interest representation *i.e.* lobbying, public participation and environmental dispute resolution. Furthermore, interest representation is an iterative process, since the composition of stakeholders involved, their views, and how they are represented may change several times throughout the management process. Impact assessment is seen as the 'engine' within the resource management process. It is primarily a process, and operates within a 'tiering' schema of decision making that contains normative policies, strategic programmes and operational projects. Different assessment activities are considered more important than others in these three decision making tiers. Scoping, for example, is more relevant at a policy level, as it sieves significant issues to be considered at subsequent levels of government, whereas monitoring and mitigation is more effective if undertaken at a detailed project level where information is usually available. Prediction however, is the assessment activity that distinguishes impact assessment as a planning process at a strategic level, as distinct from a descriptive assessment of existing environmental conditions. The adaptation of this statement in current SEA practice, might mean that the minimum requirement for the definition of a SEA within a PPP exercise, could be the existence of evidence on the prediction of the environmental impacts. This integrative framework has an element of interaction in its rationale. Its principal characteristic is that it recognises the interaction of the three components. This is necessary *'if resource management is to provide an effective bridge between the basic starting point of problem identification and the desired goal of sustainability'* (Smith, 1993, p. 104).

3.7. ***Elements of integration***

3.7.1. Procedural integration

3.7.1.1. Parallel and simultaneous processes

The integration of SEA with the PPP process has a different meaning than the application of SEA in the PPP process (Armour, 1989). The difference is that, in an integrated-SEA, all stages of the PPP process should include SEA, whereas 'application', implies that SEA intersects the PPP process, at a discreet point. Therefore, the relationship between PPP and SEA processes is one that the SEA process merges with the process of planning in order to become one.

Environmental issues have further complicated the PPP procedure that is controlled by specialised branches of public administration. The entailed complexity of this compartmentalised procedure is in many respects inefficient, since it might result in a waste of time and resources, and lead to duplication of efforts (CEAA, 1996). In view of this, an integrated approach to SEA offers the opportunity for the transformation of 'serial' procedures involving many organisations in sequence, into parallel procedures, in which all issues are simultaneously dealt with (Warner, 1996; Conacher, 1994; Manning, 1995).

A number of European countries, have undertaken research on the procedural side of integration. In Finland, a model has been developed relating to the way that environmental assessments can be included in the formulation of programmes at a regional level (Turttv, 1997). In Germany, guidelines for the integration of environmental assessment in urban and land use plans (zoning plans) have been developed (Riehl and Winkler, 1995). In Sweden, the results from integrating SEA and the municipal comprehensive planning process, have been tested by means of 'full scale experiments' in two municipalities (Asplund and Hilding-Rydevik, 1996).

3.7.1.2. Continuous, iterative and early integration

SEA has been criticised for addressing issues sequentially and partially (Boothroyd, 1995). In SEA, decision making can be viewed as linearly deductive. Wood and Dejeddour's (1992, p. 8) introduction of a linear 'tiering' model of SEA where '*there exists a tiered forward planning process which starts with the formulation of a policy at the upper level, ...followed by a plan at the second stage, and by a programme at the end.*' is usually at odds with reality, and probably with the ideal. It is recommended therefore, that the SEA process should be integrated early, both into the individual PPP process, as well as in the whole process of governance. It also should be procedurally iterative, allowing for several feedbacks to update the formulation of draft policies and measures, and continuous *i.e.* undertaken not only before, but also during and after PPP-making. The International study on the effectiveness of Environmental Assessment acknowledges the importance of engaging SEA in a continuous process (Sadler, 1996).

The preparation of a PPP is a long-term process, including several rounds of consultations and re-examination of issues in the light of consultations and the views of the public. Therefore, the full integration of SEA has to follow the procedural management of the PPP-making, which implies a procedural mechanism for incorporating feedback and iteration (Smith, 1993; Asplund and Hilding-Rydevic, 1996; Sadler, 1996). This iterativeness of the integrated process, is beneficial for both SEA and PPP making, as it allows for the sieving

of non-significant issues which otherwise would have been generating additional delays and unnecessary costs to the integrated process (Kleinschmidt and Wagner, 1997; Gosling, 1996). The Sustainability Appraisal of the Regional Planning Guidelines for the South East of England (SERPLAN, 1998a) and the requirements of the proposed SEA Directive (CEU and EP, 2000), are characteristic practical examples of the iterativeness of SEA. Conacher (1995) identifies the carrying out of regular reviews as one of the successful requirements of integrated regional land use planning.

The principle of early initiation of the SEA process, as an integral part of a PPP, has been considered to be paramount for strengthening SEA effectiveness (Sadler, 1996). One argument that stresses the importance of early integration, is the role of SEA in pointing out alternatives. The consideration of alternatives enables the assessment of environmental impacts and comparative judgements. In cases where several options are still available from the beginning of the PPP exercise, the evaluation of alternatives demonstrates the beneficial influence of SEA on PPP making, thus justifying its strategic role. If SEA is integrated at a later stage, where only a few or no options remain, the main focus of SEA is restricted to the description of suitable mitigation measures (Kleinschmidt and Wagner, 1997; Turpin, 1996; Conacher, 1995; Armour, 1989; Tywoniuk, 1989; CEPA, 1994a; Asplund and Hilding-Rydevic, 1996; Sadler, 1996). Equally, the scoping of the significant issues to be considered in a SEA exercise should start early in the PPP process.

3.7.2. External integration ('tiering' of environmental objectives)

3.7.2.1. Environmental objectives-led integration

A number of documents have stressed the importance of the connectivity of the SEA process with other PPP processes and related initiatives. For example, the existence of a national environmental plan or a Sustainable Development strategy from which environmental quality objectives can be derived, is seen to help the preparation of SEA (Turpin, 1996; CEPA, 1994a; CEAA, 1996).

For example, Turpin (1996) notes that the design team for the Majorca Urban Plan suggested the prior preparation of an environmental management plan. This was drawn up by the local authorities, residents, conservation bodies and developers to provide a SEA framework for the continued compatibility and integration of the development with indigenous ecosystems. The preparation of an environmental management plan was seen as a demonstration that the spirit and objectives of SEA for sustainability would be implemented and maintained. Furthermore, the setting of environmental objectives at a national level is of paramount importance in order that the results of a SEA are set into an

appropriate context (NATO/CCMS, 1995; CEPA, 1994a).

SEA was also introduced in Commonwealth countries as a tool that promotes the National Strategy for Ecologically Sustainable Development. The Strategy, provided for SEA requirements and changes to government institutions and machinery, in order to accommodate the Ecologically Sustainable Development principles involved (CEPA, 1994a). It is characteristic that SEA and Cumulative Impact Assessment (CIA) as its component, are considered the most important tools that promotes SD: '*The policy instrument of Strategic Environmental Assessment, incorporating Cumulative Impact Assessment as one of its operational tools, should ultimately become the principal means by which all governments in Australia seek to achieve Ecologically Sustainable Development.*' (CEPA, 1994a, p. 8).

In Canada, the application of SEA to PPPs, is supported by a federal law that establishes a Commissioner of Environment and SD and requires federal departments to prepare SD Strategies (CEAA, 1996). Another example is the development of transboundary environmental quality objectives in the context of the proposed SEA Directive. Similarly, integration is facilitated by the co-ordination of PPPs with government policies and programmes (Conacher, 1995). In the context of Structural Adjustment Programmes, the need for integration of environmental issues from different tiers of government has also been stressed: '*The plan would need to reflect and integrate related environmental and resource policies and programmes, including those of other spheres of government. ... Further, there is a need for integration of this diversity of plans across local government into a coherent package to guide development.* ' (McDonald, 1995, quoted in Abaza, 1996, p. 16).

3.7.2.2. Connectivity of sectoral with regional plans

Another aspect of external integration which is of particular relevance to the transport theme of this thesis, is the co-ordination of different sectoral plans and programmes. In some European countries, this function is the responsibility of regional planning authorities. For environmental reasons, not all needs defined in the sectoral plans, can always be integrated into the regional plan. A possible consequence of the lack of co-ordination capacity might be the poor acceptance of the regional plan by the sectoral authorities, as well as the limitation of the use of impact assessments in the decision making process (Niekerk and Arts, 1996). A way out of this situation is to include a description of the baseline environment, state the plan and programme's objectives and consider alternatives, so that acceptability is enhanced (Kleinschmidt and Wagner, 1997).

Another aspect of external integration is the interconnection of various elements/sectors (*e.g.* transportation, land use, water) within a comprehensive land use plan (McKinnon and Joyer, 1996; OECD, 1996; Turpin, 1996; CEPA, 1994a). Turpin (1996), for example, notes that throughout the preparation of a local plan the effects of varying land uses within each option, were considered alongside the other studies of the area such as transportation, environment, landscape and urban design.

A benefit derived from using an integrated-SEA utilising the outcomes of several sectoral-SEAs, is that the use of different, non co-ordinated sectoral impacts assessments, which can produce an overlap of work, as well as fragmented and redundant information can be avoided. An advantage, however, of the sectoral approach is that assessment of impacts is elaborated to an adequate degree and that the optimal situation for every sector can be described separately and in adequate depth. In this way, the incorporation of a wide range of environmental issues in decision making is better addressed.

3.7.2.3. Connectivity of SEA with EIA ('tiering')

The integration of SEA with project-EIA is considered a factor that further promotes SEA effectiveness. It is argued that irrespective of the approach taken to SEA at any given time, SEA should be consistent with project-related EIA principles (Sadler, 1996). The effective link between project-EIA and SEA is recognised to be necessary to ensure that the overall environmental assessment process is integrated and comprehensive, if unnecessary repetitions are to be avoided. (DMHSPE, 1999; CEC, 1997d; Sadler, 1996; DG XI, 1994; Warner, 1996; Conacher, 1994; CEPA, 1994a; Lerman, 1994; Sadler and Verheem, 1996). As such, SEA is seen to be vertically integrated with the project level of assessment by establishing the context for project-EIA, including the pre-identification of issues and impacts that warrant detailed examination (*e.g.* Sadler, 1996; Sadler and Verheem, 1996; DMHSPE, 1999). These considerations are particularly relevant to the proposed SEA Directive. In order to integrate SEA and project-EIA, the European Commission has advocated a 'tiered' approach to SEA. Provisions for a 'tiered' approach which links SEA and project-specific EIA, were also introduced in the Ecologically SD Bill at Commonwealth level, (CEPA, 1994a).

As mentioned in chapter 1, a tiered approach enables environmental considerations to be addressed at the appropriate levels of PPP decision making. Some of the benefits of the integrated SEA/PPP process, that can be expected from the linkage of SEA and project-EIA, include the enhanced effectiveness and cost-efficiency that follows from narrowing-down the range of alternatives, as well as avoiding overlap, duplication of efforts and the utilisation of only pertinent information. As such, the rationale for the use of SEA is to

focus and streamline project-EIAs, making them more consequential (Sadler and Verheem, 1996).

Certain aspects of project activities may not need to be assessed in detail in the EIA, if impact assessments have been performed at a higher level of decision making (CEC, 1997d; Wood, 1990). The substitution however of EIAs, in favour of SEAs, has been rejected, as it is at the local level where project impacts can be dealt with in detail.

3.7.3. Methodological integration

3.7.3.1. Consideration of non-environmental impacts

SEA is a relatively new and emerging area of practice and the methodology is still evolving (Sadler, 1996). According to Boothroyd (1995, p. 101), one of the limitations of SEA is its narrowness *i.e.* its limited consideration of environmental, as opposed to other socio-economic externalities. It is usually the case that trade-offs and synergies between the environmental and social part of Sustainable Development such as equity are excluded from consideration. Social impacts get less attention, as well as impact's environmental impacts *i.e.* the second-order environmental impacts of first order social impacts. An integrated approach to SEA would necessarily aim at changing this by introducing procedures and methodologies of other scientific disciplines and socio-economic approaches to planning and policy making.

Boothroyd (1995) argues that in practice SEAs have short impact horizons. One of its limitations is its reactionary focus on merely environmental externalities. This characteristic of SEA seems to weaken its capacity as a tool for the promotion of Sustainable Development. One of the reasons behind this narrow methodological scope, is the single disciplinary focus of SEA on environmental issues. The integration of SEA with PPP-making should eventually expand its scope to cover impacts that lie at the core of the socio-economic expertise of the PPP process within which this is integrated, and positively influence planning and policy.

This narrow scope of SEA methodology raises concerns, since scoping (*i.e.* screening of significant issues) is one of the commonly accepted benefits derived from the application of a SEA (Armour, 1989; Sadler, 1996; Sadler and Verheem, 1996; CEAA, 1996). Scoping is important in integration, as it applies the concept of 'reduction'. In an integrated canvas of inter-related issues to be assessed, complexity is expected. The difficulty that arises is that complex problems cannot be addressed in a comprehensive way (as is the case for example with comprehensive land use planning) because of the existing constant changes

and interactions (Margerum and Born, 1995). The contribution therefore to the PPP process by an integrated approach to SEA would be the 'borrowing' of the scoping practice, as it has been used in strategic planning (Bryson and Roering, 1988), reduced planning (Waller, 1975), and mixed scanning (Etzioni, 1973) approaches. The role of scoping in strategic assessment will have a dual perspective. On the one hand, scoping should selectively identify, with the participation of a wide range of actors and societal groups, the key elements on which to focus attention. On the other hand, it should adopt a broader strategic view that covers the salient parts of PPPs under analysis. The balancing of these contrasting needs for inclusion and reduction of scoping issues is expected to be a challenge for practitioners and users of an integrated-SEA exercise (Tywoniuk, 1989).

3.7.3.2. Domination of economic aspects

According to the findings of the 4th European Workshop on SEA (Kleinschmidt and Wagner, 1997), the integrated consideration of environmental, economic and social matters when a decision on a plan or programme is made has to be presented in a format which allows comparisons to be made. In practice however, the consideration of all these conflicting issues is often weak in EU member states. It is often the case with an integrated approach to SEA, that economic considerations dominate over socio-economic ones (Bower, 1993; Kleinschmidt and Wagner, 1997; Scholten and Ruis 1999; Gariepy, and Jacobs, 1996). Environmental Assessment has been accused of proceeding from a certain faith in and vision of economic development. It is also argued that SEA frequently runs into opposition from ethnic groups and local minorities (Gariepy, and Jacobs, 1996). Similar to the situation with project-EIAs, in SEAs and consequently integrated-SEAs, even if technical and timing problems are all overcome, the momentum and disposition of powerful political proponents usually prevail, when policy designs are initiated according to mandated goals (Boothroyd, 1995).

Various proposals have been put forward to solve this problem. For example, at a technical level of assessment, the early preparation of 'environmental profiles of regional development plans' can be used to compare one region with other regions, and thus allow the relative environmental sensitivity of a region to be assessed. In addition, economic and social regional profiles could be developed, which then, if combined with environmental profiles can enable better integration (Kleinschmidt and Wagner, 1997). Another methodological solution suggested is that at the scoping stage, there should be at least one alternative that meets the environmental objective of the PPP. From that alternative, the concessions that should be made in the economic objective can be learned, in order to achieve the environmental objective (Scholten and Ruis 1999).

Finally, new approaches to dispute resolution are emerging in current SEA practice (Margerum and Born, 1995; CEAA, 1996). In Canada, from 1978 until 1996, mediation procedures have been employed 28 times, with a success rate of 75%. It is argued that in these cases, mediation has also reduced the need for hearings saving time and costs, and has allowed communities to participate in devising solutions (CEAA, 1996).

3.7.3.3. Integration of methods

Another methodological obstacle to the integration of SEA with the PPP process, is that the methods used in project-EIA are not always transposable to the SEA practice (Sadler and Verheem, 1996; CEC, 1997d; Kleinschmidt and Wagner, 1997; NATO/CCMS, 1995; Straaten, 1995; Bond; 1995; CEPA, 1994a; Wilkinson *et al*, 1994). The International study of the effectiveness of SEA (Sadler, 1996) concluded that notwithstanding that the main steps and activities of project-related EIAs are widely recognised as establishing the generic basis for a systematic approach to SEA, in practice, project-specific EIA methods need various degrees of modification. Some of the fundamental differences between EIA and SEA that determine the use of different methodologies, relate to the geographical area covered (usually greater for SEA), to the number of activities concerned (EIA normally refers to a single project), and to the time interval between the planning and the implementation of the proposed activities. As a result of these distinctive characteristics, the level of detail in which the proposed activity is discussed and therefore assessed, is often lower in SEA. It follows that the impact predictions made are subject to greater uncertainty (CEC, 1997d). As such, the appropriateness of project-specific EIA will partly depend on two factors. Firstly, on whether or not the PPP will initiate, locate or lead to projects, and secondly on the extent to which the direct and indirect impacts, and risks associated with these are identifiable (Sadler, 1996).

Therefore, it is now commonly accepted that new methods, or adaptation of existing ones, is needed (Armour, 1989; Smith, 1993; Sadler, 1996). Perks *et al,* (1996) list as many as twelve tools that could be employed in an integrated fashion by municipal managers and planning units in Canada. Warner (1996) suggests that many of the existing methods for integrated regional development planning are now redundant. Conacher (1995) reaches similar conclusions for the inadequacy of existing methodologies when he discusses the integration of regional land use planning with SEA. Margerum and Born (1995) point to the unavailability of tools as one of the rationale for the need for more integrated approaches to Environmental Management. Both the 1996 report on the 'Methods for Integrated Environmental Assessment' (Bailey *et al*, 1996) and the 1997 'study for an EU strategy for SEA research' (CEC, 1997d), stressed that, in order to develop methods and frameworks for the integration of SEA and socio-economic appraisal in the overall framework of the

PPPs, it is necessary to take into account the advantages which have been made in the field of integrated environmental assessment methodologies. The heterogeneity of the nature of PPPs requires the use of different methods, which inevitably should follow the specific characteristics of the PPP.

The search for new, or the adaptation of existing methods to cater for the changing circumstances in the rise of SEA, greatly facilitates better integration of SEA. In the current experimentation period, environmental and socio-economic methods will be brought together to achieve a common cause, whether that is 'better integration of environmental and socio-economic concerns' or 'Sustainable Development'. This 'methodological integration' will also provide an incentive for an inter-disciplinary approach to better communication between experts on assessment and planning teams. A practical example is provided by the measures taken for the implementation of the Ecologically Sustainable Development Bill at Commonwealth level. There are plans for the establishment of a funded research institution, similar to the Canadian Environment Assessment Research Council, which will develop programmes and undertake research for the methodological integration of SEA and Cumulative Impact Assessment (CEPA, 1994a).

3.7.3.4. Barriers to methodological integration

It is a commonly accepted view that SEA's methodological scope, as well as the scope of other environmental tools that participate in an integrated exercise, should extend to cover social and economic impacts (OECD, 1996; NATO/CCMS, 1995; Kleinschmidt and Wagner, 1997; Straaten, 1995; Bond; 1995; CEC, 1997d; Armour, 1989; Wilkinson *et al*, 1994). There is, however, a variety of methodological obstacles involved in any SEA exercise, particularly where quantification is not possible. According to a number of studies that dealt with methods to predict the impacts of PPPs (*e.g.* CEC, 1994; CEC, 1995b; CEC, 1997b; NATO/CCMS, 1995; Steer Davies Gleave, 1996; Groot, 1995), the analytical rigour of SEA methods is limited. This is the result of limited SEA practice and increased uncertainty relating to impact prediction. One of the great obstacles in the decision making process, is scare information, which in turn, generates uncertainty. Data is often too general, or centralised, or too dispersed, or difficult to interpret (Saez, 1996; Conacher, 1995; CEPA, 1994a). Uncertainty also increases with the level of decision making in a given PPP, and especially with the broad nature of issues examined, which in high decision making levels, renders quantification difficult (Bithas *et al*, 1996; Wilkinson *et al*, 1994). It is characteristic that the 1997 European Commission's report on 'SEA Case Studies' (CEC, 1997b) found that qualitative prediction methods such as expert judgement, were the most frequently used methods, while in only a few cases a substantial analysis of the uncertainties had been made and reported. Furthermore, the 10th workshop of the

NATO/CCMS pilot study, focused, *inter alia* on quantitative *versus* qualitative methods within SEA (NATO/CCMS, 1998). It was found that the use of qualitative methods in SEA can only be effective if the emphasis is moved from a technical and adversarial approach to a more political and collaborative approach (Bond, 1996; NATO/CCMS, 1998; Saez, 1996). The 1992 UNECE Task force, lists two further problems to be considered, when attempting a quantitative approach to SEA:

- the time-lag between decision and implementation, and
- the extended casual link from source to effect (*i.e.* from decision to implementation to activities/behaviours to environmental impact).

The situation is getting even more puzzling for integrated PPP/SEA exercises, since complexity and uncertainty follow the attempted integration of methods (NATO/CCMS, 1998; NATO/CCMS, 1995; Bond, 1996; Franks, 1996; Armour, 1989). When knowledge is to be integrated from different activities or fields of study, there is an even greater chance that errors or uncertainties communicated, may be underestimated in the combined product (Bailey *et al*, 1996). The critical

models (Steer Davies Gleave, 1996; Arsenio, 1996; Sheate, 1992). The use of GIS has been proven to be increasingly useful, especially since the promotion and harmonisation of GIS data for various models used in member states, is being promoted by the EU and member states (Steer Davies Gleave, 1996).

With regard to the use of economic appraisal and monetary valuation methods in SEA, the argument has been put forward that these methods are popular with the decision makers, and some believe necessary, if the environmental impacts are to be taken fully into account in decision making (Kasyanov, 1996; Lee and Kirkpatrick, 1996; Karatas and Payaslioglu, 1996). These methods have been criticised however, for being flawed because of the unrealistic assumptions inherent in them and, as such, they are considered to be accurate in only a limited number of cases. While more research is needed to overcome these flaws, economic appraisal methods are most appropriately used to rank environmental importance, rather than to enable trade-offs with economic benefits of development (NATO/CCMS, 1995; Straaten, 1995; Bond, 1995; Kasyanov, 1996). OECD (1996) notes that the distinction of physical parameters (where the environmental tools are based) from the monetary values (where the economic tools are based) is a fundamental obstacle to their further integration. It was also maintained, that various ways have been found to communicate the results of economic policy tools in temporal and spatial dimensions, but similar methods are not yet well-developed in the environment field. In the transport sector, the use of cost-benefit analysis methods in SEA is rejected, since it is believed that monetary valuation of environmental impacts, is not yet sufficiently robust or accepted (Steer Davies Gleave, 1996).

The renewed interest in the Sustainable Development debate has influenced the use of environmental or/and Sustainable Development indicators throughout PPP making. This was especially the case during the 90s, where SEA was promoted as an environmental management tool that promotes Sustainable Development by integrating environmental concerns in PPP decision making (Warner, 1996; OECD, 1996; Saez, 1996; Turpin, 1996; Sadler, 1995a; Sadler, 1996; CEPA, 1994a). The use of indicators fits into the 'objectives-led' approach to SEA integration (Therivel, 1996; Wilkinson, 1994; Jacobs, 1993; Jacobs, 1991; Collis *et al*, 1992). If indicators are used within a policy framework of sustainability/environmental standards and objectives (Kasyanov, 1996; CEPA, 1994a; CEPA, 1994b; Sadler, 1996), and are linked to public participation, monitoring and review of the PPP, they can offer an appropriate methodological background to integrate PPP procedures with other management tools such as SEA and Social Impact Assessment or Cumulative Impact Assessment (CEPA, 1994a).

This 'objectives-led' approach is becoming part of SEA practice, as some case studies in this thesis can justify. It is usually the case with SEA that 'state indicators' are used to describe both the baseline conditions and the impacts on the environment (CEC, 1997d). The research for the thesis and the review of the literature showed that the OECD 'Pressure-State-Response'[3] framework has been introduced in the definition of indicators (OECD, 1994a; Jesinghaus, 1995; OECD, 1996; Colombo and Chitotti, 1996) and used for the development of national Sustainable Development strategies (DETR 1999c; DETR 1999d; EPA, 1999b; GoI, 1997). OECD (1996, p. 12-13), suggests four priorities for the development of the so-called 'integrated indicators' (*i.e.* indicators capable of describing environmental and economic trends at various levels of the Sustainable Development hierarchy): i) development of vertical linkages between different decision making levels of PPPs, ii) development of horizontal linkages between environmental and economic tools across sectors, regions, or countries, iii) emphasis should be put on the time dimension of environmental indicators. Efforts therefore should be intensified to develop reliable time-series for the most important indicators of environment-economy performance. Commonwealth countries have gradually established a nationally agreed set of criteria for Ecologically Sustainable Development which forms the basis for their SEA system (CEPA, 1994a).

3.7.4. Substantive integration

3.7.4.1. Documentation of integration

The existence of flexibility in order to accommodate the different assessment needs for different types of PPPs, has been recognised as an important feature of SEA (Sadler, 1996). This condition should be applied to the documentation of the outcome of SEA, especially as fears have been articulated regarding the loss of its identity in an integrated exercise (Wood, 1998). It is therefore, a challenge for integrated-SEA to present a clear commentary reflecting the outcome of each component of the assessment. The environmental part of the assessment (*i.e.* the environmental impacts of the proposed or planed actions) can be incorporated in the final text as a separate document, as a chapter within the final documentation of the PPP, as paragraphs throughout the text, or as combinations of these options. The incorporation of the assessment's results into the PPP documentation in a summary of the PPP report can have a positive effect in PPP-making and as a result, promote 'well-balanced, integral decision making'. The incorporation for example of a summary of PPP' environmental impacts in the PPP's text, can indicate the potential

[3] By 'pressure indicator', it is meant an indicator which describes the pressure on the environment caused by human activities. By 'state indicator', it is meant an indicator concerned with environmental quality and aspects of the quantity and quality of natural resources. By 'response indicator', it is meant an indicator of societal (non-ecosystem) response to changes in the environment.

discrepancies or inconsistencies of the PPP making, so that a clearer picture is given of the pragmatic choices available (Niekerk and Arts, 1996).

Current experience with the application of SEA suggests that a specific study is prepared as a result of the application of SEA at a discreet point (and probably late) in the PPP process, rather than being integrated throughout all stages from 'start to finish'. The production of such a study or SEA report alongside the PPP documentation can be considered as a sign of lesser integration compared to, for example, paragraphs throughout the text. Separate documentation of SEA can however be used constructively, as it is not the form of documentation that matters in representing successful integration, but rather the way that this is integrated with the other interdisciplinary documentation in PPP-making. As Armour (1989, p. 7) maintains, '*A separate environmental impact report may be produced, documenting the analysis undertaken and decisions made in arriving at a proposed plan, but this is an exercise in synthesis rather than a one point in time exercise in evaluation.*'. The use of separate SEA reports in an integrative way can be especially relevant to the proposed CEC Directive on SEA. The provisions, however, for separate documentation under the proposed SEA Directive's requirements, neither guarantees better integration, nor the quality of the assessment. It depends on the administrative and planning structures in member states to safeguard such quality and integration.

TABLE 3.5: GUIDELINES ON REPORTING (CANADIAN FEDERAL PROCESS OF POLICY AND PROGRAMME ASSESSMENT)

Documentation and Disclosure

For environmentally relevant initiatives being considered by Cabinet, including Treasury Board:

- a statement on the environmental implications should be included in Memoranda to Cabinet, and where appropriate, in Treasury Board Submissions and other documents submitted for consideration by ministers; and
- where anticipated environmental effects are likely to be significant, a more detailed account of the environmental assessment and the rationale for the conclusions and recommendations should be included in the documents supporting the proposal.

Any disclosure of information will be subject to existing legislation, regulations and policies governing the release of information.

Public Statements

- the Minister will determine the content and extent of public statement according to the public interest and the particular circumstances of each case, where a statement is required;
- the purpose of the public statement is to demonstrate that environmental factors have been integrated into the decision making process, not to necessarily provide a detailed account of the assessment work undertaken.

For initiatives likely to have significant effects, it is suggested that the announcement contain:

- a summary of the anticipated beneficial and/or adverse environmental effects of the initiative and their expected significance; and
- where relevant, information of the measures adopted to mitigate adverse environmental effects, and on the follow-up programme to monitor the initiative's effects over the longer term.

Source: FEARO, 1993, page 6-7.

The documentation can also have an iterative nature and occur at every stage of the PPP process, in parallel with the PPP process. This could be the case in land use development plans where requirements for statutory planning procedures are standardised. Another

documentation scenario is when SEA is integrated at a government policy level. There, the environmental impacts are incorporated in Cabinet memoranda and parliamentary submissions as paragraphs within the text, or/and in a separate chapter/Annex. In the Netherlands, there is a 'help desk', which supports the ministries' staff when filling out a standardised questionnaire on the environmental effects of government policies. At the same time, a so called 'business test' is obligatory. Both tests are not regarded as conflicting instruments but as supplementing eachother. Guidelines on documentation and reporting of Policy and Programme Assessment for the Canadian Federal process, have also been published (Table 3.5).

One way to gauge the degree of influence of SEA at that high level of decision making, is suggested by Sadler (1996). It involves the calculation of the percentage of proposals to Cabinet, Parliament or other form of executive government that contain a statement of impact of no significance. Since 1996, this type of documentation was undertaken in 25% of Bills and proposals in Denmark, and 50% of policy statements in Hong Kong. Canadian SEA provisions, make particular reference to the importance of a public statement that specify the way that environmental considerations have been incorporated into decision making (Sadler, 1996).

There are two issues found in the literature that can facilitate successful documentation. First, the common use of jargon or discipline-scientific terminology and acronyms, common to single disciplinary PPP making, may be considered essential to the communication of a topic within a discipline. It however creates barriers to effective documentation and communication of information in PPP documents (Bond, 1996; Peuhkuri and Valve, 1996). The use of jargon has another negative consequence for PPP making. It can be used deliberately by scientists and policy specialists to exclude some participants from discussing the issues concerned. It is therefore considered important for an integrated assessment to 'overcome the exclusionary aspect of jargon whilst recognising its legitimate use by specialists' (Bailey *et al*, 1996).

Second, from a methodological point of view, SEA must find appropriate techniques for communicating the results of the assessment to other practitioners and users from different scientific background, 'beliefs', and expectations of the outcome of the assessment. Computer models, which have already been used for the analysis of complex environmental issues, seem to provide the canvas for incorporating relevant model structures, assessment outcomes, as well as the concerns of the parties involved in the integrated-SEA exercise. There are limitations, however, in the initiation of computer models as a presentation mechanism, given that, some forms of important information cannot

accurately be represented by computer modelling methods (Bailey *et al*, 1996; Perdicoulis and Power, 1996; Saez, 1996).

3.7.4.2. Weight given to the results of SEA

An important argument in favour of the documentation of the integrated SEA/PPP process, is related to the extent to which the results of SEA are binding for the decision makers which, for the rationale of this thesis, is the substance of every SEA exercise, whether integrated or not. SEA is usually in the midst of the following puzzle: On the one hand, if limited weight is given to the results of SEA, then the reservations against the application of SEA are seen to be lifted. On the other hand, the limited weight given to SEA bears the risk of SEA being seen as ineffective.

All drafts for the proposed SEA Directive seem to suggest a compromise. Since the proposed SEA Directive is an attempt to put in place the application of minimum requirements for a SEA system (Zagorianakos, 1999), the decision documents (*i.e.* the SEA report) should describe which environmental concerns have been taken into account, and should justify possible deviations from concerns. The problem with this approach is that the specification of more strict legislative specifications regarding documentation, although more effective, might have been non-applicable at an EU-wide level, since member states differ in their legal systems and in the weight given to issues put forward in decision making procedures. OECD (1996) also notes that the positive environmental effects of environmental policies, especially those regarding competitiveness, are often under-emphasised in policy debates, and consequently not adequately documented. Rickson *et al* (1989) maintain that the rationale behind the minimum weight given to the results of SEA, should be traced to a number of political and societal responses to environmental policy. They note that deeply rooted institutional commitments to economic growth and to the maximisation of growth and efficiency, are fundamental constraints to the incorporation of impact assessment techniques into PPP making.

3.7.4.3. Impact Monitoring

Although the role of monitoring of the environmental impacts of PPPs is frequently downplayed, it is considered an important element of SEA integration (*e.g.* Turpin, 1996; Neefjes, 1996; Sadler, 1995a; Sadler, 1996; FEARO, 1992; CEAA, 1996; OECD, 1996; McAllister, 1982). FEARO (1992) notes that monitoring at a policy and programming level should focus on those impacts that are susceptible to a higher degree of uncertainty in the assessment stage. Therefore, better follow-up and monitoring has been recognised as essential to improving the effectiveness of SEA, by determining the accuracy of predicted impacts (CEAA, 1996). Monitoring should also consider the specific conditions and

circumstances within which the policy or programme is implemented. This will enable comparison with the underlying assumptions upon which the policy and programme is based. It will also allow consideration of other factors important in an integrated assessment such as the cross-impacts of other policies and the need for re-appraisal of the policy itself in light of actual outcomes. Sadler (1996) notes that PPP monitoring can provide a (re)assessment of unforeseen modifications and, as such, provide a clear focus for mitigation. Monitoring is one of the weak points of SEA, in terms of both statutory provisions and implementation. A notable exception is the Canadian Environmental Assessment Act, which contains specific conditions for carrying out monitoring (CEAA, 1996).

3.7.5. Social integration

3.7.5.1. Barriers to stakeholders' involvement

There is no doubt, that an understanding of the different attitudes, values and perceptions of the people involved in, or affected directly or indirectly by PPP decisions, is an essential prerequisite to effective integrated-SEA. There is a need therefore, for a type of 'consultative integration' or as it is defined in this thesis, social integration, which means the bringing together of competing interests and perspectives into a unifying socio-economic process (Armour, 1989). Within an integrative framework for SEA, the representation of the interests of the stakeholders involved, their goals and objectives, and the approaches used to make representation within the decision making, is an important element (Smith, 1993).

The successful co-operation of the relevant actors in the PPP process is not always guaranteed, especially when new procedures are introduced. The integration of SEA and PPPs might generate resistance from the planning 'status', as is the case with the proposed SEA Directive. Indeed, in the case of the proposed initiation of new procedures for an EU Directive on SEA, the 'balance of power' that has been developed between the various actors in the PPP process, might be disturbed by these procedures. This is especially the case with countries with a long planning tradition (*e.g.* UK) (Kleinschmidt and Wagner, 1997; Zagorianakos, 1998).

Further problems arise with regard to the co-operation of relevant actors, especially where responsibilities are shared between different agencies or different administrative levels (Kleinschmidt and Wagner, 1997; McKinnon and Joyner, 1996; Franks, 1996; Margerum and Born, 1995; CEAA, 1996). This fragmentation of responsibilities is particularly evident in countries with a federal structure. An effort has been made to tackle the issue in Canada, where the federal government has ratified harmonisation agreements with Alberta and

Manitoba, and signed an agreement in principle with British Colombia and other provinces. The latter agreement guarantees the federal government and affected indigenous peoples, the right to participate in provincial SEA review committees, and delegates the conduct of federal screening and comprehensive studies to the provincial government where both processes apply. These agreements recognise that both the federal and provincial levels of government have interests and obligations relating to project-EIA, and that co-operative approaches are the best way to ensure effective and efficient processes (CEAA, 1996).

Another barrier to 'social integration', is the lack of co-operation of the proponent agency with NGOs in general, and environmental NGOs in particular. It is recognised that the co-operation of actors should include decision makers and sectoral authorities from the non-environmental sectors. This is deemed essential, as the necessity for SEA is not always recognised. This is mostly owing to the legal and political constraints that are often stringent in some countries. Consequently, concerns have been expressed about SEA leading to difficulties and being an additional burden to the PPP process (*e.g.* Zagorianakos, 1998; Kleinschmidt and Wagner, 1997). One way that the environmental sector of an integrated approach can improve its public relations, is by including the non-environmental sectors in its consultation exercises. Although there are benefits to be derived from the participation of environmental and non-environmental NGOs, particularly at a local level, these have only lately been recognised as a way to initiate transparency and ultimately democratise the whole integrated-SEA process (Franks, 1996; Meefjes, 1996; Margerum and Born, 1995; Sadler, 1996; Wilkinson *et al*, 1994). For example, in the case of 'Structural Adjustment Programmes' (*i.e.* programmes for restructuring 'struggling' economies) the involvement of NGOs increased responsibility for managing local resources to formulate local plans, administered mitigation measures, and strengthened local participation (Abaza, 1996). OECD (1996) maintains that, at a national policy level, there is a clear trend towards wider involvement of NGOs in the environment-economy management process. Although many NGOs adhere to a strategy of confrontation with governments and industry, others have opted for co-operative initiatives. The result is that contacts between government, industry and NGOs on environment-economy themes 'are more frequent and more fruitful today than ever before' (OECD, 1996).

Margerum and Born (1995) note that integrated approaches to environmental management, promote a holistic view that requires looking at the full range of interrelationships between components of PPPs. However, a single organisation or societal group, cannot adequately provide that perspective. Therefore, a holistic view of the issues

in question, requires a variety of stakeholders contributing their perspective to a problem (Smith, 1993).

3.7.5.2. Public participation

The importance of public participation in an integrated SEA/planning framework has been stressed by various authors (McKinnon and Joyner, 1996; Abaza, 1996; Fyfe *et al*, 1993; Saez, 1996; Conacher, 1995; Boothroyd, 1995; Margerum and Born, 1995; WCED, 1987; CEPA, 1994a; Sadler, 1996; CEAA, 1996; Wilkinson *et al*, 1994). In an impact assessment exercise the public can be:

- informed (as is usually the case in mandatory planning provisions),
- consulted (which is the expression used in several SEAs and means that the opinion of the public is sought throughout the process),
- participate (this is the role reserved for an integrated-SEA, as it is defined in this thesis, and it involves the participation of the public not only throughout the procedural stages but also the public have a say in the methodological side of the exercise through its participation in scoping and impact monitoring), or
- excluded altogether (as is the case in high government policy SEAs) (Boothroyd, 1995).

The subsections that follow, select a number of issues for discussion that are considered important in this thesis. In particular, public participation at a policy level of SEA is seen as a thorny issue in the literature and active public involvement throughout the integrated methodology is emerging as a research issue with pragmatic implications for the democratisation of SEA. The need therefore to investigate the methodological and procedural elongations for public participation in its new demanding role, is briefly discussed.

3.7.5.3. Policy-SEA and public participation

A number of countries and EU institutions have established provisions for SEA for policies. These include the EU DG VIII/IB draft manual 'Project Screening Guidance', Canada's Environmental Scan and Environmental Effects guidelines, Finland's checklist for determining the need for SEA of PPPs, Denmark's checklist identification of environmental effects, the Dutch 'E-test' of government proposals, the DG XI Checklist for Environmental Appraisals, and the recent Irish 'Eco-Audit of policies' guidelines (Gameson, 1999). In all these cases, there are limited provisions for public participation, as is the case for example with the initial drafts of the proposed SEA Directive. Previous research has shown that there is a widely accepted view that public participation during the application of SEA at a level higher than land use plans is not only time consuming, but also meaningless. It is feared

that public participation at a high level of decision making will lead to delays and difficulties without providing additional benefits (*e.g.* Zagorianakos, 1998). The arguments are, that the growing need to involve the public in SEA leads to increased complexity and financial constraints for governments (CEAA, 1996).

Similar to the situation with project-EIA, the factors that pose limitations for meaningful public involvement include the generality of decision making at a broad policy level (Sadler, 1996), technical difficulties with impact prediction and presentation, political obstacles to open information (*e.g.* parochial political pressure, national budget constraints), and timing problems (Boothroyd, 1994). A continuing challenge is, therefore, to provide new ways of engaging the public (Table 3.6) that also meet the concerns for expeditious processes (CEAA, 1966).

Appropriate public involvement should be carefully managed, prepared and structured with appropriate information provided, if it is to be successful (NATO/CCMS, 1995; McKinnon and Joyner, 1996; Peuhkuri and Valve, 1996; Saez, 1996).

TABLE 3.6: PROCEDURAL MECHANISMS FOR INVOLVING THE PUBLIC IN POLICY ASSESSMENT

PUBLIC NEEDS TO BE INFORMED OF:	AGENCIES COULD BE REQUIRED TO:
Explicit policies on place and outcomes relative to societal goals	Explicate and access existing policies
Consistency of policies with each major goal	Conduct policy audits; initiate other and participatory policy reviews
Implicit policies in place and outcomes relative to major societal goals	Do class audits of project EIAs to show cumulative effects ignored; adhere to freedom-of-information laws
Major emerging or latent societal problems	Sponsor and disseminate state-of-society reports comparing trends
Policies being reviewed or generated, new issues being worked on	Issue disclosure statements (as of conflict of interest)
New policies need considered	Prepare Policy Assessment statements
Thinking behind policy decision taken	Trace Policy Assessment history of decision
Policy making process	Publicise internal procedures
Consistency of plans and day-to-day decisions with explicit policy	Report decisions/plans in useful format
Actual outcomes of policies	Conduct research, disseminate findings
PUBLIC NEED TO BE ABLE TO:	**AGENCIES COULD BE REQUIRED TO:**
Initiate policy audits	Respond to petitions
Conduct policy audits	Adhere to information freedom laws
Initiate policy design/redesign	Respond to petitions
Contribute to policy design (including policy on policy making)	Facilitate public input to framing problems and options; allow public servants to consult with publics; devolve power to local governments; mediate conflict to get win-win
Scrutinise policy proposals	Enable public assessments before final decisions; fund interventions

Source: Boothroyd, 1995, table 5, page 117

That might require expensive surveys and public participation methods that are not only methodologically and technically difficult but also politically disputable. Nevertheless, interviews conducted as part of this thesis showed a degree of optimism regarding the application of public participation at a regional and national policy level.

Although a general scepticism on the feasibility of public participation at a regional level exists, examples of its application were found at that level. These include the public consultation survey for the preparation of the Strategic Planning Guidelines for the Greater Dublin Area (Brady Shipman Martin *et al*, 1999) and the incorporation of the sustainability SEA throughout all public participation stages of the Regional Planning Guidelines for the South East of England (SERPLAN, 1998a). At a policy level, there are also positive examples of public participation within the SEA process. Two SEAs of Danish Bills showed that the involvement of public-interest organisations, both during the preparation of the Bill and SEAs, and during the actual political process in the Parliament, is not only feasible, but could also be built into legislative proposals in Denmark (Elling and Nielsen, 1996). At a national, government policy level, the rapid development of information technology, will potentially enable early public participation. The use of Internet and e-mail services is already emerging as an information sharing exercise for government departments and organisations. Its application however, is mainly project-EIA oriented (Shillington and LeBlanc, 1995). An example of using the Internet to facilitate public participation at a project-EIA level that could be proactively adapted at a SEA level, is the Canadian Federal Public Registry. The Registry holds all records produced, collected or submitted for the EIA of projects involving the federal government and is accessible through the Internet (CEAA, 1996). The extension, of these technologies for actual documentation of the opinion of the public is still restricted by the limited number of Internet users. However, there can be optimism for the future utilisation of this media for public participation. One such case is the public consultation exercise for the Irish National Development Plan where Internet-based e-mail was used throughout the planning process, including the scoping stage.

3.7.5.4. Public participation in assessment/planning methodology

A wider definition of the term integration, could incorporate not only the integration of methods and procedures, but also the integration of social partners. It is the social integration, *i.e.* the 'integration of knowledge and decision making' amongst the various stakeholders of the process such as the scientific community, public administrators and the wider public, that will influence the final outcome of an integrated SEA exercise (Bailey *et al*, 1996, p. 11; Conacher, 1995; Margerum and Born, 1995). This type of integration, however, requires a change in the type, form and timing of communication between groups with different interests and aspirations from the current view of integration in the planning process. The role of the public is traditionally associated with mandatory public consultation and statutory review exercises of land use plans. It can also be extended to cover the methodological part of the exercise by scoping the significant issues to be considered in an assessment (*e.g.* by having 'a say' on the setting of indicators) and being involved

throughout impact monitoring. In turn, this implies that the definition of the term 'practitioners' has to be widened, to cover all parties involved in information and knowledge gathering activities of an integrated exercise. As such, the members of the lay community can participate with technical experts in the integrated assessment through qualitative evidence, review panels and other social assessments (Bailey *et al*, 1996, p. 5).

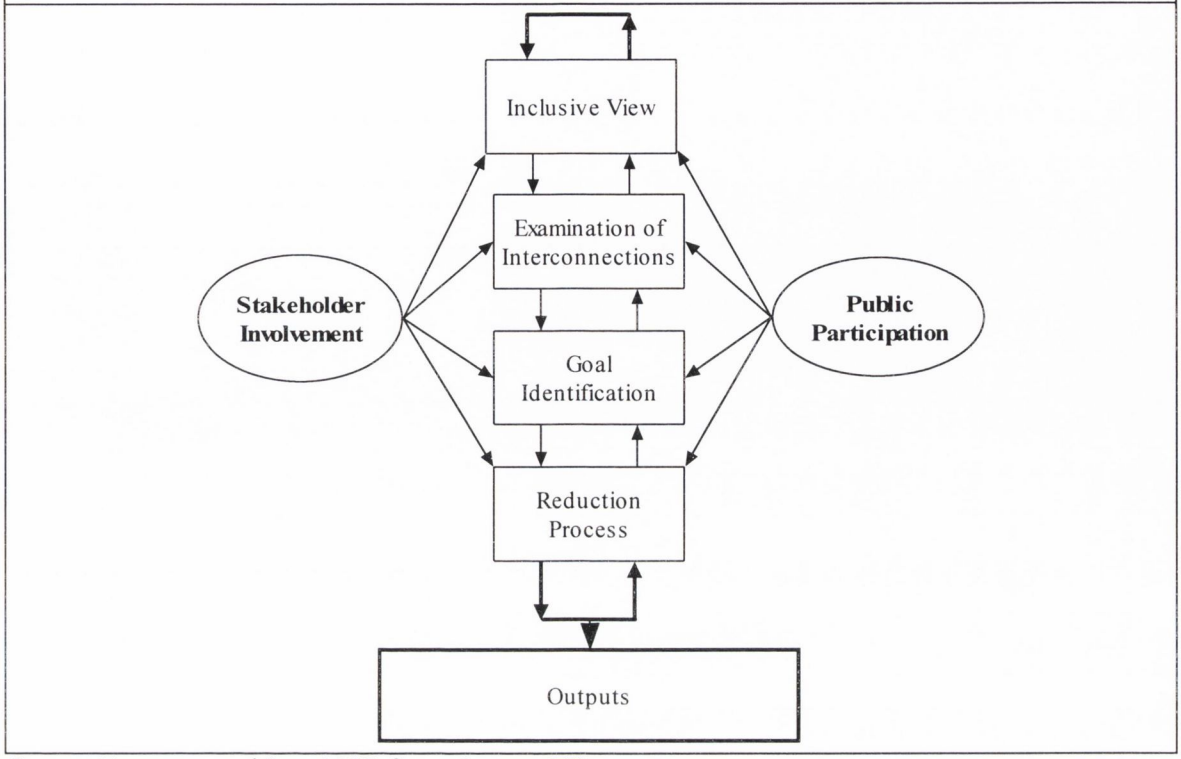
3.7.5.5. Methodological implications of public participation

The newly reserved role for public participation in the assessment methodology has direct implications for the other elements of integration *i.e.* methodological, procedural, and institutional (*i.e.* human resources) integration. The application for example of what Bailey *et al* (1996) suggests as an extended peer review, would benefit both the expert community and the wider public. This would offer experts a forum to explain to the wider public the technical issues involved in the assessment, and provide the public with the opportunity to communicate to the scientific community their 'knowledge about the world in which they live'. Margerum and Born (1995) recognise the fundamental role of the public in participating throughout all stages of the integrated environmental management process (Figure 3.4). As shown in Figure 3.4, it is acknowledged that consultation with agencies and public participation have different organisational needs. Both however, should be interactive and co-ordinated (Margerum and Born, 1995).

One of the methodological considerations for proactive public participation, relates to the way that uncertainty is dealt with and communicated. The integration of the public in the integrated process will require that the information that is communicated among a wide variety of users, has to be described in such a way as to encourage similar evaluations of the data. This however, is not an easy task especially in an environment where 'uncertain conditions are inevitable and unavoidable' and when it is generally agreed that in an integrated assessment, 'striving for so-called scientific proof or zero uncertainty before acting is not a realistic approach' (Bailey *et al*, 1996).

One way to deal with uncertainty and the resulting subjective interpretation of information, is to open the methodological techniques to scrutiny. It is suggested that this can be attempted by i) using a Delphi type of methodology where interdisciplinary expert knowledge is combined by a modelling exercise (Bithas *et al*, 1996), and where alternative goals from different sectors of society are incorporated as priority weights within a multi-criteria decision making framework (Kahen and Sayers, 1996), or ii) through the use of integrated assessment computer models (Saez, 1996; Warner, 1996; Perdicoulis and Power, 1996).

FIGURE 3.4: PUBLIC PARTICIPATION AND AGENCY CONSULTATION AS AN INTEGRATED EXERCISE WITHIN THE PLANNING PROCESS



Source: Margerum and Born, 1995, figure 1, page 378.

Before such approaches are accepted, questions have to be answered in relation to the means by which the participants are chosen, and how the relative influence of different representatives is reflected. Furthermore, the use of computer models has its limitations, since the number of participants that can become actively involved in the development or review of the model, has to be restricted otherwise the models might became too complicated. Saez (1996) maintains that the major limitation of modelling techniques (especially when applied at a regional planning level), is that they break down the problem of development, and project it in terms of population or industrial development or other factors that are generated outside the model boundaries. As such, crucial interactive processes that occur during group discussions and public discourse are not included throughout computer modelling. Another way to deal with uncertainty would be to recognise that many important factors in an integrated assessment are not numerical or cannot be quantified, and that since uncertainties are unavoidable, no single view will ever be complete. Therefore, the recognition and communication of uncertainty, as well as the detainment of a pluralistic attitude towards the sources of information, is an important element of an integrated assessment. In that view, the communication of uncertainty can be seen as a way to increase public trust in the assessment process, and therefore facilitate implementation, since supplementary non-scientific information is integrated in the assessment process. The methodological challenge therefore would be to maintain

transparency while arriving at sufficient detail to adequately represent the problem (Bailey *et al*, 1996).

3.7.5.6. Procedural implications of public participation

The integration of the public, in all aspects of the integrated assessment, will also have procedural implications. In order that the public, as well as other users of the integrated assessment, feel confident in the process, their involvement should go beyond the definition of the goals of the assessment. Their participation and review of the process, has to be exercised in the early stages of the process. The early identification of the key issues arising from proposed PPP policies setting the priorities of debate, will save both time and resources (Turpin, 1996). More importantly, the involvement of the public has to be iterative and reflexive *i.e.* issues are repeatedly reviewed at different stages of the assessment process through a feedback mechanism. It is important that throughout all types of PPPs, a pattern of iteration and review should develop, which will enable feedback between parties participating in the integrated process. The benefits from policy 'sieving' are obvious since it results in better accepted measures and therefore increased chances for implementation. However, the time delays in the PPP approval process, and the financial implications and change in planning culture required to involve specialists from social scientists and psychology, will pose difficulties to the possible implementation of an iterative participation of the public. This is especially the case when the integrated assessment is applied at a government policy level.

3.7.6. Integration of human resources

3.7.6.1. Interdisciplinarity: sharing information between departments

A factor that influences the integration of SEA and, as such, creates implementation problems, is that environmental policy in many countries is split up among many departments and bodies (Bouwer, 1993; Margerum and Born, 1995; Asplund and Hilding-Rydevic, 1996). A similar problem is the internal communication between different departments in a given organisation. Viewed 'from outside', the integration may be considered successful, in the sense that assessment techniques and public participation alongside the PPP process are used. In reality however, it might be that SEA failed to highlight conflict areas and suggest alternative solutions to overcome the conflicts, as a result of the existence of different 'local rationalities' *i.e.* different understandings and standpoints of various departments within the organisation. The adoption of a multidisciplinary approach throughout the exchange of 'human resources' within organisations where SEA is integrated, is just emerging as an important determinant for bridging the departmental understanding of potential problems and dealing with administrative inertia (NATO/CCMS, 1995; Bailey *et al*, 1996; Asplund and Hilding-

Rydevic, 1996; Gouldson and Welford, 1993). Recently, a new understanding is emerging. It is recognised that the generation and evaluation of alternative solutions to planning problems is not merely a technical issue. It also requires an interdisciplinary approach to planning through the sharing of information and views, so that the distinction between 'planners' and 'technicians' is blurred (Koernoev, 1999; Conacher, 1995; Asplund and Hilding-Rydevic, 1996).

Before political willingness and technological innovation make public participation for SEA at a policy level possible, policy-SEA has to rely on close co-operation between the different ministries responsible for policies. This requires a type of communication between experts in these organisations that in some cases has not been envisaged before. The introduction of a 'help desk' in the Netherlands for the 'Environmental Test' of government proposals is an example for provisions made to encourage information sharing and technical assistance amongst assessment and policy formulation teams (Kleinschmidt and Wagner, 1997).

3.7.6.2. Interdisciplinarity: the role of the scientific community

The adoption of an interdisciplinary approach to integrated SEA would require an enormous shift in the culture of the scientific community involved in SEA, as well as an 'institutional revolution' to change the way that institutions organise integrated-SEAs. As far as the scientific community is concerned, the right mix of broad knowledge-base experts and specialists from different disciplines would be appropriate to undertake a full integrated assessment (Margerum and Born, 1995; Asplund and Hilding-Rydevic, 1996). There are, however, at least two barriers associated with the adoption of this interdisciplinary approach.

First, an elitism and a lack of familiarity of areas outside an individual's particular field of experience is suggested as being responsible for a reluctance to work with representatives from less formally recognised scientific areas. It is characteristic that an early article about SEA expressed the worries of certain scientific EIA-related disciplines that the introduction of SEA will render some disciplines redundant (Lee and Walsh, 1992). It is important, therefore, that the environmental scientists involved in an integrated-SEA, work together and closely with other disciplinary scientists such as social and political scientists, economists, and physiologists.

Second, and as a consequence of the first, environmental policy makers put pressure on specialists to come up with definite statements on policy action, which compromises the capacity for adequately addressing and communicating uncertainties and assumptions made throughout the process. As a result, a fear has been expressed that the trust

placed in respected scientists might be compromised if uncertainty is not communicated. This situation is exacerbated in an integrated interdisciplinary assessment, in that different disciplines have different views or 'local rationalities' (Koernoev, 1999; Peuhkuri and Valve, 1996; Saez, 1996; Asplund and Hilding-Rydevic, 1996), which makes communication with the uninitiated difficult: '*... for example, an economist has developed skills within a discipline that operates with a certain view of society and this view will typically influence the way that the individual interprets and analyses information.*' (Bailey *et al*, 1996, p. 5-6).

3.7.6.3. Interdisciplinarity: institutions

The scope and form of SEA, is contingent upon the institutional frameworks that are in force. It is partly due to existing institutional structures that SEA can be used to either operate as part of an integrated process incorporating other socio-economic factors, or as a separate approach focusing only on biophysical factors. Institutions, therefore, should undertake structural and cultural changes in order to successfully accommodate integrated frameworks of assessments (Warner, 1996; Bailey *et al*, 1996; Saez, 1996; Margerum and Born, 1995; Tywoniuk, 1989; Perks *et al*, 1996; Sadler, 1996). The International study of the effectiveness of SEA (Sadler, 1996), identifies the existence of compartmentalised organisational structures, as one of the institutional barriers to the introduction and implementation of SEA. It also recognises that an integrated approach to SEA implies a change in organisational structure. The existing fragmentation of structures within institutions means that the sectoral division of political powers and agency responsibilities curtails the consideration of environmental matters. Institutional fragmentation and sectoral isolation, has been highlighted in the Brundland report, which identifies an institutional gap in planning for development, which must be closed. The institutional gap is that '*Those responsible for managing natural resources and protecting the environment are institutionally separated from those responsible for managing the economy. The real world of interlocked economic and ecological systems will not change; the policies and institutions must.*' (WCED, 1987, p. 9).

This institutional fragmentation has deep roots in the economic values that dominate modern societies. As long as 'we seek individual enhancement to the detriment of long-term community stability', it is inevitable that institutional constraints will be far from being eliminated. Rickson *et al* (1989) maintain that institutional integration of impact assessment into the planning process, is severely constrained by obvious public concerns for economic well-being, government fiscal goals, and those of powerful private industrial and business sectors. Limited societal support base is currently mirrored in the application of SEA worldwide. This lack of public support for SEA, is indicated by low degrees of activism and of political influence by public and community groups (Sadler, 1996).

It is inevitable that the political context within which an integrated-SEA operates, influences the institutional capacity of a given organisation (Saez, 1996; Boothroyd, 1995). There are nevertheless a number of principles that, if adapted to politics and culture, can facilitate an integrated approach to inter-disciplinarity.

First, institutions responsible for decisions on policy making should provide the participants of an assessment, with trust and confidence in the procedures. In order that public acceptance of the outcome of the assessment is established, institutions should provide an environment of collective ownership of the process, or shared responsibility. Institutions organising an integrated-SEA should give the message that users and participants are an integral part of the process rather than being separated from the process 'as customers of a product' (Bailey *et al*, 1996). The trust amongst participants in the process will be further enhanced by the actual implementation of the decision made, as opposed to treating assessments as 'paper exercises'. Margerum and Born (1995) argue that the question of how one puts integrated approaches into practice, is perhaps the most vexing and significant question in the quest for the 'holy grail' of integration. They also maintain that without greater understanding of how integrated management is implemented, the concept of integration is in danger of becoming little more than professional jargon and political rhetoric. This is especially the case in Greece with a planning system notorious for its implementation deficiencies and reactionary approach to decision making (Zagorianakos, 2000b). In the case of regional land use planning in Australia, a country with a longer tradition in environmental management than Greece, implementation is also poor. Conacher (1995) identifies the following reasons behind 'implementation deficit' that follows plan adoption: i) the plan may be outdated, ii) the recommendations maybe too vague, or unrealistic in relation to available resources, and iii) the people involved in the planning study view the process to be the product.

Second, disciplines tend to operate in complete isolation from each other. Institutions should aim to provide more open discourse between them, by allowing for the expression of conflict, when it arises rather than not discuss it fully. This is not to suggest that obtaining collective consensus between all participants would be always achievable. It is vital to recognise that ' *... the way a public decision is arrived at, is as important as the actual decision made.*' (Bailey *et al*, 1996, p. 8). Therefore, process administration probably needs to become more proactive in the future (Sadler, 1996). This might come about partly by the establishment of appropriate administrative guidance, so that co-operation amongst experts is strengthened, and public confidence in the integrated process is maintained.

Third, institutions should also provide a 'safe' and comfortable environment for their expertise. It is important, that they provide a working environment where uncertainties and errors are identified and communicated, without compromising the trust that is placed in the assessment team. The lack of sensitivity of responsible agencies can be a substantial barrier to sharing information and co-ordination (Conacher, 1995).

Finally, this type of integration of human resources within an organisation may require the establishment or reorganisation of some type of formal institutional structure, to oversee and provide a vehicle for information exchange and co-operation between participating parties and disciplines. As a first step, institutional auditing and 'mapping' can be used to identify the constraints and opportunities that apply in a particular jurisdiction. This will enable the formulation of a strategy and measures that promote institutional capacity building, and training (Sadler, 1996). In order that iteration and feedback mechanisms are effective and as cost-efficient as possible, it may be necessary for new administrative structures to be created either within or outside a given organisation. An example is the establishment of a Commonwealth EIA Research Agency whose brief is to put emphasis on incorporating Ecologically Sustainable Development into EIA, and the development of CIA and SEA. These or similar bodies can act as central bodies for the practitioners of an integrated-SEA exercise, and can provide the interdisciplinary working environment where potential links with existing institutions can be encouraged (Bailey, 1996). According to OECD (1996), some key institutional structural changes aiming at improving the environment-economy performance of national institutions' should include the development of environmental expertise within sectoral economic ministries, as well as the development of economic expertise within environmental ministries.

Another relevant issue for institutional change is the review of the assessment by an independent body of experts that is formed outside the organisation carrying out the assessment. Ideally, the assessor is not financially dependent on the user of a SEA or on any stakeholder. Nooteboom and Wieringa (1999) suggest that at a policy SEA level, the independent agency that undertakes or reviews the SEA should preferably receive its budget directly from Parliament. In an integrated SEA exercise, there is an emerging recognition for the need for independent overseeing of process implementation, agency compliance, and government-wide performance. This will promote transparency throughout the process, and thus promote trust amongst the participants of the integrated assessment (Partidario, 1992; Warner, 1996; Sadler, 1996; Nooteboom and Wieringa, 1999).

3.7.6.4. Types of structural change

Institutional responses to environmental planning and management can significantly influence the way that an environmental management tool like SEA actually integrates environmental considerations. Both governmental and non-governmental institutions therefore, face challenges in developing these responses. The implementation of environmental policies by institutions with statutory powers can prove to be administratively complex. One possible way of coping with complexity, is the granting of additional resources to existing institutions or even creating new ones. This approach however, risks creating cumbersome and inefficient bureaucracies. Another option is to improve the cost-efficiency of existing institutional structures. At a national policy level, a variety of structural changes regarding the institutions responsible directly or indirectly, for environmental policy making have been introduced and integrated into the existing administrative system. One significant trend in some countries has been the creation of 'environmental support units' within sectoral ministries, especially within transport, agriculture and energy departments. As a result, environmental issues and those related to environmental assessments are dealt with routinely within these ministries, rather than being 'forced' on them from outside *i.e.* by Environment ministries. Similarly, this 'internal' type of 'human resources' integration applies to the Environment ministries and other public sector environmental management agencies, which expand their internal capacity for the consideration of socio-economic issues. Both of these developments should enhance the ability of both groups to develop and implement more coherent environment-socio-economic policies (OECD, 1996).

The number of countries that have created interdepartmental structures such as inter-ministerial working groups or Cabinet level Committees for the purpose of facilitating issues of environmental integration is increasing. The establishment of the Irish Green Network of Departments is such an example. This is an inter-ministerial group, representative of those departments where attempts are underway to integrate environmental considerations. The co-operation among various Departments resulted in a type of government policy-SEA called Eco-Audit. Their recommendations for the Eco-Audit as a process are submitted to the 'Green Network of Departments', which will make final recommendations on how to further develop the approach. Other institutional arrangements for a wider integration are:

- COMHAR - the Irish social partners consultative body (GoI, 1997),
- the Canadian National and Provincial Round-tables on the Environment and the Economy, which draws together representatives from business, government, and the public together to generate strategies for Sustainable Development (OECD, 1996), and
- the Interdepartmental Committee on Environmental Assessment which represents

more than a dozen departments and agencies of the government of Canada (FEARO, 1992).

Institutional reform also remains largely political and, as such, it is largely dependent on the decentralisation of responsibilities for environmental decision making, as is the case in New Zealand and the Netherlands. This is also the case in the Netherlands' Water Boards, where institutional changes meant that a larger and more economically diverse portion of the population is now empowered to elect General Councils. This reform allows a broader range of interests to be reflected in Council decisions, which should result in more integrated decision making (OECD, 1996).

The integration of environmental assessment into the decision making system of a given country is strongly influenced by the countries' efforts to consolidate their environmental legislation. This issue is particularly relevant to the south European planning and EIA systems. A positive example is New Zealand's Resource Management Act (1991) which consolidates 75 former States into a single Act (Morgan *et al*, 1991; Hipkins, 1989). It also makes it a duty of policy makers to assess the costs and benefits of efficient and effective means of promoting sustainable land use, in addition to requiring integrated management of pollution and waste. Canada and the UK have also taken steps to consolidate their environmental legislation (Perks *et al,* 1996).

Finally, new institutions have been created to promote environmental integration at a national and international level. At a national level, the UK Round Table on Sustainable Development is such an example. Canada has established a Commissioner of the Environment and Sustainable Development in the Office of the Auditor-General. The role of the Canadian Council of Ministers of Environment on environmental integration is also important (Perks *et al,* 1996). This Commissioner will hold the government publicly accountable for 'greening' its policies, plans and programmes. Each government department will be required to prepare a Sustainable Development strategy, which in turn, will be evaluated by the Commissioner. At an international level, similar institutions include the United Nations Commission on Sustainable Development, The Global Environment Facility and the various institutions connected to the Climate Change and the Biodiversity Conventions (OECD, 1996).

3.7.6.5. Time and financial costs

Another issue pertinent to the integration of human resources within the institution or organisation preparing an integrated SEA, is the time and financial costs involved.

TABLE 3.7: TYPOLOGY OF INTEGRATED-SEA

TYPES OF INTEGRATION ▸ TYPES OF PPPS ▾	PROCEDURAL	EXTERNAL	METHODOLOGICAL	SUBSTANTIAL	SOCIAL	HUMAN RESOURCES
PROJECT-EIA						
Bichard, E., 1996; Newton *et al*, 1996;			Screening			
Franks, 1996					NGOs becoming major actors in the decision process	Interdisciplinarity in project appraisal
Neefjes, 1996			Monitoring		NGOs participation	
Lee and Kirkpatrick, 1996			Methodology			
Tywoniuk, 1989		early integration				
PROGRAMMES						
Karatas. And Payaslioglu, 1996			integrated methodology			
LAND USE/SPATIAL PLANNING						
Warner, 1996	parallel processes	integration of regional planning and EIA	IFLUE method (Suitability assessment approach); scoping; thresholds			Institutional capabilities
Conacher, 1994					public participation	implementation difficulties
Perdicoulis and Power, 1996			Simulation modelling method			
Turpin, 1996		environmental management plan	scoping; thresholds; alternatives	monitoring	Co-operation developers-landowners	
Groot, 1995			integrated methodology			
Manning, 1995	procedural steps					
Asplund and Hilding-Rydevik, 1996	early integration					interdisciplinarity
Perks *et al*, 1996			integration of methods		integrate stakeholders	institutional changes
Lerman, 1994		linkage with project-EIA				interdisciplinarity
McKinnon and Joyner, 1996		connectivity of sectors			public participation	fragmentation of responsibilities (institutions)
Lichfield, 1996a; 1996b; 1996c; 1992; Lichfield and Lichfield, 1992	Iterative	tiering (development planning and project-EIA)	consideration of social impacts; integration of CBA, CIA and EIA	integrated documentation	distribution of impacts to social groups	interdisciplinarity
Curran and Wood,1996; Curran, 1995	cyclical process	extension to regional, transport planning	sustainability appraisal		public participation	

TABLE 3.7: TYPOLOGY OF INTEGRATED-SEA (CONTINUED)

TYPES OF INTEGRATION ▸ TYPES OF PPPS ▾	PROCEDURAL	EXTERNAL	METHODOLOGICAL	SUBSTANTIAL	SOCIAL	HUMAN RESOURCES
Gariepy, and Jacobs, 1996		linkage with project-EIA				
Partidario and Eggenberger, 1999; Eggenberger *et al*, 1998	Parallel processes	connectivity of sectors	consideration of social and economic impacts	integrated documentation, monitoring	public participation	Institutional capabilities
REGIONAL PLANNING						
Saez, 1996			Simulation modelling		Local participation	
Kasyanov, 1996			Economic Valuation methodology; environmental standards			
Conacher, 1995	early integration, regular reviews	co-ordination of planning with government policies	integrated land use planning methodology		inform community in decision making	institutional barriers (sensitivity of agencies)
Margerum and Born, 1995	early integration; scoping				co-ordination; conflict-resolution	interactive approach; interconnection of agencies; interdisciplinary approach
NATIONAL POLICY						
Bithas *et al*, 1996			Delphi method			
Kahen and Sayers, 1996			multi-criteria analysis			
Bouwer, 1993			general criteria			environmental policy split over different departments
Hipkins, 1989						consolidate legislation
Boothroyd, 1995	simultaneous, continuous, early and iterative	tiering not adequate	new policy assessment methodology		public participation not consultation	political interests dominate assessment
Elling and Nielsen, 1996	early integration				public participation in policy SEA	
FEARO, 1992			monitoring			interdisciplinarity
CEPA, 1994a	early integration	tiering	lack of data			institutional integration

TABLE 3.7: TYPOLOGY OF INTEGRATED-SEA (CONTINUED)

TYPES OF INTEGRATION ▸ TYPES OF PPPS ▾	PROCEDURAL	EXTERNAL	METHODOLOGICAL	SUBSTANTIAL	SOCIAL	HUMAN RESOURCES
ALL PPPs						
Armour, 1989	early integration	organisational integration	subjectivity	synthesis of reports	consultative integration	technical or disciplinary integration
Smith, 1993	Iteration		new methodological framework		integrate stakeholders	institutional arrangements
Devuyst, 1999			new methodological framework			
MSSC, 1994						capacity building
Niekerk and Arts, 1996	early integration	integrate sectoral SEAs; tiering with EIA		integration of reports		
Gosling, 1996	Iteration					
Therivel and Partidario, 1996; Partidario 1996; Partidario, 1992	early integration; parallel processes	Tiering	cumulative impacts, alternatives	separate report	public participation in scoping and throughout the process	institutional change, independent agency
Sadler, 1996; Sadler and Verheem, 1996; Sadler, 1995a; Sadler, 1995b	tiering, good timing, continuous process	tiering of SEA with EIA	adaptation of project-EIA methods	statement of no-significance	guidelines for public participation	
Wood, 1995		Tiering	methodological difficulties			political difficulties, training, cost effective tools
CEAA, 1996		link SEA with EIA	scoping, cumulative EA, monitoring	brief documentation through scoping	conflict resolution mechanisms	
Nooteboom and Wieringa, 1999; Bailey *et al*, 1996		transboundary impacts; tiering (IEA-SEA-EIA)	computer models, complexity	monitoring	public participation and co-operation and participants	independent agency
DMHSPE, 1999	Tiering		cumulative impacts, alternatives			

The research related to these issues is limited, which can be partly attributed to the fact that SEA is not legislatively formalised yet, and that (especially in an integrated-SEA process) it is difficult to distinguish where a particular SEA procedural stage starts and a PPP stage finishes. Therivel and Partidario (1996) briefly referred to this issue throughout the examination of several SEA case studies. The particular case studies discussed, were of good quality, ranging from 10 months to several years, with correspondingly high costs (*e.g.* $623,000 for the SEA of the San Joaquin County comprehensive plan). There is, however, limited evidence of the costs and benefits of SEA in practice. This is especially the situation when SEA is carried out internally, in which case the costs may be more difficult to identify since the SEA may be closely linked to the PPP-making process making them indistinguishable (Therivel and Partidario, 1996). This thesis assumes that, given the administrative flexibility, organisational capacity and appropriate expertise of the institution, the internal preparation of an integrated-SEA would be more cost-efficient and less time consuming, than if resources were committed to an external consultancy. The time and financial costs from initiating a SEA is an issue quite pertinent to an integrated exercise, as these might cause the planning budget to rise considerably. This is an obvious result of:

- allowing the participation of one or more management approaches at every stage of the PPP process and in particular with feedback loops at various stages,
- the participation of the public, and consultation with a wide range of groups,
- the possible recruitment of expertise to deal with integrated methodologies, and most importantly
- the extension of the SEA process after PPP-making, to the monitoring of implementation.

These responsibilities of an integrated-SEA exercise might be considered an extra financial burden in the planning process, and create hesitance in relation to its application. Institutional capacity, and administrative flexibility and efficiency, are the keys to successful application of an integrated-SEA scheme. It is not surprising that current international practice on procedural SEA guidance allows for considerable flexibility in approach by proponent agencies (Sadler, 1996). The current thesis assumes that internal preparation is of paramount importance for cost minimisation. Because of its identifiable and measurable nature, it was included in the evaluative framework (Table 2.2). During a period where practical experience in SEA, and moreover integrated-SEA is limited, the role of consultants or mixed approaches to SEA preparation is of primary importance.

3.8. Conclusions

This chapter traced the 'integration footprints' throughout the relevant environmental

management and planning literature (Table 3.7), and provided the definition of the term 'integration' that is adopted in this thesis. A number of criteria were selected, which document the existence of each type of integration, These criteria were grouped into a meaningful structure called 'evaluative framework', that enabled the documentation of the experience of integration in the selected regions.

The development of a typology of SEA integration presented in this chapter, brings to an end the theoretical part of the research. It is appropriate therefore to conclude with a brief presentation of the contextual factors found in the literature that preclude the application of SEA in different programming, planning and policy settings, before the empirical part of the research which tests the 'evaluative framework' developed here, follows in the next chapter.

In particular the public administration structures that are responsible for managing the SEA process have been accused for lack of effective co-ordination (both between sectoral departments within an organisation and between organisations) and efficiency. This is the result of the complexity of the environmental and socio-economic issues that need to be considered simultaneously in an integrated SEA, and the involvement of many organisations in sequence, into parallel procedures. There is a fear therefore that the incorporation of SEA and the general public into PPP making, might result in a waste of time and resources, duplication of efforts, loss of connectivity between project-EIA and SEA, and ultimately lead to the poor quality of the outcome of the integrated SEA. This situation is exacerbated by the cyclical, iterative, participatory and cohesive (*i.e.* connected with other PPPs) rather than the linear, one-off, non-transparent and isolated nature of the PPP making in practice.

The lack of research on the appropriate assessment, participation and communication methods to be used in SEA is another issue related to its limited application. The difficulty lies on the complexity of problems involved in the assessment and the constant changes and interactions of policy making. This is especially related to the domination of economic considerations over socio-economic ones throughout PPP making, which is directly related to the highly political character of the issues that SEA examines. Furthermore, the methods used in project-EIA are not always transposable to SEA, the impact predictions of which are subjected to greater uncertainty and are less quantifiable due to different levels of detail and have greater variety due to the heterogeneity of the nature of a wider range of PPPs. Also, at that high level of decision making, information is scarce, data is often too general, or centralised, or too dispersed, or difficult to interpret and the time-lag between

decision and implementation is larger compared to the project level of assessment. Finally, despite that monitoring is considered to be of paramount importance in strengthening future practice on SEA, is still one of the weakest SEA requirements, in terms of both statutory provisions and techniques.

The role of the scientific community is equally important. Even if SEA has been undertaken, it might be that its documentation is not clear or even not existent all together. A barrier to effective documentation and communication of information in SEA (as well as in PPP) documents is the common use of jargon or discipline-scientific terminology and acronyms that could potentially be used deliberately by scientists and policy specialists to exclude some participants from discussing the issues concerned. Scientists and SEA practitioners have also been accused for being responsible for a reluctance to work with representatives from less formally recognised scientific areas, thus rendering difficult the development of an inter-disciplinary culture which is necessary for the successful application of an integrated SEA. The 'protection' of professional and social 'status' of planners/SEA practitioners which is cemented in the individual discipline's 'local rationality' seems to be partly responsible for the difficulties related to the lack of communication of information between departments and the necessary lack of co-operation between experts, agencies, NGOs and the public. Administrative and political structures also contribute to this. The quality check of the SEA process is usually undertaken by the same organisation that is responsible for supervising the assessment rather than by an independent body of experts. This results in the lack of transparency in the process and ultimately in the lack of trust in the environmental credentials of SEA.

The role of legislation is equally important in promoting the use of SEA. The enactment of a EU-wide Directive on SEA will be a positive step towards this direction. The enforcement however of environmental legislation is sometimes weak in some countries. In particular, south EU member states and eastern European countries that will join the EU in the future lack the appropriate infrastructure, resources, institutional capacity, codification of legislation and support by the public to effectively implement the proposed SEA Directive's requirements.

The above suspending factors for the international application of SEA provide the canvas for the development of the definition of SEA integration adopted in this thesis. The definition that follows should therefore provide the rational for exposing and bridging the above implementation gaps found in practice and enhance the theory and practice of

integration.

Briefly, an integrated-SEA exercise should undertake a procedural merging *i.e.* both processes should be parallel, continuous and iterative. It has to be 'objectives-led' *i.e.* environmental objectives should be included from the beginning of the exercise alongside socio-economic ones. It should be connected with assessments and PPPs at a higher, lower and similar level of decision making. It should equally participate with other socio-economic methods in the PPP making. It should be transparent by justifying the environmental reasons for taking a decision. It should widen its social scope by inviting the public and interest groups at all stages of the assessment. Finally, it should provide an interdisciplinary working environment that promotes expert co-operation and institutional change.

This definition (see also para. 1.3.5), and the resulting 'evaluative framework' (Table 2.1), undoubtedly represents an original contribution to the SEA/integration field of research. The validity of this statement is supported by the fact that the elaboration of the typology on SEA integration presented here, is unique in as far as it has not been attempted before in this current degree of scale and comprehensiveness. The only attempt that can thematically be compared to it, is Partidario and Eggenberger's research project 'on the integration of SEA and land-use planning' (Table 3.1; Partidario and Eggenberger, 1999). However, this cannot comprise 'an original contribution to the SEA/integration field' in the way that this thesis does, for two reasons. First, it is a research project and as such there is no theoretical account based on the international literature of the term integration, as was the case with this thesis. It represents a research proposition to be tested in practice in order to bring forward 'best practice case studies' on SEA integration rather than attempting to define the term integration[4]. Second, Partidario and Eggenberger's model of integration applies only at a land-use planning level whereas the notion of integration suggested in this thesis has a wider scope based on the international literature (*i.e.* includes all PPPs, sectors and countries). It can therefore be concluded that the definition of SEA integration adopted in this thesis is the only complete definition that applies to all PPPs where SEA is integrated. After testing this evaluative framework in Athens, Dublin and London, a revised 'evaluative framework', which applies only at the transport context of SEA practice in these three regions, is presented in the last chapter (chapter 9).

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[4] The definition of SEA-integration is implicitly based on Partidario's PhD thesis (Partidario, 1992) which adopts a pragmatic definition of SEA which 'incorporates elements of both land-use planning and SEA processes'. In Partidario's thesis, the 'integration of SEA' was deemed to be an ideal goal, which should be the long-term goal of planning. This is the approach that this thesis adopts.

As the thesis now turns from a theoretical to a practical side, the following question arises: How feasible it is to put the theory of integration into practice? Undoubtedly, the barriers to a successful SEA integration, at least under the definition adopted in this thesis, seem to be insurmountable. The underlying reasons for the difficulties behind the task of integration remain obscured, non-quantifiable, and probably outside the confines of strictly defined scientific paradigms. The reasons are extended to cover the ethos of the society as a whole, within which, SEA and planning operates. As Armour (1989, p. 10) puts it '*Integration does not come easy in a world characterised more by competition than cooperation, where mastery of means has not been coupled with a clear sense of ends, and where a shared environmental and ethic or consensus on principles of social justice are still woefully lacking.*' According to Margerum and Born (1995), the concept has become something of a 'holy grail', for which students have searched with only limited success. Although more than a decade ago, effective integration of EIA and planning was viewed as 'the imperative of the nineties' (Armour, 1989), progress on integration is still slow.

Integration, a concept with similarities to Sustainable Development, might better be seen as a goal that is always strived for, but never truly reached (Margerum and Born, 1995). Integrated-SEA is still in its infancy and, as such, agreement on definitions might be more vital than setting implementation targets. It might be more constructive at this stage in the evolution of an integrated approach to SEA, to foster a debate on a commonly accepted vision of integration, which in turn, will foster the unification of efforts towards implementation.

4. Transport-SEA in Athens, Dublin and London

4.1. Introduction

Chapter four provides background information on the three regions Athens, Dublin and London examined in this thesis. It presents their basic socio-economic and geographical characteristics, focuses on their land use and transport policies, and highlights their constitutional, administrative and legislative profile.

The final sections briefly present the EIA Directive's enactment in the three countries, and conclude with a comparative synthesis of the above issues where similarities and differences between the regions are highlighted.

4.2. Physical and Human Geography

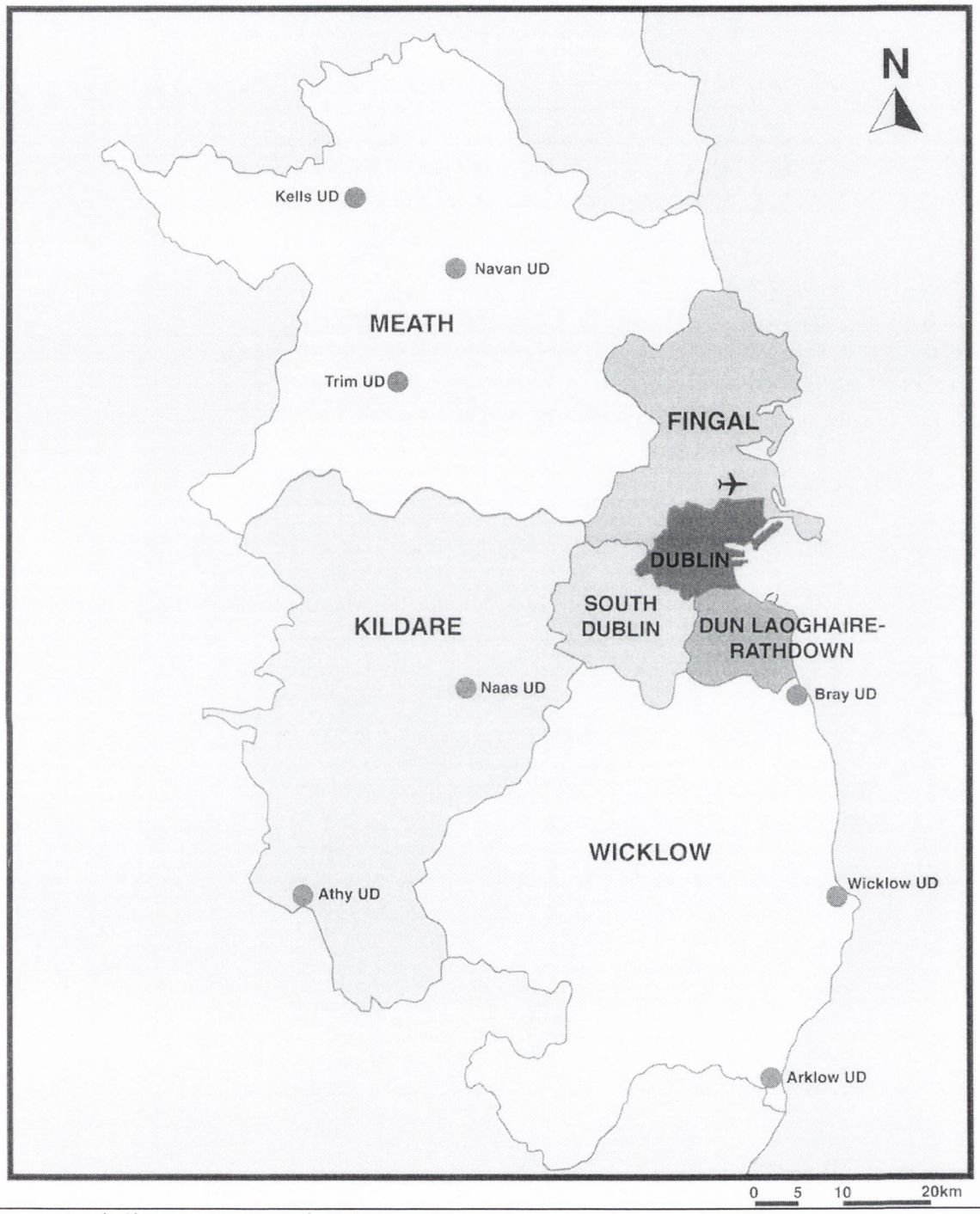
With an area of 132,000 km^2 and a population of 10,507,600 in 1998, Greece occupies the south east tip of Europe. The country is mountainous, making road communications difficult and over 400 islands lie around its coasts. Notwithstanding its overall low population density (79 persons per km^2 in 1998), there is a high concentration of administrative and economic activity in its major cities, Athens, and Thessalonica.

Athens has almost one third of the country's population (*i.e.* 3,465,000 people in 1995) and an even larger proportion of its industry. Athens air pollution problems have become a significant health and tourist, and hence political, issue and have helped in the creation of Greek awareness of environmental degradation (MEPPPW, 1995; CEC, 1993).

The island of Ireland lies on the western tip of Europe. Its total surface area is 70,000 km^2 and its population was 3,626,087 persons in 1996 (51 persons per km^2). Ireland has a mountainous coast with a low-lying central plain. The Greater Dublin Area (Figure 4.1) covers an area of 6,986 km^2 and comprises of 10% of the area of Ireland. It is dominated by the built up area of Dublin (the capital) which includes Dublin city centre and its suburbs.

The United Kingdom of Great Britain and Northern Ireland consists of England, Wales, Scotland and Northern Ireland. It is situated in the north west part of Europe and contains some 58 million people (in 1998) at a density of 242 persons per km^2. It covers an area of 245,000 km^2 and the total coastal length is 12,400 km.

FIGURE 4.1: MAP OF GREATER DUBLIN

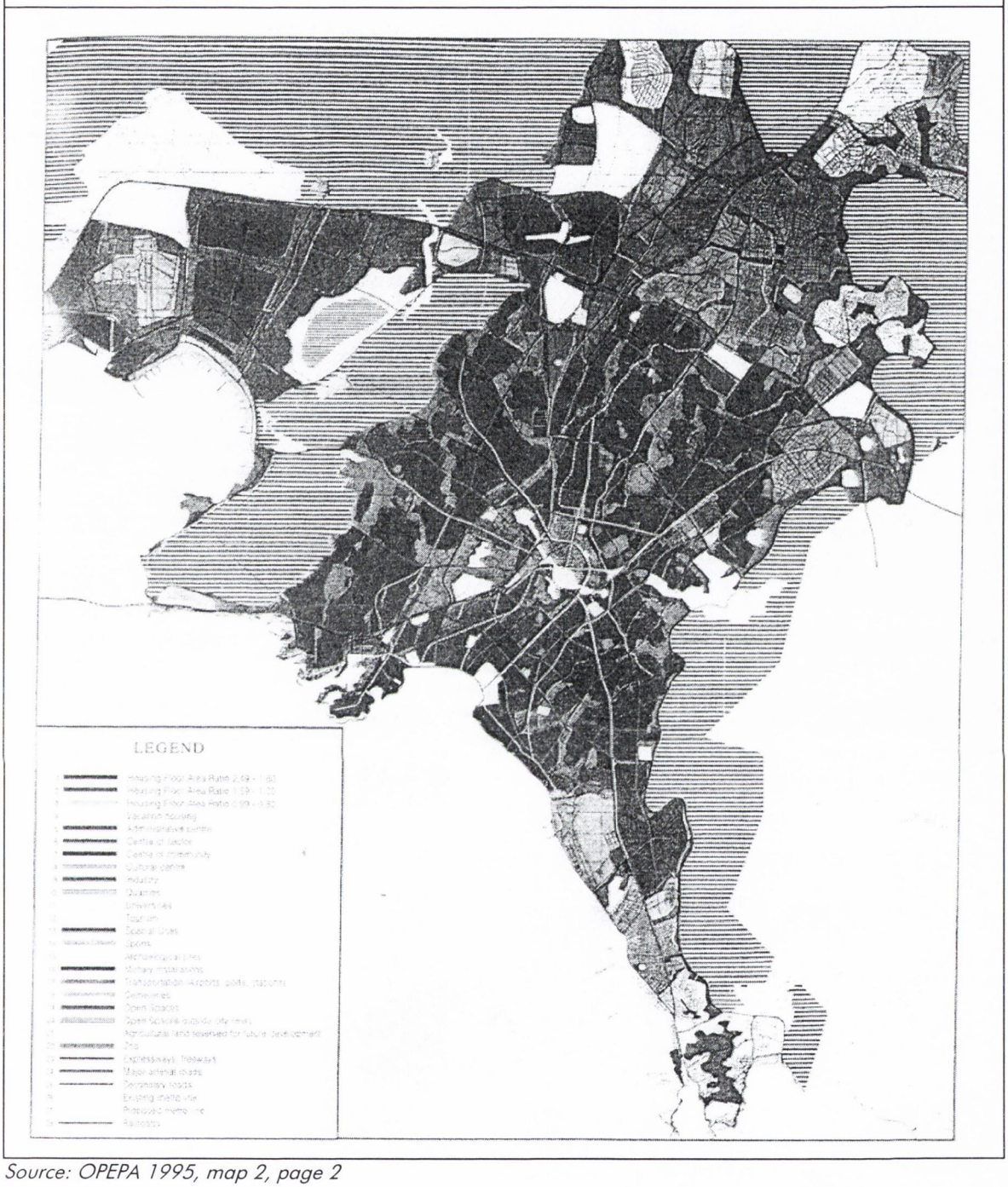


Source: Brady Shipman Martin et al, 1999, map 1, page iii.

4.3. Socio-economic characteristics

This section mainly examines a number of socio-economic features of the three regions, as well as their respective countries, such as their GDP level and unemployment rates.

FIGURE 4.2: MAP OF GREATER ATHENS

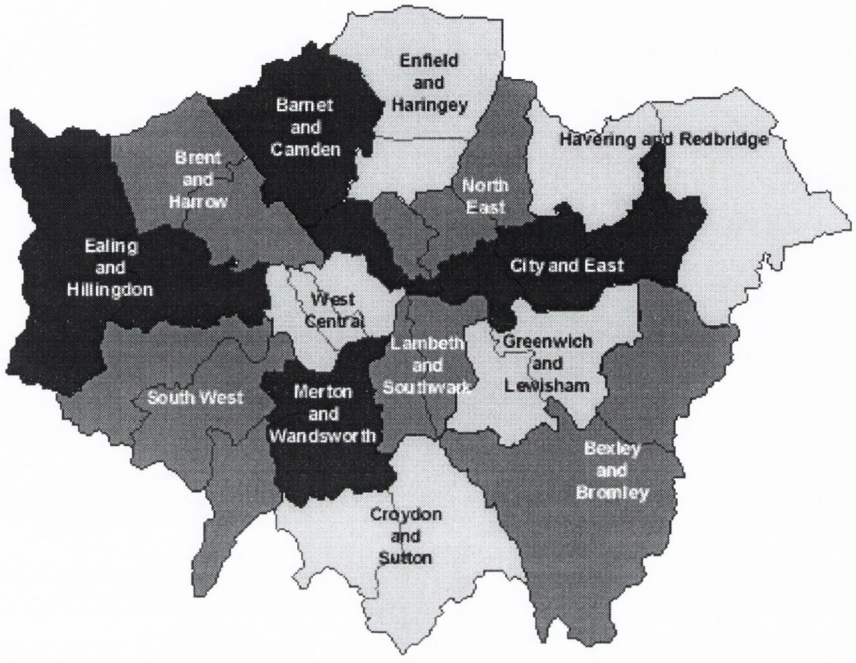


Source: OPEPA 1995, map 2, page 2

4.3.1. Greece and Athens

From the end of the 80s, the priorities of the programme for economic convergence with the European Union have largely determined the course of the Greek economy. In contrast with the preceding period of fast development, the Greek economy, compared with other EU countries, has been characterised by slow rates of growth. In 1997 the GDP per head of population was less than half (*i.e.* 66 PPS) that of Ireland and the UK (*i.e.* 102 PPS, Table 4.1).

FIGURE 4.3: MAP OF GREATER LONDON



Source: London Research Centre, 1999.

At the same time, the inflow of resources from Community funds through the Community Support Framework (CSF) and other EU programmes have, similar to Ireland, influenced public investment as well as the determination of environmental policy and legislation. The rate of unemployment rose from 4% in 1981 to 10.7 in 1998 (Table 4.1).

As with the other two regions examined in this thesis, the capital Greater Athens (Figure 4.2) has the highest population, density, and economic activity in the country. Over 30% of Greece's population lived in Greater Athens in 1991, although it accounts for only 1.11% of the country's area. The population density in Greater Athens is estimated as 2,357 pers/km^2 and in the prefecture of Attica (which includes Greater Athens) is 1,136 persons per km^2. This over-concentration of people and activities poses difficulties for regulating the development of the city through planning in Greater Athens.

The GDP per capita in the Attica region was 75 PPS in 1997 and the per capita income is 10-15% higher than that of the rest of the country (MEPPPW, 1997a). It has to be noted that Attica and Greater London (Figure 4.3) are NUTS 2 regions with maximum value of regional per capita GDP in PPS 74 (Attica) and 139 (Greater London).

TABLE 4.1: TRANSPORT-RELATED STATISTICS FOR ATHENS, LONDON AND DUBLIN

Comparative indicators	Greece	Greater Athens	Ireland	Greater Dublin	UK	Greater London
Location in Europe	South-east		north-west		north-west	
Surface area (km^2)	132,000	1,470 (Greater Athens) 3,696 (Attica)	70,000	6,986 (Greater Dublin) 922 (Dublin Region)	245,000	1,578 (Greater London) 322 (inner London)
Area coverage of regions, as a percentage of the country's area		1.11% (Greater Athens) 2.8% (Attica)		10% (Greater Dublin) 1.3% (Dublin)		0.6%
Population	10,507,600 (1998)	3,465,000 in 1995 (Greater Athens) 4,200,000 in 1997 (Attica)	3,626,087 in 1996	1,405,671 in 1996 (Greater Dublin) 952,692 in 1996 (Dublin Region)	58,037,000 in 1998 (UK) 48,903,400 in 1997 (England)	7,187,000 in 1998
Population density (inhabitants per Km^2)	79.6 (mid 1998)	2,357 in 1995 (Greater Athens) 1,136 in 1997 (Attica)	50,9 (in 1993)	201 in 1996 (Greater Dublin) 1033 in 1993 (Dublin)	242.4 (mid-1995) England: 378.2	4,554 in 1998
Population of regions, as a percentage of the country' s population		30% (Greater Athens in 1991) 50% (Attica in 1997)		39% in 1996 Greater Dublin 29.14% in 1993 Dublin Region		12% in 1998
GDP per capita 1997 (PPS)	66	75 (Attica)	102	(Southern and Eastern Regions) 112	102	(London) 146
Unemployment rates (%) seasonally adjusted)	10.7 (1998)	11.6 (in April 1997)	7.7 (1998)	17.5% in 1993 (76,700)	4.1 (1998)	9.7 in April 1997
Population below the poverty threshold (<60% of GDP)	21% (2nd in EU)		21% (2nd in EU)		20% (3rd in EU)	
Internet use as a percentage of the population (EU's average 8.3%)	2.9%		8.4%		10.7%	
Opaqueness (CPI index: 10 maximum transparency; 0 minimum transparency)	4.9 (36 out of 99 countries)		7.7 (15th out of 99 countries)		8.6 (13 out of 99 countries)	

TABLE 4.1: TRANSPORT-RELATED STATISTICS FOR ATHENS, LONDON AND DUBLIN (CONTINUED)

Comparative indicators	Greece	Greater Athens	Ireland	Greater Dublin	UK	Greater London
Number of vehicles	4,835,492 in 2000 of which 3,005.799 private cars	1,497,591 in 2000 (inner city)	1,432,330 in 1998 of which 1,134,429 private cars	445,000 in 1997	21,000,000 vehicles in 1996	2,380,000 vehicles in 1996
Transport network length (kms in 1994) Road total: Rail total:	Road total: 40,634 of which motorway: 28 Rail total: 2,474	Road total: 1,424 (Attica 1990) of which motorway: 68 Rail total: 131	Road total: 91,504 of which motorway: 72 Rail total: 1,944		Road total: 385,788 of which motorway: 3,286 Rail total: 16,882	Road total: 13,344 of which motorway: 58.7
Transport Network density (Road, Rail)	Road: 0.31 Rail: 0.02	Road: 0.37 Rail: 0.03	Road: 1.33 Rail: 0.03		Road: 1.6 Rail: 0.07	Road: 8.46 Rail: ?
Deaths per million inhabitants (1995)	195	134	121		64	31
Airports- Distance from city centre (kms)		10		9		Heathrow 24
Trips (of all trips) by passenger cars		39% (Attica)		48% in 1995		63% in 1998
Trips (of all trips) by public transport		31% (Attica)		38% in 1995		33% in 1998
Trips (of all trips) by walk		10% (Attica)		9% in 1995		4% in 1998
CO2 emissions from road transport in 1990 (% of total emissions in the country + % of EU total)	25% (Greece's CO^2) 2.37% (EU's CO^2)		20% (Ireland's CO^2) 0.78% (EU's CO^2)		24% (UK's CO^2) 18% (EU's CO^2)	
NOx emissions from road transport in 1990 (% of total emissions in the country + % of EU total)	27% (Greece's CO^2) 2.41% (EU's CO^2)		41% (Ireland's CO^2) 0.81% (EU's CO^2)		38% (UK's CO^2) 18.82% (EU's CO^2)	
VOC emissions from road transport in 1990 (% of total emissions in the country + % of EU total)	40% (Greece's CO^2) 2.76% (EU's CO^2)		23% (Ireland's CO^2) 0.88% (EU's CO^2)		40% (UK's CO^2) 2.24% (EU's CO^2)	

Sources: Office of National Statistics (United Kingdom National Accounts); Europa Publications Limited, 1997; CEC, 1993a; Vassenhoven and Georgoulis, 1997; Attiko Metro, 1999; CEC/Eurostat, 1999b; EIU, 1998; Eurostat, 1998a; Eurostat, 1998b; OCOG, 1997a; DRA, 1996; Brady Shipman Martin et al, 1999; Local Authority Yearbooks, 1995; LRT, 1998; EPA, 1999b; GoI, 1997; Eleftherotypia, 2000b.

A research survey relating to environmental issues was conducted in 1996 in Greece, which also covered the Attica region. According to this survey, around 27% of 600 respondents, considered ecological degradation as a major problem that was not given proper attention by decision makers. Issues concerning the environment were fifth place in peoples' perception of the most important problems for society. The most important environmental problems were atmospheric and sea pollution, and forest fires. According to the respondents, responsibility was divided between economic and political shelf-interests and a general indifference to environmental awareness.

4.3.2. Ireland and Dublin

Historically, Ireland has a predominately agricultural-based economy, with Dublin and to a lesser extent Cork, having a truly urban industrial and commercial character. Over the last two decades, and especially since 1993, the country is experiencing a progressive urbanisation, with the city of Dublin experiencing the most significant urban growth. The growth in development of the major urban areas in Ireland followed a pattern whereby the core areas accommodated a large volume of commercial and office developments, while on the residential front, the inner cities continued to go into decline as low density housing in suburban locations was favoured (Bannon, 1999). The introduction of relevant measures to ameliorate the situation such as the 'Urban Renewal' and the supporting 'Finance Acts' saw the city cores gradually restored and a residential population attracted back. Concurrent with this, and in particular in the case of Dublin, a trend appeared towards ex-urban, 'edge city' type developments. Out of town development such as shopping centres, retail parks, leisure complexes and other business and industrial parks, currently extends the cities boundaries to their peripheries and necessitates the improvement of transport infrastructure (Bannon and Grier, 1997). The per capita GDP in 1997 (in PPS) was 102 for Ireland and 112 for the Eastern and Southern regions which include Greater Dublin Area. The unemployment rates (percentage of labour force) were 15.5 in 1994 for Ireland, and 15.8 for the Dublin Region (DRA, 1995). In Dublin 367,600 people were employed in 1994 and 482,600 in 1998.

Results from a cross-national survey illustrate the environmental perceptions of the Irish public in the 90s. Unlike Athenians, a majority of Irish respondents considered nuclear power stations as a top priority environmental hazard. The study concluded that although there are no nuclear power stations in Ireland, its proximity to the nuclear reprocessing plant at Sellafield in the UK, raises justified fears (EPA, 1999b).

The second highest level of concern is related to water pollution. Climate change, air pollution from industry, and chemicals and pesticides from agriculture, were next in

importance. In contrast to the situation in Athens in 1997, in Ireland air pollution from cars was seen as a relatively lower risk than air pollution from industry.

4.3.3. UK and London

In 1997, the Gross Domestic Product per capita in the United Kingdom was 102 PPS and in London 146 PPS. England was the cradle of the industrial revolution and is still highly industrialised. In 1996, expenditure for environmental protection represented 1.5% of the GDP in the UK (the highest among EU member states in 1996), whereas in Greece it was less than 0.5% (CEC, 1996). In the UK, the unemployment rate was 4.1% (1998) and 9.7% in Greater London (1997).

4.4. The land use and transport planning context

4.4.1. Planning

4.4.1.1. Planning in Greece and Athens

In Greece, a law on the 'Sustainable Housing Development of Cities and Human Settlements', (implemented by the presidential degree 2508/97) was recently adopted that introduced a framework for land use planning activities by the municipalities and 'nomarhies' (*i.e.* prefectures). It provided for two tiers of urban (or development) planning, similar to the provisions of the previous law 1337/83 (Aravantinos, 1997).

TABLE 4.2: TYPES OF DEVELOPMENT PLANS IN GREECE

Based on the previous planning legislation (L. 1337/83), the law on the 'Sustainable Housing Development of Cities and Human Settlements' (Presidential Degree 2508/97), established a land use planning development system with two strategic tiers. The first strategic tier includes the following type of plans:

a) The 'Structure Plan and Programme for Environmental Protection' or 'Rythmistico Schedio' which is prepared for the urban clusters of Greater Athens, Patras, Heraclion, Larisa, Volos, Kavala and Ioannina. The criteria for their application in other towns and urban conglomerations relate to their metropolitan character, the population size, their economic and social profile *etc.*

b) The 'General Urban Plan' (GUP) or 'Geniko Poleodomiko Schedio' which is prepared for municipalities with population exceeding 2000 inhabitants. It was initiated by legislation in 1983 (Law 1337/83) and constitutes a planning framework for the spatial management of municipalities. It also incorporates transportation and traffic management requirements; and

c) The 'Plan for the Spatial and Housing Organisation of Open Cities' which is similar in scope to GUP and covers the non-urban areas.

The second tier of planning involves:

a) the various types of 'Urban Planning Studies' (UPSs) or 'Poleodomikes Meletes' that come under the remit of the previous law 1337/83, *i.e.* 'Urban studies for the extension of cities';

b) the 'Implementation Acts' for the UPSs or 'Praxeis Efarmogis';

c) other ways of urban planning intervention such as the 'Zones of Special Incentives', 'Special Spatial Studies', 'Special Environmental Studies', 'Housing Control Zones', *etc.*

Source: Aravantinos, 1997.

Table 4.2 shows the type of plans that comprise of two strategic tiers of land use development planning, currently in operation in Greece.

The two planning tiers consist of 'twin studies'. The one at a higher level of plan making forms the basis for the preparation of the second. The higher and more general study mainly provides for the elaboration of General Urban Plans (GUPs), and the lower and more detailed, for the Urban Planning Studies (UPSs). A parallel can be drawn between similar legislative provisions in other countries. In particular, GUPs are equivalent to Structure Plans and Unitary Development Plans (UDPs) (Part I) in England, Land Use Plans (Flachennutzungsplan) in Germany and SDAU (Schemas directeurs d' amenagement et d' urbanisme) in France. Consequently, 'UPSs' are equivalent to 'Local Plans' and UDPs (Part II) in England, Urban Structure Plans (Bebauungsplan) in Germany, and Plans d'occupation des sols (POS) in France (Aravantinos, 1997).

Regional and spatial planning in Greece is greatly influenced by the availability of EU financial aid, and by the EU environmental legislation. Due to the lack of regular preparation, adoption and implementation of these plans, and the economic implications of the weak 'absorption capacity' of EU's financial assistance, the government is currently promoting a framework law for Spatial Planning (MEPPPW, 1999) which will elaborate a number of regional plans and studies at a national, regional and prefectural level of government.

4.4.1.2. Planning in Ireland and Dublin

In Ireland, land use planning is primarily a function of the local authorities under the general direction of the Minister of the Environment and Local Government. Its planning system is based on the 'Local Government (Planning and Development) Act, 1963'. This seminal piece of legislation came into effect on the 1 October 1964 and introduced for the first time a statutory development control system. A large body of planning legislation and regulations has been developed in the years since then, reflecting the expansion of the statutory development control system to meet the demands arising from economic growth and rising public concern in the area of environmental control. Planning legislation also mirrored a desire on the part of the public for a statutory and independent planning appeals system, as well as a growing European dimension arising from Ireland's membership of the European Union. The first major review of the planning legislation since the 1963 Planning Act is currently underway. The review has involved a public consultation phase which is now complete. The Minister for the Environment and Local Government is expected to bring forward legislative proposals during the year 2000.

Part II of the new Planning and Development Bill, 1999 (DoELG web site[1]) sets out the development planning system, which provides the framework within which all planning

[1] http://www.environ.ie/pdf/planbill.pdf

decisions are made. It includes provisions for development plans (Table 4.3), local area plans and regional planning guidelines. Part IX provides for the establishment of strategic development zones, where a streamlined planning process will operate in specific sites selected by the government for reasons of strategic importance to the national economy. A new Planning Bill, the purpose of which is to allow for the increase in membership of An Bord Pleanala (the Planning Appeals Board) has now been enacted. The new Act amends the Local Government (Planning and Development) Act, 1983 (DoELG web site[2]).

TABLE 4.3: CONTENT OF DEVELOPMENT PLANS IN IRELAND

Each local authority is required by statute to produce or review a development plan every five years. These development plans provide for, and control, physical development in the interests of the overall common good. The development plans relate only to the area administered by the planning authority. The development plan indicates the planning authority's short and long term view of the future of the functional area. The aim of the plan is to promote and encourage development, to conserve and protect the environment and to make the best possible use of resources. In general, the Plan shows the authority's objectives for the sole or primary use of particular areas (e.g. residential, commercial, industrial, agricultural), for road improvements, for development and renewal of obsolete areas, and for preserving, improving and extending amenities.

Public participation in making the Plan is important. Public notice of making a draft development plan or a variation to the Plan must be given. The draft goes on public display for at least three months, and the public may make submissions on it. Submissions must be considered before the Plan is adopted. Before a plan is adopted, copies of the draft must be sent to various statutory and voluntary bodies who may be able to give the authority specialist advice. Ireland is also unique among European countries in that it has an independent third party planning appeals system which is operated by 'An Board Pleanala' (the Planning Appeals Board).

Source: DoELG's web site, http://www.environ.ie/pdf/planbill.pdf

The Greater Dublin Area comprises seven county councils and eight urban district councils. They are all required to prepare and review County Development plans and Development Plans for the Urban Districts (Brady Shipman Martin, 1999). As a result of the similarities between the Irish and British planning system, the structure of these documents bears similarities with the County Development plans and Urban Development plans in Britain. The status of each development plan in the Greater Dublin Area is shown in Table 4.4.

4.4.1.3. Planning in the United Kingdom and London

The preparation and implementation of plans for their area as well as the control of development through planning permissions has been the responsibility of local authorities in the United Kingdom since the 'Town and Country Planning Act' of 1947. The counties have a mainly strategic role including the preparation of Structure Plans. The Local Plan, prepared by districts, is a more detailed policy statement including some site-specific proposals.

In London and the metropolitan areas, the abolition of the Greater London Council and the Metropolitan City Councils in 1986 led to the creation of single tier unitary authorities. The

[2] http://www.environ.ie/planning/plannews.html#review

election of the first Mayor of London in May 2000 with direct responsibility for transport issues in Greater London, will change significantly the map of responsibility-sharing organisations involved in transport management in the City.

TABLE 4.4: STATUS OF DEVELOPMENT PLANS IN THE GREATER DUBLIN AREA*

LOCAL AUTHORITY	STATUS
Dublin County Borough	Amended draft plan placed in display in January 1999 for one month
Dun Laoghaire-Rathdown	Plan adopted in 1998
Fingal	Draft plan is currently on three months display
Kildare	Draft plan has completed its three-month display period. Council due to approve amendments to the plan in February 1999
Meath	Plan dates from 1994. Review currently in preparation and due for presentation to Council in 1999
South Dublin	Plan adopted in 1998.
Wickow	Amended draft plan placed on display in January 1999 for one month
**Status of development plans as at the end of January 1999*	

Source: Brady Shipman Martin et al, 1999, p.3, table 1.1.

The London Boroughs prepare Unitary Development Plans (UDPs), which combine the functions of the Structure, and Local Plans. UDPs are composed of two parts. Part I contains general policies similar to a structure plan and Part II contains site-specific proposals. UDPs must cover the whole area of a borough and adhere to the guidance set out in the Department of the Environment, Transport and the Regions' (DETR) Strategic Planning Guidance (which includes guidance on transport) and to the Secretary of State for DETR's statement on transport. Some first round UDPs have still to be completed, but following their adoption, local authorities must review plans and bring forward proposals for amendments that reflect strategic guidance and revised national Planning Policy Guidance Notes (PPGs) (London Research Centre, 1999).

4.4.2. Transport policy in the three regions

4.4.2.1. Transport policy in Athens

Greece is the only member of the EU that does not share a border with any other member state, yet 60% of all its trade is with the EU. The poor quality of its transport infrastructure is thought to be a contributing factor to its persistent trade deficit. To improve the situation, more than one-quarter of all expenditure under the EU's second CSF for 1994-1999 is being spent on transport infrastructure. The decision to host the Olympic Games in 2004 has provided a stimulus for improving transport, communications and other infrastructure (EIU, 1998). With a significant increase in the funds available for transport from the European Union's finances (mainly from CSF and Cohesion Fund) there has been a corresponding increase in the rate at which construction works for the Games is being carried out.

Attica, and even more urgently, the Greater Athens Area, face at least four major problems with regard to transport. These are atmospheric pollution, congestion, lack of parking facilities and poor public transport.

TABLE 4.5: THE ATHENIAN 'NEFOS'
The Athenian smog or 'nefos' appeared in Athens during the 70s. The problem lies in the high emissions of atmospheric pollutants in the city, as well as in the unfavourable topographic and meteorological conditions of the Attica region that favours the concentration of air pollutants. Until the mid-eighties, sulphur dioxide and particles were considered as the most significant contributors to smog in Athens. A number of pollution reduction measures such as the reduction of sulphur content of petrol, the prohibition of the use of crude oil for home heating and its restriction for industrial use, lead to a considerable amelioration of the situation. During the last few years, it is the photochemical pollutants (*i.e.* nitrogen oxide and ground level ozone) that are the dominant contributors to the formation of 'nefos'. Until 1990, the concentration of these two pollutants was increasing. Road traffic is considered as mainly being responsible for 'nefos'. In 1990, financial incentives for replacing older cars with 'clean' catalytic ones, were established. Results from air pollution monitoring stations showed that the replacement of cars lead to a significant reduction in nitrogen oxides concentration in the city centre, and to a similar reduction in ground level ozone concentration in the periphery of Athens.

Source: OCOG, 1997a, p. 1.

In relation to atmospheric pollution (Table 4.5), the situation is exacerbated by two factors: the three mountains that surround the city (Figure 4.2), and frequent high temperatures. The anti-pollution measures taken include restriction of traffic, incentives for the gradual replacement of passenger cars with new technology vehicles, the introduction of an Exhaust Emission Test Card for each vehicle, the reduction of the sulphur content of petrol and the restrictions on the consumption of fuel by industry (OCOG, 1997b; Vlastos, 1996).

Several forms of intervention have also been introduced in Greater Athens. The most important of these, aimed at speeding up traffic flow and reducing environmental pollution, are:

A) The enforcement of a number plate-based rota system for circulation in the areas enclosed by the inner ring (12 km^2) or the outer ring (140 km^2). This traffic restriction system, commonly called 'the Ring' (daktilios) is considered to be '*the most restrictive measure ever taken in Europe*' (Vlastos, 1996, p. 50). Criticisms of the inefficient implementation of this measure however, range from the lack of policing and enforcement (TCG, 2000a), to the attitude, (or rather dependency) of the citizens of Athens towards private car use. As Vlastos (1996, p. 50) rightly puts it:

> *'The Ring today, is almost non-existent. Some bought a second car, others use taxis more often than they used to, young people found a solution in motorbikes. However, these are private journeys that lead to more traffic pollution and create an unsafe transport environment in the City. If the old traffic flow rates [i.e. those existing before the introduction of the Ring in 1992)] are to be restored, we should then allow entrance in the Ring, to private cars only once per week. Even if that was applied however, there would still be inefficient implementation since, how can you control the owner of two cars, or how can you restrict access to a motorbike or a taxi?*

The Ring, and its problematic enforcement, is an illustrative example of the 'social and behavioural pattern' of the way that Greeks respond to traffic transport policy in Greece. The fact that it is implemented 'in-full' for the last 18 years, but the 'full' environmental and congestion benefits, have not ever been achieved, reveals a unique pattern of the 'Greek' style of implementing a certain measure. A similar 'behavioural pattern' was exercised throughout the implementation of the CEC Directive on project-EIA in 1996, where the 'letter' of the Directive had been fully implemented, but not its 'spirit' (Zagorianakos, 1996; Valertzidou, 1996). It is not surprising therefore, that with the situation unchanged, a similar fate may await the implementation of the proposed amended CEC Directive on Strategic Environmental Assessment (CEU and EP, 2000; Zagorianakos, 1998; Zagorianakos, 1999).

B) New trunk services on the public transport network and the introduction of 'Bus Corridors' in heavy trafficked routes in Greater Athens have been introduced. Similar to the attitude to the introduction of 'the Ring', Bus Corridors have been criticised for being '*correct in principle, however rather ... Greek in their implementation*' (TCG, 2000a, p. 48). At a planning level, the measure lacks adequate provisions for parking along the bus routes for retail deliveries, and bus and taxi stops, as well as for transferring the traffic problem to adjacent localities and adjacent traffic lanes (TCG, 2000a, Eleftherotypia, 2000a).

C) Provision of parking spaces and Park and Ride areas. During the 80s and early 90s, an institutional and legislative framework was established that gave incentives to private companies to construct a number of car parks in densely populated areas in the city centre and periphery. The lack of a parking strategy meant that the current provision of parking places is a short-term, *ad hoc* measure that fails to deal with traffic and environmental problems in an integrated way (Polyzos Vlastos, 1993; E.T., 2000a). The lack of a parking strategy is attributed to a consequent lack of urban planning policy as well as government agency bureaucracy and high construction costs.

D) Pedestrianisation and a ban on the use of private cars in large parts of the city centre.

E) The reintroduction of a tram service and two subway lines. A feasibility study for a Light Rail System (tram) has just been completed and the construction of the first line is to be started soon. (Giaougi, 1999). As many as fourteen new tram stations (two Metro lines), have recently been completed (Attiko Metro, 2000a).

F) Modernisation of the traffic signalling system.

Greece, and to a lesser extent Greater Athens, are lacking a transport policy framework, both at a national as well as at the regional level of government (Vlastos, 1996; TCG, 2000b; Vlastos, 1998a). Traditionally, transport planning in Greece was related to a 'policy of major projects' attitude, lacking a strategic consideration of the location of these

projects. This 'project-oriented' approach is the result of a lack of financial resources for major infrastructure projects, both for public and private transport, and financial aid for these projects from the EU (CSF, Cohesion Fund). For the period 1994-1999 alone, the second CSF contributed over 9.6 trillion drachmae (82.3% of the total EU finding for that period) for the extension of two main highways, improvement of the local roads network, modernisation and development of the Greek Rail Network, and the construction of two new subway lines. It is therefore relevant in this thesis to focus on the infrastructure aspect of the transport network in Greater Athens. This aspect can be illustrated by reference to the most influential Plan for strategic planning and transport in Greater Athens, the 'Master Plan for the Athens 2004 Proposal for the Olympic Games' (OCOG, 1997b). The influence of this Plan can be illustrated by the fact that the 'Rythmistico Schedio' (equivalent to the 'Strategic Planning Guidelines for Greater Dublin', and 'Strategic Guidelines for Greater London') had to be updated in order to fall into line with the requirements of the Master Plan for Athens (Oikonomou, 1999).

An indication of Greater Athens' inadequate transport infrastructure is that until 1997, the most important projects included in the Master Plan for the Athens 2004 Proposal for the Olympic Games are all transport related. These are:

- the new international Athens airport at Spata, which by 2004 will process 5,000,000 passengers a year,
- the Athens Metro. Today, Athens has one Metro line 27 km long, with 23 stations. When the system is finished, there will be three lines with a total length of 45 km and 41 stations. The Metro will decentralise traffic, will do much to reduce atmospheric pollution, and will decongest the historic centre of the Greek Capital,
- the Light Rail Network (tram) serves a number of routes with heavy traffic flow which are not served by the Metro network. It consists of a loop around the city centre and a link to the coastal zone,
- the Athens-Spata-Elefsina Motorway system. This is the city's new ring road system. It divides the city into inner and outer rings, with a new high-speed highway to the north, 53.5 km in length, and a lateral avenue of 12.5 km to the north-east,
- the national railway network (High-Speed Train),
- the light suburban railway (OCOG, 1997b).

None of these major projects had been implemented at the time of writing. These projects are expected to cut atmospheric pollution by 35% and reduce the number of private cars in the city by 250,000 (OCOG, 1997b). The remaining transport network in Athens is supplemented by 1,900 buses, 450 trolley-buses and 15,000 taxis.

4.4.2.2. Transport policy in Dublin

By European standards, Ireland possesses a very extensive public roads network. For each 1,000 population, there are roughly twice as many kilometres of road as in Belgium, Denmark and France and over three times as many as in Italy, the Netherlands and Spain. The low density of Ireland's population and the still relatively low level of urbanisation account for the high dependency on its road system (DoELG web page). Despite Ireland's current economic boom (The Economist, 1999), its geographical position in the EU has impeded its economic performance. Transport infrastructure influences its economic performance through trade with other continental countries. In particular, Ireland is now the only remaining EU member state without a direct land link to the continent.

Greater Dublin faces similar kind of environment-related transportation problems as the other two city-regions examined in the thesis. According to various planning and transportation studies (DTO, 1998; DTI, 1995; Brady Shipman Martin *et al*, 1999; DRA, 1996; Knight *et al*, 1999; Oscar Faber, 1999; EPA, 1999a; GoI, 1997; Dublin Corporation *et al*, 1999; Bannon, 1999), the most significant environmental problems of Greater Dublin are air and noise pollution, traffic congestion, and parking facilities.

Owing to poor air quality levels in Dublin City, particularly caused by smoke and sulphur dioxide (SO_2) concentrations, regular monitoring procedures have been put in place (Dublin Corporation *et al*, 1999). Transport contributes over 17% of national carbon dioxide (CO_2) emissions, three quarters of which come from road traffic. The largest source of emissions of nitrogen oxides (NO_x) is transport, with vehicles contributing over 41% of national emissions. New EU-wide standards for ambient air quality will shortly be agreed in relation to SO_2, NO_x, lead, and particulates (PM). According to a 1998 study carried out by the Dublin Transportation Office (DTO), these standards '*will be challenging in terms of compliance in heavily trafficked urban areas, particularly in relation to the standards for NO_x and PM10.*' (DTO, 1998, p. 34). According to the 1999 'Draft Dublin Regional Air Quality Management Plan', however, '*Overall, the air quality in the Dublin Region is good*' (Dublin Corporation *et al*, 1999, p. 3). This plan '*is the first of its kind in Europe*' (The Northside People, 1999, p.2) and aims at improving the health and quality of life for the citizens of Dublin and protecting the environment by the provision of a co-ordinated approach to the control of air pollution and to the Sustainable Development of the built environment and transportation within the region. The study found that the only pollutants exceeding the air quality target values, are nitrogen dioxide (NO_2), PM10 and benzene (Dublin Corporation *et al*, 1999). The recommendations of the Draft Plan include that local authorities within the Dublin Region shall:

- require that Environmental Impact Statements reveal adequate information on the air quality impact of new developments,
- encourage the development of public and private residential housing close to public transport routes to reduce reliance on private cars for commuting to and from work,
- promote and encourage cycling facilities within residential areas to enable safe cycling routes to and from local schools and shops,
- introduce Environmental Traffic Cells in urban areas,
- support government proposals to reduce the time scale for the replacement of older vehicle stock in their fleet,
- encourage public transport authorities to convert existing diesel vehicles to Liquid Petroleum Gas and Compressed Natural Gas,
- encourage measures taken by private and public companies to introduce alternative 'benefit in kind' payments for public transport, car pooling and improve facilities for cyclists (Dublin Corporation *et al*, 1999).

All recommendations are in line with those of the Dublin Transportation Initiative (DTI, 1995).

4.4.2.3. Transport policy in London

Greater London is well known for its chronic congestion and increasing air pollution (London Research Centre, 1999). Owing to the variability as well as the complexity of transport policies in London, this section will deal with some of these in further detail.

Traffic restraint

Although the issue of positive traffic restraint is currently high on the agenda, it remains an unresolved area of policy. Among relevant technical experts and professional bodies, it is recognised that some form of traffic restraint or 'demand management' is inevitable in London. This was reflected in the adoption of legislation in the form of the Road Traffic Reduction Act 1997. The alternative is not 'no restraint', but restraint by congestion. The latter is accepted as extremely inefficient, increasing delays and unreliability, possibly deterring local economic activity, increasing pollution for a given level of traffic, and wasting resources, estimated at many billions of pounds each year. The most likely remedial scenario is one of a series of measures including road pricing, traffic calming, parking regulations, and public transport priority measures.

Traffic calming

The British government is encouraging the introduction of 20 miles per hour (32 kilometres per hour) traffic zones, as long as the speed limit is self-enforcing. Traffic calming measures including road humps and carriageway narrowing, are increasingly part of London borough policies. Often the primary objectives are increased safety, especially for children, and improved environmental conditions, rather than traffic restraint *per se*. Area traffic

calming schemes can however be expensive and implementation tends to be limited to cheaper measures such as speed humps, cushions and tables.

Road pricing

There is now widespread support in London, especially amongst transport and planning professionals, for road pricing. The London Planning Advisory Committe (LPAC) produced a study (MVA and LPAC, 1990) recommending its introduction throughout London, charging rates reducing with distance from the centre. The government's commissioned study published in 1995, however, concluded that electronic road pricing could not be operational before 2010 (MVA and GOL, 1995). Alternatives to the car are already available for many of the trips taking place in circumstances where road pricing would be likely to be applied. Road pricing would be expected to facilitate significant improvements in the quality and availability of public transport, especially if some of the revenue from road pricing is dedicated to public transport improvement. Although buses have been given some protection by bus lanes, and other priority measures, there are many parts of the road network where such physical provision cannot be made and where bus reliability can only be improved when general traffic is reduced.

Parking control

Control of parking is a major feature of transport policy in London. In July 1994, the responsibility for enforcement of most parking controls shifted from central government to local authorities under the Road Traffic Act 1991. In the City of London, penalties for illegal parking range from £30 to £60 and are subject to 50% discount if paid within two weeks of the parking tickets being issued. Revenue from fines is ring-fenced and can be used only on parking, traffic and public transport schemes. The process is co-ordinated by the Parking Committee for London. As boroughs have the freedom to introduce parking restrictions, which will now be more rigorously enforced, a number of new Controlled Parking Zones (CPZs) have been created along with 'school keep clear' areas and disabled people bays. Boroughs also have the ability to apply for wider powers under the Road Traffic Act 1991, including clamping and removing illegally parked vehicles. The Act also introduced an efficient adjudication system, administered by the Parking Committee for London, bypassing the courts and reducing costs.

A major barrier to the successful implementation of parking policy to optimise the use of scarce road space is, however, the number of existing private non-residential (PNR) parking spaces. Parking standards applied by boroughs to the provision of new PNR spaces are sometimes more generous than those recommended in Government Parking Guidance. LPAC have recently published their Revised Advice on a Parking Strategy for London (1997 Parking Advice) in which they suggest a more restrictive approach to PNR parking at employment-generating land uses. Overall, it suggests a number of mechanisms for

implementing parking policy: i) parking plans, ii) a test of requests for additional town centre parking, iii) transport Impact Statements/Assessments, and iv) company transport/green commuter plans.

Priority (Red) Routes

The Red Route strategic management system was introduced under the Road Traffic Act. Parking on roads within the network is strictly limited with the aim of reducing congestion. The Red Route Network was designated in 1992 and described in the Traffic Director's Network Plan 1993. Under the Act, local authorities are required to submit local plans for their roads to the Traffic Director for London who then bears the cost of design and implementation.

The Red Route scheme is being extended throughout London's trunk road network and to some borough roads. Pilot scheme results show improvements in traffic and bus times and a reduction in traffic accidents. It is envisaged that the entire network of Red Routes will be operational by 2000, along with the incorporation of bus priority measures. Its success is expected to depend primarily on the level of enforcement.

Walking and cycling

LPAC and the London Pride Partnership have respectively led calls for the development of a strategic approach to walking and cycling in London. Although walking represents a third of all journeys in London, there has not been a co-ordinated approach to developing policy. LPAC has recently published its 'Advice on a Walking Strategy for London' (LPAC, 1997), which sets out the current position, the need for such a strategy and targets for walking strategies at borough level. At present, policies are developed to improve walking concentrate on either pedestrianisation schemes or recreational projects such as those undertaken by the London Walking Forum. The London Pride Partnership has initiated consultation on the formation of a strategy to encourage cycling following on from the development of the London Cycling Network and with initiatives to enhance safety aspects of cycling.

4.4.3. Transport-related strategic documents in the three regions

4.4.3.1. Transport documentation in Athens

Attempts at comprehensive urban and regional planning for Greater Athens began after World War II. These efforts which included the management and planning of transport infrastructure, continued through the 60s and by the end of 70s they culminated in legislation of basic goals through a framework plan called 'Capital 2000' (Zekkos, 1996; Dromos Consulting *et al*, 1994). It was during the early 80s, however, that these planning efforts were realised as part of a comprehensive planning approach through the new

'Operation for Urban Restructuring Programme' applied to all cities and towns in Greece (Vassenhoven and Georgoulis, 1997).

Finally, in 1985 the 'Structural Plan and Programme for the Environmental Protection of Greater Athens'[3] (Law 1515/85) was enacted. It was a comprehensive instrument that established the planning framework, the policy goals and measures for the Sustainable Development of Attica and set up the 'Organisation for Planning and Environmental Protection of Athens' as the competent agency to oversee and co-ordinate the implementation of the Structural Plan. One of its aims was to ensure a more functional sectoral transport infrastructure system. At the more detailed level of physical planning, the Structural Plan goals are implemented by means of the 'General Urban Plan' and specific traffic management studies for local authorities in Attica, the 'Development Control Zones' for areas outside the urban concentrations, the 'Expansion and Review Studies' for old city plans, and the 'Special Plans of Structural Interventions and Regeneration Actions' for areas of strategic significance on the wider Athens area (OPEPA, 1995; MSPHE, 1983).

During the late 80s, and until recently, an integrated Action Plan with major transport implications, called Attica SOS, has undergone a series of implementation and redrafting by the Ministry of the Environment, Physical Planning and Public Works (MEPPPW), in conjunction with other relevant Ministries. It contains measures, policies and projects which relate to the following aims: i) successful battle against air pollution, ii) improvement of the quality of life, iii) development of a sustainable city, and iv) achievement of an economic, social and environmental development of the Attica region (MEPPPW, 1995).

The most up to date and comprehensive transport study for the Attica region, is however the Metro Development Study. It was prepared by the Attico Metro between 1996-1999. The study objectives are to develop: i) a Metropolitan Transportation Plan, ii) a reliable tool for Evaluation of Transport Projects, iii) a complete transportation database, and iv) the optimum implementation strategy in relation to available resources (Attico Metro, 1999).

4.4.3.2. Transport documentation in Dublin

The root of the traffic congestion problem in Dublin is attributable to the accelerating rates of vehicle ownership and use amongst its citizens and the emergence of complex commuter travel patterns, with increased journeys between suburbs and also a higher level of traffic flow from the core to the periphery. These travel patterns are the consequence of the physical spread of urban development on the periphery of Dublin city, the inadequate

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[3] This plan is called 'Rythmistiko Schedio'. An updated draft was being prepared at the time of writing (Oikonomou, 1999).

condition of the road systems, and the inability of public transport to provide a viable alternative method of travel (SIRC, 1996; Bannon and Grier, 1997). The realisation by the government that traffic congestion contributes to air and noise pollution has serious environmental implications and inhibits the economic activity of Dublin. The Irish government launched an investment transport programme in 1995, which culminated in the implementation of the Dublin Transportation Initiative (DTI).

The DTI was undertaken in 1991-1994 with the objective of enhancing Dublin's position as a 'vibrant, dynamic and attractive city' (DTI, 1995). It is a comprehensive approach to transportation planning which receives 75% funding from the EU and is sponsored by the Irish government. It deals with all forms of surface transport and examines the way in which transport issues may be integrated with land use, economic and environmental policies. The initial programme was based around a series of surveys and consultations, which resulted in a wide range of recommendations for all aspects of the transportation system in the study area. Three years after the completion of the study, its implementation was found to be '*considerably behind initial targets, and most of the major infrastructural measures in the strategy will not now be in place until long after the original target completion date*' (DTO, 1998, p. 9). The reasons behind delayed implementation, relate to the sharp growth in transport demand, which in turn related to a substantial increase in employment, income, car ownership and car usage in Dublin City, since the DTI was published (Table 4.6).

In order to anticipate this sharp growth in transport demand, a year later in 1999, the DTO published a five-year 'Transportation Blueprint 2000-2006' (DTO, 1999). Its overriding objective was to accommodate the projections for growth in transport demand, which was calculated to be between 45,000 and 104,000 additional peak hour trips in the period 2000-2006 (DTO, 1999). Table 4.6 shows the projects proposed in the 'Blueprint' that are considered necessary by DTO, if this difficult task is to be achieved.

Another pertinent study (Oscar Faber, 1999), aimed to assess '*the applicability of economic instruments in the management of traffic in Dublin*' (Oscar Faber, 1999, p. 1). The authors concluded with the following recommendations for traffic reduction:

- a cordon arrangement, based initially around the city centre,
- peak period charging, possibly extending to cover the inter-peak period with a lower level of charge to reflect less congestion,
- electronic vehicle detection, based on proven technology backed up by a camera-based enforcement system.

TABLE 4.6: DUBLIN TRANSPORT OFFICE'S PROPOSED INVESTMENT PROGRAMME
• the Bus project: provision of additional bus capacity and new quality bus corridors, development of local bus networks, • the Light Rail project: at the time of writing Line A (Tallaght to Abbey St.) was under construction, and a study was being prepared on possible extension, • Suburban Rail project: maximisation of the capacity of existing lines, new stations and preparation of study on possible extension, • Integration project: provision of 3,270 car parking spaces, development of Park and Ride sites and a series of bus transport interchange nodes, integrated ticketing[4] and the appointment of a single co-ordinator for the Greater Dublin public transport system, • Road project: construction of roads by the Local Authorities and the National Roads Authority, • Cycling project: completion of the Strategic Cycle Network, provision of 25,000 cycle and motor cycle parking spaces, development of a local cycle network within each local authority area focused on routes to schools/shops *etc.*, • Traffic management project: traffic enforcement measures such as the Dublin Corporation clamping and tow-away programme, the proposal for the establishment of a regional traffic centre for Dublin *etc.*, • Information, Education, Promotion and Partnership project: development of campaigns for the promotion of the strategy and individual projects, • Demand Management project: development of a template for 'Mobility Management Plans' and encouraging its application from local authorities, trade unions *etc*; development of a 'Demand Management Strategy' for the Greater Dublin Area which should consider measures such as the application of benefit-in-kind taxation to workplace parking, using vehicle and fuel taxation regimes, using parking supply and pricing policies and road pricing mechanisms *etc.*

Source: DTO, 1999, p. 7-38.

The study, recommended at least 2-3 different assessment methods to be used in future research, namely a detailed CBA, a full social cost benefit analysis, and the investigation of the potential distribution effects such as spatial distribution and distribution of impacts across different socio-economic groups (Oscar Faber, 1999). It also included the examination of the policy framework and implementation of road pricing schemes in Norway, Singapore, the Netherlands and London (Oscar Faber, 1999).

The major problems facing Dublin can be encapsulated in a passage from the 1999 'Strategic Planning Guidelines for the Greater Dublin Area' (Brady Shipman Martin *et al*, 1999).

The authors, after concluding that '*The transportation system is at crisis point ...*', explain that '*... the major schemes currently in progress or in planning ... are primarily intended to address existing shortcomings and will provide only limited capacity for large-scale growth in the future.*' (Brady Shipman Martin *et al*, 1999, p. 81). A reference should also be made to the comparison of two scenarios, made in the Strategic Planning Guidelines that are transport-related. One described the adoption of an unsustainable transport approach in which the 'car-dependent society would be strangled by its own transport system' (Brady Shipman Martin *et al*, 1999). The other scenario, related to a situation where the recommended strategies were to be adopted, but the public transport aspects were not implemented (*i.e.* the DTI strategy). After comparison, the authors concluded that '*there is*

[4] Ticketing is integrated, when one ticket for a journey may be purchased at any point-of-sale, irrespective of how many modes are taken to complete the journey.

no alternative to a sustainable, public transport based solution and failure to implement the appropriate measures could seriously prejudice the economic and social growth of Dublin.' (Brady Shipman Martin *et al*, 1999, p. 83).

4.4.3.3. Transport documentation in London

Local transport stays within the domain of local authorities, which must draw up Local Implementation Plans (LIPs). These replace the former Transport Policies and Programmes, and the current Interim Transport Plans, which set local transport policy and are used to determine the allocation of central government grants for transport projects. LIPs must encompass London-wide policy as set by the Greater London Authority (GLA) and the local authorities will be accountable to the Mayor through their development. If the Mayor considers that a LIP does not adequately reflect the London-wide transport strategy, the borough can be asked to redraft the document or the Mayor may rewrite the LIP for the borough (London Research Centre, 1999).

After the abolition of the Greater London Council (GLC) in 1986, the British government became the strategic planning authority for the Capital, issuing planning guidance, which set the context for UDPs. The London boroughs influence the process through the LPAC, which has a statutory remit to advise the government on the content of its Guidance. In May 1994, LPAC published the 'Advice on Strategic Planning Guidance for London'. The second version of Regional Planning Guidance (RPG3), 'Strategic Guidance for London Planning Authorities', was issued in May 1996 and gives guidance for the period up to 2006. The Guidance should be read in relation to other Regional Guidance published by the government. The 1994 Regional Guidance for South East England is currently being updated (SERPLAN, 1998; SERPLAN, 1999; PEP, 1999). The new version is expected to set out three key objectives: enhanced economic performance, Sustainable Development and environmental improvement, opportunity and choice.

A number of non-statutory documents have been produced by different organisations concerned with transport and development in London. LPAC's 'London: World City' project in 1991, drew attention to the need to improve transport in London in order to ensure London's success as a world city. In 1995, the London Pride Partnership's 'London's Action Programme for Transport 1995-2010' set out for the first time a comprehensive programme 'to create a world class transport system for London which is practicable and affordable'. In response to this report, the Government Office for London and the Department of Transport published 'A Transport Strategy for London' (DoT and GOL, 1996) which set the following objectives:

- the active promotion of walking, cycling and public transport as alternatives to car use,

- measures to reduce the reliance on the private car and restrain its use; in particular, to discourage car commuting into central London,
- major investment in the existing public transport infrastructure and, where appropriate, new lines to meet increasing demands and to serve economic regeneration,
- continued investment in the region's strategic road network to provide accessibility for long distance and commercial traffic and to allow environmental improvement on more local roads,
- a comprehensive programme of traffic management measures aimed at relieving congestion, improving the environment and improving conditions for all road users as part of a balanced strategy,
- limited new road construction linked to improving orbital movements and to service areas earmarked for regeneration,
- the use of land use planning to reduce the overall need to travel,
- implement the air quality strategy which is being developed under the Environment Act 1995 (London Research Centre, 1999).

The government's 'Transport Strategy for London' highlights areas where the road network is to be developed. The main target area is East London where improvements are being progressed to key routes as well as the introduction of a number of additional river crossings. The London Pride Partnership responded to the government's strategy, with London's Action Programme for Transport 1996-2010, which welcomed the response to its previous document, as the government 'accepting responsibility for an integrated strategy'. It does however, have a number of criticisms of the report, particularly in relation to the timetable for government action and lack of commitment to funding.

On behalf of the London boroughs, the ALG and LPAC jointly published An Integrated Transport Programme for London in June 1996. They describe this as an action plan giving expression to the section of LPAC's 1994 Advice relating to transport. Its three-strand transport policy is based on:

- reducing the amount of travel through co-ordinated land use and development decisions; consistency in investment decisions relating to London's transport system; and encouragement of sustainable modes of transport,
- restraining traffic, especially the car, by using appropriate parking, physical and pricing measures,
- zero increase in highway capacity except for regeneration of East London; and co-ordination of highway network management,
- improvements to public transport through financial commitment from the government, improved bus services, provision of a co-ordinated system.

In response to the government's 'Transport Strategy for London' (DoT and GOL, 1996), London Transport published 'Planning London's Transport: To Win as A World City' (LT, 1996). This was produced to demonstrate that adequate transport funding was critical to meeting the government's stated aims of competitiveness and world city status (London Research Centre, 1999).

4.5. Constitutional, Administrative and Legislative framework of SEA and transport planning

4.5.1. Constitutional framework

The current Greek Constitution came into force in 1975. The system of government in Greece is parliamentary democracy with a president as a head of state. The sovereign power is the people, represented by the 300 Members of Parliament. Legislative power is exercised by the Parliament and the government, executive power by the President of the Republic and the government, and judicial power by the courts. In March 1986, a series of amendments to the Constitution were approved by a majority vote in Parliament, which relieved the President of his executive power and transferred such power to the legislature thus confining the Head of State to a largely ceremonial role.

In Ireland, the Oirechtas is the national parliament. It consists of the President and two Houses, the House of Representatives and the Senate. The functions of all three are derived from the Constitution of Ireland and law.

The UK's political system is constitutional monarchy with the Queen as Head of State. The government is headed by the Prime Minister. It includes ministers, the Chancellor of the Exchequer and the Lord Chancellor, the law officers of the Crown, Parliamentary Secretaries and Under-Secretaries (Europa Publications Limited, 1997). A single Parliament which passes separate legislation for Scotland, England and Wales, and Northern Ireland, consists of two chambers: the House of Commons (directly elected members of Parliament) and the House of Lords (Peers of the Realm and Anglican bishops). To become a law, a Bill must be passed by both chambers. There are three sources of law: Statute Law, Common Law and Equity. The Judicial system consists of County Courts, the Crown Court, High Court of Justice, Court of Appeal, House of Lords and Judicial Committee of the Privy Council.

4.5.2. Local government structures

In contrast to the UK, local authorities in Greece, and to a lesser extent in Ireland, are generally under-funded and, especially in Greece, they suffer from lack of resources and reduced responsibilities in relation to development and transport management for their area. It is therefore relevant to explain the local government structure in the three city-regions examined, in order to explain the existence or lack of relevant SEA elements in the transport-related documents reviewed.

4.5.2.1. Greece

The administration of local affairs is in the hands of local government authorities which enjoy administrative independence. The first step in the local government structure consists of the country's municipalities and communes, above which is prefectural local government, with the regions at a tertiary level. In 1991, Greece was divided administratively into 13 regions for planning, which were upgraded to decentralised administrative units in 1994 into 51 prefectures, 147 regions or 'eparhies', and 5,921 local government organisations (MEPPPW, 1996). These local government organisations consist of 361 municipalities *i.e.* units with over 10,000 population or capitals of prefectures, and 5,560 Communes. The law 'on the merging of local authorities' (I. Kapodistrias) reduced the number of municipalities and communes from 5,921 to 1,033. At the time of writing, the 'administrative map of Greece' was taking another turn. After the enactment of the law 'I. Kaposistrias', the Ministry of the Interior was considering the option of reducing the amount of regions from 13 to 7, and the prefectures from 51 to 20. The reason behind this initiative is '*the modernisation of public administration at a national level, and its adaptation to Greece's recent entry into the Economic Monetary Union*' (E.T., 2000b, p. 74).

Two levels of government (central and municipal), and four levels of administration (central, regional, the 'nomoi' *i.e.* prefecturs, and municipalities and communes) are reflected in the statutory planning system. In comparison with other EU states, local government in Greece can be regarded as an institution whose competencies and authority are extremely limited, and whose financial rigour is restricted. It is characteristic that in 1990, the total income of Greece's Municipalities and Communes was less than 5% of the income of the national budget. The administrative augmentation and the small size of local government organisations create obvious problems for co-ordination and planning. This affects matters that require multi-sectoral approach, such as environmental planning (Vassenhoven and Georgoulis, 1997).

The situation with the local authority structure in Greater Athens is quite complicated, and this poses difficulties for this research, and in particular with the appropriate classification

of the three regions. For example, this problem is exacerbated in Greater Dublin, since three different terms were found in planning studies (*i.e.* DTI study area in DTI, 1995; Dublin region in DRA, 1996; and Greater Dublin Area in Brady Shipman Martin, 1999 and DTO, 1999) that correspond to overlapping areas, around city centre. The situation in Greater Athens is equally complex. The primary local government is the Municipality of Athens, above which are the Prefecture of Athens and the specially expanded Athens and Piraeus Prefectural Local Government Organisation. The Prefecture of Attica, which includes Athens and Piraeus, constitutes a separate region. Greater Athens consists of 55 Municipalities and 4 Communes[5]. This is the definition that the thesis adopts. The rest of the Attica region that surrounds Greater Athens further includes 26 Municipalities and 65 Communes (OCOG, 1997b, p. 4).

4.5.2.2. Ireland

The Local Government (Ireland) Act, 1898 gave Ireland a local government system, based on the British model, with county councils and urban district councils. It abolished the rural district councils in 1925. Local government in Ireland consists of a number of local and regional authorities at three levels. These are:

- county/city level: thirty-four local authorities are the main providers of local government services, twenty-nine county councils and five cities,
- sub-county level: eighty town authorities carry out a representational role for the town with a varying range of local government functions,
- regional level: eight regional authorities co-ordinate some of the county/city and sub-county activities. They play a monitoring role in relation to the use of EU structural funds.

Local Authorities are multi-purpose bodies who are responsible for an extensive range of services. They are typically broken down into various broad categories: housing, planning; roads; water supply and sewerage; development incentives and controls; environmental protection including rivers, lakes, air and noise; recreation facilities and amenities; agriculture; education, health and welfare. In addition to these competencies, a fundamental role of democratically elected local government is the representation of local communities, voicing local concerns and responding to local needs.

A major programme of local government reform is currently underway by the Irish government. A local government Bill is being prepared as part of the renewal and modernisation process of local government. This Bill will consolidate and update general local government legislation. It aims to give a more central role to councillors as well as

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[5] The term in Greek is 'Poleodomiko Sygrotima Protevousis'.

enhancing the involvement of local communities in the local government system. This Bill is an important follow up to the recent constitutional amendment that provided for the recognition of local government and periodic local elections.

In addition, an improved local government funding system has been in operation since January 1999. The initiative on funding, entitled, 'A New Deal for Local Government' was launched in January 1998. It involves the establishment of an independent 'Local Government Fund', which amounted to about £625 million in 1999 and was financed from two sources. An amount of £270 million in 1999 increasing annually to take account of inflation and changes in the functions of local councils, and the proceeds of motor taxation. Ring-fenced in legislation and guaranteed to increase in future years, the fund will be used solely for local government purposes. It is estimated that the fund will amount to about £665 million in 2000.

The overall level of capital expenditure by local authorities is determined by the amount the government allocates annually for the major capital services to be provided by local authorities. These provisions are set out in the Public Capital Programme. A summary of the provisions made in the 1999 Public Capital Programme for spending by local authorities is shown in Table 4.7. It shows that in 1999, the highest proportion of financial resources that the government allocated to local authorities was spent on the provision of road services (IR £ 526.6 million). This amount accounts for almost 40% of the total capital (38.9%).

TABLE 4.7: SOURCES OF CAPITAL FINANCE IN LOCAL AUTHORITIES IN IRELAND IN 1999	
Local Authority and Social Housing	312.1
Loans for Shared Ownership Scheme	70.9
Rental Subsidy	27.7
House Purchase and Improvement Loans	33.6
Other Housing	10.5
Roads	526.7
Water and Sanitary Services	275.6
Environmental Services	39.5
Fire and Emergency Services	6.9
Miscellaneous	50.0
Total	1,353.5

Source: DoELG, web site, http://www.environ.ie/local/overview.html#3

These statistics are, however, less impressive when it is considered that only 27% of local authorities expenditure for the same year was financed by government grants and subsidies (Table 4.8). In contrast to Greece, however, where local authorities were generally dependent on a mere 5% of the National Budget for financial support in 1990, the fact that the remaining 82% of Irish local authority expenditure was self-generated, is quite impressive.

In relation to transport, 32 Irish principal local authorities have a significant influence on the local transportation system. The elected members of the local authority are responsible for the preparation and revision of development plans, which are the primary policy instrument at local level. They provide strategies for road transport as well as for development and future growth in the area concerned (Bannon and Grier, 1997).

TABLE 4.8: ESTIMATED CURRENT RECEIPTS AND EXPENDITURE OF LOCAL AUTHORITIES IN IRELAND (1999)

	County Councils £'m	County Boroughs £'m	Urban Boroughs' £'m	Miscellaneous Bodies £'m	Total 1999 £'m
Expenditure	1,078.6	421.9	124.9	2.2	1,627.6
Financed by Government Grants/Subsidies	353.5	77.2	13.2	-	443.9
General Fund	239.0	57.6	28.4	-	325.0
Goods/Services	258.9	134.3	48.4	1.3	442.9
Commercial Rates	204.8	153.6	52.6	0.7	411.7
Balances	4.1	(0.8)	(0.3)	0.2	3.2
County Demand	18.3	-	(17.4)	-	0.9
Total Receipts	1,078.6	421.9	124.9	2.2	1,627.6

Source: DoELG, web site, http://www.environ.ie/local/overview.html#3

Although the system of local government in Ireland '*was intended to be a form of local self government, providing the smallest community units possible with the opportunity to participate in the democratic process.*' (Bannon and Grier, 1997, p. 9), it has been criticised for having a 'subordinate role' and being 'dependent on the National Government'. Local authorities have been described as '*administrative organs allocated functions by the central government as convenience dictates*' (Basil, 1992, p. 264). It is characteristic that from the £203.643 million allocated by state grants in 1998 to local authorities for non-national roads, only £77.023 million was Local Authorities Own Resources Expenditure (DoELG web page). An effort has been made in recent years to mitigate the negative effects of this centralisation of local government powers and functions, which at a certain level, can be compared to the situation in Greece. The government policy for 'Better Local Government' published in December 1996, aimed at accelerating the process of strengthening its competencies.

With regard to transport, the policy document 'Better Government - A Programme for Change' incorporated proposals for a local revenue system, '*where the full process of motor taxation will become a dedicated local government source, fully assigned to the local authorities*' (Bannon and Grier, 1997, p. 8). Other transport-related opportunities for local authorities to increase their income is through the operation of fee car parks, street 'park and pay' systems, and the imposition of tolls on a limited number of road networks.

The Dublin Region (DRA, 1996) consists of four local authority administrative areas: Dublin County Council, as well as Counties Fingal, South Dublin and Dun Laoghaire-Rathdown. The planning area that the DTO initially used, covered the entire Dublin Region (DTI, 1995) and parts of the adjacent counties Wicklow, Kildare and Meath. The area represented the Dublin 'journey-to-work' area as identified in the 1988 'Eastern Region Settlement Strategy 2011' is significantly smaller than the Greater Dublin Area as identified for the Strategic Planning Guidelines.

4.5.2.3. United Kingdom

In contrast to Greece, local authorities in the UK remain the principal level of executive authority albeit that central government control is considerably increased in many areas of their competency. They possess an important role in environmental protection since they have significant development, management and control powers (Cullingworth and Nadin, 1997; CEC, 1993a).

A complex system of local government administration currently exists, with variations in all four parts of the United Kingdom. In England, matters are further complicated in that, outside London, local government boundaries and the division of responsibilities in some areas have been undergoing reorganisation under the Local Government Act 1992 (London Research Centre, 1999). This has resulted in a unitary system in some areas while others retained a two-tier structure. Under the second review reorganisation of local government that took place in April 1998, the number of unitary authorities in England have been increased, resulting in 35 counties divided into 260 districts, and a further 60 Unitary authorities.

The primary units of public administration in Greater London are the 32 London boroughs and the Corporation of London. Although the functional split of local authority responsibilities in the UK depends on the type of council, whether single or two tier, overall planning and transport functions relate to planning, traffic and transportation, car parks, national park and countryside functions, and parks and leisure (London Research Centre, 1999). The Local Government Association, created in April 1997 through the merger of three previously existing local authority associations, and in London by the Association of London Government (ALG) (London Research Centre, 1999), represents local authorities in England.

4.5.3. Institutional structures with environmental protection, planning, and transport responsibilities

4.5.3.1. Greece

The public authority in Greece responsible for determining general policy on physical planning and environmental protection, for the preparation of plans and projects, for monitoring their implementation, and for the co-ordination of the special environmental programmes of other authorities is the Ministry of the Environment, Physical Planning and Public Works. Other Ministries such as Agriculture, Finance, Interior, Industry and Energy, Merchant Navy and Labour, contribute to the formulation of policy in areas which concern them and are jointly responsible for the implementation and monitoring of legislation relating to the environment (OCOG, 1997b). The administrative machinery for the control of spatial location of activities, which produce pollution and environmental disruption, is strengthened and expanded through environmental impact assessments. The developmental pressures exercised by the more powerful Department of Public Works within MEPPPW however, weaken MEPPPW's role.

The Athens Public Transport Organisation (OASA) is responsible for the planning of the overall public transport system in Greater Athens. The public transport system is operated by an affiliate of OASA called ETHEL (the Athens Bus Company SA), by the Athens and Piraeus Trolley Company (ILPAP), and by the Athens and Piraeus Electric Railway Company (ISAP). Attico Metro is the company responsible for the construction and operation of the tram network.

4.5.3.2. Ireland

In Ireland, the national administrative framework consists of three tiers: the national government, the regional authorities and the local authorities. At a national level, there are fifteen government departments each with responsibility for particular issues. The Department of the Environment and Local Government (DoELG) has a wide range of functions in relation to roads (Table 4.9). In discharging the functions outlined in Table 4.9, DoELG co-operates closely with the Department of Public Enterprise (responsible for bus, railway and air transport), and Marine and Natural Resources (ports). The other main bodies, interest groups and state sponsored bodies that the Department deals with in relation to transport issues are the DTO, European Commission, the construction industry, environmental interests, business interests, the insurance industry, the Garda Siochana (the Police Force), the National Roads Authority, the National Safety Council, the Environmental Protection Agency, and the Medical Bureau of Road Safety.

TABLE 4.9: FUNCTIONS AND RESPONSIBILITIES OF THE DOELG IN RELATION TO ROADS

Functions in relation to:

- policy development,
- promotion of legislation,
- negotiation of national and EU funding,
- acting as lead Department for Transport Operational Programme,
- overseeing activities of implementing agencies (The National Roads Authority, the Dublin Transportation Office, the National Safety Council, local authorities),
- promotion of road safety,
- driver testing,

The overall objective is to provide, within the framework of a balanced and integrated transport policy, for the safe, efficient and cost-effective movement of persons and goods by road. Specific objectives are to:

- ensure the optimum level of EU financial assistance for the Operational Programme on Transport and for roads from both the Structural and Cohesion Funds within the framework of a balanced and integrated national transport policy,
- ensure, as far as possible, the provision of a safe and efficient network of national roads and non-national roads,
- play an effective role in the EU legislative and decision making process,
- ensure the optimum and safe use of the public road network,
- ensure that vehicles are safe and suitable for use on public roads,
- provide machinery for the licensing and taxation of vehicles used on public roads,
- ensure that drivers are fit, competent and licensed to drive vehicles of an appropriate class on public roads,
- improve road safety,
- promote the development of a balanced and integrated transportation system in major urban areas, particularly in Dublin.

Source: DoELG web site, http://www.environ.ie/dept/bodies.html#nra

The 'state sponsored bodies', which are established 'by or under statute' and financed by means of grants or loans by the Minister of State, contribute towards the integration of socio-economic and environmental policies. As Bannon and Grier (1997, p. 10) note '*... One of the main advantages* [of the state sponsored bodies] *is that they combine the experience of individuals involved in the public and private sector in order to guide and assess the performance and management of state enterprises.*'. Some of the disadvantages on the other hand, are the exercise of limited horizontal integration and differing levels of autonomy, the degree of which is related to the nature of the function performed, the financial position, and the source of funds (Bannon and Grier, 1997).

The influence on transport issues that the European Union exercises in Ireland, is seen in the successful implementation of the Operational Programme for Transport 1994-1999, which was agreed with the European Union. The Operational Programme addressed in an integrated way the investment needs of all transport modes. Investment in national roads for that period was £1.3 billion with an average of well over £200 million each year (DoELG web site).

In addition, a substantial amount of resources was devoted to transport under the Cohesion Funds through the European Union over the period 1993-1997. Ireland received a commitment of ECU 512 million from the Cohesion Fund for transport, representing 11% of the total commitments from the Fund devoted to transport (O' Connor, 1999). The

financial assistance that Ireland received from the EU programmes, contributed to the very strong output growth that has been experienced since 1994, as well as to the movement towards convergence of employment. As O'Connor (1999, p. 6) notes, '... *There is no doubt that the investment supported in the last number of years has been a significant factor in improving environmental, transport and other infrastructure and bringing about this convergence.*' It is in this context that the government of Ireland's initiative to undertake a form of SEA, called Eco-Audit, of 10 sectoral plans and programmes, can be viewed. The National Development Plan (NDP) 2000-2006 is one of the plans, policies and programmes (PPPs) to which the Eco-Audit has been applied. Taking into account that another form of SEA had been prepared for the previous round of the NDP preparation during 1994-1999 (DG XI, 1997), it can be postulated that the Irish government considers it important that the environmental credentials that a SEA provides, are important for negotiating EU financial aid. The use of SEA to secure funds in the future, will be even more important, especially in the years when Ireland will be a net contributing country in the EU. O' Connor notes that the 9% of financial aid received by Ireland during the period 1993-99 from the Cohesion Fund, '*was at the high end of the 7-10% commitment that Ireland could have potentially received*' (O' Connor, 1999, p. 6).

At a regional level of government, the 'Local Government Act', 1991 (Regional Authorities) Establishment Order 1993, provided for the establishment of eight Regional Authorities in Ireland including the Dublin Regional Authority. These regional bodies are indirectly related to transport issues, since they are responsible for reviewing the development plans of local authorities at least every five years. They are also responsible for monitoring EU Structural and Cohesion Fund matters at the regional level, as well as monitoring and advising in the implementation of the various EU Operational Programmes (DRA, 1995; Brady Shipman Martin *et al*, 1999). The role of Regional Authorities in shaping urban affairs, an issue which is relevant to their transport responsibilities, is quite limited. According to Bannon and Grier (1997), because of severe financial and policy restraints and a decreased level of commitment by the majority of public bodies, the capacity of Regional Authorities to play a more instrumental role in local socio-economic and environmental development is undermined.

Confusion exists about the common definition of the administrative areas adopted for planning purposes throughout the various transport studies. This confusion inevitably has negative implications, both for the transport and planning administrators in Greater Dublin, as well as for the research for this thesis. Owing to the problems of institutional co-

ordination[6] both the Dublin Regional Authority and the DTO enlarged, their regional and transport planning study areas to incorporate the Greater Dublin Area. This was first suggested by the 'Strategic Planning Guidelines for the Greater Dublin Area' (Brady Shipman Martin *et al*, 1999) and consists of the Dublin and Middle East regions. Since the Greater Dublin Area is considered to be the area most immediately affected by the transport growth and development of Dublin, it is also the area adopted for this study.

4.5.3.3. United Kingdom

Although a number of organisations exist within Greater London with an interest in transport policy, ultimate responsibility for this in Britain's Capital lies with central government (London Research Centre, 1999). The Department of the Environment, Transport and the Regions (DETR) is mainly responsible in England for all transport, environment and regional development matters that are functions of central government. It has few operational powers and broad areas of responsibilities, which are larger than in any other EU country (CEC, 1993a).

DETR is headed by the Secretary of State, who at present, is also the Deputy Prime Minister. Within the Deputy Prime Minister's Office are the Minister for the Environment, Minister for Local Government and Housing, Minister for the Regions and Regeneration, Minister for Transport, and Parliamentary Under Secretaries responsible for London and construction, transport in London, integrated transport policy, local transport outside London, aviation and shipping, roads and road safety, environment, countryside and water, and regeneration. The government's main functions in the field of transport planning are:

- to set national policy and take the lead in policy guidance for local authorities,
- to set the regulatory framework to deal with safety and environmental matters,
- to promote the provision of the necessary infrastructure (trunk roads and motorways, railways, ports and airports),
- to determine the organisational framework within which public transport operators work.

The DETR may issue regulations under powers conferred by primary legislation. It also provides advice on best practice without setting mandatory standards, for example, through 'Planning Policy Guidance: Transport' (PPG13), which links transport and land use issues and seeks to reduce car travel through planning policy. The Department works closely with many other bodies, particularly local highway authorities responsible for all roads other

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[6] These problems are the outcome of multiplicity of administrative areas (DRA, 1996), development pressures that have lead the residential population of the Dublin Region to spread to areas beyond the former County (Bannon and Grier, 1997, p. 12), and the need to address the increasing journey-to-work patterns in the Dublin Region (DTO, 1999, p. 4).

than motorways and trunk roads. The Highways Agency (similar to the Irish National Roads Authority) an executive agency of the DETR, is responsible for management and construction of the trunk road and motorway network in London, whilst the London local authorities are the highway authorities for all non-trunk roads in their area. DETR interacts with these authorities in the areas of standards and guidance and also provides financial support for key investments and other activities (London Research Centre, 1999).

Although ultimate responsibility for strategic and local planning lies with the DETR, responsibility for some services is shared. LPAC the statutory joint committee of the London boroughs, advises both the Secretary of State and the boroughs on strategic planning and transport issues and on major development proposals. Other organisations, such as London Transport, which currently manages the underground system and bus services in the Capital, have boards directly appointed by central government.

At a regional planning level, the London and South East Regional Planning Conference (SERPLAN) has for over 35 years provided the mechanism for co-ordinating regional strategy and ensuring an adequate framework for development plans. It is composed of all local authorities in South East England, including the 33 London authorities and the LPAC. Its functions are to maintain good liaison and co-ordination between these local authorities, providing policy advice on major planning and transport issues. It provides advice to the government on regional strategy through the Government Office for the South East (GOSE). The government, in turn, issues Regional Planning Guidance in the form of Regional Planning Guidance (RPG) Notes. These guide local authorities in their planning functions (London Research Centre, 1999).

Since 3 July 2000, strategic transport policy, operation of London's buses, tubes, trains, taxis, river transport, and responsibility for the strategic road network and traffic control systems, are co-ordinated by one institution, the GLA through its executive body Transport for London (TfL). The main purposes of the Authority, as set out in the GLA Bill, are to promote economic development and wealth creation, social development, and the improvement of the environment in Greater London. GLA is *inter alia* responsible for developing an integrated transport strategy.

Since 12 May 2000, the newly elected Mayor has wide-ranging powers for transport in London, with responsibility for developing and implementing policies for the promotion and encouragement of safe, integrated, efficient and economic transport facilities and services to, from and within Greater London (House of Commons, 1999). The Mayor will be responsible for developing a coherent transport strategy for London and appointing the

Board of the new organisation, TfL. The transport strategy will include measures for walking, cycling, bus priority, parking and freight movement, and must adhere to the national transport policy set out in the government White Paper 'A New Deal for Transport: Better for Everyone' (DETR, 1998e). The TfL Board absorbed the role of the Traffic Director for London, the Public Carriage Office, the Traffic Control Systems Unit, the Docklands Light Railway and part of the Highways Agency, and London Transport (LT). London Underground (currently part of LT) exists separately until completion of the Public Private Partnership arrangements. During this time it will be responsible to the Secretary of State for Environment, Transport and the Regions, but will eventually become a branch of TfL.

In the past five years, a number of governmental organisations and ministerial appointments have been established at a London-wide level. These include the Government Office for London, the Traffic Director for London, the Transport Co-ordination Group, the Cabinet Sub-Committee for London, the Minister for London, and the Minister for Transport in London. London-wide joint committees and 'partnerships' have emerged to fill the strategic vacuum in the Capital left by the abolition of the Greater London Council. These bodies have a variety of forms and focus, some dealing with transport in specific areas and some with specific aspects of transport. Individual London boroughs are responsible for planning within each of their areas. Some transport functions are co-ordinated through either statutory or non-statutory committees. The most recent addition to these, the Transport Committee for London, was formed in January 1998 through the merger of the London Boroughs Transport Committee, the London Committee on Accessible Transport, the Traffic Controls and Signals Unit, and the Parking Committee for London. In addition, some joint borough organisations, such as the London Road Safety Advisory Group and the London Air Quality Network, deal with specific issues. London boroughs have joined the private sector in a number of organisations created to promote London as a 'world city'. These include the London Pride Partnership, London First, and the London First Centre. National grant-giving bodies such as the Millennium Commission, one of the five National Lottery charities, also have an impact on London's development.

There are also groups of organisations in various geographical areas of London. These include public transport provision centred alliances such as SWELTRAC in South and West London, and the Wood Green Interchange Project (Haringey Council and London Transport). Other alliances, the Cross River Partnership and the West London Leadership, have a wider economic development focus whilst partnerships such as those in the Lee Valley, Wandle Valley, West London, Central London, and Thames Gateway, have been created primarily to secure central government funding through City Challenge and Single Regeneration Budget initiatives relating to urban regeneration projects.

A number of lobbying organisations are involved in campaigns to improve provisions for pedestrians and cyclists and improve/extend public transport services. These include Sustrans, Transport 2000, the London Walking Forum, the Pedestrian Association, the Pedestrians Policy Group, the London Cycling Campaign, the Cyclists Touring Club, and Friends of the Earth. Some of these organisations are represented on the London Transport Activists Roundtable (London TAR), an umbrella group campaigning for sustainable transport in London. Campaigning organisations such as 'Don't Choke London', have also contributed to raising the profile of sustainable transport issues, and various campaigns have recently led to the creation of a borough-wide officers group, centred on the development of green travel plans (green commuter plans).

A major problem affecting Greater London's transport is its administrative complexity. The recent political and institutional arrangements, and in particular the newly elected Mayor and the establishment of a strategic authority in London, are steps towards better institutional co-ordination of transport and planning responsibilities for the British Capital. The effectiveness of the new institutional arrangements will be tested in the years to come. The London Research Centre (1999) however, adopts an optimistic approach to the future of London transport: '*The GLA is seen to be an alternative to the desegregated organisations currently in existence, many with overlapping jurisdictions. For transport in particular, with problems of chronic congestion and increasing air pollution levels, the GLA and TfL will provide an interdisciplinary co-ordinating function. The requirement on the Mayor to integrate the transport strategy with other strategies, including environment, spatial development and air quality, should provide the basis for the GLA to bring London a step further towards sustainability.*'

4.5.4. The proposed Directive on SEA

At a time when research into SEA is limited, and the future implementation of an EU-wide SEA Directive is closer, the investigation of ways to integrate SEA into EU planning systems is worthwhile. The sub-sections that follow, trace the history and present the requirements of the draft Directive 'on the assessment of the effects of certain plans and programmes on the environment' and, based on recent research, discuss the implications for the examined regions from its possible enactment.

4.5.4.1. The emergence and evolution of the proposed SEA Directive

In 1989, four years after the enactment of the EIA Directive, the Commission began internal work on a proposal for a SEA Directive. These legislative initiatives were as equally ambitious as the project-EIA Directive was in its early phase. Thus, the first draft circulated in 1991 and proposed in the 4th Environmental Action Programme of 1987, set the year

1994 as a deadline for the Directive's adoption. At the 1992 Edinburgh Summit however, the Commission withdrew the proposal. This draft which was modelled on the project-EIA procedure and run into objections from member states, would have required the environmental assessment of land use plans as well as policies (including national policies) modelled on the project-EIA procedure, and ran into objections from member states (ENDS, 1996; Feldmann, 1998, CPRE, 1995; 1997). This withdrawal can be explained by the priority given to the amendment of the 1985 EIA Directive to take on aspects at a more strategic level of development action, as well as to its opposition by various member states, including the United Kingdom (Cerny and Sheate, 1992).

During 1993/4, an internal draft Directive aimed at establishing 'some common provisions to integrate environmental protection requirements in the decision making process for certain economic and other sectors', had the same fate as the previous draft and was opposed by member states such as the UK, Germany and Denmark (Sheate, 1996). This version [which excluded for the first time policies from the assessment of PPPs (CEC, 1995)], was more comprehensive than the current 1997 proposal and covered a list of plan and programme categories such as land use planning, forestry plans, energy, agriculture, tourism plans, water resource management strategies and waste plans.

The next drafting initiative took place in 1995, with the Commission carrying out a limited consultation on a draft SEA Directive. The outcome of this informal draft process materialised on December 4, 1996 with the adoption by the Commission of the draft SEA Directive known as 'a proposal for the assessment of the effects of certain plans and programmes on the environment' [COM (96) 511 final and OJ 129 of April 25, 1997]. In the first half of 1997, the Dutch government holding the EU presidency, held an orientation debate based on some questions around the SEA proposal in the Council Environmental Working Group [Doc. 6882/97 Limite Env 91 Pro-Coop 27, March 20, 1997].

The idea of environmental assessment at a strategic level was accepted in principle, but member states had different opinions on its actual scope and content. Northern countries tended to have a more positive view on the issue, *'and they argued for a wider field of application that could extend even to the policy level.'* (Feldmann, 1998, p.5). In line with the co-decision procedure (Table 4.10) the proposal proceeded to the first reading in October 1998 (Feldmann, DG XI, EC, *pers. comm.*).

In the light of the Opinion of the European Parliament, the 1996 proposal was amended in 1999 (CEC, 1999a). The Council had a policy debate on the amended proposal, which

focused on a few key procedural questions and aimed at giving guidance for further work (CEU, 1999a).

TABLE 4.10: CO-DECISION PROCEDURE OF THE DRAFT DIRECTIVE ON SEA	
Transmission to the Council and Parliament	4 Dec 1996
Opinion of the Economic and Social Commission	May 1997
Opinion of the Committee of the Regions	End of October 1998
European Parliament: First Reading	Nov 1997
First Reading (*Parliament approved the Commission proposal subject to 33 amendments. The Commission accepted some of the amendments)*	20 October 1998
Opinion of the Committee of the Regions	End of October 1998
Commission presented an amended proposal	18 February 1999
Council Common Position	13 and 14 December 1999
European Parliament: Second Reading	Current stage (Sep. 2000)
Commission Review of European Parliament amendments	-
Final Adoption	-
Date of Compliance	-
References *Commission proposal COM(96) 511 final COD96304: Official Journal C 129, 25.4.1997* *Amended proposal COM(1999) 73 final: Official Journal C 83, 25.03.1999* *Opinion of the European Parliament: First reading: Official Journal C 341, 09.11.1998* *Opinion of the Economic and Social Committee: Official Journal C 287, 22.9.1997*	

Source: CEU, 2000; CPRE, 1997; Zagorianakos, 1998.

On the basis of a compromise proposal by the Finish Presidency, the Council reached unanimous political agreement on its Common Position on a Directive providing for the assessment of the effects of certain plans and programmes on the environment in December 1999 (CEU, 1999a). Following the unanimous agreement, the Council formally adopted a Common Position on the SEA Directive (CEU and EP, 2000). This will now be forwarded to the European Parliament for a second reading (Table 4.10).

4.5.4.2. The proposed SEA Directive's requirements

According to the wording of the 5th Environmental Action Programme (CEC, 1992a) and the European Union Treaty [Article 175(1)], the current adopted draft for a proposed Council Directive 'on the assessment of the effects of certain plans and programmes on the environment' (CEU and EP, 2000), aims at promoting Sustainable Development at a EU level by extending the requirement for a SEA framework from the project to the plan and programme level. This 'tiering' of SEA procedures intends to integrate the environment into member states' decision making processes and thus provide for a high degree of environmental protection. According to the Common Position an obligatory environmental impact assessment would be carried out for all plans and programmes:

> *'(a) which are prepared for agriculture, forestry, fisheries, energy, industry, transport, waste management, water management, telecommunications, tourism, town and country planning or land use and which set the framework for future development consent of projects listed in Annexes I and II to Directive 85/337/EEC, or*

(b) which, in view of the likely effect on sites, have been determined to require an assessment pursuant to Article 6 or 7 of Directive 92/43/EEC[7]' (CEU and EP, 2000, p. 9-10).

Plans and programmes serving the interests of national defence or civil emergency protection, financial or budget plans or programmes, and those falling under the Structural Funds for the period 2000-2006/2007 are not covered (CEU, 2000).

The proposed Directive aims at enhancing decision making in member states. This is intended by the establishment of a minimum set of methodological and communication procedures (Table 4.11). A degree of discretion is given to member states for the transportation of these requirements to their land use planning system. The methodological requirements relate to the information required to be included in the 'environmental statement', a document that publishes the results of the SEA exercise and are specified in the relevant Annex of the proposed Directive (Table 4.11). The procedural requirements involve public involvement and the consultation with the environmental authorities/bodies concerned (designated by member states) so that a degree of transparency is introduced into the SEA process.

TABLE 4.11: MINIMUM METHODOLOGICAL REQUIREMENTS SPECIFIED IN THE PROPOSED SEA DIRECTIVE

The following matters should be included in an environmental statement:

- contents of the plan or programme and its main objectives,
- environmental characteristics of the area likely to be affected by the plan or programme,
- any existing environmental problems relevant to the plan or programme,
- the environmental protection objectives, established at international, EU, member state level and in other plans or programmes in the same hierarchy as well as the way these objectives have been taken into account during its preparation,
- the likely significant environmental effects of implementing the plan or programme,
- any alternative ways of achieving the plan or programme and the reasons for not adopting these alternatives,
- the measures envisaged to prevent, reduce and where possible offset any significant adverse effects on the environment of implementing the plan or programme,
- any difficulties encountered in compiling the required information.

Source: Official Journal of the European Communities, No. C 129, 14-18, 25.04.1997

The public and the competent authorities are consulted after the production of the environmental statement and before the plan is adopted (CEU and EP, 2000, article 6; Appendix 5). In addition, the competent authorities are consulted at the scoping stage. After the plan's adoption, the competent authority should inform (through the publication of a statement) both the public and environmental authorities of the way that the environmental statement and any opinions expressed, were taken into account in taking the decision (CEU and EP, 2000, article 9; Appendix 5). The Commission shall send a first report on the

[7] This is the 'Habitats' Directive (Directive 92/43/EEC of 21 May 1992 on the conservation of natural habitats and of wild fauna and flora).

application and effectiveness of the Directive to the European Parliament and to the European Council five years after it comes into force. The report will be accompanied if appropriate, with proposals for amendment. In particular, the Commission will consider the possibility of extending the scope of the Directive to cover other areas/sectors and other types of plans and programmes.

The Commission's original proposal of 1997 covered town and country planning plans and programmes and their modifications which set the framework for subsequent development consents, excluding minor modifications and plans and programmes prepared for small areas. The amended version of April 1999 maintained the linkage to development consents but expanded the scope to cover other areas, of which examples were given. At the end of the discussions, the Commission declared that it could not support the Common Position, as in its view the scope of the draft Directive had been narrowed too much, compared to the original Commission proposal (CEU, 2000). Once formally adopted at one of the Council's forthcoming meetings, the Common Position will be transmitted to the European Parliament for a second reading in accordance with the co-decision procedure (Table 4.10).

4.5.4.3. Environmental assessment regulations in Greece

Article 24 of the constitution of 1975 makes the state responsible for safeguarding the environment. Law 1650/86 provides the legislation for the integration of environmental protection into the development planning and control system. This law also provided for the adoption of the EU Directive on EIA[8] (CEC, 1985) into Greek legislation, and for the planning specifications for plans with an environmental protection focus (such as Special Spatial Studies). The mechanism for approval of Environmental Impact Assessments, which lead to the approval of planning and environmental conditions related to that approval, plays an important role in environmental protection. The obligation to undergo an EIA extends to a much wider range of activities than those covered by the relevant EU Directive. The implementation of the EU Directive on EIA in Greece is, however, characterised by the inherent weaknesses of the Greek EIA system. These are *inter alia*, the lack of resources particularly relevant to the monitoring of its implementation by the relevant government agencies, the inadequate expertise involved in the preparation of the Environmental Impact Statements, the politicisation of the whole process by central and local authority decision makers, and the attitude of the public involved in the process which is characterised by short-term financial interests (Valertzidou, 1996; Zagorianakos, 1996).

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[8] *i.e.* CEC, 83/337. This Directive is substituted by 'Council Directive 97/11/EC of 3 March 1997 amending Directive 85/337/EEC 'on the assessment of the effects of certain public and private projects on the environment' (CEC, 1997a).

In relation to the enactment of the proposed SEA Directive, recent research showed that if the Directive was enacted in 1998, Greece's administrative mechanism would repeat the same weaknesses that occurred throughout the implementation of the EIA Directive (Zagorianakos, 1999; Zagorianakos, 1998). Specifically, these relate to an array of methodological, institutional political and legislative problems rooted in environmental planning practice that, compared with, the situation in England, render a highly problematic implementation of the proposed SEA Directive. A limited achievement of the proposed SEA Directive's objectives is likely, owing to the dominance of SEA elements at a regional level where the allocation of EU Structural Funds take place, rather than land use planning level; the underdeveloped status of local authorities; the focus of environmental NGOs on the better enforcement of the present project-EIA Directive and the pressure by the business community to relax restriction on development (especially in view of the undertaking of the Olympic Games in 2004).

4.5.4.4. Environmental assessment regulations in Ireland

With the notable exception of the recent application of guidelines for a policy-SEA at a government level, Environmental Assessment practice is mainly confined to the project-EIA level. This follows the implementation of the EIA Directive (CEC, 1985; CEC, 1997a). According to the provisions for its transportation to the Irish development control system, certain developments must be assessed for likely environmental effects before planning permission can be granted. When submitting a planning application for such a development, the applicant must also submit an Environmental Impact Statement. Projects needing environmental impact assessment are listed in the First Schedule of the European Communities (Environmental Impact Assessment) Regulations, 1989. Planning authorities can, under article 26 of the Local Government (Planning and Development) Regulations, 1994, request an EIS where the threshold limits in the Regulations are not exceeded, and where the authority considers that the proposed development may have significant environmental effects. Research in the early 90s (ERU, 1993) found the majority (60%) of EISs reviewed of unsatisfactory quality, and only 15% of sufficient quality.

4.5.4.5. Environmental assessment regulations in the United Kingdom

In 1997, around 75% of the local authorities in England and Wales produced a type of SEA called 'Environmental Appraisal' (Marsh, 1997; Therivel, 1998). Despite the experience gained from the application of this form of SEA, support for the enactment of the proposed SEA Directive is not a short-term consideration for the British government. This can be attributed to a number of financial and methodological difficulties related to this application (Zagorianakos, 2000a).

The initial reluctance that accompanied the publication of the government advice on the Environmental Appraisal of Development Plans (DoE, 1993), is likely to be repeated in the enactment of the proposed SEA Directive (Zagorianakos, 1998). There was a general enthusiasm amongst local authority planners for the development of a less bureaucratic and more cost-efficient SEA process, with a sustainability focus. In that respect, suggestions were made regarding the extension of the SEA practice, from a development planning level to a regional level of government. The integration of environmental with socio-economic assessment at a strategic level, the enforcement of environmental monitoring of plan's policies and the setting of quantitative targets to guide plan making were seen as priority issues (Zagorianakos, 1998).

4.6. Comparison and conclusions

The three regions examined in this thesis have more differences than similarities. In the economic sector, Athens has the lowest GDP, almost half that of London and Dublin. The economic discrepancies among the regions can also be illustrated by the fact that the UK has an industrial tradition, compared to Greece, which is characterised by slow rates of growth. The unprecedented economic development of Ireland in the recent years, has had a profound impact on Greater Dublin, bringing many benefits in terms of transport infrastructure, as well as increased environmental difficulties.

In relation to social characteristics, social divisions occur in all three regions. Athens and Dublin are second in the EU regarding the percentage of population living below the poverty threshold with London in third place (Table 4.1). The low position of Greece in the 'transparency index' figure (Table 4.1), is indicative of poor public participation procedures for transport planning in Athens, compared to Dublin and London. This is also relevant for the proposed SEA Directive as there is evidence of deficiencies in public participation procedures in Greece during the implementation of the EIA Directive (Zagorianakos, 1996; Valertzidou, 1996).

Physical geography and the regions location in Europe, also exacerbate or eases existing transport problems. Ireland and Greece are geographically isolated from mainland Europe, which renders transport infrastructure a priority for government spending and EU subsidy granting. Although Athens, Dublin and London occupy no more than 10% of their countries surface area, they have a proportionally high percentage of population density, compared to the population density of their respective countries. This over-concentration of people, and as a result, the urban significance of these regions within their countries, is evident when considering that 30% of Greek, 39% of Irish, and 12% of British inhabitants, reside in their capital (Table 4.1). This concentration of activities in these urban conurbations has implications for transport and environmental quality. The road transport

sector is responsible for around a third of the countries' CO_2 emissions, with NO_x and VOC emissions having higher percentages, especially in the UK and Greece (Table 4.1). Similarly, the most significant environmental problems facing the three regions are common *i.e.* air and noise pollution, traffic congestion and parking facilities.

Differences as well as similarities are evident in the theory and practice of land use and transport planning in the examined regions. The extent to which a planning system operates within a framework of constitutionally protected rights, is of particular relevance in a comparison of the three regions. In the UK and Ireland, the lack of constitutional constraints allows for a wide degree of discretion in their planning systems. This flexibility applies throughout the determination of applications for planning permission. Local authorities are guided by the development plan, but are not bound by it as 'other material considerations' can be taken into account (Cullingworth and Nadin, 1997). Furthermore, the transport policy process reflects the fragmentation of numerous decision making bodies in London, with organisations overlapping on policy issues (London Research Centre, 1999).

In Greece, transport planning is a highly centralised process and plans are legally binding documents. In reality, however, binding planning regulations are not enforced, and implementation is weak. During the 60s and 70s, rapid urbanisation, especially in Athens, proceeded with little regard to regulations or plans with negative consequences to urban sprawl and environmental degradation. The political priorities for housing the population, the fact that planning regulation enjoyed little general public support, and the restricted financial and decision making role of local authorities regarding plan preparation and implementation, also add to the disparities between British/Irish and Greek planning systems. Institutional provisions for environmental protection are also pertinent. Unlike Greece, in the UK and Ireland statutory environmental consultees are energetically involved in the formulation of transport and environmental policy making.

Finally, there is evidence to suggest that provisions for the possible enactment of the SEA Directive vary among the three regions. London is more equipped in terms of existing guidance, institutional arrangements, and methodological experimentation than the other two regions. In Dublin, a form of an institutionalised policy-SEA is emerging, whereas in Athens, SEA theory and practice is almost non-existent.

5. Experience on SEA and Transport Planning in Athens

5.1. *Introduction*

This chapter presents the results of the research conducted in order to document the experience on the integration of SEA elements with transport policies, plans and programmes (PPPs) in Athens. The information on SEA integration was gathered throughout the elaboration of interviews and review of land use and transport-related strategic documents. A number of integration criteria that comprise the evaluative framework developed in this thesis were used to analyse the research data. The research results are compared with those obtained throughout the research in Dublin and London. The presentation of the results follows the structure of the evaluative framework, which distinguishes between six types of integration *i.e.* procedural, external, methodological, substantive, social, and human resources integration. This chapter also discusses the implications of the proposed SEA Directive 'on the environmental assessment of certain plans and programmes on the environment' on the Greek planning system, and highlights the expected benefits and difficulties stemming from its potential implementation. It also focuses on those elements of the framework that pose difficulties to the wider application of the evaluative framework at an EU level. The chapter concludes with the presentation of the degree of fulfilment of the integration criteria by the PPPs reviewed in Athens.

5.2. *Athens: Procedural integration*

Procedural integration, as defined in the thesis has the following characteristics: A_1) Vertical integration *i.e.* the existence of as many of the SEA procedural stages as possible throughout the transport PPP procedure A_2) Horizontal integration *i.e.* iterativeness or the recurrence of more than one of the SEA procedural stages in one or more stages of the PPP procedure A_3) Temporal integration *i.e.* early integration (*i.e.* the existence of one or more of the SEA procedural stages at a transport planning stage prior to the deposit stage).

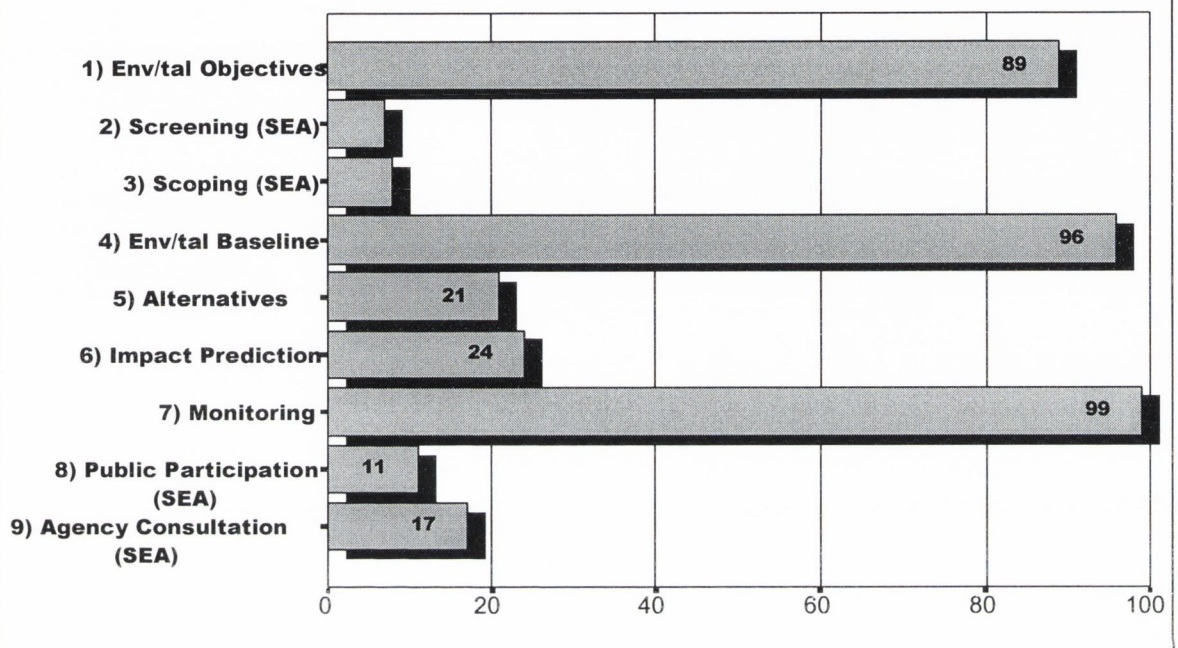
5.2.1. Vertical integration

The average score (*i.e.* mean) in terms of vertical integration in all cases reviewed in Athens, was 41%. Only one third of the procedural SEA stages (*i.e.* 3) were adopted by more than 24% of the documents reviewed (Figure 5.1). Although the overall degree of adoption is quite low compared to the situation in the other two regions, these three SEA stages were adopted by the majority of PPPs.

The remaining six SEA elements, were incorporated in a contrasting low proportion of the overall population of the cases reviewed (*i.e.* in less than 24%). In particular, screening for

the need for SEA and scoping of the impacts to be considered in a SEA were almost non-existent (7% and 8% respectively). In 24% of cases, there was documentation of the environmental impacts of transport policies.

FIGURE 5.1: PROCEDURAL INTEGRATION IN ATHENS (ALL PPPS: VERTICAL INTEGRATION)

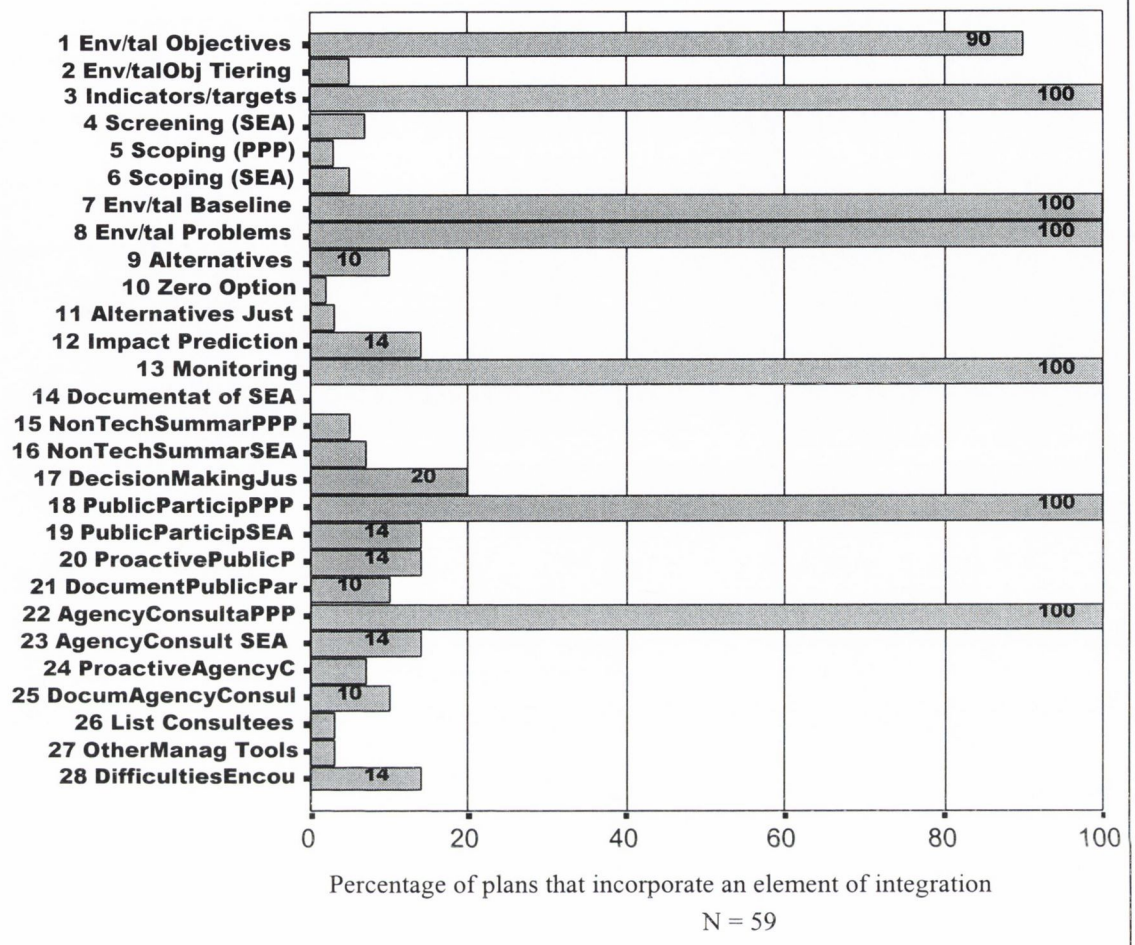


The environmental impacts were briefly discussed in the text of 8 out of 59 land use plans (*i.e.* 14%, 12th row, Figure 5.2), as well as in the text of 9 out of 12 of the remaining transport-related PPPs (Figure 5.4). There was also a general lack of public input and consultation with interested bodies on the environmental impacts of transport (*i.e.* 11% and 17% respectively, Figure 5.1).

There was a strong correlation between impact prediction and the consideration of alternative transport options/scenarios. This is supported by the fact that the majority of cases that documented the environmental impacts of transport policies, considered alternative options as well.

More than half of the cases that considered alternatives (*i.e.* 11 out of 15), also documented the environmental impacts of their transport policies. This observation is a possible indication of the positive influence of SEA over the planning process.

FIGURE 5.2: SEA INTEGRATION IN ATHENS (LOCAL AUTHORITY PLANS)



5.2.2. Horizontal integration

Horizontal integration is the recurrence of more than one of the SEA procedural stages in one or more stages of the PPP procedure. This is indicative of how iterative the SEA process is.

SEA horizontal integration was poor throughout the transport planning procedure in Athens. Only in a handful of PPPs, the existence of more than one of the SEA procedural stages in one or more of the PPP process was evidenced. With the exception of 3 out of 59 land use plans, and 2 out of 12 of the remaining transport-related documents, the cases in Athens incorporated the SEA elements presented in Figure 5.1, only once in the corresponding transport planning stage, usually during the draft PPP-making.

This lack of recurrence of SEA methodological stages throughout the planning stages of PPPs, can be attributed to the overall low experience in environmental assessment in

Greece, especially at the strategic level of decision making. This in turn, was the result of the lack of both voluntary initiatives and mandatory provisions for SEA. The need for a systematic approach to SEA would therefore appear to be not realised. As a result, the existence of more than one SEA stage, within each of the transport stages, was rather arbitrary.

5.2.3. Temporal integration

By temporal integration it is meant the early integration of SEA with transport planning *i.e.* the existence of one or more of the SEA procedural stages at a transport planning stage prior to the draft stage.

A systematic assessment of the environmental impacts of transport policies was not conducted in the cases reviewed in Athens. This situation was more evident in land use plans, compared with the policies and programmes. In land use plans, all SEA stages occurred throughout the draft stage of the planning process in accordance with mandatory planning specifications (MEPPPW, 1997b; MEPPPW, 1997c). The environmental objectives related to transport were formulated at an early stage of the process, but did not refer to the environmental assessment of transport impacts. Wherever this was the case, these were expressed in a general way and always in relation to other socio-economic factors affecting the objective. In the text of the General Urban Plan for the Municipality of Likovrysi, for example, one of the objectives was '*the restriction of car access in order to ameliorate the negative environmental and socio-economic impacts of through-traffic and off-street parking*'. It was decided from the outset (*i.e.* without the elaboration of a systematic SEA), that the planning and enforcement of the restriction of car mobility, was perceived to be the answer to the unknown negative environmental impacts. The benefit of the early initiation of a SEA in this case, would have clarified the significant issues for further analysis. In particular, the role of SEA would be to identify the existing baseline in terms of traffic, assess the future environmental impacts and, in light of these, to decide on the type of traffic management measures to be enforced. According to an interviewee, one reason behind this lack of early integration, was the lack of local authority finances for plan making, and the lack of central government subsidies for traffic management measures: '*...it would be unwise in terms of money, time and effort to involve ourselves in a whole impact assessment exercise when the government subsidies only suffice for simple and easy to enforce traffic management schemes*'.

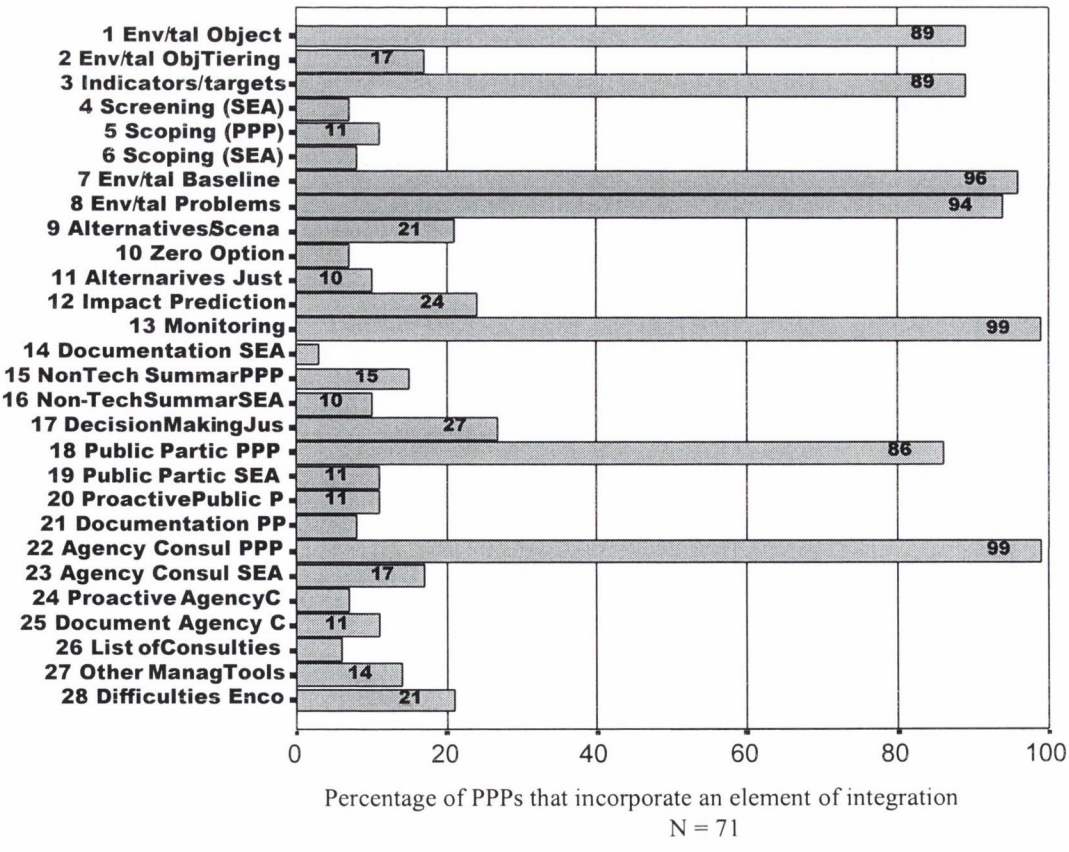
Another reason, was the lack of easy-to-use methods for screening for the need for a full SEA, and for scoping the important impacts to be considered in detail throughout the

planning process. A governmental SEA guidance on this, similar to the English Environmental Appraisal of Development Plans (EADP) guide (DoE, 1993), would be very useful for the dissemination of technical information regarding SEA amongst planning practitioners, and thus foster the implementation of a future SEA Directive. The transportation of the British experience with EADP, could be successful for Athenian planning, and therefore should be encouraged. An argument in favour of this transportation of experience is that Greek planners have shown a high degree of enforceability of planning specifications (MEPPPW, 1997b; MEPPPW, 1997c) and circulars. The problems that might arise, relate to the materialisation of the 'spirit' of such a mechanism, *i.e.* whether or not, it is connected to the actual baseline conditions rather than being a bureaucratic 'ticks and crosses' exercise as is the case with a similar screening exercise currently applied at a project-EIA level (Valertzidou, 1996; Zagorianakos, 1996).

5.3. Athens: External integration

By external integration, it is meant the tiering of environmental objectives *i.e.* the setting of similar environmental objectives, adopted by PPPs and SEAs prepared at a higher, lower or same tier in the transport planning hierarchy.

FIGURE 5.3: SEA INTEGRATION IN ATHENS (ALL PPPS)



[Row 2: Environmental Objectives (tiering)]

Only 17% of the cases reviewed, adopted environmental objectives included in PPPs at different tiers of decision making (Figure 5.3). The transport-related strategic documents dominated with 75% of them fulfilling this requirement (Figure 5.4), compared to only 5% of land use plans (Figure 5.2).

How can the small percentage in land use plans be explained? The fragmentation of the Greek planning system where plans are not regularly prepared and updated, is one of the reasons. Another reason suggested by a planner is that the PPP's recommended policies might come in conflict with environmental objectives that are two ambitious, such as 'promotion of sustainable transport through the restriction of car use'.

5.4. Athens: Methodological integration

By methodological integration, it is meant the use of other environmental management tools alongside SEA.

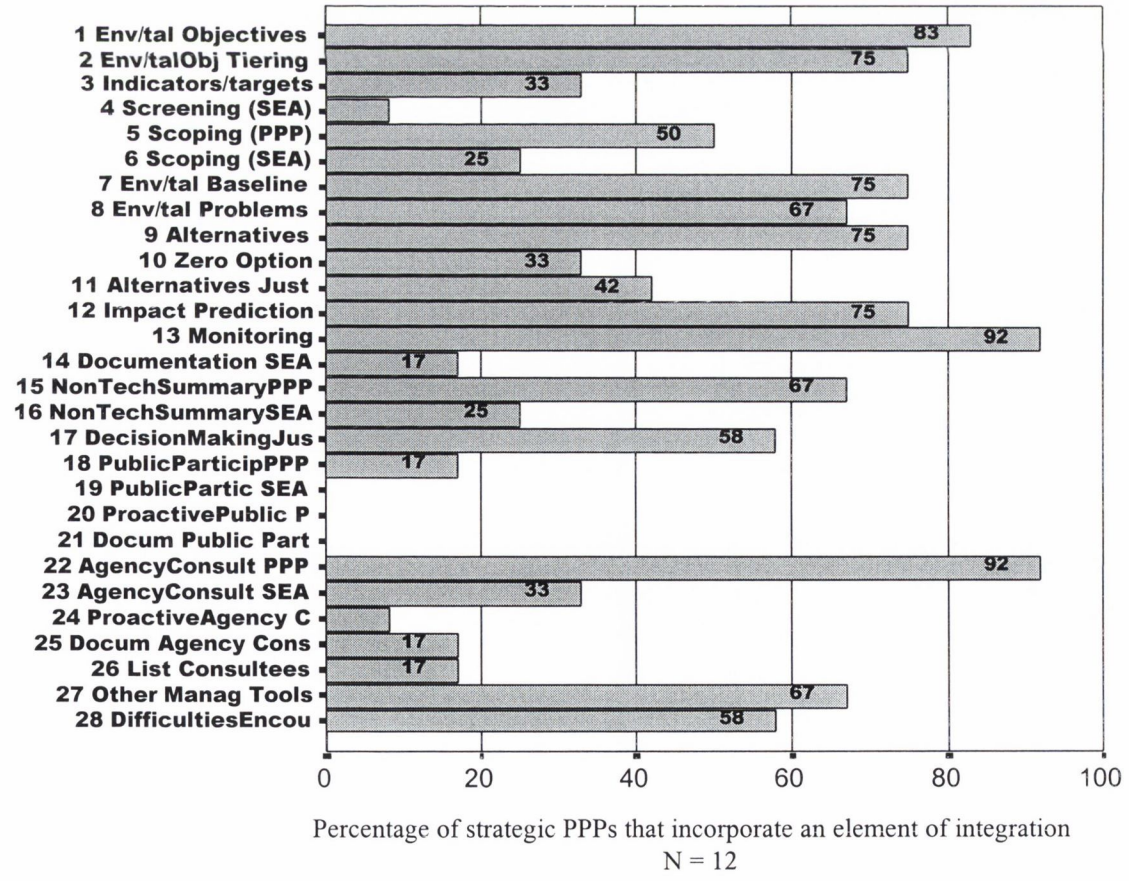
Only 14% of the cases reviewed in Athens utilised another environmental management tool (row 27 in Figure 5.3). In particular, only 2 out of 59 local plans in the Greater Athens Area utilised non-SEA methodological approaches, notably a Local Agenda 21 methodology aimed to integrate environmental and socio-economic issues. All 59 local plans used zoning methods to control development.

Zoning methods are considered by Greek planners to provide the only legitimate context for environmental protection throughout land use plan making. Two freelance planners interviewed, maintained that the utilisation of an environmental management exercise alongside the formal transport planning process, would have been an unwelcome add-on to the existing resources in terms of time, expertise and finances. This is a valid argument, especially within standardised review procedures used by the relevant government departments (*e.g.* MEPPPW), which are based on the mandatory planning specifications that make use of purely zoning techniques. This is another argument for the incorporation of SEA requirements throughout the amendment of the planning specifications. This will promote a smoother implementation of the proposed SEA Directive. The argument behind this conclusion is that, planners involved in the preparation of land use plans are unlikely to voluntarily embark on a SEA unless SEA requirements are included in the mandatory planning specifications. In that respect, the experience in London with the government

advice on EADP could (if properly adapted to the Greek planning situation) also be successfully applied to the Greek planning system.

What are the environmental and planning tools used in PPPs where zoning techniques are not utilised as their main environmental management tools, and how is SEA represented, if at all? Closer examination of 'non-land use' transport-related strategic cases might provide an answer. Around 67% of them (Figure 5.4) used management tools, other than what could be considered as 'a systematic SEA'. It has to be noted however, that SEA is a framework methodology that can incorporate various assessment techniques such as CBA and Social Impact Assessment (SIA). On the other hand, other 'umbrella' type of methodologies such as Multi Criteria Analysis (MCA) can be used as the overriding assessment methodology and equally include SEA as their environmental part. It is for these reasons that a distinction between SEA and 'other transport management tools' cannot easily be established. The case study that follows illustrates these difficulties.

FIGURE 5.4: SEA INTEGRATION IN ATHENS (STRATEGIC PPPS)



5.4.1. Case study on methodological integration

An indicative example that demonstrates the interaction of SEA with other transport planning tools, and the difficulty to distinguish between these, is the 'Impact Analysis' study for the construction of a Light Rail (Tram) System in Athens (Giaoutzi, 1999). It was prepared by the National Technical University of Athens (NTUA), and provides a useful framework for the methodological integration of environmental criteria in the evaluation of alternative options. This study aimed at evaluating all previous proposals for the construction of a tram system in Athens. It can be seen as a 'programmatic-SEA' as it provided the 'screening' stages for several project-EIAs for tramlines. It can also be considered as an 'objectives-led', sustainability approach to SEA, since a MCA methodology was used to select the optimum transport routes that minimised the adverse socio-economic and environmental impacts. The criteria used for identification of effects were both qualitative and quantitative. The environmental criteria were qualitative:

i) current environmental capacity. A spatial structure indicator was chosen to represent this criterion (*i.e.* the built-up areas along the alternative tram routes),

ii) air-pollutant dispersal capacity. The indicator was the combination of height and width of buildings along the alternative tram routes, which provided an indication of the vehicle emissions in the study area. According to the author of the study, the combination of these two criteria provided an estimation of the current environmental baseline of the study area.

The review of the literature revealed that the achievement of successful methodological integration would require that uncertainty is adequately dealt with. MCA offers a technical solution, and this is the reason that this method is recommended for its use in SEAs by the European Commission's Directorate-General for Transport (DGVII/A3) (Steer Davies Gleave, 1996; CEC, 1994). In the NTUA case study, a 'sensitivity analysis test' was undertaken, in order to minimise bias stemming from scaling and weighting of impacts. It is known that if different priorities are given to different criteria, then different solutions can be suggested to a common problem. Five different combinations of weighting were used, including the one that assumes equal significance among the criteria. The weighting techniques used were 'rank order' and 'pair wise' comparison (Giaoutzi, 1999). One alternative scored consistently higher in all combinations of weighting, but it is referred to as the 'optimum' rather than the 'dominant' alternative. In the study's text, the reason for this is justified, (which demonstrates signs of positive substantial integration): '*This* [the selected alternative] *is the optimum solution rather than the dominant. There are two reasons for this. One relates to the stage of evaluation, and the other to the great difference in scores assigned to the alternative using the 'Regime' algorithm.*' (Giaoutzi, 1999, p. 17). Other signs of substantial integration (*i.e.* SEA documentation) are that the

environmental impacts are fully documented, the reasons for deciding on a certain alternative are justified, and a non-technical summary of the methodology comprising of 10 pages is integrated as a chapter in the study's text. Finally, the spatial character of this transport study and its proximity to the project-EIA level, makes the potential use of GIS an appropriate presentation and analysis tool.

In this case study, MCA was used as an umbrella methodology for the identification and evaluation of environmental and socio-economic impacts. The technicality of the methodology however, does not in any way guarantee the elimination of bias. In this study for example, only 2 out of 10 criteria were environmental. As such, even if equal significance is assigned to these, the environment might not be adequately represented in the selected alternative. The selection of criteria that adequately represent the environmental situation is important in these circumstances. Also the institution that organises the preparation of the study and utilises its findings, should provide for adequate consultation and public participation, as well as for the documentation of the outcome of these procedures. There, the selection of criteria can be addressed. This should result in a methodologically rigorous and transparent process. In this case study, social integration was minimal, since the study was not part of the statutory development planning process that requires consultation and public participation.

5.5. Athens: Substantive integration

The term 'substantive' suggests that the actors involved in the integrated transport planning/SEA process, take into account the outcome of SEA. Two criteria were chosen to identify this type of integration: A) Is the outcome of the SEA exercise documented and how? B) Was there any follow up after the adoption of the PPP?

5.5.1. Documentation of the outcome of SEA

[Row 12: Prediction of environmental impacts (Documentation)]

Only 24% of the cases reviewed in Athens documented the environmental impacts of transport policies (Figure 5.3). Land use plans are less integrated than transport-related strategic documents. Indeed, 14% of land use plans (Figure 5.2) compared to 75% of the strategic documents (Figure 5.4), included a documentation of SEA. In the majority of cases, the impacts were described in a generalised way in the transport part of the text.

[Row 14: Separate SEA reports]

Given the greater incorporation of elements of environmental impact in the strategic documents compared with land use plans, it is not surprising that the only two cases that can be regarded as SEA reports were transport-related strategic documents.

The lack of stand-alone SEAs among the documents reviewed in Athens (Figure 5.3) highlights the lack of a systematic approach to environmental impact prediction at a strategic level in Athens. It is an indicator of the opportunistic way that environmental impacts are viewed by planners and decision makers in Athens. It also suggests the difficulties that the possible enactment of the SEA Directive might face.

The examination of two SEA documents, notably the academic study on the alternative site locations for the Olympic 2004 projects (Research Team: Athens 2004, 1998), and the study regarding air quality in Athens during 2004 Olympic Games (OCOG, 1997a), can provide an argument for the merits of SEA documentation.

The overall aim of the first study (Research Team: Athens 2004, 1998), was to suggest alternative site locations for the construction of Olympic 2004 projects. One of its objectives was the development of an integrated public transport system in Athens. The authors treated the study as a type of Environmental Impact Statement. Impact prediction was undertaken by comparing alternative site locations. It was also mentioned there that the proposed alternative project locations acted as mitigation for the negative environmental impacts stemming from the project locations already selected by the 2004 Olympic Games Organising Committee. The production of a SEA report under these circumstances was very important. It provided the framework for the expression of arguments against a certain position held by the government, about the Olympic Games installations. The role of the SEA report here has political repercussions, as it voices direct concerns for changes in environmental policy. Two positive aspects of this impact documentation can be distinguished in this case:

- Impact prediction was undertaken in a descriptive way. The environmental and social impacts were however extensively discussed and presented in a sufficient degree of detail.
- Each alternative location (eight in total) was discussed in detail and justification for the selection was given. They were also compared in relation to their environmental and social benefits with the sites selected by the Organising Committee.

The second SEA report (OCOG, 1997a), concerns the presentation of the results of the study on the air quality in Athens during the Olympic Games. Here, the impacts were

focused on atmospheric pollution. This resulted in a more detailed documentation of the existing environmental problems caused by each atmospheric pollutant, and in certain air pollution management measures. The underlying aim of this SEA report was to inform the International Olympic Committee on the predicted atmospheric pollution levels during the Games. Compared to the previous study, a different approach was adopted. The documentation here was more technical, precise and certain about the results. The methodology was briefly described, and graphs of pollution levels were used to convey the results. The role of the study was to make a very specific point; that air pollution in Athens will not affect the Olympic Games. The low score that 'SEA documentation' received in Athens, shows that this study was quite separate from common transport and land use planning practice. Its existence can only be justified as a response to the pressure imposed by international forces, external to existing planning provisions, such as the International Olympic committee and the obligations of Greece for the organisation of the Games.

[Rows 15 + 16: Non-technical summary PPP +SEA]

The results for the composition of a non-technical summary are equally low. Around 15% of the documents reviewed, included a non-technical summary of their PPP (Figure 5.3), and 10% included a non-technical summary of the SEA process (Figure 5.3). Here again, the majority of technical summaries was found in the transport related strategic documents rather than in land use plans. Only 5% of the land use plans (Figure 5.2) as opposed to 67% of the strategic documents (Figure 5.4) included a non-technical summary of their PPPs. Only 7% of the land use plans (Figure 5.2) as opposed to 25% of the strategic documents (Figure 5.4) included a non-technical summary of their SEA exercise.

The reason behind the low scores in land use plans can be attributed to the lack of a requirement for a non-technical summary in the specifications for land use plans. The possible enactment of the proposed SEA Directive will undoubtedly benefit PPP-making since it will make this requirement mandatory. The benefit of having a summary is that the transport planning methodology can be readily explained to non-experts, decision makers and interested bodies. It can therefore facilitate effective scrutiny of the planning document and be useful for those who will make decisions and those whom the plan will directly affect. This in turn, can facilitate a more informed decision and create a more cost effective adoption process, since the significant issues will be understood and addressed at a very early stage in the decision making process. It is partly for these reasons that the existence of a brief presentation of the planning process occurs more frequently throughout the strategic documents than in the land use plans. The strategic nature of decision making is perceived to be more important than at a lower decision making level of land use.

There seems to be a linkage between the preparation of a non-technical summary of the planning process and of the SEA process, since the majority of cases that included a non-technical summary of the planning process, also included a brief summary of the SEA process. One explanation would be that the decision to include a SEA summary influenced the incorporation of a summary of the PPP process. This would suggest that SEA integration has a positive influence on the PPP processes. Another explanation would be that the incorporation of a SEA was a PPP-driven initiative. Whether, this linkage of processes is the influence of SEA or of the PPP, is open to investigation.

[Row 17: Decision making (justification)]

More than a quarter of the cases examined in the Greater Athens Area (27%, Figure 5.3), in some way justified the environmental reasons for deciding on the policies included in the PPPs, and, in land use plans, the decision taken on plan adoption. Around 20% of land use plans included such a justification throughout their text (Figure 5.2). In the majority of cases the rationale behind this, seemed to be significant local opposition to the policies formulated by the planning team. It is also the experience of a planner interviewed that '*in some cases the planners seemed to 'defend' the plan's environmental policies against a background of local opposition*'. In the case of a particular Municipality, no environmental reasons were given for the decision on plan adoption.

In around half of the transport-related strategic documents, an explanation of the reasons that led to the formulation of some of the transport policies was included in the text. Here, the pattern of 'reasoned justification' was somewhat different from that of land use plans. Since these types of documents do not necessarily have to undertake a formal adoption procedure, the focus was on the justification of policies and suggested recommendations. An appropriate example of the justification of recommendations made, is provided by the study on the 'energy requirements of the Olympic Games' (OCOG, 1997d). In the last chapter of the text, the environmental benefits of the measures suggested were summarised:

> *'The utilisation of around 1000 gas-fuelled vehicles for the needs of the Games, will have positive impacts on air quality in the Greater Athens Region, as well as on energy saving for the whole of the country. Primary pollutants will be decreased by 100 tonnes of Carbon Dioxide, 50 tonnes of Nitrogen Oxide, 10 tonnes of particulate matter, and 5 tonnes of Sulphur Dioxide. At the same time, Carbon Dioxide emissions will be reduced by 20,000 tonnes, which is a positive step towards tackling the Global problem of the Greenhouse phenomenon'* (OCOG, 1997d, p. 102).

[Rows 21 + 25: Documentation of Public Participation and Agency Consultation]

Seeking the views of the public and the competent authorities on the PPP's text, as well as on the SEA report, is particularly relevant from a social integration point of view (section 5.6). It is however relevant in the context of substantive integration, to examine the extent to which the participation of the social partners in a given society, is understood by the plan making team, as an important determinant in facilitating an informed decision. The documentation of public participation and agency consultation is not a mandatory-planning requirement in Greece. It is for this reason that the voluntary documentation of different views would be an indication of a discursive and transparent plan making process. Figure 5.3 shows that the documentation of the 'communicative capacity' of the Athenian transport planning system is far from impressive. Around 8% of the cases reviewed in Athens (Figure 5.3), refer to the issues raised during the public participation exercise, whereas the documentation of the agency consultation occurs in only 11% of the overall sample (Figure 5.3).

All documentation of public participation was found in land use plans, although only amounting to 10% of cases (Figure 5.2). None of the transport-related documents included a statement on the views of the public (Figure 5.4). How can this disparity be explained? At a strategic level of decision making, several factors operate that lead to a more flexible decision making process. This flexibility however, might also inhibit attempts to document the outcome of public participation. These factors include:

- the issue of confidentiality,
- the sometimes informal nature of plan making, where formal adoption is absent and studies are organised, prepared and reviewed by and for the needs of the same organisation/government department, and
- the higher number of people to be consulted, which is determined by the geographical boundaries of the study area.

Despite the equally low percentages for the documentation of agency consultation among the documents reviewed, the polarisation between the two groups of cases is not as great as was for public participation. Around 10% of land-use plans included such documentation (Figure 5.2), compared with 17% of transport-related strategic documents (Figure 5.4).

When comparing the raw data of row 12 (relating to the documentation of the prediction of environmental impacts), with those of rows 21 (documentation of public participation) and 25 (documentation of agency consultation), it is noted that almost all documents which

presented elements of SEA, also included documentation of public participation and agency consultation. There is strong evidence therefore to suggest that, as Lichfield maintains, SEA has a positive influence on transport planning through the mutual interaction of environmental and planning assessment (Lichfield, 1996a).

[Row 26: List of consultees]

Only a small amount of documents included a list of consultees in their text (Figure 5.3). Half of these were land use plans, and half, transport related documents. In the majority of cases where a list of consultees was included in the PPP's text, there was no evidence of SEA. Only 1/3 of the cases that undertook some sort of SEA, also included a similar list of consultees.

These results point to a rather limited influence exerted to transport planning by the carrying out of a SEA, as far as documentation requirements are concerned.

[Row 28: Documentation of difficulties encountered]

Around 21% of the cases examined in Athens documented the difficulties encountered throughout the preparation of the PPP/SEA report (Figure 5.3). These cases account for 14% of the land use plans (Figure 5.2) and 58% of the transport related documents (Figure 5.4).

The majority of documents referred to difficulties regarding the lack of data availability. For example, the absence of environmental baseline data was a major problem during the preparation of Attica's Environmental Action Plan (MEPPPW, 1995). To overcome this, separate supporting studies on each planning sector (*i.e.* water, mountainous areas) were carried out. The situation was further exacerbated by the fact that existing plans of the study area, as well as adjacent areas, were outdated. This case is typical of Greece where methodological concerns are only one of the reasons for the fragmentation of the planning system.

[Row 13: Mechanisms to monitor implementation]

A mechanism to monitor the implementation of the recommendations of PPPs' exists in Athens (Figure 5.3). The local plans examined (55 General Urban Plans covering the area of a Municipality and 4 Urban Studies covering the area of Communities), involved a monitoring body established at a prefectural level of government. These monitoring bodies are called Organisations for the Implementation of Urban Planning[1]. In the case of

[1] in Greek.

structural plans[2] these monitoring bodies are called Organisations for the Implementation of Structure Plans (Aravantinos, 1997). The existence of a monitoring mechanism, however, is somewhat misleading as it implies that a proper system of monitoring is in place. This is not true in the majority of cases. As several interviewees noted, the lack of financial resources and staff render monitoring exercises a difficult task.

5.6. Athens: Social integration

By social integration it is meant the involvement of competent authorities, government agencies, organisations, organised local groups, environmental NGOs and the public in general throughout the PPP/SEA process. Four criteria were chosen to identify this type of integration: A) In how many cases did the public and organised bodies express their opinion on the PPP and the SEA, and at what stages of the PPP procedure? B) In what percentage of these cases, were public participation (PP) and agency consultation(C) mandatory? C) Were PP and C proactive? (*i.e.* in the case of PP: what were the actions taken to elicit the public's views? and in the case of C: were the opinions of environmental NGOs sought?) D) Was there any reference to the results of PP and C in the PPP/SEA report?

[Row 18: Public Participation (PPP)]

Public participation throughout the PPP process, occurred in 86% of the cases reviewed in Athens (Figure 5.3). Land use plans scored considerably higher than the transport-related strategic documents: In all land use plans the public was consulted, as opposed to only 17% of the transport-related documents.

This high proportion of public consultation in land use plans can be attributed to the provisions for mandatory public participation. There are institutional arrangements to encourage the expression of people's views at a local planning level. In theory, the public is encouraged to participate in plan making through the involvement of the so-called 'Urban Planning Committees at a neighbourhood level'. These institutional arrangements fall short of the initial expectations, '*mainly as a result of the limited participation of the public*' (Aravantinos, 1997, p. 229). This is indicative of the problematic nature of public participation in Greece in general, with negative repercussions for the integration of SEA in plan making. The display of the plans in municipal offices, is still the most commonly used method for informing the public and for the submission of objections where they arise.

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[2] in Greek.

[Row 19: Public Participation (SEA)]

Similar to the situation with public participation for project-EIA in Greece (Valertzidou, 1996; Zagorianakos, 1996; Cassios, 1995), only 11% of cases consulted the public in relation to the environmental impacts of transport policies (Figure 5.3). Bearing in mind issues of confidentiality, the non-mandatory nature of public participation, and increased resources required to involve the public at a strategic level of decision making, it is no surprise that the group of land use plans performs better, than the transport-related strategic documents: No strategic planning authorities consulted the public for their SEAs (Figure 5.4) compared to 14% of land use plans (Figure 5.2). This difference between the two groups becomes more pronounced when compared with the corresponding scores for the documentation of environmental impact prediction. Although 75% of strategic documents incorporated elements of SEA compared to only 14% of land use plans, it was only in the land use plans where evidence of public consultation was found. This is another indicator that points to the lack of integration of social input at a strategic level of transport planning and SEA.

[Rows 22 + 23: Agency Consultation (PPP and SEA)]

Similar to the situation with public participation, consultation with competent authorities on the PPPs' policies, was much higher than with SEAs. Around 99% of the cases in Athens consulted the relevant agencies as part of the mandatory consultation process for the PPP (Figure 5.3), whereas only 17% (Figure 5.3) sought advice from the same agencies on the environmental impacts of transport policies, including transport. The low rate of agency consultation for SEAs is in accord with the low number of PPPs that undertook a SEA. As a result of mandatory planning specifications, all 59 land use plans consulted the competent authorities on the PPP text, and eight of these sought advice on the environmental impacts of their policies.

Comparison of Public Participation and Agency Consultation (PPP and SEA)

While there is obvious uniformity in the results of public participation and agency consultation (both for PPP and SEA) in land use plans, this was not the case for public participation and agency consultation (both for PPP and SEA) in the transport-related strategic documents. Almost all transport-related transport documents consulted the relevant authorities throughout their PPP preparation, and around 30% of these sought advice on their environmental impacts. In contrast, the same PPPs were scrutinised minimally by the public and the views of the public on the SEAs were non existent (Figure 5.4).

These contrasts in the scores above, highlight the contrasting role of public participation and agency consultation in strategic decision making. The role of transport planning is seen as one of directly informing the decision maker and, as such, agency consultation (whether it involves the outcome of SEA or not) is not only justified, but is one of the overriding objectives of the whole exercise. The involvement of the public is however viewed as an additional hurdle in the transport planning process that is likely to generate procedural delays, as well as administrative, financial and methodological difficulties to a given organisation. These inherent obstacles to public participation, are exacerbated by the short-term and self interest-related attitudes to communal issues (Hadjibiros, 1991), as well as by the limited experience of any organisation in these types of social surveys. The biggest disincentives for organising public participation exercises, are concerns for the potential political costs involved as well as for methodological difficulties. According to two interviewees, a decision that has taken into account the outcome of a public survey would run the danger of being criticised for its selective and thus subjective interpretation of the survey results in forming the decision, or for the potentially biased way that the survey was conducted.

[Mandatory requirements for agency and public consultation]

Public participation and agency consultation for land use plans is mandatory. In only two particular cases of strategic documents, public participation throughout the PPP making was mandatory (row 18, Figure 5.4). It is therefore interesting to examine the conditions that public participation ocurred. An example that highlights the difficulties of voluntary public and agency consultation in Athens, is the Master Plan of Athens (OPEPA, 1995; MSPHE, 1983). One of the planning innovations of the 80s in Greece first introduced in the Master Plan, was the widened scope of the consultation exercise. The public, as well as a variety of government agencies and NGOs were invited to 'critically express their opinion on the draft plan'. Public participation and wider consultation was considered an important prerequisite for the successful implementation of the Plan. The Plan aimed at *' a dynamic planning process that operates simultaneously in all decision making stages, from the strategic down to implementation level, from Cabinet meetings down to local neighbourhood gatherings. This enables the necessary feedback and promotes an iterative and well informed planning process'* (MSPHE, 1983, p. 2). The difficulties of such an endeavour were also recognised. In particular, the representation of a variety of conflicting views was perceived as a potential obstacle to the planning process. This was one of the important reasons for the lack of implementation of previous Master Plans for the Greater Athens Area. In this Plan, the use of extensive public participation and consultation was seen as the first step of a

'conflict resolution' exercise that would result in easing tensions by bringing parties together, rather than striving for a commonly accepted solution.

Finally, in the four strategic cases where the advice of relevant authorities was sought on the environmental impacts of transport (*i.e.* 33%, row 23, Figure 5.4), this was again undertaken as a voluntary initiative.

[Row 20: Proactive public participation]

Proactive public participation means that specific methods were used to elicit peoples views, as opposed to the mere display of the planning document in the local authority or regional offices. These methods could range from an elaborate door-to-door public survey, to a more simple form of distribution of leaflets and questionnaires (Lee and Wood, 1980).

Only 11% of the cases reviewed in Athens involved proactive public participation (Figure 5.3). These 8 cases (row 20, Figure 5.2), were also all the land use plans that involved the public in commenting on the environmental impact of their transport policies (row 19, Figure 5.2). This suggests that in these local authorities, SEA was *inter alia* perceived as a way to communicate the plan's contents to the public.

The most common type (7 out of 8 cases) of innovative public participation was public meetings. This involved the hearing of views of the community through public discussions on issues included in the plan. In all cases, the environmental impacts of the transport policies of the plan were included in the discussion topics. Half of the interviewees maintained that there could be greater public response if more time and resources were available. In one case, a local radio station was used to both advertise the public meeting and inform the public on the issues. The results, according to a local authority planner were very encouraging, both in terms of the number of people who attended the meeting and the quality of the discussion generated. One of the weaknesses of this method is that the views of a cross-section of society might not be represented (Lee and Wood, 1980).

[Row 24: Proactive agency consultation]

One of the problems of Environmental Assessment is that consultation with the PPP is usually restricted to government departments and representatives of competent authorities. Environmental NGOs or any other 'interested bodies' are rarely invited to participate at the scoping stage of the assessment. Their role is usually confined to the review of the draft plan, or in the case of the transport-related documents, to the review of the adopted plan. This situation also occurs throughout the implementation of the EIA Directive in Greece,

and if voluntary and institutional initiatives are not put in place, the situation might be replicated in the potential future implementation of the SEA Directive. The research results support the above statement.

Only 7% of the cases reviewed in Athens sought the opinion of environmental NGOs as part of the consultation process of their PPPs and SEAs (Figure 5.3). Of these 5 cases, 4 were land use plans, and the other a transport-related strategic PPP. These cases however, represent only a small fraction of the overall 71 cases reviewed.

[Row 21 and 25: Documentation of Public Participation (PP) and Agency Consultation (C)]
The documentation of public participation and agency consultation was analysed in this chapter, throughout the discussion of substantive integration (section 5.5). Here, the implications to social integration are highlighted. In that context, the following observation can be made: the scores for the documentation of PP and C, followed the scores for PP and C for the SEA, and the scores for proactive PP and C. This suggests that only a small proportion of the cases reviewed in Athens, exhibited uniform positive characteristics of social and substantive integration. Indeed, the scores for the documentation of PP and C (8% and 11% respectively, Figure 5.3) were similar to the scores for PP and C for the environmental impacts of the transport policies (11% and 17% respectively, Figure 5.3), and to the scores for proactive PP and C (11% and 7% respectively, Figure 5.3).

The above similarities were replicated in the case of land use plans and transport-related strategic documents. Indeed, in relation to land use plans, the scores for the documentation of PP and C for the PPP (10%, and 10%, Figure 5.2) were similar to the scores for PP and C for the environmental impacts of the transport policies (14% and 14%, Figure 5.2), and to the scores for proactive PP and C (14% and 7%, Figure 5.2). Similarly, for the transport-related strategic documents, the scores for the documentation of PP and C (0%, and 17%, Figure 5.4) were similar to the scores for PP and C for the environmental impacts of the transport policies (0% and 33%, Figure 5.4), and to the scores for proactive PP and C (0% and 8%, Figure 5.4).

5.7. *Athens: Integration of human resources*

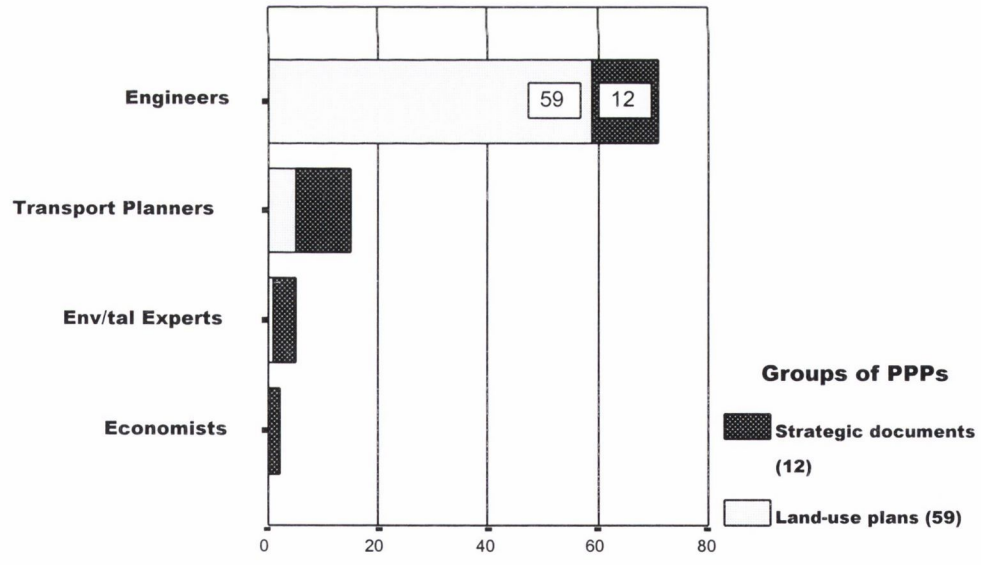
Human resources integration presupposes the co-operation and communication amongst the planning and assessment teams. Three non-quantitative criteria were chosen to identify this type of integration: A) What were the types of expertise involved in the preparation of the transport part of the PPP? B) Which of these types of expertise were involved in the preparation of the SEAs (if any)? and what was the employment status of the SEA team? C)

The perception of the degree of co-operation between the transport planning/SEA teams by the interviewees (*i.e.* Good; Mediocre; Bad).

5.7.1. Expertise involved in the preparation of the transport part of the PPP

As shown in Figure 5.5, the majority of expertises involved in the preparation of the transport part of the PPP were engineers, comprising mainly of architects and survey engineers. Fifty nine experts were involved in the preparation of land use plans, and 12, in the preparation of transport-related strategic documents. In each PPP there was at least one engineer on each planning team. Only 15 experts were identified as transport planners, which equated to almost one to every four PPPs reviewed. The transport-related strategic cases were better equipped for their transport task since 10 of these 15 transport planners were employed there (Figure 5.5). These PPPs had a clear transport focus as opposed to the more comprehensive nature of land use plans. Furthermore, the institutions organising the transport-related PPPs were usually better financed than local planning authorities.

FIGURE 5.5: EXPERTISE INVOLVED IN THE PREPARATION OF PPPS IN ATHENS



Number of experts in all PPPs (1 type of expertise per PPP)

Total PPPs: 71

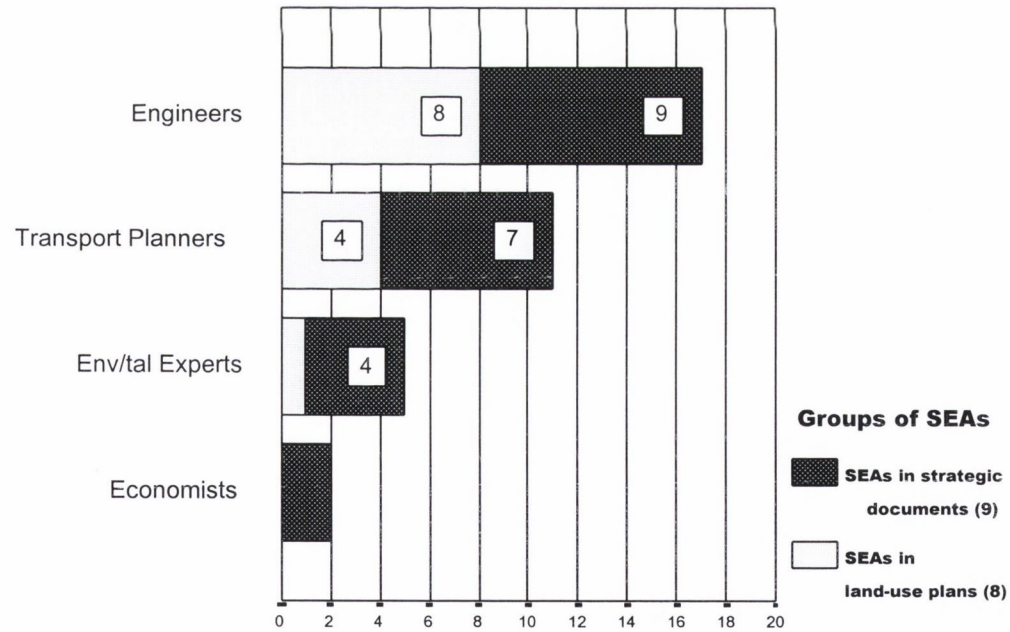
Only five environmental experts were involved in the 71 cases reviewed. This might explain the low percentage of SEAs in the Athenian PPPs. The reason given by the interviewees for the low proportion of non-engineer expertise such as transport planners, environmental experts and economists, was the lack of financial resources to employ a wider range of expertise (Karanikas, Kondylatos, Pertselakis, *pers. comm.*).

It has to be noted that in Figures 5.5 and 5.6, the horizontal axis denotes the number of experts involved in the preparation of the PPPs reviewed. One type of expertise per case was considered, rather than the total number of individual experts within the planning teams. The reason is that the exact number of experts was difficult to elicit, since on many occasions, the local authority planners interviewed, were not sure about the qualifications of their colleagues on the planning team. This situation is not surprising since in the majority of cases in Greece, the plan making team is different from the local authority team responsible for day-to-day managing and implementation of the plan. In addition, in the texts of some of the local plans reviewed, there was no indication of the professional qualifications of the members of the planning team.

5.7.2. Types of expertise in SEAs and their employment status

Figure 5.6 shows the number and type of expertise involved in the preparation of the environmental impacts of the transport PPPs reviewed.

FIGURE 5.6: EXPERTISE INVOLVED IN THE PREPARATION OF SEAS IN ATHENS

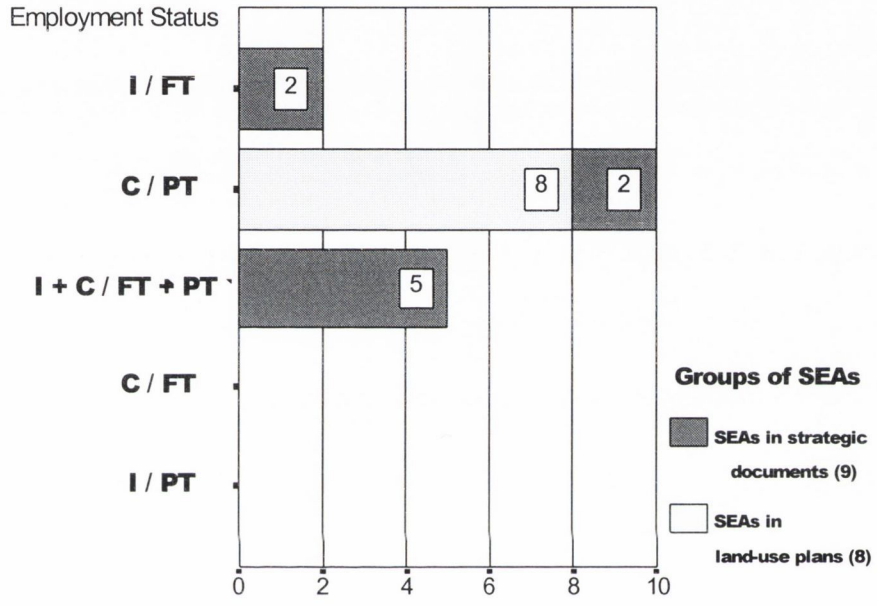


Number of experts in all SEAs (1 type of expertise per SEA)

In a total of 17 cases, where the environmental impacts were in some way documented, there was at least one engineer on the assessment team. These cases accounted for 24% of the cases reviewed (row 12, Figure 5.3). Half of the land use plans that undertook a SEA employed transport planners and a higher proportion of transport-related PPPs included

them on the SEA team (Figure 5.6). There was only one environmental expert that participated in the SEAs for land use plans, and four in the SEAs of transport-related strategic PPPs. This indicates the limited realisation of the important role of this expertise in the prediction of the environmental impacts of transport in Athens. Finally, two economists were also part of the assessment team throughout the preparation of two strategic cases.

FIGURE 5.7: EMPLOYMENT STATUS OF EXPERTS INVOLVED IN THE PREPARATION OF SEAS IN ATHENS



I: In house staff; C: Consultants; FT: Full time; PT: Part time

Overall, the organisations responsible for the transport-related strategic PPPs, seem to be better equipped for the task of SEA than land use plans, both in terms of a wider mix of different expertise as well as of the overall number of experts on every SEA/planning team. Only 2 out of 9 strategic organisations (Figure 5.7) used in-house personnel employed on a full time basis. There were no full time consultants or in-house personnel working part time for the preparation of a SEA found. Consultants carried out the vast majority of SEAs and they were usually part of the same team that carried out the PPP (Figure 5.7). All SEAs of land use plans (*i.e.* 8) belong to this category of employment status. The situation in the transport-related strategic PPPs was more complex. In 5 out of 9 PPPs, there was co-operation between external consultants working part time, and in-house experts working full time. Here, the external consultants could have been a combination of freelance planners and academics, as was the case with the Olympics 2004 project (OCOG, 1997b), and the study for the Light Rail Transit system (Giaoutzi, 1999).

The involvement of academia at this strategic level of planning is common in Athens. There is a perception of a more objective planning outcome where the involvement of academics is guaranteed. This is necessary when controversial issues are at stake as is the case with the Athens 2004 Olympic Games programme.

The preponderance of consultants on strategic planning teams is not surprising given the inadequate infrastructure and resource constraints of local authorities preparing land use plans. One of the aims of the recently enacted law on the restructuring of local authorities in Greece, is to facilitate the preparation of land use plans by the initiation of administrative and financial initiatives at a local level (E.T., 1999; TCG, 2000b). In contrast to the situation in the UK and Ireland, local authorities in Greece, lack the appropriate resources to undertake effective plan making and implementation, which has important implications for the effective application of SEA. Although the use of consultants has clear advantages in terms of the experience of those undertaking the assessment exercise, as well as minimisation of potential bias, it raises questions on the adequate integration of assessment with the plan preparation process. These difficulties have been noted in the context of the development of project-EIA in Greece and the UK (Glasson *et al*, 1994; Zagorianakos, 1996). An alternative would be that the integrated SEA/planning exercise, be carried out in house, but subject to scrutiny by external independent experts. This has been done by a small number of authorities in the UK (Marsh, 1997). These experts, should include neither those involved in the formal plan consultation and public participation process, nor those reviewing the SEA. This approach to an 'independent review body' however, might face implementation difficulties, as certain Greek environmental NGOs suggest, since there is always going to be lack of trust in the objectivity of these independent bodies (Zagorianakos, 1998).

5.7.3. Degree of co-operation between the transport planning and SEA teams

In all cases, the working relationship was described as being 'good'. It has to be noted however that the SEA and PPP teams were not separate groups as such, but it was rather a member of the PPP team (usually an engineer or a transport planner) responsible for the SEA part of the PPP. The comparison of the employment status of SEA experts and the degree of co-operation among the members of the assessment/planning team suggests that the successful integration of SEA and planning teams, was only present in 5 transport-related strategic cases. There, a combination of in-house and freelance consultants co-operated to produce the SEA/planning document. In the rest of the cases, where part-time

consultants and full time, in house planning officers were involved, there was less co-operation.

These findings suggest that, although the overall level of involvement with SEA is relatively low (*i.e.* 24%, row 12, Figure 5.3), there is an indication of a good degree of integration of human expertise at the strategic level of transport planning.

5.8. An Athenian 'good practice' case study

The analysis of the quantitative part of the research in Athens showed that experience on SEA is limited. The study produced by the Urban Environment Laboratory of the National Technical University of Athens (Research Team: Athens 2004, 1998) that follows, shows the opportunities for successful integration of existing SEA elements in current transport and land use planning practice in Athens. This study is a voluntary effort. It therefore supports the argument that positive elements of integration do not necessarily require rigorous financial resources and administrative support. Furthermore, it illustrates that SEA (or elements of it) can be used by societal groups that aim to promote certain environmental policy options opposed by government. It is for these reasons that a closer examination of the transport facet of this study is considered necessary.

The existence of some type of horizontal integration is evident in this study. Its purpose was to highlight the opportunities for project locations of the proposed athletic installations for 2004 Olympic Games. The criteria for selecting the locations were based on sustainability principles and were linked to environmental and socio-economic objectives. The study identified and evaluated a number of alternative site locations for each proposed athletic installation. It provides a good example of the preventive power of a programmatic-SEA, since alternative locations were considered before the design and construction of the proposed projects. The study was 'tiered', and thus 'externally integrated', with both lower levels of decision making (*i.e.* it took into account the urban plans of the areas where the projects will potentially be located) and higher levels of decision making (*i.e.* it took into account the principles and measures specified in the Structural Plan of Athens). The process was 'objectives-led' oriented, since the selected site-locations were evaluated against a number of sustainability objectives. These objectives included the environmental protection of sensitive areas and the development of an 'integrated public transport system' based on the restriction of private car use.

The environmental and developmental reasons for selecting a certain alternative were thoroughly documented. Furthermore, the identification of environmental impacts that were

presented and discussed throughout the text provides a positive example of substantive integration. The study however, was not rigorous in methodology, since the identification of environmental impacts was based on the 'experts' view of the environmental impacts, in a qualitative and non-systematic manner. Here, the members of the assessment team can be seen as an independent body, since the institution organising and undertaking the SEA (*i.e.* NTUA), is not a decision making body. The lack, however, of any external review (*i.e.* consultation and public participation), minimised the transparency and possibly the validity of the assessment exercise.

The study did not form part of the statutory planning process and was undertaken as an 'one-off' exercise. As such, the re-examination of the significant issues (*i.e.* iteration) was not possible, and the lack of important SEA/planning stages such as scoping and monitoring was notable. The study should not be seen as a complete SEA, but as the interim stage of a programmatic-SEA, the results of which could be fed into the project and plan/policy level of assessment. Owing to budget and time restrictions, public participation and consultation did not take place. The lack of methodological and social integration of the study were considered to be two reasons for the low level of attention given to the study by the Olympic Games organising committee, the scientific community and the public in general.

Although SEA is non-existent as a term in Greece, elements of an integrated-SEA were evident in this case study. The similarities of SEA with the planning process facilitated the integration of the two processes. The adoption of an objectives-led approach potentially drives identification of impacts, as it helps to focus the assessment exercise on the significant impacts. A possible quantification of environmental targets/objectives, and the use of GIS, would have further facilitated a more accurate and reliable impact prediction. Overall, this case study highlights the enormous possibilities for the elaboration of a more systematic SEA in the future. Also, the lack of mandatory legislative requirements for SEA is an obstacle to further improvements in the integrated-SEA process. This is especially the case with the provisions for public participation and agency consultation, and in that respect, the proposed SEA Directive will be beneficial.

5.9. Conclusions on SEA-integration in Athens

Overall, the integration of SEA with transport PPPs in Athens is almost non-existent. There was, however, a small fraction of the overall 71 cases reviewed that portrayed a good record of SEA/PPP integration. In these cases, although consultation was non-mandatory, public and environmental groups participated in public meetings. In addition, more than

half of them i) undertook most of the procedural stages of SEA throughout plan making, such as setting of transport objectives and qualitative targets, screening, environmental baseline and alternative transport options, ii) documented the environmental impacts of the transport policies of their PPPs, iii) included a non-technical summary in their planning text, iv) justified the environmental reasons upon which the formulation of the transport policies were based, and v) provided evidence that other environmental management tools were used throughout plan making. It can therefore be concluded that although the overall performance of transport planning in terms of its integration with SEA in Athens was low, there was a small group of cases (approximately 10%), which revealed uniform positive characteristics of integration. It is these cases that have the potential to provide the trigger for updating the status of SEA in Athens, and in Greece in general, especially in the light of the possible enactment of the SEA Directive (CEC, 1999).

In Athens, the strong elements of integration were found to be those that are closer to the requirements of land use planning specifications, as well as those closer to existing planning practice. These elements included procedural integration (*i.e.* existence of several methodological stages such as consideration of alternatives and identification of environmental baseline), external integration (*i.e.* tiering of environmental objectives), and social integration in land use plans (*i.e.* mandatory public and agency consultation). SEA integration was more widespread in the transport-related strategic PPPs. The prediction of the environmental impacts was common practice in most of them (75%) compared to only 24% of land use plans. Separate documentation was however minimal, and the identification of environmental impacts usually formed only a small part of the overall transport assessments.

Under current conditions, the potential enactment of the SEA Directive can provide a step towards the achievement of better integration of SEA in transport planning in the future. The proposed Directive's requirements for the establishment of a minimum SEA process, will introduce SEA to planning practitioners and thus, a more systematic (rather than latent as it currently is) SEA process will emerge.

6. Experience on SEA and Transport Planning in Dublin

6.1. Introduction

This chapter presents the results of the research conducted in order to document the experience on the integration of SEA elements with transport PPPs in Dublin. The information on SEA integration was gathered throughout the elaboration of interviews and review of land use and transport-related strategic documents. A number of integration criteria that comprise the evaluative framework developed in the thesis were used to analyse the research data. The chapter concludes with the presentation of the degree of fulfilment of the integration criteria by the PPPs reviewed in Dublin. These results are compared with the research results obtained throughout the research in Athens and London. The presentation of the results follows the structure of the evaluative framework, which distinguishes between six types of integration *i.e.* procedural, external, methodological, substantive, social, and human resources integration. This chapter also discusses the implications of the proposed SEA Directive 'on the environmental assessment of certain plans and programmes on the environment' on the Irish planning system, and highlights the expected benefits and difficulties stemming from its potential implementation. It also focuses on those elements of the framework that pose difficulties to the wider application of the evaluative framework at an EU level.

6.2. Dublin: Procedural integration

Procedural integration, as defined in the thesis, has the following characteristics: A_1) Vertical integration *i.e.* the existence of as many of the SEA procedural stages as possible throughout the transport PPP procedure. A_2) Horizontal integration *i.e.* iterativeness or the recurrence of more than one of the SEA procedural stages in one or more stages of the PPP procedure. A_3) Temporal integration *i.e.* early integration (*i.e.* the existence of one or more of the SEA procedural stages at a transport planning stage prior to the deposit stage).

6.2.1. Vertical integration

[Rows 1 + 4 + 7 in Figure 6.1: environmental objectives + baseline + monitoring]

Figure 6.1 shows the incorporation of the basic stages of a SEA process, into the procedure of transport PPPs that were reviewed in Dublin. Similarly to the planning culture in Athens, the vast majority of PPPs reviewed in Dublin, incorporated the following SEA elements in their PPP procedure: environmental objectives related to transport (88%, row 1, Figure 6.1), environmental baseline of the study area (79%, row 4, Figure 6.1), and appropriate mechanisms were in place to monitor the implementation of transport policies (92%, row 7, Figure 6.1).

As far as the environmental objectives and environmental baseline, are concerned, it is the land use plans that perform better than the transport-related strategic cases:

- environmental objectives related to transport: 93% of land use plans (row 1, Figure 6.2) compared to 78% of strategic cases (row 1, Figure 6.4),
- environmental baseline of the study area: 93% of land use plans (row 7, Figure 6.2) compared to 56% of strategic cases (row 7, Figure 6.4).

A good example of detail assigned in the identification of 'baseline conditions' in the land use plan making, is the Wicklow County Development Plan (Wicklow County Council, 1999). Throughout the early stages of the planning process, a comprehensive review of the previous plan was carried out, which resulted in the production of 13 working papers. The themes of these papers were structured according to a 'zoning' mentality and included reports on Amenity and Heritage areas, and infrastructure including transport.

These high scores can be attributed to the fact that these SEA elements are an inherent part of the planning culture and practice. One example of the consideration of environmental objectives in transport-related strategic PPPs, is the study on the 'environmental implications of Irish 'Transport Growth' (Knight *et al*, 1999). The two principal objectives of the study were:

- to assess the overall environmental impact of existing transport volumes and patterns, and
- to project the environmental impact of continuing traffic growth and network development.

Another strategic study, adopted specific air pollution reduction targets for the Greater Dublin Area, as objectives: '*The principal objective of the plan is to develop policies and strategies so that measured levels of air pollutant concentrations within the functional areas of the Local Authorities in the Region comply with air quality target values by 2001*' (Dublin Corporation *et al*, 1999, p. 2). The setting of quantitative targets is particularly important at a national policy level, where it serves to highlight the country's international obligations on environmental policy. For example, the 'Irish Sustainable Development Strategy' states that '*For purposes of the UN Climate change negotiations, Ireland has adopted an indicative national objective of limiting the growth in total emissions of carbon dioxide, methane and nitrous oxide up to year 2010 to 15% above their 1990 levels.*' (GoI, 1997, p. 7).

The environmental objectives of the PPPs, were in most cases influenced by the promotion of the sustainability paradigm, as the Wicklow County Development Plan demonstrates: '*The development plan strategy incorporates the following Council strategic objectives to facilitate the achievement of sustainability: Conservation of Finite Resources ... Minimisation of Development Impact*' (Wicklow County Council, 1999, p. 9). Sustainable transport was also the focus for the majority of strategic PPPs reviewed. For example, one of the goals of the 'Irish Sustainable Development Strategy' was to reduce the 'environmental impact and the intensity of transport' (GoI, 1997). The authors of the 'Strategic Planning Guidelines for the Greater Dublin Area' note that '*The adoption of principles of Sustainability implies that the preferred strategy must reduce growth in the demand for transport, especially private transport.*' (Brady Shipman Martin, 1999, p.vii). Sustainable transport was the overriding principle of the Dublin Transportation Initiative (DTI, 1995). One of the criteria assigned to the objective of the 'quality of life', was the reduction of ' ... *direct environmental effects from transport: noise, air pollution and energy consumption.*' (DTI, 1995, p. 35).

Monitoring, is a definite requirement in Irish strategic and project planning practice and unlike the situation in Athens and London, there is evidence to suggest that existing monitoring schemes have been quite effective. Monitoring requirements were most likely to be found in cases where there were adequate institutional structures.

For example, in the 'Draft Dublin Regional Air Quality Management Plan', it was suggested that, after plan adoption, a Steering Committee should be put in place by the joint local authorities. The purpose of the Committee was envisaged to be the periodic 'assessment of the effectiveness of the Plan'. Monitoring was also undertaken as part of the establishment of the environmental baseline. The plan can be seen as a monitoring exercise that checks the compliance of the Plan's policies with certain air quality targets. The role of the Committee would be to recommend changes in the plan's policies, based on the outcome of the monitoring results (Dublin Corporation *et al*, 1999). Similarly, the 'Regional Strategy for Dublin', recommended continuous annual updating of the Strategy, in order to anticipate changes in baseline conditions (DRA, 1996).

The Dublin Transportation Initiative is an ongoing transport planning process (DTO, 1999; DTO, 1998; DTI, 1995). The 1998 'Transportation Review and Short Term Action Plan' prepared by DTO, provided an example of documentation of monitoring. It presents in the first chapter, the progress made on the implementation of the DTI measures (DTO, 1998). The 1999 'Dublin Transportation Blueprint' briefly summarised the progress made since the previous year, and suggested measures for the period 2000-2006 (DTO, 1999).

[Row 5 in Figure 6.1: alternatives]

One third of the SEA elements of integration in Figure 6.1 (rows 5, 6 and 9) had a medium degree of fulfilment by all the PPPs reviewed in Dublin (*i.e.* 25%-42%). In particular, alternative transport options or scenarios were considered in 42% of the cases reviewed (row 5, Figure 6.1), the majority of which were strategic PPPs. In particular, 89% of the transport-related strategic documents considered alternatives (row 9, Figure 6.4), compared to only 13% of land use plans (row 9, Figure 6.2).

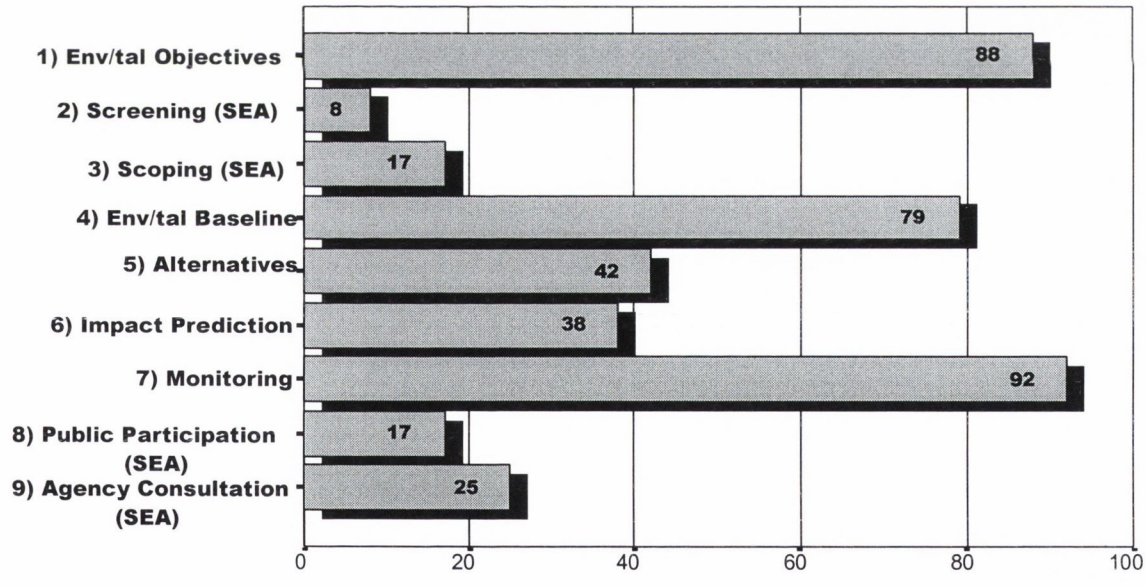
Selection and comparison of alternatives was undertaken in at least two strategic cases. The 'Dublin Transportation Initiative' study considered two types of alternatives. First, although this was a pure transport planning exercise, different land-planning scenarios were devised. The study justified the need for this approach by stating its benefits. According to DTI, the principal purpose for developing land use planning scenarios was ' *... to present a series of 'what if' scenarios in order to test the effectiveness of various transportation options. ... Devising different land use planning Scenarios avoided the fundamentally risky, indeed flawed, option of taking a fixed single view of what the future might be and retained a degree of flexibility as to the shape of future land use development strategy.*' (DTI, 1995, p. 39). This is a strong indication of the importance of the interrelation of transport and land use. Second, different scenarios were examined which were used to analyse the potential effects of different schemes and policy options. These scenarios were compared against the 'Do-Minimum' scenario. Furthermore, as a means of sensitivity analysis, the 'Do-Minimum' scenario was compared to the 'Base-Case' (*i.e.* the situation in 1991 when the Initiative began) in order to 'provide an assessment of what would happen in the absence of any fresh initiatives in the next two decades' (DTI, 1995, p. 50).

The second strategic case where alternatives were rigorously applied, was the 'Strategic Planning Guidelines for the Greater Dublin Area' (Brady Shipman Martin *et al*, 1999). The gradual 'sieving' of the important issues is evident through the development of alternative models and options for the accommodation of the expected levels of growth. Each one of the resulting options combined some features of the models and therefore extended them into a more complete set of alternatives. The performance and finalisation of all alternatives, was evaluated against a set of 14 sustainability criteria, which reflected both environmental and socio-economic concerns. Three of these criteria were related directly to transport and had environmental repercussions (*i.e.* facilitation of public transport, balance of private and public transport, and reduction in the need to travel). However, the authors of the Guidelines expressed the concern that the methods and techniques for the

sustainability assessment of the options were not fully developed. This influenced the weighting and scaling exercise since the balancing of these considerations was seen to be important in the identification of the recommended policies. The consideration of sustainability principles in this case provided a safety net for the production of balanced planning outcomes: '*Clearly, it must be physically possible to implement the preferred strategy for the development of the Greater Dublin Area, whilst there are cost ceilings beyond which is would be impossible to go. Similarly, there are certain environmental impacts that would be totally unacceptable. Within this balance, the consideration of sustainability is of particular importance.*' (Brady Shipman Martin *et al*, 1999, p. 50).

Finally, another study that included the evaluation of alternatives in its methodology is the 'Draft Dublin Regional Air Quality Management Plan' (Dublin Corporation *et al*, 1999). At the fourth stage of the plan making process, alternative control strategies were evaluated for their effectiveness in complying with certain air quality standards.

FIGURE 6.1: PROCEDURAL INTEGRATION IN DUBLIN (ALL CASES: VERTICAL INTEGRATION)



[Row 6 in Figure 6.1: Prediction of environmental impacts (Documentation)]

The environmental impacts of transport policies were documented in 38% of the cases reviewed in Dublin (Figure 6.1). The transport-related strategic documents dominate here, with 78% including this element (row 12, Figure 6.4), compared with only 13% of land use plans (row 12, Figure 6.2).

The pattern of documentation in Dublin was similar to that evidenced in Athens, which is a simple narrative description of the environmental impacts of policies. This shows the underdeveloped nature of SEA in these regions, unlike the situation in London where SEA documentation is more systematic. The organised documentation of the environmental impacts, is not a common practice in the cases examined. This argument is supported by the existence of only 3 SEA documents in all cases reviewed (13%, row 14, Figure 6.3). One of these SEA documents, is the 'SEA for the Irish National Development Plan 1994-1999 (DG XI, 1997). In this case, the documentation of the environmental impacts followed the EU Structural Funds regulations. Two SEA reports were produced. The first, was the 'environmental profile', which was prepared by the Department of the Environment and included in a chapter of the Plan. The second SEA report was integrated in the Community Support Framework and was prepared by the European Commission. The methodological component of the SEA posed difficulties for the assessment team. It was found that the environmental assessment at this level of decision making is more amenable to expert judgement and policy choices, than to structured methodological approaches (DG XI, 1997).

[Row 9 in Figure 6.1: agency consultation (SEA)]

The consultation with relevant authorities on the environmental impacts of PPPs, was carried out by 25% of the PPPs reviewed (row 9, Figure 6.1). Here again, the strategic cases were somewhat more proactive with 44% of them undertaking consultation (row 23, Figure 6.4), compared to 13% of land use plans (row 23, Figure 6.2).

[Row 8 in Figure 6.1: public participation (SEA)]

Around 17% of the PPPs allowed for a scrutiny of the predicted environmental impacts by the public (row 8, Figure 6.1). One third of these were strategic documents and the remainder land use plans.

The comparison of rows 12 and 23 in Figure 6.3 shows that the consultation requirement is quite high amongst the PPPs that have conducted a SEA, since 6 out of 9 PPPs with evidence of SEA documentation, were involved in consultation procedures for these SEAs. The corresponding results for public participation were less encouraging as rows 12 and 19 in Figure 6.3 reveal. Only half of the PPPs reviewed where environmental impacts were documented were scrutinised by the public (rows 12 and 19, Figure 6.3). These discrepancies between provisions for consultation and public participation of SEAs are another indication of the wider application of the former compared to the latter.

[Rows 2+3 in Figure 6.1: screening (SEA) + scoping (SEA)]

Finally, screening for the need for a SEA and selecting the significant issues to be included in the environmental assessment (*i.e.* scoping for SEA) had the lower scores of all SEA elements (Figure 6.1). Only 8% of the PPPs carried out a screening exercise (*i.e.* 2 out of 22 PPPs, row 2, Figure 6.1) and 17% considered the significance of issues (*i.e.* 4 out of 24 PPPs, row 3, Figure 6.1). Screening was undertaken only by strategic PPPs as row 5 reveals (Figure 6.2 and Figure 6.4). Scoping is again better established at the strategic level of transport planning (rows 6, Figure 6.2 and Figure 6.4).

Screening, and to a lesser extent scoping, was one of the weakest points in the preparation of a SEA in all three regions.

6.2.2. Horizontal integration

Horizontal integration is the existence of more than one of the SEA procedural stages in one or more stages of the PPP procedure. This is indicative of how iterative the SEA process is.

Dublin PPPs revealed a higher degree of horizontal integration than was the case with Athens. This can be attributed to the iterative nature of Irish planning practice. Although quantification is not meaningful, it seems that iteration is better established at a strategic level of transport planning. Clear evidence of an iterative process was found in at least six PPPs (Brady Shipman Martin *et al*, 1999; GoI, 1997; DGXI, 1997; DTI, 1995; Fingal County Council, 1998; Dublin Corporation, 1998). For example, a type of information feedback seems to have taken place throughout the SEA for the 'Irish National Development Plan 1994-99' (DGXI, 1997). The conclusions of the four seminars conducted by environmental NGO's[1] project on dissemination of information on Structural Funds and Sustainable Development, were reported back to the EC and the Irish authorities. These were also considered in the monitoring of the Plan's implementation.

6.2.3. Temporal integration

By temporal integration it is meant the early integration of SEA with the transport planning process *i.e.* the existence of one or more of the SEA procedural stages at a transport planning stage prior to the draft stage.

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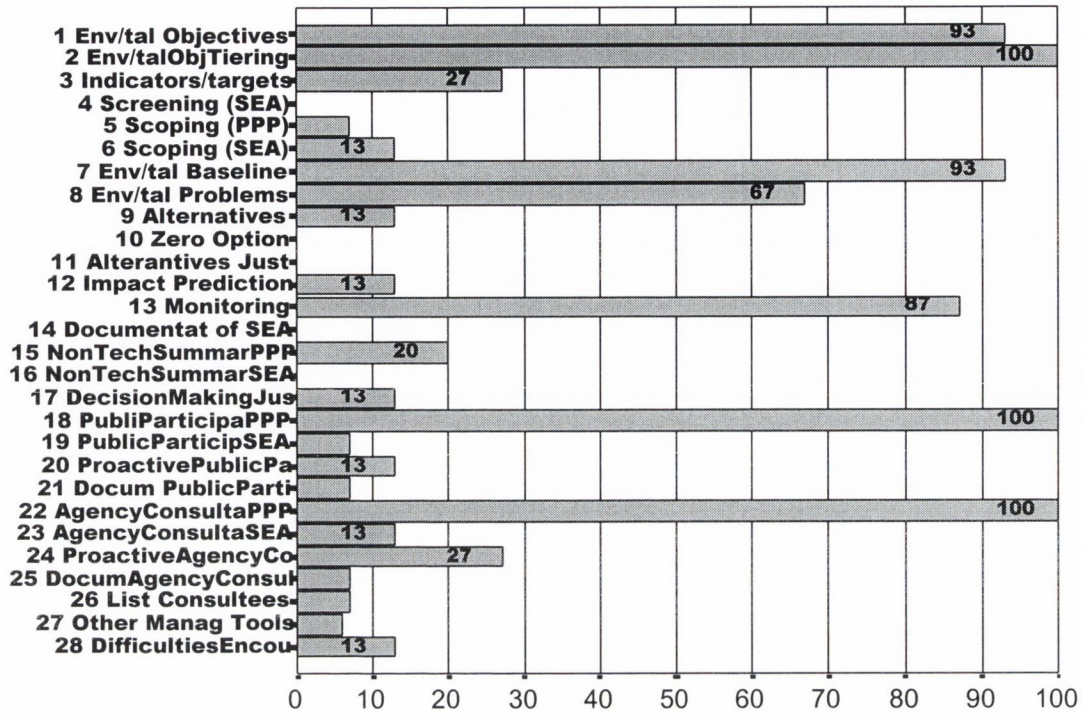
[1] *i.e.* An Taisce/WWF.

FIGURE 6.2: SEA INTEGRATION IN DUBLIN (LAND USE PLANS)



There is limited evidence of the existence of SEA at the early stages of PPP-making. One positive example is the SEA of the Irish National Development Plan (NDP) 1994-1999, which was developed in a way that was intrinsic to the NDP process (DGXI, 1997). The first of two SEA reports, was carried out simultaneously with the Plan, including a scoping stage. Scoping, followed the regulations set out in the European Commission's '*aide memoire*', and focused on the current environmental situation, legal and administrative framework, and impact of the plan on the environment. The scoping framework used to screen the significant issues, was developed by a standing interdepartmental working group[2], which gave an indication of the horizontal nature of the assessment involving various departments across different sectors. The scoping framework was also externally integrated, as it adopted the priority themes of the EU's 5th Environmental Action Programme (CEC, 1992a).

[2] *i.e.* GREEN 2000 Advisory Group.

6.3. ***Dublin: External integration***

External integration means the tiering of environmental objectives *i.e.* the setting of similar environmental objectives, adopted by PPPs and SEAs prepared at a higher, lower or same tier in the transport planning hierarchy.

[Row 2: Environmental Objectives (tiering)]

Row 2 in Figure 6.3 shows that virtually all PPPs reviewed, incorporate environmental objectives related to transport that have also been considered at a different tier of decision making. This is not surprising given that one of the PPPs' roles, especially relating to land use plans, is to implement conditions established at a higher level of decision making. Even PPPs prepared at a national level, are influenced by trends and conditions occurring at an international level. A variety of examples of the way that various environmental objectives are linked throughout the different tiers of decision making were provided by the documents reviewed.

At an international level, Ireland's commitments to limit pollutant emissions were stressed in the study for the 'National Investment Priorities for the period 2000-2006': '*In light of the need to meet the Kyoto limits on emissions by 2008-2010, even more expensive measures will be required if an 'ostrich' like approach to environmental policy is adopted*' (Fitzerald *et al*, 1999, p. 162). Furthermore, the study on the 'Environmental Implications of Irish Transport Growth' (Knight *et al*, 1999) took into account EU policies for CO_2 limitation, and the experience of the UK White Paper on integrated transport (DETR, 1998e; 1998f). Finally, the 'Study of Road Pricing in Dublin' (Oscar Faber, 1999) investigated the international experience of road pricing in order to examine the relevance of road pricing or other economic instruments, in the context of Dublin.

At a national level, the Irish 'Sustainable Development Strategy' set out an agenda for greening Irish transport, which was centred on 'support for moves at EU and international levels' (GoI, 1997). At a regional level, the 'Draft Dublin Regional Air Quality Management Plan' provided an example of horizontal co-operation between local authorities at the same level of government (Dublin Corporation, 1999). The elaboration of the Plan was a common effort from four neighbouring local authorities in Dublin. One of these was the leading authority responsible for the preparation of the Plan.

Overall, the connectivity of PPPs in relation to their environmental objectives seems to be well established in Dublin, compared to Athens and London. However, this does not necessarily imply that the connectivity of SEAs along the line of the planning hierarchy, from

a national to regional and local level of government (*i.e.* tiering of SEA), is equally established in Dublin. For example, the undertaking of SEA at a national planning level (DGXI, 1997; GoI, 1999) was not followed by similar assessments at a regional and local (development planning) level. The phenomenon exists where a full, and widely publicised SEA at that politically sensitive, national level of decision making, is rare. In England for example, SEAs are systematically undertaken only at a development planning level, and in Greece, only the mandatory type of SEAs that exist at the national level of planning (*i.e.* environmental profiles) are highly confidential documents (Zagorianakos, 1998). There is, however, a political commitment expressed in various documents (*e.g.* GoI, 1999; GoI, 1997) for the establishment of a SEA system, similar to the proposed SEA Directive's: '*Government will bring forward proposals, within three years, to develop a strategic environmental assessment (SEA) system for major plans and programmes, in addition to supporting EU proposals for SEA of land use plans and programmes*' (GoI, 1997, p. 3).

6.4. Dublin: Methodological integration

Methodological integration denotes the use of other environmental management tools alongside SEA.

Row 27 in Figure 6.3, shows that 1/3 of the PPPs reviewed in Dublin (33%), utilised another environmental management tool. Similar to the other two regions, the majority of these cases were found in transport-related strategic documents (78%, row 27, Figure 6.4) rather than in land use plans (6%, row 27, Figure 6.2). These results are quite impressive compared to the strategic cases in London (36%) and Athens (67%).

Two questions are particularly relevant in view of this element of integration: what were these assessment approaches to transport methodology, and were these used alongside SEA?

In relation to land use plans, the most common approach to environmental protection is 'zoning'. Similar to what was found to be the case in Athens, all 15 local plans in Dublin used zoning methods to control development. For example, in the case of Fingal County Development Plan (Fingal County Council, 1998), a GIS was used as part of the planning exercise. This software package, however, was not utilised for evaluating purposes (*e.g.* choosing between different transport options) or as part of the SEA exercise (*i.e.* assessing the environmental impacts of transport policies). It was rather used as a means to resolve various technical and presentation difficulties in relation to the production of maps.

It was found that transport-related strategic documents had a more holistic approach to transport planning methodology. An indicative example of the use of environmental assessment under the 'umbrella' methodological framework of MCA, is the Dublin Transportation Initiative (DTI, 1995). MCA was used to appraise the impacts of various transport options. The appraisal was undertaken against the policy objectives and against specific impact groups. This latter social distribution of impacts included various user groups such as public transport and freight, social groups such as unemployed and elderly people and groups defined in terms of their residential location. This assessment of the implications of the strategy themes on individual social groups drew upon the findings of a social survey, undertaken as part of the DTI exercise. In the MCA, each theme of the strategy was 'scored' against all of the criteria, by allocating weightings on a seven-point scale. The final result indicated the way in which each theme could contribute to the achievement of the various objectives of the Initiative. The use of MCA was accompanied by CBA to choose between alternative options at a more detailed, site specific level *i.e.* evaluation of pubic transport and Dublin Port access options. The overall methodology is characterised as highly technical. It was recognised however in the Initiative, that the technicality of the assessment did not substitute for the making of judgements, and that 'the need for rational decision making cannot be reduced to a formula'. The analytical rigour of using the above methodological tools benefited the planning process by: i) breaking down choices into segments in which all of the alternative options can be considered together, ii) linking segments into a logical sequence, and iii) aiding understanding of the implications that choices already made will have for future decisions.

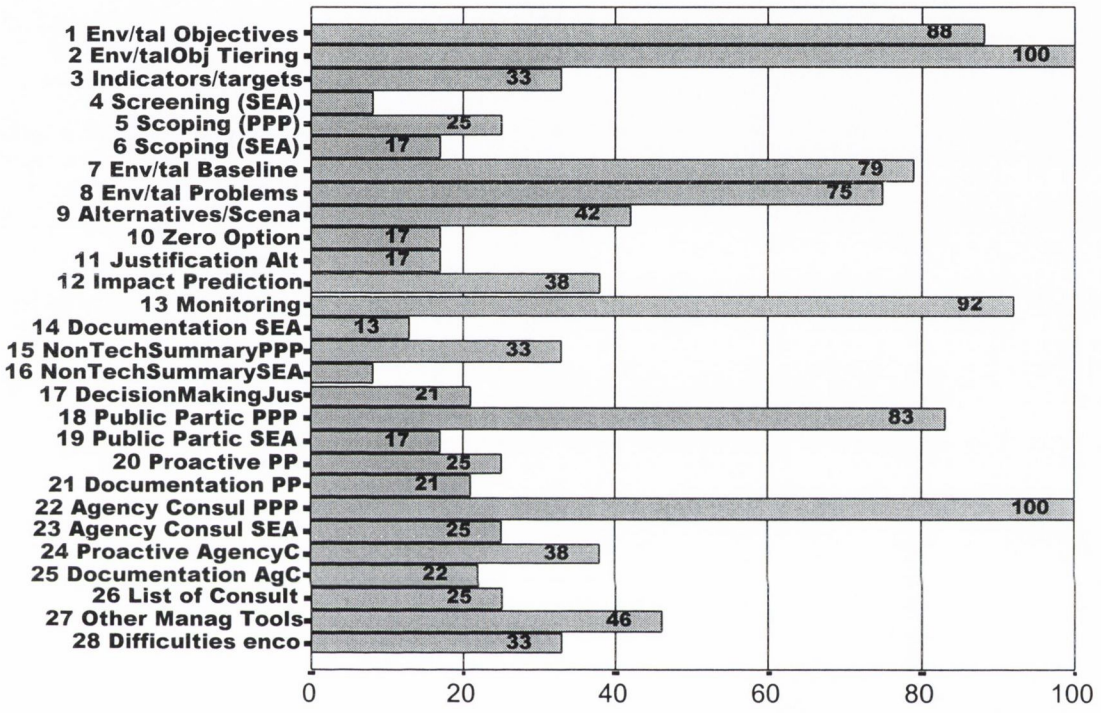
The utilisation of monetary valuation techniques for impact evaluation is common in transport planning internationally, and Ireland is no exception. Two of the strategic case studies reviewed that justify this statement were:

i) the study on the 'Environmental Implication of Irish Transport Growth' (Knight *et al*, 1999) which undertook 'externality valuations' to generate values for the environmental impacts of transport. The purpose of the valuation was to examine whether external impacts of transport were internalised in existing transport policy. Therefore, the 'environmental impact costing' exercise, investigated the degree to which current revenues derived from different modes of travel, cover external costs, according to the principle that transport revenues equal infrastructure cost and external cost (*i.e.* environmental impacts and safety).

ii) the 'Study of Road Pricing in Dublin' (Oscar Faber, 1999). There, the case for the introduction of fiscal measures to manage travel demand was examined. The economic justification for road user charging, rests on the fact that on congested road networks, the motorist imposes costs on other travellers (*i.e.* by reducing the speed of other travellers),

which he/she does not consider in making a decision to travel. According to the study, the initiation of road pricing enables prediction and control of effects. Furthermore, they represent a more efficient way of managing travel demand since charges can be related to congestion and environmental impact.

FIGURE 6.3: SEA INTEGRATION IN DUBLIN (ALL PPPS)



6.5. *Dublin: Substantive integration*

The term 'substantive' suggests that the actors involved in the integrated transport planning/SEA process take into account the outcome of SEA. Two criteria were chosen to identify this type of integration: A) Is the outcome of the SEA exercise documented and how? B) Was there any follow up after the adoption of the PPP?

6.5.1. Documentation of the outcome of SEA

[Row 12: Prediction of environmental impacts (Documentation)]

The environmental impacts of transport policies were documented in 38% of the cases reviewed in Dublin (row 6, Figure 6.1). Land use plans were less likely to include this

element of integration in their texts (3%, row 12, Figure 6.2) compared to an impressive 78% of transport-related strategic documents (row 12, Figure 6.4). The form of documentation varied in each case, ranging from a descriptive reference, to a more systematic presentation of environmental impacts.

The Irish 'Sustainable Development Strategy' (GoI, 1997), demonstrated a quite systematic, yet descriptive coverage of impact prediction. It laid out the most significant environmental and social impacts of transport, discussed these in the context of Irish transport and environmental policy, and drew conclusions and recommendations for minimising the adverse impacts. In the text for example, it is mentioned that:

> *'Investment under the Transport Operational Programme recognises the environmental importance of rail as a viable alternative to road transport. Funding for improvements in rolling stock, signalling and track network will have positive environmental effects, further encouraging commuters to switch from road to rail.' ... 'The emphasis in national policy on the improvement of the existing road network, rather than the building of new roads, reduces the impact of new works.'* (GoI, 1997, p. 108).

[Row 14: Separate SEA reports]

There were only 3 strategic documents that fulfilled the requirements for a separate SEA report (13% of the PPPs, row 14, Figure 6.3). These were the SEA of the Irish National Development Plans for the periods 1994-1999 (DGXI, 1997) and 2000-2006 (GoI, 1999), and the study on the 'Environmental Impacts of Irish Transport Growth' (Knight *et al*, 1999).

[Rows 15 + 16: Non-technical summary PPP +SEA]

Around 1/3 of the cases reviewed in Dublin included a non-technical summary of their PPPs' process (33%, row 15, Figure 6.3). One fifth of the land use plans reviewed (20%, row 15, Figure 6.2) belonged to this category, compared to more than half of the corresponding strategic documents (56%, row 15, Figure 6.4).

The results for the inclusion of a non-technical summary of the SEA exercise (8%, row 16, Figure 6.3) were lower than the results for the summary of the PPP process. None of the land use plans with SEA elements included this requirement for their SEA (row 16, Figure 6.2). There were only two strategic documents that incorporated a non-technical summary as part of their SEA exercise (22%, row 16, Figure 6.4). One of these was the study on the 'Environmental Impacts of Irish Transport Growth' (Knight *et al*, 1999). There, a description of the methodologies used to assess and evaluate transport-related environmental impacts

was presented and justified, in a six-page text of the SEA. Atmospheric emissions were of particular focus.

There were also seven strategic studies found to document the environmental impacts of their transport policies. Only two out of seven of these had included a summary for their SEAs. Only two land use plans with SEA elements included a non-technical summary of their SEAs, and both of them included a similar summary in their planning text.

This indicates that although there is experience of fulfilling this requirement at a planning level, an incentive is needed if this requirement is to be applied across future SEA practice. This incentive might be provided by planning guidelines and specifications rather than voluntary initiatives (Kennedy, *pers. comm.*). Indeed, this could be the case if the proposed Directive on SEA is enacted, since in its latest draft, it provided for the fulfilment of the above requirement (Annex in Appendix 5).

[Row 17: Decision making (justification)]

Around 21% of the PPPs examined in Dublin (row 17, Figure 6.3), indicated in their text, the environmental reasons for deciding on the transport policies, as well as the reasons for the decision on adoption of the PPP (in the case of land use plans). Almost half of these were strategic documents (33%, row 17, Figure 6.4), and the remaining were land use plans (row 17, Figure 6.2).

[Rows 21 + 25: Documentation of Public Participation and Agency Consultation]

Around 21% of the cases reviewed in Dublin (row 21, Figure 6.3), referred to the issues raised during the public participation exercise. A similar percentage occurred in the documentation of agency consultation (22%, row 25, Figure 6.3).

From all five cases found that documented the results of public participation and agency consultation, only one was a land use plan and the remaining four, were strategic documents (rows 21 and 25, Figures 6.2 and 6.4). One of these (Brady Shipman Martin *et al*, 1999), included in the planning document a half-page summary and a three-page Appendix with the results of public participation (section 6.6). The DTI study (DTI, 1995), published a separate document regarding the methodologies used, and results obtained, from an extensive social survey on public consultation. The Irish 'Sustainable Development Strategy' (GoI, 1997) incorporated a 12-page chapter on 'Public Action and Awareness' and an eight-page chapter on 'Implementation and Review' of the Strategy. There, advice on how 'public concern about the natural environment and unsustainable practices could

be translated into action', and the institutional structures for implementing the Strategy, was presented.

[Row 26: List of consultees]

Only six PPPs out of 24 included a list of consultees in their text (row 26, Figure 6.3). The majority of these were strategic documents (56%, row 26, Figure 6.4) compared to one land use plan (7%, row 26, Figure 6.2). In Dublin unlike Athens, there is evidence to suggest that it is more likely for organisations (mainly at a higher level than local authorities) that include a list of consultees in the PPP text, to also undertake an assessment of the impacts of transport policies, than those who do not include such a list. The argument is that five out of six PPP documents with a list of consultees also undertook a SEA.

A number of strategic cases were particularly sensitive to include a list of consultees in the PPP text or in a separate 'consultation' document. The strategic nature of the Irish 'Sustainable Development Strategy' (GoI, 1997) justifies the inclusion of an Appendix in the Strategy with a 'list of those who made submissions as part of the Public Consultation Process on the Strategy'. A similar list of the 'Membership of DTI Committees' is included in an Appendix of the DTI (DTI, 1995) and also in other documents such as the 'Regional Development Strategy for Dublin' (DRA, 1996) and the study on 'National Investment Priorities' (Fitzerald *et al*, 1999).

[Row 28: Documentation of difficulties encountered]

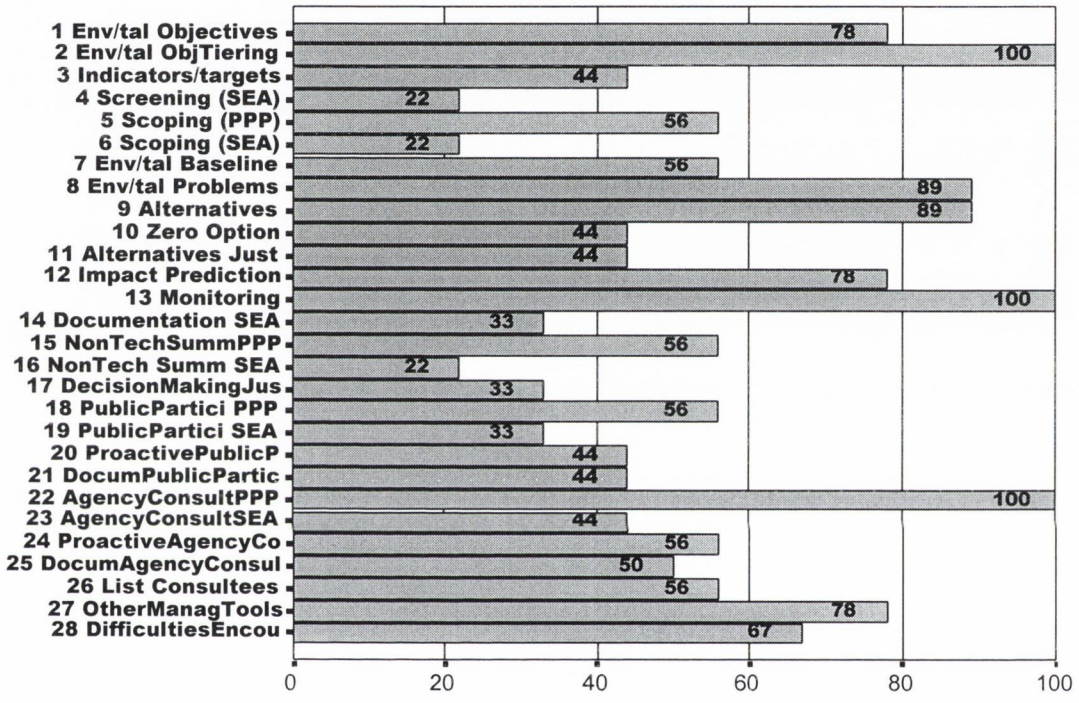
One third of the cases examined in Dublin documented the difficulties encountered throughout the preparation of the PPP/SEA report (33%, row 28, Figure 6.3). One quarter of these was land use plans (13%, row 28, Figure 6.2) and three quarters strategic PPPs (67%, row 28, Figure 6.4).

An indicative example of the documentation of difficulties encountered throughout impact assessment is provided by the study on the 'Environmental Impacts of Irish Transport Growth' (Knight *et al*, 1999). There, an explanation was given on the methodological obstacles to assessing transport-related environmental impacts on a national scale: '*The lack of noise monitoring data precluded a detailed assessment of transport-related noise impacts in Ireland.*' (Knight *et al*, 1999, p. 17).

Row 13: Mechanisms to monitor implementation]

The fact that all strategic PPPs reviewed (row 13, Figure 6.4) and 87% of land use plans (row 13, Figure 6.2) included a monitoring mechanism, does not necessarily mean that the socio-economic and environmental impacts are systematically identified and documented throughout the time period between the end of PPP making (or adoption for land use plans) and the beginning of the next round of PPP making.

FIGURE 6.4: SEA INTEGRATION IN DUBLIN (STRATEGIC PPPS)



The PPPs reviewed, showed that in the majority of land use plans and in some strategic cases, such documentation does takes place. However, this is done in a non-systematic and ad-hoc way, and it is confined to planning issues since it is mainly socio-economic parameters that are measured. Environmental concerns are restricted to a 'zoning' and 'amenity' approach which lacks the vigour of a quantitative approach to monitoring the environmental impacts based on indicators. Notable examples are the 'SD Strategy' (GoI, 1997) and the DTI (DTI, 1995) where separate reports were published with the purpose of updating the policies recommended in the original studies. In these two studies, there is reference to the environmental implications of the measures suggested.

6.6. ***Dublin: Social integration***

By social integration, it is meant the involvement of competent authorities, government agencies, organisations, organised local groups, environmental NGOs and the public in general throughout the PPP/SEA process. Four criteria were chosen to identify this type of integration: A) In how many cases did the public and organised bodies express their opinion on the PPP and the SEA, and at what stages of the PPP procedure? B) In what percentage of these cases, were public participation (PP) and agency consultation(C) mandatory? C) Were PP and C proactive? (*i.e.* in the case of PP: what were the actions taken to elicit the public's views? and in the case of C: were the opinions of environmental NGOs sought?) D) Was there any reference to the results of PP and C in the PPP/SEA report?

[Row 18: Public Participation (PPP)]

The vast majority of cases reviewed in Dublin consulted the public throughout the preparation of their PPPs (*i.e.* 83%, row 18, Figure 6.3). These results include virtually all land use plans (row 18, Figure 6.2) and more than half of the strategic documents (56%, row 18, Figure 6.4).

This high proportion of land use plans can be attributed to the requirement for the provisions for mandatory public participation.

[Row 19: Public Participation (SEA)]

In almost half (four out of nine) of the cases reviewed for which SEAs were conducted, the opinion of the public was sought on the environmental impacts of their transport policies. This accounts for only 17% of the overall amount of the cases reviewed (row 19, Figure 6.3). Only one out of two land use plans that had conducted a SEA included this requirement, an overall percentage of 7% of land use plans (row 19, Figure 6.2).

The rest of the cases that involved the public in commenting on environmental impacts, are three transport-related strategic documents, which accounts for less than half of the strategic SEAs found (*i.e.* 3 out of 7), and a third of the total strategic documents (*i.e.* 33%, three out of nine row 19, Figure 6.4).

[Rows 22 + 23: Agency Consultation (PPP and SEA)]

Similar to the situation with public participation above, the consultation with competent authorities on the PPPs' policies was undertaken at a much higher scale than the consultation with the SEAs. Virtually all PPPs reviewed in Dublin (*i.e.* 15 land use plans and

9 transport related strategic documents) consulted the competent authorities and other interested groups on the policies included in their PPPs (rows 22, Figure 6.2, Figure 6.3 and Figure 6.4). In contrast, only a quarter of the cases reviewed, sought advice from the same agencies on the environmental impacts of these policies (25%, row 23, Figure 6.3).

The proportion of cases involved in agency consultation for their SEAs, seems quite low when compared to the proportion of cases where consultation was undertaken for their PPPs as a whole (*i.e.* 25%<<100%). If this is compared, however, to the proportion of PPPs that undertook a SEA (*i.e.* 25%<38%), its significance is enhanced. In other words, although overall, only a limited number of planning authorities consulted the relevant agencies for their SEAs, those who did accounted for a significant proportion of those PPPs where a SEA was undertaken (*i.e.* 2/3 of SEAs).

It was again, the strategic level of decision making that was dominant here. Agency consultation as part of the SEA process, took place in 2/3 of the strategic SEAs and 1/3 of SEAs of land use plans. This represents 44% of transport-related strategic cases (*i.e.* row 23, Figure 6.4), and 13% of land use plans in the Greater Dublin Area (*i.e.* row 23, Figure 6.2).

Comparison of Public Participation and Agency Consultation (PPP and SEA)

While there is obvious uniformity in the results of public participation and agency consultation (both for PPP and SEA) in land use plans, the same cannot be said for the results of public participation and agency consultation in the transport-related strategic documents. As shown in Figure 6.4, all transport-related transport documents consulted the relevant authorities throughout their PPP preparation (row 22, Figure 6.4). In contrast, only half of the same PPPs were scrutinised by the public (56%, row 18, Figure 6.4). This disparity in the scores of public participation and agency consultation can be explained by the lack of financial resources required in order to involve the public at a strategic level of decision making, as opposed to agency consultation. There is evidence to suggest however, that if these resources were available, it would be easier for planning authorities to consult the public for their SEAs. This argument is substantiated by the comparison of rows 19 and 23 in Figure 6.4 where the scores for public participation for SEA and agency consultation for SEA are similar (33% and 44% respectively).

[Mandatory requirements for agency and public consultation]

Given the mandatory planning regulations in place, it is not surprising that all land use plans reviewed in Dublin, sought the opinion of both the public and the competent

authorities throughout the preparation of their plans (rows 18 and 22, Figure 6.2). Both local planning authorities that carried out a SEA of their plans (13%, row 12, Figure 6.2) sought advice from competent authorities for their SEAs, whereas only one of these consulted the public for their SEAs (rows 19 and 23, Figure 6.2). These consultations were not mandatory, as the preparation of a SEA is not mandatory either. These SEAs however, were not conducted in a systematic way but undertaken as part of the environmental part of the planning process. The planners responsible therefore, felt that no substantial additional resources and effort were necessary for the consultation and public participation process. This observation leads to the conclusion that in the case of the possible enactment of the SEA Directive, local authorities in Dublin, and in Ireland in general, will not find it difficult to conform to this requirement of the proposed Directive.

As far as the transport-related strategic PPPs are concerned, the public was consulted on the environmental impacts in less than half of the SEAs (*i.e.* 3 out of 7 SEAs, compare rows 12 and 19, Figure 6.4), and in more than half, the competent authorities were consulted on the environmental impacts (*i.e.* 4 out of 7 SEAs, compare rows 12 and 23, Figure 6.4). Here, there was not a clear mandate *per se*, yet public participation was considered a prerequisite for the promotion of Sustainable Development, and agency consultation was perceived necessary to facilitate decision making.

As discussed in the following section, the comparison of experience in the three regions reveals that public participation is one of the strong elements of integration at that strategic level of decision making, given the social survey methods employed, the innovative nature of documentation, and the iterative nature of the whole process.

[Row 20: Proactive public participation]

One quarter of the PPPs reviewed in Dublin (6 out of 24 cases) involved the public in innovative initiatives of social interaction (row 20, Figure 6.3). Four out of these six cases involved the public in their SEA process, which represents almost half of the overall number of cases where a SEA was undertaken (*i.e.* compare rows 20 with 19 and 12 respectively, Figure 6.3). This is an indication of the linkage of SEA with transparency development in a given planning authority.

One third of the PPPs involved in proactive public participation, are land use plans (*i.e.* 2 out of 6), and the other two thirds, strategic documents.

Dublin revealed an array of innovative methods of public participation in comparison to Athens and London. There were a few cases, especially at the regional planning and policy level of decision making, where the public expressed its opinion in ways that were found in the other two regions examined in this thesis. The documentation of these methods and their results, as these were documented in the PPPs, provided the material for transference of experience to the other two regions. A fine example of proactive public participation at regional level of transport planning, was provided by the 'Strategic Planning Guidelines for the Greater Dublin Area' (Brady Shipman Martin *et al*, 1999). Although public consultation was not mandatory, this was conducted at two stages of the planning process. First, at the scoping stage, where the public was invited to make submissions on strategic issues affecting the Greater Dublin Area. The method used was public notices placed in two national newspapers. Approximately 50 submissions were received from various interested parties. A small number of the groups considered more relevant were contacted directly. Second, public participation was introduced at a later stage of the planning process to further clarify the important issues. For four months after the scoping exercise, the public was invited to obtain a briefing document and questionnaire, outlining some of the crucial issues affecting the Greater Dublin Area. The 'Public Briefing Document' could be obtained from local authority offices, libraries or by request from the consultants. Over 400 completed questionnaires were returned and analysed. The results of this public participation exercise were presented in a three-page Appendix of the Guidelines.

Another example of innovative consultation was provided in the 'Draft Dublin Regional Air Quality Management Plan' (Dublin Corporation, 1999). The draft plan was available for consultation on the Internet. Furthermore, there were suggestions made in the Plan, that after its adoption, the four proponent local authorities would undertake promotional and educational programmes for disseminating the Plan's findings. These programmes included *inter alia* the use of public information leaflets, items on the radio and television, and campaigns to encourage the use of alternative modes of transport to the private car (Dublin Corporation, 1999).

An example where agency consultation was extended to include individuals, was throughout the drafting of the Regional Guidelines for Dublin (DRA, 1996). Public participation was not undertaken as such, since it was not mandatory. The consultation phase, however, was extended to cover, not only interested bodies and organisations, but also individuals. A number of consultation methods were used including workshop sessions, seminars, individual interviews and discussions. The results of these exercises were presented in the text of the Guidelines. Similarly, in the acknowledgement section of the

'National Investment Priorities' study, it is mentioned that '*In the course of preparing this report the authors received assistance from a very wide range of individuals acting in both a representative and an individual capacity.*' (Fitzerald *et al*, 1999, p. iv).

[Row 24: Proactive agency consultation]

A higher proportion of PPPs were involved in proactive ways of agency consultation compared to proactive pubic participation. Around 38% (*i.e.* 9 out of 24, row 24, Figure 6.3) of the cases reviewed in Dublin, sought the opinion of environmental NGOs as part of the consultation process of their PPPs and SEAs. This accounts for the majority of cases that undertook a SEA. This is again, as in proactive public participation above, an indication of the positive influence of SEA on transparency development in a given planning authority.

Almost half (*i.e.* 4) of these nine consultations with environmental NGOs, were carried out by local planning authorities throughout the preparation of their land use plans. The remaining five cases were carried out throughout the preparations of strategic studies.

An example of active participation of environmental NGOs is the SEA for the Irish NDP 1994-99 (DG XI, 1997). Four seminars were conducted within two environmental groups' (*i.e.* An Taisce/WWF) project on dissemination of information on structural funds and Sustainable Development. According to DG XI, '*the conclusions reached at these seminars, prove that some value can be added to decision making by involving target groups in structured strategic meetings and discussion forums*' (DG XI, 1997, p. 145-146).

[Rows 21+25: Documentation of Public Participation (PP) and Agency Consultation (C)]

The scores for the documentation of PP and C, followed the scores for PP and C for the SEA, and the scores for proactive PP and C, thus leading to the conclusion that there is a portion of the PPPs reviewed in Dublin, that exhibited uniform positive characteristics of social integration. Indeed, the scores for the documentation of PP and C for the PPP (21% and 22%, rows 21 and 25 respectively, Figure 6.3) were similar to the scores for PP and C for the environmental impacts of the transport policies (17%, and 25%, rows 19 and 23, Figure 6.3), and to the scores for proactive PP and C (25%, and 38%, rows 20 and 24, Figure 6.3).

The above similarities were replicated in the case of land use plans and transport-related strategic documents. Indeed, in relation to land use plans, the scores for the documentation of PP and C for the PPP (7%, rows 21 and 25, Figure 6.2) were similar to the scores for PP and C for the environmental impacts of the transport policies (7% and 13%, rows 19 and

23, Figure 6.2), and to the scores for proactive PP and C (13%, and 27%, rows 20 and 24, Figure 6.2). Similarly, for the transport-related strategic documents, the scores for the documentation of PP and C (44% and 50%, rows 21 and 25, Figure 6.4), were similar to the scores for PP and C for the environmental impacts of the transport policies (33% and 44%, rows 19 and 23, Figure 6.4), and to the scores for proactive PP and C (44% and 56%, rows 20 and 24, Figure 6.4).

A sound example of documentation of the results of public participation, is provided by the 'Strategic Planning Guidelines for the Greater Dublin Area' (Brady Shipman Martin *et al*, 1999). In Appendix 1 of the Guidelines, a table displays the results of a public questionnaire survey. The responses were quantified and commended in separate paragraphs of the three pages Appendix. The commentary of the results of public participation can be seen in the following passage:

> *'It was evident from the comments that improvements in the public transport infrastructure are required as a priority. ... There was some conflict on the issue of locating development on public transport corridors - some were of the opinion that all new development should be exclusively on public transport routes while others felt that this was too simplistic an option and that development along public transport routes would disadvantage other areas.'.* (Brady Shipman Martin *et al*, 1999, p. 113).

6.7. ***Dublin: Integration of human resources***

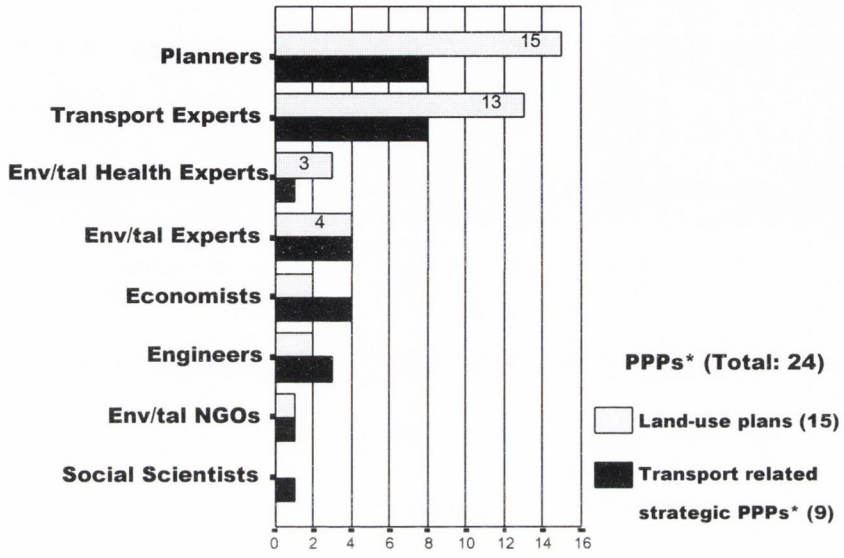
Human resources integration means the co-operation and communication amongst the planning and assessment teams. Three non-quantitative criteria were chosen to identify this type of integration: A) What were the types of expertise involved in the preparation of the transport part of the PPP? B) Which of these types of expertise were involved in the preparation of the SEAs (if any)? and what was the employment status of the SEA team? C) The perception of the degree of co-operation between the transport planning/SEA teams by the interviewees (*i.e.* Good; Mediocre; Bad).

6.7.1. Expertise involved in the preparation of the transport part of the PPP

Figure 6.5 shows the different types of expertise (*i.e.* 8) involved in the preparation of the transport part of the PPPs in Dublin. Not surprisingly, given the type of PPPs examined, the majority of these were planners and transport experts. The next most frequently employed professional qualification was environmental experts. Half the organisations and planning consultancies that prepared transport-related strategic documents (*i.e.* 4 in 9 strategic PPPs), and around 1/7 of local authorities (*i.e.* 2 in 15 land use plans) included economists in their assessment teams. This highlights the dominance of economic considerations

throughout transport strategic planning in Dublin. Furthermore, the shortage of environmental experts involved might have negative implications regarding the quality of SEAs in the event of the enactment of the proposed SEA Directive.

FIGURE 6.5: EXPERTISE INVOLVED IN THE PREPARATION OF PPPS IN DUBLIN



* PPPs: Policies, Plans, Programmes

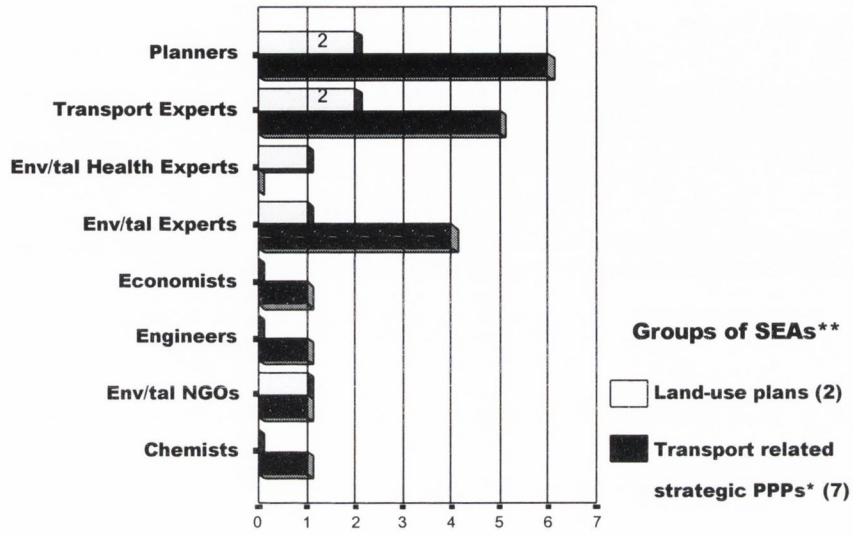
Environmental health experts were employed in 1/5 of land use plans and 1/9 of strategic cases. One seventh of local authorities (*i.e.* 3 in 15 local authorities) and 1/3 of consultancies and organisations preparing transport-related strategic documents (*i.e.* 4 in 9 strategic PPPs) had employed engineers. A member of an environmental group co-operated closely with the planning team in two cases: throughout the preparation of a development plan and the National Sustainable Development strategy. Finally, the Dublin Transportation Office utilised at least one social science expert for the elaboration of the public participation survey.

6.7.2. Types of expertise in SEAs and their employment status

Figure 6.6 shows the number and type of expertise involved in the preparation of the environmental impacts of the transport PPPs reviewed in Dublin. In a total of two land use plans where the environmental impacts were in some way documented, there was at least one planner and one transport expert on each of the SEA teams. Other than these experts, one of the SEA teams included an environmental expert and an environmental health

officer, and the other SEA team included a member of an environmental group. All experts in both cases, were full time, local authority personnel (Figure 6.7).

FIGURE 6.6: EXPERTISE INVOLVED IN THE PREPARATION OF SEAS IN DUBLIN



Number of experts in all SEAs** (1 type of expertise per SEA**)

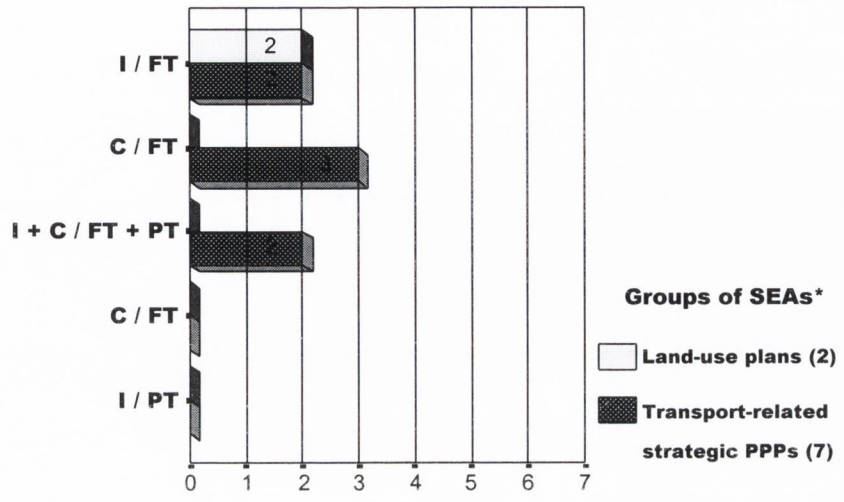
*** PPPs: Policies, Plans, Programmes**

**** SEAs: Strategic Environmental Assessments**

This is in contrast with the situation in Athens where SEAs (as well as land use plans), were carried out by environmental/planning consultants, working on a part time basis. The difference in the way that a SEA is financed is fundamental, in that, the use of consultants introduces both a degree of objectivity and overall quality to the assessment exercise. Nevertheless, the preparation of a SEA by the same planning team responsible for carrying out the land use plan, has the clear advantage of effectively integrating the SEA with the plan preparation process. The composition of experts in the transport-related strategic SEA teams was wider than in the SEA teams for land use plans (Figure 6.6). The majority of experts here, were again as with SEAs for land use plans, planners, and transport experts (*i.e.* 5 experts in 7 SEAs). In more than half of the SEA teams, environmental experts were employed (*i.e.* 4 experts in 7 SEAs).

The composition of experts in the transport-related strategic SEA teams was wider than in the SEA teams for land use plans (Figure 6.6). The majority of experts here, were again as with SEAs for land use plans, planners, and transport experts (*i.e.* 5 experts in 7 SEAs). In more than half of the SEA teams, environmental experts were employed (*i.e.* 4 experts in 7 SEAs).

FIGURE 6.7: EMPLOYMENT STATUS OF EXPERTS INVOLVED IN THE PREPARATION OF SEAS IN DUBLIN



Number of experts per employment status (one expert per SEA*)

* SEAs: Strategic Environmental Assessments;

I: In house staff; C: Consultants; FT: Full time; PT: Part time

Each of these four separate SEA teams employed one economist, one engineer, a member of an environmental NGO and one chemist. This variety of expertise demonstrated that different approaches to environmental assessment were adopted for different PPPs.

6.7.3. Degree of co-operation between the transport planning and SEA teams

In all cases, the working relationship was described as being 'good'. It has to be noted however, that in the majority of cases, SEA and PPP teams were not separate groups, but it was rather a member of the PPP team (usually an engineer or a transport planner) who was responsible for the SEA part of the PPP. The 'SEA of the Irish National Development Plan 1994-1999' was an exception. There, a separate SEA team was formed that closely co-operated with the rest of the planning team.

6.8. Conclusions on SEA integration in Dublin

The results of the research in Dublin showed that there were a number of SEA elements integrated throughout PPP making. These mostly included procedural and social elements of integration. Despite the lack of experience and guidelines on SEA at the regional and land use planning level, a number of SEA stages were incorporated in the PPP process. This was especially the case with the consideration of alternatives and, to a lesser extent, the documentation of the environmental impacts. The setting of environmental objectives and

the identification of environmental baseline were evidenced in the majority of PPPs reviewed. It cannot however be considered as an indication of early integration of a systematic SEA.

Social integration was a substantial component of transport planning practice in Dublin. Around 25% of the cases reviewed, implemented proactive methods for involving the public in the PPP process, and 38% of competent organisations consulted environmental NGOs. There were innovative examples found at a regional level, and opportunities exist for their extension at a national policy level. Administrative capacity and financial support will be crucial in initiating wider public consultation procedures at a government policy level in the future.

In Ireland, the introduction of a SEA system of plans and policies was strongly related to the promotion of Sustainable Development. SD was an overriding goal in the majority of the documents reviewed; especially strategic documents. The role of SEA in facilitating the promotion of SD was acknowledged at a national and regional level (*e.g.* GoI, 1997; GoI, 1999; DoELG, 2000; DRA, 1996). However, as the research showed and especially in relation to the transport sector, there are no regulations and institutional arrangements for the initiation of SEA at a land use and regional planing level. Political commitment was expressed in the Irish 'Sustainable Development Strategy' (GoI, 1997) regarding the establishment of a SEA system similar to that of the proposed SEA Directive. This system however, that should have been in operation this year (*i.e.* 2000) does not yet exist. What does exist is a set of guidelines for a policy-SEA. The establishment of a policy-SEA requires less financial resources than a plan or programme-SEA. Owing however to the technical problems with impact assessment at that general level of assessment, to issues of confidentiality, as well as difficulties in public participation, it is more difficult to assess its effectiveness.

Why then did the government decide to focus on Policy-SEA rather that the more qualitative plan and programme SEA? The answer lies in the government's concern to adequately safeguard the environmental protection elements of the Regional Development Plans (Structural Fund regulations) in order to be financed by the EU. This concern should be viewed bearing in mind Ireland's economic growth over the last five years, leaving the country in a more difficult position to secure EU financial aid.

It can therefore be concluded that the vertical connection of SEAs from a land use to a policy level of planning (*i.e.* tiering), is of particular concern in Dublin, especially if viewed

in the context of Sustainable Development and the proposed SEA Directive. Although there are guidelines for a policy-SEA (DoELG, 2000), this is not the case with land use and sectoral plans. Therefore, there will be obstacles when attempting to trickle-down SEA principles and procedures from a policy, to a plan and programming level. This will have negative implications for the implementation of the potential enactment of the SEA Directive in Ireland.

7. Experience on SEA and Transport Planning in London

7.1. *Introduction*

This chapter discusses the results of the research for the thesis in order to document the experience of the integration of SEA elements with transport PPPs in London. These results are compared with the research results obtained from the research in Athens and Dublin. The presentation of the results follows the structure of the evaluative framework, which distinguishes between six types of integration *i.e.* procedural, external, methodological, substantive, social, and human resources integration. This chapter also discusses the implications of the proposed SEA Directive 'on the environmental assessment of certain plans and programmes on the environment' (CEU and EP, 2000) on the British planning system, and highlights the expected benefits and difficulties that will stem from its potential implementation. The chapter concludes with the presentation of the degree of fulfilment of the integration criteria by the PPPs reviewed in London.

7.2. *London: Procedural integration*

Procedural integration, as defined in the thesis, has the following characteristics: A_1) Vertical integration *i.e.* the existence of as many of the SEA procedural stages as possible throughout the transport-PPP procedure A_2) Horizontal integration *i.e.* iterativeness or the recurrence of more than one of the SEA procedural stages in one or more stages of the PPP procedure A_3) Temporal integration *i.e.* early integration (*i.e.* the existence of one or more of the SEA procedural stages at a transport planning stage prior to the deposit stage).

7.2.1. Vertical integration

[Rows 1 + 3 + 6 + 7: environmental objectives + scoping (SEA) + environmental impact prediction + monitoring]

Figure 7.1 shows the incorporation of the basic stages of a SEA process, into the procedure of PPPs that were reviewed in London. The pattern of vertical integration here is quite distinct from the situation in Athens and Dublin, with greater emphasis on the more substantial elements of SEA.

Four SEA procedural stages are incorporated into more than half of the PPPs examined (Figure 7.1). These are:

- the setting of environmental objectives related to transport: 98% (row 1, Figure 7.1),
- scoping for the need for a SEA: 53% (row 3, Figure 7.1),

- prediction of the environmental impacts of the PPP: 65% (row 6, Figure 7.1), and
- SEA monitoring: 56% (row 7, Figure 7.1).

Similar to the situation in Athens and Dublin, the overwhelming majority of the cases reviewed in London, had set environmental objectives related to transport. This requirement lies at the heart of both land use (97%, row 1, Figure 7.3) and strategic PPP planning (100%, row 1, Figure 7.4). The only similarity in vertical integration with Athens and Dublin is the setting of environmental objectives. Indeed, an impressive 53% of the cases in London (compared to 8% in Athens and 17% in Dublin), have undertaken a scoping exercise in order to determine the significant issues to be included in a SEA (row 3, Figure 7.1). Around 72% of UDPs (row 6, Figure 7.3) and 36% of transport-related strategic PPPs (row 6, Figure 7.4) undertook scoping.

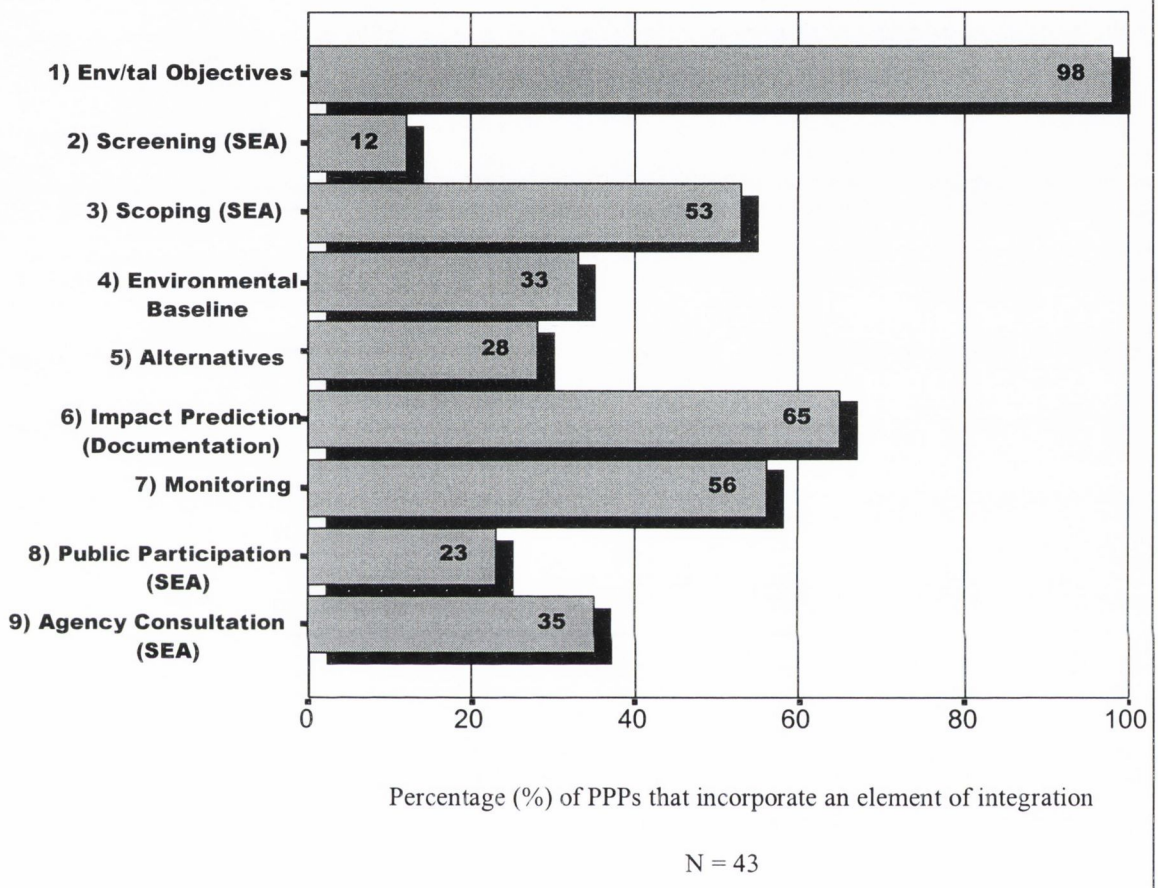
These results are not surprising given the government advice to local planning authorities on the 'Environmental Appraisal for Development Plans': '*the task is ... to provide a structure and rigorous framework for introducing the appropriate scope for environmental matters into plan preparation than would otherwise be the case*' (DoE, 1993, para 4.7). The guide however, does not suggest any specific scoping exercise such as a scoping matrix or list. It relies on the consultation with 'relevant environmental agencies and other appropriate bodies' and on the review of Planning Policy Guidance '*which set out Government policies in different aspects of planning, including environment*' (DoE, 1993, para 4.3). Therefore, it is this 'consultative and document review' approach to scoping that local planning authorities and strategic PPPs have adopted. Some UDPs have adopted a more technical approach using various scoping matrices and screening lists.

The most significant account of SEA experience throughout the three regions examined was found in London. Around 2/3 (65%, row 6, Figure 7.1) of the PPPs reviewed there, had documented the environmental impacts of their transport policies, compared to just 24% in Athens and 38% in Dublin. Here, in contrast to the situation in Athens and Dublin, land use plans produced better results: 79% of UDPs fulfilled this requirement (row 12, Figure 7.3) as opposed to 36% of strategic PPPs (row 12, Figure 7.4).

This difference in the results can be explained by the existence of the 'Environmental Appraisal for Development Plans' (EADP) guidance (DoE, 1993). There, an Environmental Appraisal approach was recommended which is undertaken at various planning levels (DoE, 1993, para 5.1):

- at a strategic planning level of broad strategy objectives and at the formulation of the spatial strategy which is linked to transport proposals. Here, a compatibility matrix is recommended;

FIGURE 7.1: PROCEDURAL INTEGRATION IN LONDON (ALL PPPS, VERTICAL INTEGRATION)



- at the policy development stage where policy options are being considered, selected and refined. This is usually Part I of UDPs. Here, a policy impact matrix is recommended;
- at a more detailed site selection or proposals stage, when land is being allocated to specific uses. Here, a proposals impact matrix is proposed.

In London, the task of monitoring the implementation of the PPPs' recommendations was undertaken by 56% of the relevant authorities (row 7, Figure 7.1). Around 59% of UDPs (row 13, Figure 7.3) and 50% of strategic PPPs (row 13, Figure 7.4) regularly monitor the implementation of their proposals. Here, as was the case with the other two regions examined, PPP monitoring was encouraged by the relevant PPG. This is not however a planning mandate, but rather an exercise that better informed the review stage of plan

making: '*This monitoring process can then form part of the decision making process when it comes to making a decision on the need for, and scope of, a plan review*' (DETR 1999j, para. 2.18). In the recent PPG 12 (DETR 1999j), planners were encouraged to follow the example of a number of local authorities that have published 'annual monitoring reports'. These reports can inform and be informed by monitoring reports at a regional level (such as SERPLAN's monitoring exercise), thus resulting in a better 'tiering' of Environmental Appraisals and PPPs, through this 'external integration'.

The majority of local authority planners interviewed, maintained that PPP monitoring, and to a greater extent SEA monitoring, is not adequately exercised. Leaving aside the lack of financial resources, monitoring they felt, has to be linked to environmental indicators if such efforts are to be meaningful. These indicators in turn, can be integrated to the rest of the planning process through the appropriate setting of objectives at the very start of the planning process (section 7.8).

[Row 4: Environmental baseline]

Almost half of the SEA elements in Figure 7.1, were included in between 20% and 35% of the PPPs reviewed. One of these SEA procedural stages was the identification of the baseline environment (33%, row 4, Figure 7.1). Around 41% of UDPs (row 7 Figure 7.3) and only 14% of strategic PPPs (row 7, Figure 7.4) characterised the environment in their documents.

The difference in scores, can be explained by the clear guidance on this issue, which is included in the 'Environmental Appraisal for Development Plans' guidance:

> *'[Environmental] Appraisal needs a baseline position, so that policies and proposals are considered in terms of the changes they are likely to make. Characterising the environment through an assessment of environmental stock provides that baseline. Policies can then be examined to see if they have a positive or negative impact on the stock.'* (DoE, 1993, para 3.1).

[Row 5: Alternatives]

Similar to the situation in Athens (*i.e.* 21%), the consideration of alternative policy options or scenarios, did not receive a high representation in London (28%, row 5, in Figure 7.1), as opposed to the situation in Dublin (*i.e.* 42%). Around 31% of UDPs in London considered alternative options (row 9, Figure 7.3) and 21% of transport-related strategic PPPs (row 9, Figure 7.4).

One of the reasons that alternatives were not widely considered by local planning authorities, is that relevant government advice (*i.e.* PPG Note 12), does not encourage either their consideration *per se*, or their documentation in the planning text, but only encourages their justification (when considered): '*Alternatives should not be put forward in the deposited plan but authorities should indicate in the reasoned justification/explanatory memorandum the range of options considered and the basis on which choices were made*' (DETR, 1999, Annex A, para 14). In addition, although according to the EADP guide one of the roles of the scoping exercise is to '*draw attention to potential alternative directions*' (DoE, 1993, para 4.8), the consideration of alternatives and their appraisal in relation to their environmental impacts is sidelined in the guide.

[Row 8 in Figure 7.1: Public Participation (SEA)]

Figure 7.1, shows that 23% of the PPPs reviewed in London, involved the public throughout the preparation of their SEAs (row 8, Figure 7.1). This score is higher than in Dublin (17%) and Athens (11%).

Its significance, however, is decreased when it is seen in the context of the significantly high proportion of PPPs that undertook a SEA in London (65%), compared with the low proportion in Athens (24%) and Dublin (38%). Taking into account the large number of PPPs involved in the preparation of SEAs, it can be concluded that public participation in the context of SEA is problematic in London. Here again, as is the case with the consideration of alternatives above, public participation was not given priority as an issue of concern in the 'Environmental Appraisal of Development Plans' guide (DoE, 1993).

Given the existence of government guidance on the EADP since 1993 (DoE, 1993), it is not surprising that public participation throughout SEA is better established at the UDP level (28%, row 19, Figure 7.3), than it is at the strategic level of transport planning (14%, row 19, Figure 7.4).

[Row 9 in Figure 7.1: Agency Consultation (SEA)]

The consultation with competent authorities on the environmental impacts of PPPs, was carried out by 35% of the PPPs reviewed (row 9, Figure 7.1). Here, unlike the situation in Athens and Dublin, the land use plans were somewhat more proactive with 38% of them undertaking consultation for their SEAs (row 23, Figure 7.3), compared to 29% of strategic cases (row 23, Figure 7.4).

[Row 2 in Figure 7.1: Screening (SEA)]

Finally, screening for the need for a SEA has the lower score of all SEA elements in Figure 7.1. Only 12% of the PPPs carried out a screening exercise (row 2, in Figure 7.1). Nevertheless, this score is higher than the scores in Athens (7%) and Dublin (8%). This difference in the results between London on the one hand and Dublin and Athens on the other, cannot be credited to the recommendations specified in the relevant government advice on the 'Environmental Appraisal of Development Plans' (DoE, 1993) since the reference to screening there, is non existent.

Screening was undertaken by 10% of UDPs (row 4, Figure 7.3), and 14% strategic PPPs (row 4, Figure 7.4). As mentioned in the previous chapter, screening, was one of the weakest points in the preparation of a SEA in all three regions.

7.2.2. Horizontal integration

Horizontal integration is the existence of more than one of the SEA procedural stages in one or more stages of the PPP procedure. This is an indication of how iterative the SEA process is.

London PPPs revealed the highest degree of horizontal integration among the three regions examined. This positive record is more closely related to the land use planning level, than the strategic level of transport planning. In the EADP guide to local authorities (DoE, 1993), the importance of 'integrating the Appraisal into plan making' by involving all appraisal stages in more than one stage of the plan making procedure was emphasised: '*The whole process of environmental appraisal is an internal part of the process of drawing up a plan. It is not a separate exercise to be undertaken only once and at a certain stage in plan making*' (DoE, 1993, para 2.7).

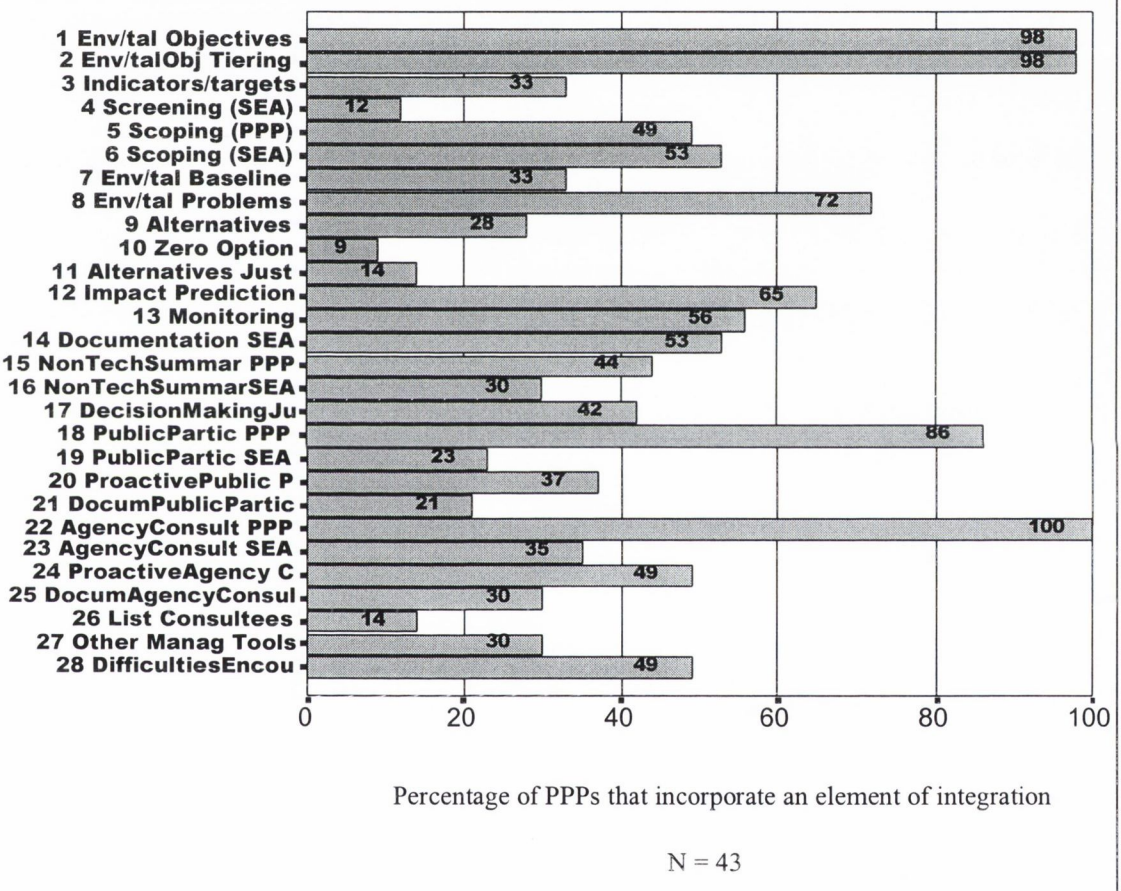
More than half of the Unitary authorities that carried out an Environmental Appraisal, had, to a certain degree, followed the government advice to undertake the Environmental Appraisal as an '*...iterative task which involves refinement, improvement and, if appropriate, ... it will take place at several stages of plan making*' (DoE, 1993, para 2.4). These authorities carried out the initial Policy Appraisal during the preparation of the deposit plan, and refined the appraisal through the pre-deposit and modifications stage. This was not the case with scoping and with the identification of the environmental baseline. Although scoping for SEA was undertaken in virtually all UDPs that carried out a SEA, in the majority of cases this took place at only one, yet strategic, stage of plan making (*i.e.* that of strategic objectives setting and strategy statement). Similarly, in the majority of

SEAs, the definition of the 'environmental capital' of the study area was undertaken at the review stage and rarely updated at a monitoring stage.

7.2.3. Temporal integration

Temporal integration means the early integration of SEA with the transport planning process *i.e.* the existence of one or more of the SEA procedural stages at a transport planning stage prior to the draft stage.

FIGURE 7.2: SEA INTEGRATION IN LONDON (ALL PPPS)



In London, as was the case in Athens and Dublin, a number of SEA procedural stages were found at an early stage of transport planning *e.g.* the review stage. These SEA stages are also part of traditional planning culture, such as the setting of environmental objectives related to transport (*i.e.* 98%) and identification of the environmental baseline conditions of the study area (*i.e.* 33%). In London however, scoping for SEA, a SEA element that is incorporated at an early (*i.e.* review) stage of PPP making, scores considerably higher (*i.e.* 53%) than in Athens (*i.e.* 8%) and Dublin (*i.e.* 17%). These results point to a better degree of temporal integration in London.

7.3. *London: External integration*

External integration denotes the tiering of environmental objectives *i.e.* the setting of similar environmental objectives, adopted by PPPs and SEAs prepared at a higher, lower or same tier in the transport planning hierarchy.

[Row 2: Environmental Objectives (tiering)]

As row 2 in Figure 7.2 shows, virtually all cases reviewed have adopted environmental objectives that are also included in PPPs at different tiers of the decision making ladder (98%, row 2, Figure 7.2). These results include the majority of land use plans (97%, row 2, Figure 7.3) and all the transport-related strategic documents examined (row 2, Figure 7.4).

7.4. *London: Methodological integration*

Methodological integration means the use of other environmental management tools alongside SEA.

[Row 27: Other management tools]

Row 27 in Figure 7.2 shows that almost a third of the PPPs reviewed in London utilised another environmental management tool. Row 27 in Figure 7.3 and Figure 7.4, demonstrates that there was an even distribution of this requirement in UDPs (28%) and transport-related PPPs (36%).

The relatively low score in relation to different environmental management tools other than SEAs, can be attributed to the existence of the EADP guide (DoE, 1993). Some local authority planners felt that the combination of this type of SEA, which was followed by 79% of the local authorities in England in 1997, with the more traditional planning practices such as 'zoning', would suffice to take into account the major environmental concerns throughout plan making. A handful of local authority planners however, maintained that a different approach to Environmental Appraisal was necessary in order to address these concerns. The latter group was in favour of an emerging type of SEA called 'Sustainability Appraisal' which integrates the appraisal methodology into the planning process, through the adoption of socio-economic and environmental targets that are set to indicators, common to both processes (section 7.8).

The reason for the lack of utilisation of SEA at a strategic level, can be traced to the domination of economic evaluation techniques to environmentally assess policy options (*e.g.* DoE, 1994; DoE, 1991). A relevant study showed that ' ... *since the publication of the guidance, Departments have began to take better account of environmental impacts, but a*

more systematic approach is needed.' (DETR, 1998a, p. 1). As a result of this inadequacy, a number of documents have been published that aim to integrate these techniques into policy making (DETR, 1999b; DETR, 1999a).

7.5. ***London: Substantive integration***

The term 'substantive' suggests that the actors involved in the integrated transport planning/SEA process, take into account the outcome of SEA. Two criteria were chosen to identify this type of integration: A) Is the outcome of the SEA exercise documented and how? B) Was there any follow up after the adoption of the PPP?

7.5.1. Documentation of the outcome of SEA

[Rows 12 + 14: Prediction of environmental impacts (Documentation) + Separate SEA report]

The fact that more than half of the PPPs reviewed in London (65%, row 12, Figure 7.2) documented the environmental impacts of their PPPs' policies, is a strong indication of a high degree of integration of this SEA element with the PPP process. In contrast to the situation in Athens and Dublin, it is the London local authorities that are most actively involved in providing evidence of the SEA exercise (79%, row 12, Figure 7.3). Only half of that amount were transport-related strategic PPPs (36%, row 12, Figure 7.4).

The majority of the documented impacts were presented in a separate SEA report (*i.e.* 23 out of 28), and almost all of these separate SEA documents (*i.e.* 21 out of 23) were published under the EADP guidelines. Overall, 53% of the PPPs reviewed, produced a separate Environmental/Sustainability Appraisal report (row 14, Figure 7.2), the majority of which were UDPs (72%, row 14, Figure 7.3) and 14% of strategic PPPs (row 14 Figure 7.4).

[Rows 15 + 16: Non-technical summary (PPP +SEA)]

Around 44% of the documents reviewed, included a non-technical summary of their PPPs (15 row, Figure 7.2) and 30% included a non-technical summary of the SEA process (16 row, Figure 7.2). In London, unlike Athens and Dublin, the majority of technical summaries were found in land use plans rather than in the transport-related strategic documents:

- 55% (15 row, Figure 7.3) of the land use plans, as opposed to 21% (15 row, Figure 7.4) of the strategic documents included a non-technical summary of their PPPs,
- similarly, only 38% (16 row Figure 7.3) of the land use plans as opposed to 14% (16 row, Figure 7.4) of the strategic documents included a non-technical summary of their SEA exercise.

These two elements of integration, appear more frequently in the texts of land use plans in London, than in land use plans reviewed in Athens and Dublin: 55% and 38% (London); 5% and 7% (Athens); 20% and 0% (Dublin). One of the reasons for this difference is that in England, the drafting of a non-technical summary is a requirement (although non-mandatory), which is included in both PPG 12, and in the EADP guidance.

[Row 17: Decision making (justification)]

An impressive 42% of PPPs had in some way justified the environmental reasons for deciding on the policies included in their PPPs, as well as the decision on adoption of the PPP (in the case of land use plans). The share of the transport-related strategic documents is 21% (row 17, Figure 7.4), and of the land use plans (UDPs) 52% (row 17, Figure 7.3).

Comparatively, these results for London UDPs are considered to be of significance, since they are almost double the results in Athens and Dublin (*i.e.* 52% in London, compared to 13% in Dublin and 20% in Athens). One of the reasons for this difference in the results in the three regions, is the publication of government advice which encourages UDPs to include where possible, a 'reasoned justification' of the plan's policies (DETR, 1998g; DETR 1999j).

[Rows 21 + 25: Documentation of Public Participation and Agency Consultation]

Around 21% of the cases reviewed in London (row 21, Figure 7.2), refer in their text to the issues raised during the public participation exercise. A similar score is evidenced in the documentation of agency consultation (30%, row 25, Figure 7.4).

In relation to the documentation of public participation, 28% of the UDPs fulfil this requirement (row 21, Figure 7.3), whereas only 7% of transport-related documents included a statement of the views of the public (row 21, Figure 7.4). Similarly, around 38% of the cases reviewed in London (row 25, Figure 7.3) refer to the issues raised during the agency consultation exercise, whereas the corresponding score for the strategic documents is only 14% (row 25, Figure 7.4).

[Row 26: List of consultees]

Only 14% of the documents examined, included a list of consultees in their text (row 26, Figure 7.2). One-third of these were land use plans (14%, row 26, Figure 7.3), and the other two-thirds was made up of transport-related documents (14%, row 26, Figure 7.4).

[Row 28: Documentation of difficulties encountered]

Almost half of the documents reviewed, reported the difficulties encountered throughout the preparation of the PPP/SEA report (49%, row 28, Figure 7.2). Two-thirds of these were land use plans (48%, row 28, Figure 7.3) and the remaining one-third strategic PPPs (50%, row 28, Figure 7.4).

[Row 13: Mechanisms to monitor implementation]

Evidence of the monitoring of the implementation of the PPPs' policies was found in almost half of the UDPs and strategic PPPs reviewed. Whenever the issue was raised throughout the interviews with planning officers, the majority maintained that the role of monitoring is underestimated in current planning practice and a more systematic approach to impact documentation is needed.

7.6. ***London: Social integration***

By social integration, it is meant the involvement of competent authorities, government agencies, organisations, organised local groups, environmental NGOs and the public in general throughout the PPP/SEA process. Four criteria were chosen to identify this type of integration: A) In how many cases did the public and organised bodies express their opinion on the PPP and the SEA, and at what stages of the PPP procedure? B) In what percentage of these cases, were public participation (PP) and agency consultation (C) mandatory? C) Were PP and C proactive? (*i.e.* in the case of PP: what were the actions taken to elicit the public's views? and in the case of C: were the opinions of environmental NGOs sought?) D) Was there any reference to the results of PP and C in the PPP/SEA report?

[Row 18: Public Participation (PPP)]

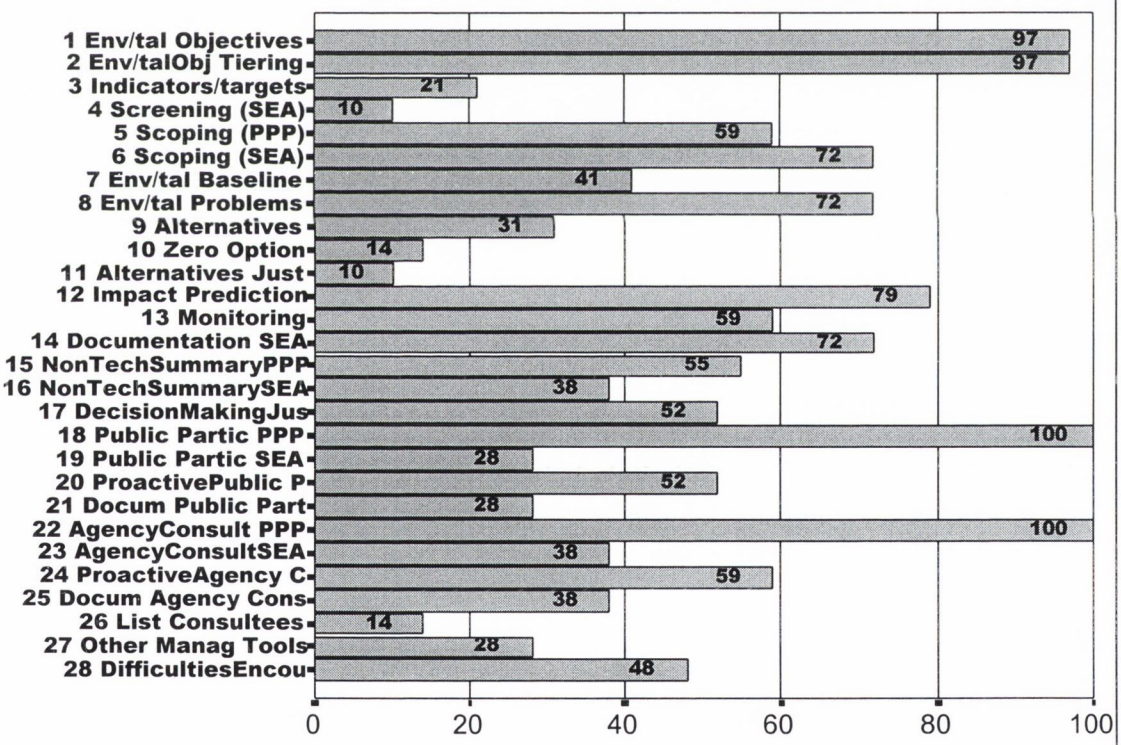
In the majority of cases in London, the public was given the opportunity to express their views on the PPP (86%, row 18, Figure 7.2). Due to similar mandatory planning regulations in all three regions, there were provisions for public participation for all UDPs in London (row 18, Figure 7.3). The most basic form of public participation, and therefore the most frequently used, was the public display of the plans in the municipal offices. This provided the public with the opportunity to express its opinion, through the submission of objections against the adoption of the plan. More than half of the strategic PPPs, were found to have similar provisions (57%, row 18, Figure 7.4).

[Row 19: Public Participation (SEA)]

Almost double the amount of PPPs involved the public throughout the preparation of their SEAs in London, than was the case in Athens and Dublin (*i.e.* 23% in London; 11% in Athens; 17% in Dublin).

Taking into account the government advice on EADPs, the issues of confidentiality, the non-mandatory nature of public participation, and the increased resources required to involve the public at a strategic level of decision making, it comes as no surprise that the group of UDPs performs undoubtedly better, than the group of transport-related strategic documents: 28% of UDPs include this requirement compared to only 14% of strategic PPPs (row 19, Figure 7.4).

FIGURE 7.3: SEA INTEGRATION IN LONDON (LAND USE PLANS)



[Rows 22 + 23: Agency Consultation (PPP and SEA)]

Similar to the situation with public participation above, the consultation with competent authorities on the PPPs' policies, was undertaken on a much higher scale than with the consultation process regarding SEAs. All authorities responsible for the preparation of PPPs

in London consulted the relevant agencies as part of the mandatory consultation process (row 22, Figure 7.2), whereas only 35% (row 23, Figure 7.2) sought advice from the same agencies on the environmental impacts of these policies.

Unlike the situation in Athens and Dublin, it was the local planning authorities rather than the strategic PPP authorities, that sought agency consultation for their SEAs in London: 38% of UDPs (row 23, Figure 7.3) consulted the competent authorities as opposed to 29% of strategic PPPs (row 23, Figure 7.4).

[Mandatory requirements for agency and public consultation]

There are mandatory planning guidelines relating to agency consultation and public participation for the UDPs reviewed in London. The same cannot be said however for the strategic PPPs since only agency consultation for the PPP is required but not public participation. This is reflected in the scores that these two 'elements of integration' received: *i.e.* 100% of strategic PPPs consulted the competent authorities (row 22, Figure 7.4) and 57% of strategic PPPs sought the views of the public, usually through the publication of the PPP document (row 18, Figure 7.4).

Although the involvement of the public and agency consultation throughout the preparation of Environmental Appraisals, is not a mandatory requirement for all PPP authorities, the relevant government advice (DoE, 1993) encourages local planning authorities (such as UDPs) to do so. Therefore, in view of these guidelines, it follows that as far as public participation and agency consultation for SEA are concerned, London scored double that of Athens and Dublin: 28% and 38% (public participation and agency consultation for SEA in London UDPs) compared to 14% and 14% in Athens; and 7% and 13% respectively in Dublin.

The importance of the existence of SEA guidance (although there is a lack of clear focus on certain elements), is supported by the fact that the integration of public participation and consultation on SEA is considerably less in strategic PPPs (where there is no comprehensive guidance) than in land use plans. Indeed, the scores for strategic PPPs are similar to those found in Athens and Dublin where advice on SEA is also absent: 14% and 29% (public participation and agency consultation for SEA in London strategic PPPs) compared to 0% and 33% respectively in Athens; and 33% and 44% respectively in Dublin.

It can be concluded from the comparison of the three regions experience, that the existence of mandatory or 'semi-mandatory' requirements, is of paramount importance for the

widespread application of SEA. The flexible nature of the British planning system which focuses on 'encouragement and advice' rather than on the 'enforcement of strict specifications' as is the case in Greece, seems to be beneficial to the extension of SEA practice amongst the authorities involved. The application however of a similar approach to the Greek planning system, should be seen in the context of different planning cultures, if transference of experience between these two regions is to be successfully realised.

[Row 20: Proactive public participation]

Proactive public participation means the utilisation of specific methods to elicit peoples views, that are different from mere public display of the planning documents in the local authority or regional offices. In London, more authorities involved the public in innovative ways in the planning process, than in Athens and Dublin: 37% in London (row 20, Figure 7.2) compared to 11% in Athens and 25% in Dublin.

The majority of authorities that proactively sought the views of the public, were London Borough Councils. Around 52% of these (row 20, Figure 7.3) utilised a variety of methods, such as:

- residents' panel dealing with environmental issues (*e.g.* Wandsworth BC),
- distribution of questionnaires focusing on transport planning (*e.g.* Wandsworth BC, Bexley BC, Merton BC),
- co-operation with environmental forums / working groups liasing with environmental groups / meetings with key interest groups *e.g.* LA 21 (*e.g.* Wandsworth BC, Havering BC, Islington BC, Merton BC, Brent BC),
- public meetings (*e.g.* Bexley BC, Waltham Forest BC, Barnet BC, Southwork BC, Kensington and Chelsea BC, Corporation of London),
- media articles and press releases (*e.g.* Waltham Forest BC, Havering BC, Bexley BC, Barnet BC, Newham BC, Brent BC),
- non-technical issue papers (*e.g.* Havering BC, Brent BC),
- distribution of leaflets (*e.g.* Kingston Upon Thames BC, Waltham Forest BC, Hounslow BC, Lewisham BC, Barnet BC, Hillington BC, Merton BC, Kensington and Chelsea BC, Corporation of London),
- posters (*e.g.* Barnet BC, Newham BC),
- public events in community buildings (*e.g.* Southwork BC),
- web-publishing (*e.g.* Southwork BC).

The above methods of innovative public participation were used mainly for the UDPs. In the majority of cases where an Environmental Appraisal of the UDP was undertaken, the

Environmental Appraisal report was published alongside the UDP document during the consultation stage. As such, it was subject to the same or similar forms of public scrutiny as the UDP documentation. The survey has also shown, that in the majority of cases where innovative public participation took place, more than one method was employed. The most popular methods used, were those that were simple to design and needed the least resources, time and effort, such as the distribution of leaflets and public meetings. Furthermore, evidence was obtained for the incorporation of the outcome of LA 21 initiatives and for the publication of the PPP on the Internet, in more than half of the UDPs reviewed.

In contrast to London Boroughs, only one out of 14 transport-related strategic documents in London (7%, row 20, Figure 7.4) involved the public in a proactive form of participation. The publication on the Internet of consultation policy drafts and studies (such as the Revision of Planning Policy Guidance Note (PPG) 13 Transport: Public Consultation Draft) was popular at the regional and national policy level. However, as a government official noted:

> *'The problem with Internet publication is that information is not accessible to all interested parties but only to those who have access to a PC. If therefore, only this medium was chosen to convey information about planning and Environmental Appraisal issues, then it is likely that the poor, non educated, and socially disadvantaged will be left out ....'.*

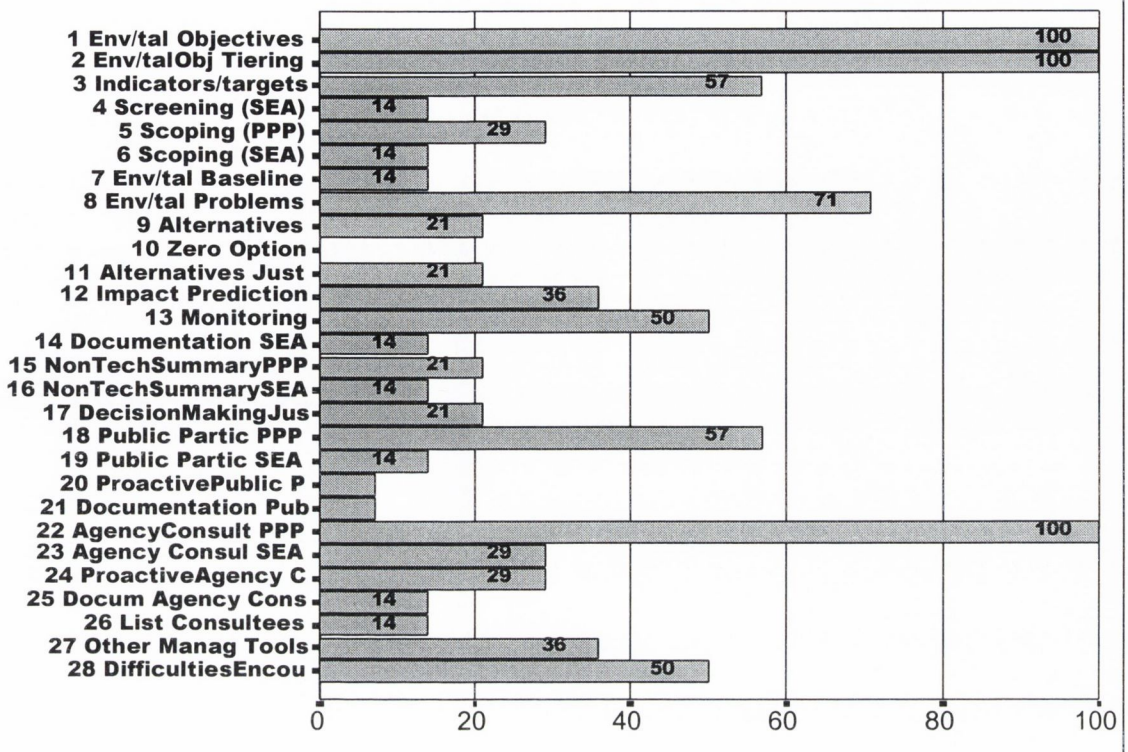
[Row 24: Proactive agency consultation]

Half of the authorities responsible for the preparation of the PPPs reviewed in London, proactively engaged environmental NGOs, as part of the consultation process of their PPPs and SEAs. Here again, it was the London Boroughs that dominated the scene: 59% consulted environmental NGOs (row 24, Figure 7.3), compared to 29% of strategic PPPs (row 24, Figure 7.4). Half of the London Boroughs that prepared an Environmental Appraisal, consulted environmental groups both for their Environmental Appraisal report as well as for their UDPs. The remaining half consulted environmental groups only for their UDPs.

[Row 21 and 25: Documentation of Public Participation (PP) and Agency Consultation (C)]

In London, as was the case in Athens and Dublin, the scores for the documentation of PP and C, follow the scores for PP and C for the SEA. This leads to the argument that a portion of the PPPs reviewed in all three regions, exhibit uniform positive characteristics of social integration (compare rows 21 and 25 with rows 19 and 23, Figure 7.2).

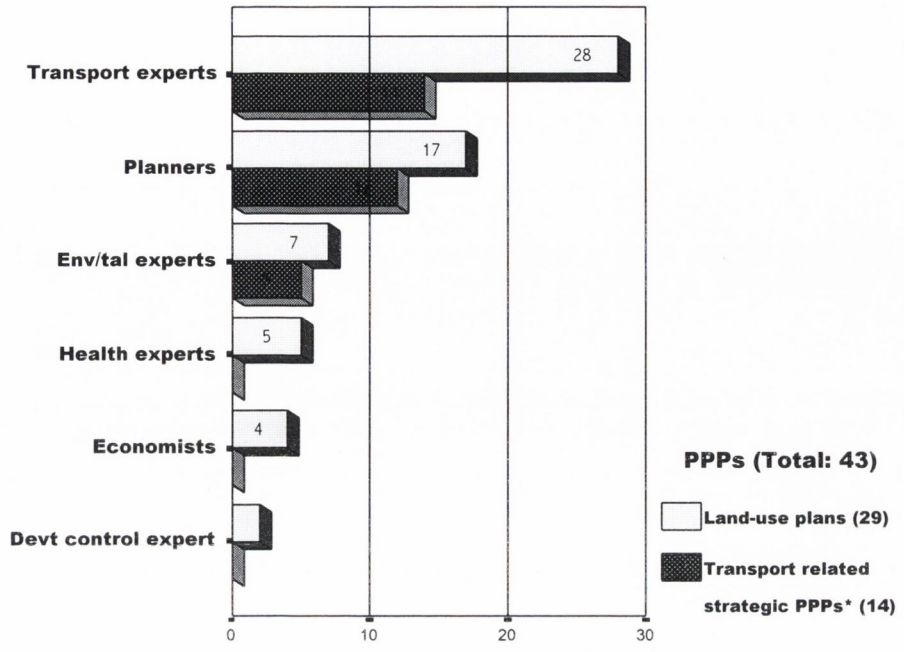
FIGURE 7.4: SEA INTEGRATION IN LONDON (STRATEGIC PPPS)



What is unique however in London, is that as a result of the EADP advice (DoE, 1993) and the resulting experience on SEA there, London UDPs score considerably higher in relation to the documentation of PP and C, in comparison to land use plans in Athens and Dublin: 28% and 38% (documentation of PP and C in London) compared to 10% and 10% in Athens, and 7% and 7% in Dublin. A closer examination therefore of the type of documentation of PP and C throughout the UDP preparation, might shed some light on the reasons for the great difference of experience among the three regions.

The questionnaire survey showed that from the eight UDPs that documented the outcome of public participation, all had produced a separate Environmental Appraisal report. Half of these texts, recorded the public's comments only in the Environmental Appraisal report, and the remaining half in the text of the UDP. There is therefore evidence to suggest that the existence of a SEA report influenced the documentation of PP, since in the land use plans in Athens and Dublin where PP documentation was minimal, the production of a separate SEA report was also minimal (*i.e.* 72% in London, in comparison with 0% in Athens and Dublin).

FIGURE 7.5: EXPERTISE INVOLVED IN THE PREPARATION OF PPPS IN LONDON



Number of experts in all PPPs* (1 type of expertise per PPP)

In the case of the documentation of agency consultation, the situation is not so clear-cut. Half of those UDPs that documented the outcome of agency consultation, and produced a separate Environmental Appraisal report, included the competent authorities' comments only in the Environmental Appraisal report. One quarter included these comments in the UDP text, and the remaining three-quarters documented similar comments in both the Environmental Appraisal and UDP text.

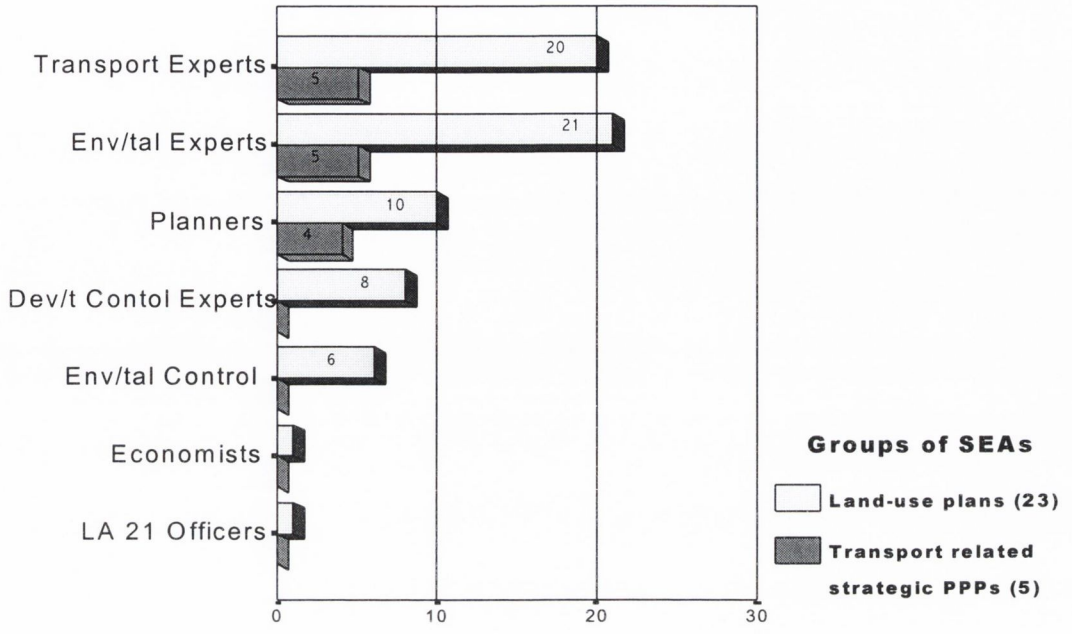
7.7. *London: Integration of human resources*

Human resources integration refers to the co-operation and communication amongst the planning and assessment teams. Three non-quantitative criteria were chosen to identify this type of integration: A) What were the types of expertise involved in the preparation of the transport part of the PPP? B) Which of these types of expertise were involved in the preparation of the SEAs (if any)? and what was the employment status of the SEA team? C) The perception of the degree of co-operation between the transport planning/SEA teams by the interviewees (*i.e.* Good; Mediocre; Bad).

7.7.1. Expertise involved in the preparation of the transport part of the PPP

Figure 7.5 shows the different types of expertise (*i.e.* 6) involved in the preparation of the transport part of the PPPs reviewed in London.

FIGURE 7.6: EXPERTISE INVOLVED IN THE PREPARATION OF SEAS IN LONDON



Number of experts in all SEAs (1 type of expertise per SEA)

The similarities with the other two regions examined in the thesis, is that transport experts, planners and environmental experts dominate in the composition of a transport-PPP team. Indeed, there was at least one transport planner responsible for the transport part of UDPs and strategic PPPs in each planning team; around 2/3 of planning teams preparing UDPs and almost all strategic PPP planning teams included a planner; and 1/4 of planning teams preparing UDPs and 1/3 of strategic PPP preparation teams, included an environmental expert in their planning teams.

Around a third of the UDPs' planning teams included an environmental health officer (*i.e.* 5 out of 29 planning teams, Figure 7.5) and an economist (*i.e.* 2 out of 29 planning teams). Finally, there were two development control officers that co-operated for the preparation of the transport part of the UDP.

7.7.2. Types of expertise in SEAs and their employment status

Figure 7.6 displays the number and type of expertise involved in the preparation of the environmental impacts of the transport PPPs reviewed in London. Owing to the much higher amount of land use plans involved in the preparation of a SEA, London unlike Dublin, exhibits a wider variety of expertise in the composition of the SEA team for the UDPs, as opposed to the SEAs for the strategic PPPs (see chapters 5 and 6). The similarities, however,

with the situation in Dublin are that in London UDPs, transport experts (*i.e.* 20 out of 23), planners (*i.e.* 10 out of 23) and environmental experts (*i.e.* 19 out of 23) still dominate the scene (Figure 7.6). The domination of these experts in the composition of a SEA (*i.e.* Environmental Appraisal) team, extends to the transport-related strategic PPPs, since every attempt for a SEA at this strategic level of decision making, is backed up by at least one expert in the aforementioned disciplines.

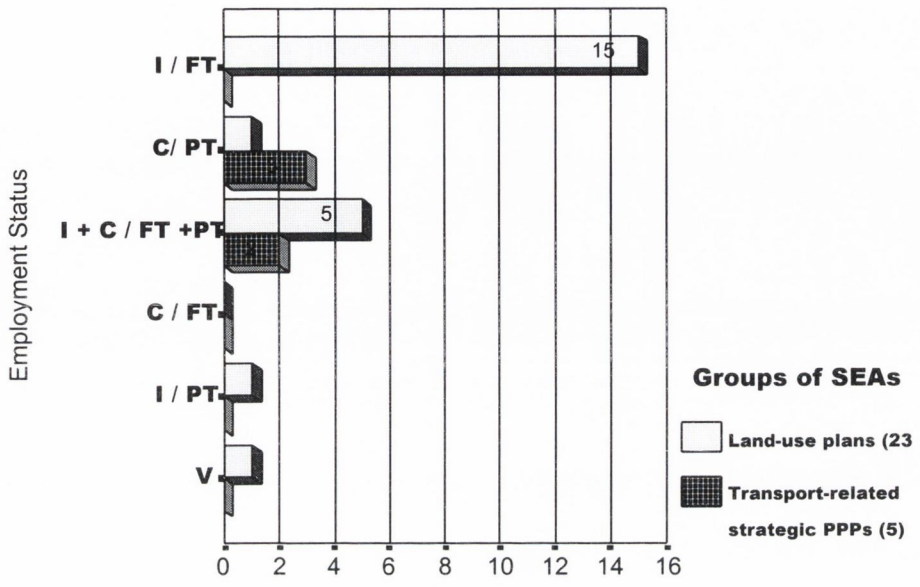
As far as the SEA teams within the Unitary authorities are concerned, the environmental experts were from a variety of professional backgrounds, such as environmental protection officers responsible, for example, for noise control and land contamination, recycling officers, air quality experts, energy managers, and ecologists. In one case, the SEA was undertaken with the co-operation of an environmental group, and in another case, it was undertaken by an environmental consultee (*i.e.* London Ecology Unit). There was also an economist, and a Local Agenda 21 officer among the Environmental Appraisal teams.

Around 1/3 of the Unitary authorities that carried out a SEA, included a development control officer on their SEA teams and around 1/4 of them included an environmental health expert (Figure 7.6). The fact that development control officers are also responsible for the obligations stemming from the project-EIA regulations, highlights the connectivity of project and strategic levels of environmental assessment in London UDPs. In other words, this is an indication of close 'external integration' of SEA and transport planning processes.

Figure 7.7 demonstrates that in London, as is the case in Dublin local authorities, the majority of experts involved in the SEAs for the UDPs, were drawn from within the planning team, working on a full time basis (*i.e.* 15 in-house/full time staff, out of 23 SEA teams). Less than one fifth of the local authority personnel that worked for the preparation of SEAs, were a mix of private consultants and full time members of the planning team (*i.e.* 5 SEA teams out of 23). Unlike the situation in Athens and Dublin, this diversity of employment status reflects the experience of local authorities in London with Environmental Appraisal, which is practised since 1993.

The situation with the transport-related strategic PPPs in London is unique in comparison to the situation in the other two regions examined, in that there is a relative lack of in house/full time employed experts on their SEA teams. Unlike Dublin and Athens, the employment status of experts involved in the preparation of SEAs for strategic PPPs in London is shared by environmental consultants, and a mixed group of freelance consultants and in-house personnel, responsible for the preparation of PPPs (Figure 7.7).

FIGURE 7.7: EMPLOYMENT STATUS OF EXPERTS INVOLVED IN THE PREPARATION OF SEAS IN LONDON



Number of experts per employment status (one expert per SEA)

Employment Status: I: In house staff; C: Consultants;

FT: Full time; PT: Part time; V: Volunteer/Envtal group

7.7.3. Degree of co-operation between the transport planning and SEA teams

In the majority of cases, the working relationship was described as being 'good'. Only 3 UDP planning officers (*i.e.* less than 1/8 of all SEAs for the UDPs) and one strategic PPP planner (1/5 of all SEAs for the PPPs) described the working relationship as mediocre.

7.8. Southwark UDP: A case study on 'Indicators-led' Environmental Appraisal

The UDP is the statutory planning land use document that is used within County Councils (via their development control functions) to regulate and guide development. The Southwark UDP was intended to cover a 10-year period from the date of adoption in July 1995, but the Council decided rather than amend the existing UDP, to replace it with a new document.

The environmental appraisal was seen as a process for checking the performance of the UDP. Although there is guidance provided by the government's Good Practice Guide (DoE,

1993) there are no government regulations that set out the areas an environmental appraisal must cover; this is left to the discretion of local authorities.

This case study is a representative example of the evolution of the Environmental Appraisal of Development Plans to incorporate an 'objectives-led' approach to SEA and sustainability. It is characteristic that in the Environmental Appraisal Report (EAR) of this UDP, the term 'Environmental Appraisal' is used interchangeably with the term 'Sustainability Appraisal'.

A number of positive elements of integrated SEA can be found. There is evidence of the existence of procedural and substantive integration. The environmental appraisal for example, was seen as an important part of the UDP review and was a 'component of all the stages of the review process' (LBS, 2000a). That meant that the Environmental Appraisal of the UDP was subject to the same level of public consultation as the review itself, with the responses to public consultation then used to inform the next stage of UDP preparation. Therefore, two EARs were prepared. A draft EAR during the 'pre-deposit' consultation phase, and a final EAR during the second 'two days deposit' consultation phase. This consultation phase, is based on a 'key issues' approach which involves the broad strategy and direction of the plan. It involves the local strategic objectives of the Council as well as regional and national planning objectives. This is a sign of positive external integration. Also, the initiation of Environmental Assessment at an early, review stage of the PPP process, is an indicator of temporal integration.

Elements of positive methodological integration were also found. The Environmental Assessment was undertaken in three stages: i) development of environmental indicators, ii) development of economic and social indicators, and iii) development of targets for the evaluation and monitoring of objectives and policies. The basis for the methodological approach was the utilisation of 15 general criteria of positive environmental impact. These were outlined in the EADP guide (DoE, 1993). The final selection of indicators was based on a scoping exercise that included wide consultation with internal and external to the Council sources, such as Southwark's Housing Department, Public Protection Division, Southwark Biodiversity Working Party and the 'Community Recycling' Project. Community consultation was also part of the scoping process, through the experience of the LITMUS project (Table 7.1), the invitation of public opinion through the publication of the Environmental Assessment on the Internert, and the utilisation of the results of Local Agenda 21 initiatives. According to the EAR, these public participation exercises integrated the public into the plan making methodology, and gave a local focus to the planning issues:

'The consultation on this draft environmental appraisal represents ... an opportunity for all to respond and participate in the development of tools which will influence the production of land use plan policies. It also ensured that the environmental appraisal indicators used were more resonant with local people, and reflected their concerns and feedback more than some of the national ones suggested in the government's Good Practice Guide.' (LBS, 2000a).

TABLE 7.1: LOCAL INDICATORS TO MONITOR URBAN SUSTAINABILITY (LITMUS)

LITMUS is a two-year European funded project, which is developing ways of measuring the issues that people have identified as being important to their quality of life. The project has been working in two regeneration areas: North Peckham and the Aylesbury Estate, because these are deprived areas. North Peckham has been physically improved (*e.g.* new houses) whilst the Aylesbury Estate still has poor housing in addition to the other deprivation indices such as poverty and unemployment *etc.*. LITMUS undertook a programme of extensive consultation with the communities in the two areas and worked in partnership with the local voluntary sector organisations. As a result of this, the community selected quality of life themes/issues in their areas and set up task-teams consisting of local people. With assistance from Council officers and the voluntary sector, the task-teams have developed local indicators and are using them to monitor local issues. Examples of their community indicators are numbers of pupils walking or cycling to school, numbers and level of pollutants at Old Kent Road, and amount of green space per person.

Source: LBS, 2000a.

The scoping exercise resulted in 18 key criteria. These were used for assessing UDP's objectives, policies, standards and controls, and Supplementary Planning Guidance. These criteria followed the categorisation of the EADP guide *i.e.* five global criteria with 11 indicators, five natural criteria with 14 indicators, and eight local criteria with 41 indicators. The 'Draft Global Sustainability Indicators of Positive Impact' include the reduction in the number of private motorised miles travelled, the increase in public transport share, the increase in car-club share, and the increase in the attraction of walking and cycling share. The assessments were made according to a list of seven classifications (Table 7.2) *i.e.* whether a policy has a significant beneficial impact, likely but unpredictable positive impact, uncertainty of prediction of knowledge, insignificant impact, likely but unpredictable adverse impact and significant adverse impact. This rigorous indicators-based approach however, cannot eliminate bias within the evaluation exercise. In this case, transparency was seen as essential to the subjectivity of 'value judgement': *'The assessment exercise is necessarily a matter of judgement in that it is based on an individual professional view (with the involvement of key Council officers) on the environmental impacts.*

Yet the assumptions made are explicit and therefore are open to debate and challenge' (LBS, 2000a). An example of the results of the EA of the UDP's transport policies is shown in Table 7.2 above.

7.9. ***Conclusions on SEA integration in London***

London has a good record on all elements of SEA integration examined in the thesis.

TABLE 7.2: ENVIRONMENTAL APPRAISAL MATRIX OF THE SOUTHWARK UDP (TRANSPORT POLICIES)

	GLOBAL ENVIRONMENT					NATURAL RESOURCES					LOCAL ENVIRONMENTAL QUALITY							
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
POLICY																		
Locally based facilities	✓	✓?	•	• ?	•	✓?	•	•	•	• ?		•	•	• ?	•	•	•	✓?
Location of development in relation to transport network	?	?	•	• ?	•	✓?	•	•	•	• ?	•	•	•	?	•	•	•	?
Measures for pedestrians	• ?	✓?	•	•	•	• ?	•	•	•	•	•	•	✓?	• ?	•	•	?	✓
Safeguarding and improving quality of public transport services and facilities	✓?	✓	•	•	•	✓?	•	•	•	•	•	•	✓?	• ?	•	•	•	✓?
New public transport schemes and services	✓?	✓	•	•	•	✓?	•	•	•	•	•	•	•	•	✓	•	• ?	?
Community transport	✓?	✓?	•	•	•	✓?	•	•	•	•	•	•	•	•	•	•	•	✓?
Measures for cyclists	✓?	✓	•	•	•	• ?	•	•	•	• ?	•	•	•	• ?	•	•	•	✓?
Traffic restraint	?	?	•	•	•	?	•	•	•	•	•	•	•	?	•	•	•	•
Road hierarchy	•					• ?	•	•	•	•	•	•	•	• ?	•	?	•	•
Traffic management and road safety	?	✓?	•	•	•	?	•	•	•	•	•	•	•	?	•	•	•	✓?
On-street parking control	•	•	•	•	•	•	•	•	•	•	•	•	•	• ?	•	•	•	•

✓ : Significant beneficial impact, ✓?: Likely, but unpredictable positive impact, ?: Uncertainty of prediction or knowledge, • ?: Insignificant impact, •: No relationship, X ?: Likely, but unpredictable adverse impact, X: Significant adverse impact

1: Transport energy efficiency - trips (reduces the number of private motorised miles travelled)
2: Transport energy efficiency – modes (increases pubic transport share, increases car club share, increases attraction of walking and cycling share)
3: Built environment energy efficiency (reduces heat loss from buildings, encourages energy efficient site layout, encourages use and production of energy from renewable sources)
4: Rate of CO_2 'fixing' (protects and increases tree, shrub and creeper cover)
5: Sustainable management of natural resources/biodiversity (avoids use of non-renewable threatened resources, conserves ancient pre 1700 woodland, safeguards the river Thames and its tributaries)

6: Air quality (reduces levels of pollutants such as NO_x, secures attainment of government standards in air quality management areas)
7: Water conservation and quality (maintains ground water and river levels in accordance with Environment Agency advise, Safeguards water supply purity and water quality in streams, lakes, docks and ponds, minimises use and/or increases recycling of water)
8: Land use quality (safeguards soil quality and soil retention, reduces contamination by processes and chemicals, safeguards good quality agricultural land)
9: Materials conservation (reduces consumption of fossil fuels, increases reuse/recycling of materials, encourages waste minimisation)
10: Land allocation and use (encourages mixed and multi-use of land/buildings, maximises use of 'previously developed land', optimises use of open land)

11: Wildlife habitats (safeguards designated sites, increases general wildlife potential of corridors, sites)
12: Landscape and open land (enhances designated areas, enhances general landscape quality, retains open land, Historic Parks and Gardens, enhances the urban environment with green open space and a richness of planting, improves quality of landscape next to buildings)
13: Urban environment 'liveability' (enhances townscape quality/design, safeguards and encourages allotments and community gardens, reduces dereliction, safeguards and increases vegetation cover, increasing/maintaining quality and availability of public access to open space, avoids wind tunnels)
14: Noise and odour (safeguards from odour intrusion and domestic/behavioural, construction, commercial/industrial, entertainment and traffic noise intrusion)
15: Cultural heritage (safeguards listed buildings, conservation areas, buildings and trees of local importance)
16: Building quality (maintains/improves the maintenance and continuous renewal of buildings, encourages good design of new buildings)
17: Light (maximises use of natural light, avoids unnecessary light pollution, provides adequate artificial light, avoids glare)
18: Mobility (reduces motorised road traffic, improves city walks, facilitates use of low emission fuels, improves road safety, increases/improves 'safer to school' routes, increases access by people with special needs)

Source: LBS, 2000b

The pattern of vertical integration in London, was quite different from the situation in Athens and Dublin, with greater emphasis on the more substantial elements of a SEA, such as impact scoping, environmental impact prediction, publication of SEA report, and public participation and consultation This performance in SEA integration, is explained by, and reflected in, the analysis of the composition of SEA and planning teams. First, the experts involved in the SEAs for the UDPs in London were from a variety of professional backgrounds. Second, the majority of experts involved in the SEAs, were full time members of the planning team. Third, there was diversity of employment status, with a combination of freelance and local authority planners involved in the assessment.

This positive record is more closely related to land use plans (*i.e.* UDPs) than to strategic PPPs. This can be attributed to the fact that more than half of the UDP authorities had, to a certain degree, followed the government advice throughout the carrying out of their Environmental Appraisals. This was done as an '*...iterative task which involves refinement, improvement and, if appropriate, ... it will take place at several stages of plan making*' (DoE, 1993, para 2.4).

An objectives-led approach to SEA is emerging in London local and regional planning practice. This is based on the setting of environmental and socio-economic indicators in clearly stated and, as such, easily assessed objectives and principles. This approach also facilitates a better 'tiering' of SEAs from the EADPs at a land use planning level, to Sustainability Assessments at a regional level, and policy-Appraisals at a government policy level. There is also evidence that monitoring is beginning to be viewed as a vital link between SEAs at different decision making levels.

8. Case studies

8.1. Introduction

The rationale for the thesis and the research questions are set out in chapter 1. Chapter 2 selected the appropriate research methods used to answer the research questions. The objectives, selection criteria and methodology of the case studies are also presented there. The literature reviewed to develop the integrative framework within which the research objectives were tested, is presented in chapter 3. Chapter 4 provided the geographical, socio-economic and institutional background relevant to transport planning and SEA in Athens, Dublin and London. Quantitative evidence of current practice on integration in the three regions was provided in chapters 5, 6 and 7 respectively. This chapter attempts to test the integrative framework in the three regions by means of an in-depth study of three case studies.

This chapter also offers an insight into the more specific research questions arising from the results presented in chapters 5-7. Chapters 5-7 investigated the extent of integration of SEA with transport planning in Athens, Dublin and London. This chapter focuses on the underlying reasons for the existence or absence of integration of SEA into transport planning in the three regions. This fulfils two of the research objectives included in chapter 1. These are the examination of the reasons for the existence or absence of SEA integration in the three regions and the recommendation of transference of experience among them.

The case studies start with a description of the developmental and transport planning profile of the three plans, which is based on the relevant discussion on the respective regions included in chapter 4. The examination of the way in which the three case studies fulfil the six elements of integration, follows. The final section in each case study looks at the question of whether or not the objectives that were set to be met by the research investigation of each case study (chapter 2), have been met. The chapter closes with a synthesis of the conclusions arising from the examination of the case studies.

8.2. Athens 2004 Transportation Plan for the Olympic Games (1997)

8.2.1. Supporting documentation

In its bid for the 2004 Olympic Games, ATHOC prepared an 'Environmental key point Action Plan (OCOG, 1997b), within which the major initiatives for environmental protection are set out. This is based on the requirements of the legislative framework for environmental protection in Greece, which is provided by the Institutional Law on the Environment (Law 1650/86). This implements the CEC Directive on project-EIA (CEC,

1985; CEC, 1997a) making the submission of an Environmental Impact Statement at the preliminary design stage of major projects compulsory since 1990. EISs have been or will be prepared for all Olympic projects (*e.g.* ENVECO, 1997). In addition, the completion of the projects will be carried out with the use of environmentally friendly technologies and materials (OCOG, 1997b).

An Air Quality Management study, prepared in 1997 estimated the changes in air quality in Athens until 2004, taking into account the air pollutants[1] that will occur as a result of the construction of Athens 2004 projects (OCOG, 1997a). A number of alternative scenarios were examined, namely the 1990 scenario, the 'do nothing' scenario for 2004, and the reference scenario for 2004. The study concluded that annual average levels of atmospheric pollutants in 2004 will be reduced by 25% for NO_x, and 50% for ground level ozone in relation to 1990 levels. The recommendations of the study included the installation of catalytic converters to vehicles, and the restriction of access for 'heavy polluted vehicles' in the inner ring of the city (OCOG, 1997a).

Two other transportation studies, prepared in August 1997, provided the detailed framework for implementation of the transportation plan (MEPPPW and OCOG, 1997) and clarified the energy and transportation requirements of the Olympic Games Logistics (OCOG, 1997d). The areas covered in these reports were:

- the description of the Olympic Transportation System as proposed in the Athens 2004 Candidacy File (MEPPPW and OCOG, 1997),
- the making of 'further proposals on the methodology to be used for estimating and assigning normal traffic and traffic generated from the games during peak periods, as well as on the advanced technologies to be used for real time control of the transportation system and for the information of its users.' (MEPPPW and OCOG, 1997, p. 86), and
- the formulation of a detailed plan for the transport of athletes to and from the Olympic village (OCOG, 1997d).

Recommended measures included the enforcement of a series of traffic management measures to restrict vehicle access along the major transportation routes during the Olympic Games, the location of all major trip generating activities on the basic road network, and the utilisation of around 1,000 Compressed Natural Gas and Liquified Natural Gas vehicles for the transportation needs of the Games (MEPPPW and OCOG, 1997; OCOG, 1997d).

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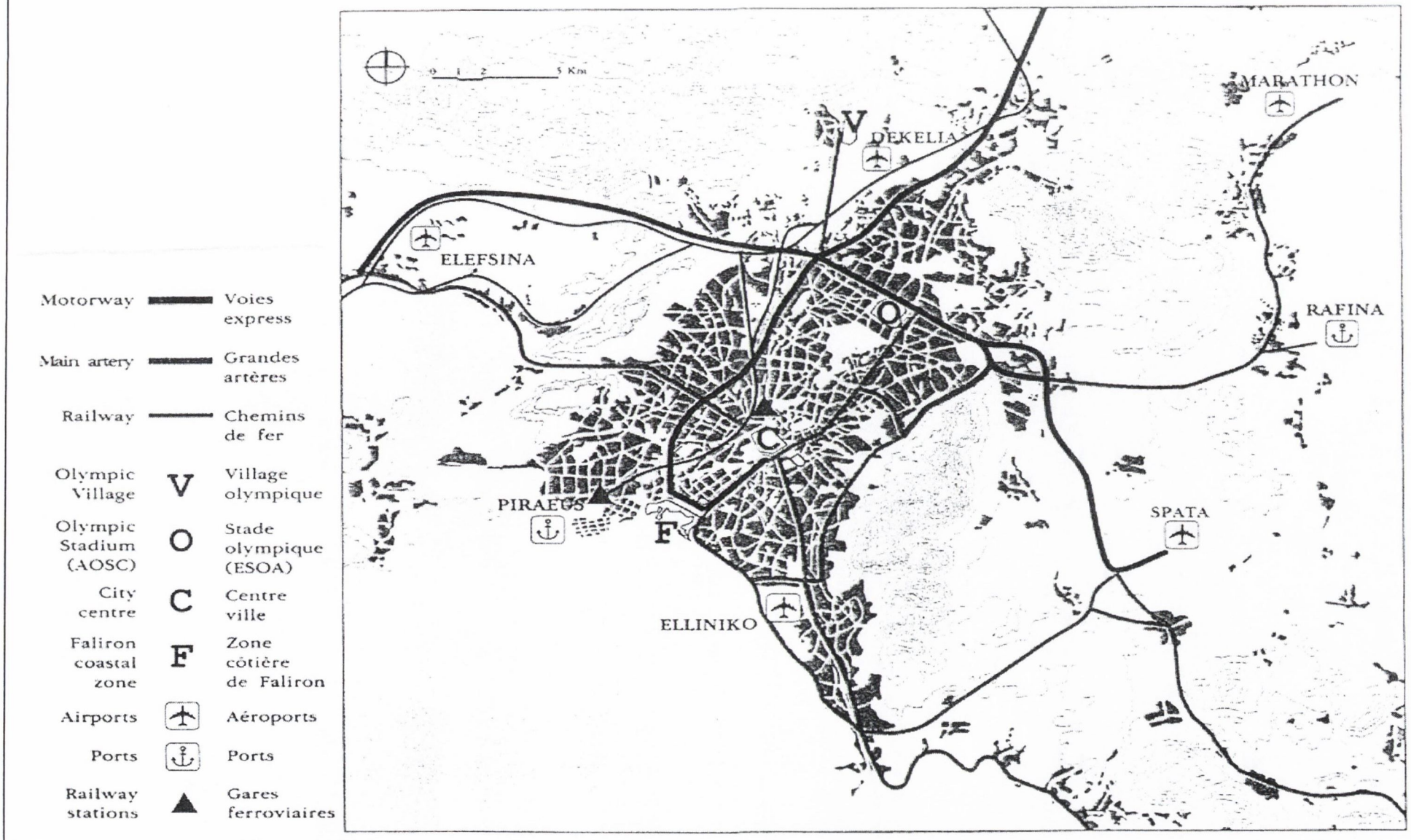
[1] *i.e.* CO, SO_2, VOC, NO_2, ground level ozone.

FIGURE 8.1: ATHENS 2004 OLYMPIC GAMES MASTER PLAN



Source: OCOG et al, 1998

The traffic management measures include traffic prohibitions fully or partly for vehicles with even or odd licence plate numbers in two established critical areas (small ring 13 km^2 and large ring 140 km^2) (MEPPPW and OCOG, 1997, p. 88).

8.2.2. The context

This section investigates the consideration of environmental issues at a strategic level of planning and management for the Olympic Games. In 1997, six years after the unsuccessful bid for the 1996 Olympic Games, the Organising Committee of the 'Athens 2004' Olympic Games (known internationally as Athens Olympic Committee - ATHOC[2]), submitted a successful bid for the 2004 Olympic Games to the International Olympic Committee (IOC). A year later, an amended version was resubmitted, taking into account the infrastructural and other changes that occurred since the drafting of the first version (E.T., 2000c). The documentation resulted in the production of a Master Plan (Figure 8.1) comprising 11 themes, including the environmental protection (theme 4) and transportation theme (theme 14). The planning for the above sectors has not been without criticism from various Non-Governmental Organisations (NGOs) and professional organisations (*e.g.* Research Team: Athens 2004, 1998; TCG and UIA, 1998; Mavridou, 1998; Vassenhoven and Sapountzaki, 1998; Polyzos, 1998; CIAHOGA, 1998). The criticisms were focused on a number of issues. First, concern was expressed about a lack of decentralisation of activities both within and outside the Greater Athens Area. The Master Plan provided for the concentration of athletic and cultural events in Attica and especially in central Athens where infrastructural and building development has reached its limits. The current selection of project sites was therefore criticised for further encouraging the already negative phenomenon of urban sprawl around the periphery of Athens and the development within environmentally sensitive areas. The need to protect the ecological values of the Schinias estuary, the sea front south of Athens, the mouth of Ilissos river, and mount Hymettus have been prioritised by relevant studies (Research Team: Athens 2004, 1998; Vassenhoven and Sapountzaki, 1998; Mavridou, 1998).

Another failure of the Plan was seen to be the emphasis given to an *ad hoc* approach to the proposed interventions, which acted in isolation to the general strategic function of the city as a whole. An example is the transportation theme in the Plan, where '*there is emphasis on individual projects but not on the integrated network of transport links.*' (Polyzos, 1998, p. 72). The transport-planning problem of 'Athens 2004' may be exacerbated by:

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[2] ATHOC was established, on March 24, 1998 under Law No.2598/98, as a Societe Anonyme (S.A.) with the Greek State as the lone shareholder. The Company is managed by a Board of Directors appointed by the Greek Prime Minister.

- the lack of a coherent transport policy framework both at a national and metropolitan level (Zekkos, 1996; Vlastos, 1998a; Vlastos, 1996),
- the weak financial arrangements, delays and lack of transparency involved in the construction of 'big projects' (E.T., 2000c; NEA, 1997; Vlastos, 1996). It is characteristic that the majority of projects proposed for construction in the Plan, were included in the 'Attica SOS' environmental programme some 15 years ago (MEPPPW, 1995),
- the inadequate transport infrastructure network in Greater Athens. Athens is the only one of the five candidate cities where such an extensive upgrading of the transportation system was programmed (MEPPPW and OCOG, 1997). According to the Master Plan, the majority of the 'big projects' required for completion before the Olympic Games in 2004 are transport-related. These include 72 kms of new motorways, increase in the capacity of the main arterial network (up to 8% in certain cases), two underground railway lines (Metro lines), a new international airport at Spata, the Elefsina-Stavros-Spata airport motorway[3], the Hymettus ring road[4], and the proposed light rail network[5] and suburban railway[6]. A recent study (Attico Metro, 1999) revealed that current budget allocation for transport infrastructure (*i.e.* 800 billion drachmas) is only a fraction of the financial resources required for the construction of all transport projects in Attica region, which were estimated to be in the region of 3 trillion drachmas (Attiko Metro, 2000b; E.T. 2000e),
- the disproportionate development of motorway construction and extension, as opposed to the provision and development of public transport services (Polyzos, 1998; Vlastos, 1998a). This might result in the domination and dependence of car ownership and use both during and after the completion of the Games. This argument is supported by research that shows an increase in traffic and air pollution in the medium to long term, generated from the implementation of road schemes that aim to combat these problems (Gkolias, 2000). Therefore, even though, the Athens 2004 transportation programme aimed to discourage ' *the use of private cars on routes where they are not essential, while making public transport an attractive alternative*' (OCOG, 1997c, p. 82), there are voices supporting the argument that these transport policies and infrastructure developments will rather '*promote a vision for the city based on private car use*' (Polyzos, 1998, p. 6),
- the wider Structural Plan for Athens has been upgraded to incorporate measures specified in the Olympic Games Master Plan, rather than *vice versa* (Oikonomou,

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[3] Under construction at the time of writing (September 2000).
[4] Under construction at the time of writing (September 2000).
[5] The Municipality of Athens has completed the relevant study in September 1999 (Giaoutzi, 1999).
[6] At the time of writing (September 2000), the procedures for the assignment of contractors for the construction of this project has been suspended due to financial and temporal difficulties E.T. 2000d).

1999). This is contrary to sustainability and good planning practice, where the Master Plan should have taken into account the objectives specified and measures suggested in the older Structure Plan (Polyzos, 1998; Synadinos, 1996).

At a statutory planning level, the environment is taken into account throughout the implementation of the Structure Plan for Athens, the General Urban Plans and Urban Planning Studies, and the special programme 'Attica SOS'. Notwithstanding other forms of planning intervention and environmental management, the following part of this section examines the existence, or lack, of integrated-SEA elements in the transportation facet of the Master Plan.

8.2.3. SEA elements of integration

The Athenian case study demonstrated less SEA elements of integration than the other two cases studies examined in the thesis. The reason is that, contrary to the case studies in Dublin and London, there was no systematic SEA applied in Athens. This case, however, is characteristic of the situation regarding the use of SEA, as well as of the consideration of environmental protection issues at a strategic level of decision making in Athens and in Greece in general. It therefore serves to highlight the opportunities that the application of SEA can offer in an undeveloped environmental management context. Based on document analysis and elaboration of interviews[7], an appraisal of 'Athens 2004 Transportation Plan' against certain SEA elements of integration[8] now follows. These elements of integration are included in the evaluative framework devised in this thesis (chapter 2 and 3).

8.2.3.1. Procedural integration

The methodological integration of SEA at the early stages (*i.e.* temporal integration) as well as the occurrence and multiple occurrences of these stages (*i.e.* vertical and horizontal integration) is almost non existent throughout the preparation and implementation of the Olympics 2004 Transportation Plan (OCOG, 1997c; MEPPPW and OCOG, 1997). A transport methodology was used in the Transportation Plan, without however any reference to specific environmental impacts. The rationale behind the exclusion of SEA at that strategic level of decision making is that the environmental impacts of the Games, were considered to occur at a project level, and environmental assessment at a strategic planning level was deemed unnecessary (OCOG, 1997b).

The resources committed, the rigorous databases, the background research studies, and the arrangements for on-going monitoring could all very well have been utilised for

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[7] The identity of the interviewees has been protected, since a number of them suggested this precondition for providing an interview.

[8] These elements of integration are included in the evaluative framework devised in this thesis (see chapter 2 and 3).

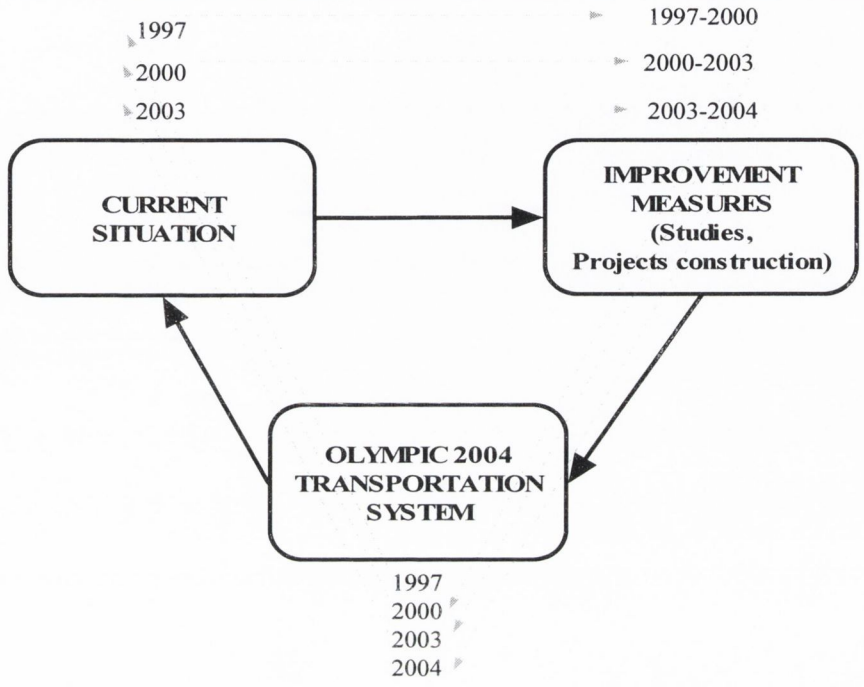
environmental benefits, if SEA was integrated alongside transport planning. There was extensive reference for example to the 'identification of the baseline characteristics of traffic' both at the time of plan making and a projected estimation during the Olympic Games in 2004. The relevant data have been provided by recent transportation studies for the Attica region (Attiko Metro, 1999; NTUA, 1990; DENCO, 1990). It is characteristic that one of the seven databases created for the road network, is the 'database for the environmental parameters' of the network which ' ... *for each part of the road network includes parameters for the noise and atmospheric pollution caused from vehicle traffic*' (MEPPPW and OCOG, 1997, p. 17). There is no reference in the text, however, on how these parameters have been utilised to describe environmental impacts caused by the future implementation of the Transportation Plan. It seems that the environmental impacts had already been decided with specific studies prepared to tackle them, such as the 'Air Quality Management Study' (OCOG, 1997a), and partly, the Olympic Games Logistics study that recommended the utilisation of 1000 vehicles fuelled with natural gas (OCOG, 1997d).

The dearth of an adequate temporal integration is revealed by the lack of the consideration of alternatives in the Plan. One reason for this can be attributed to the project-EIA related rationale of the Plan. Alternative transport project locations for example, could not have been considered (at least in environmental terms) since these projects had already been decided and suggested in previous studies such as 'Attica SOS' (MEPPPW, 1995) and the Structural Plan of Athens (OPEPA, 1995). The effectiveness of a SEA (if undertaken), would therefore have been compromised by this, late in the decision making stage, initiation and drafting of the Plan. This reactive approach to strategic planning would have negative implications for the quality of the SEA, if a systematic SEA was undertaken. This observation highlights the importance of the influence that the transport planning process can have on SEA, at least within an integrated planning framework.

The procedural rigour of the Transportation Plan lies at the monitoring stage. Extensive 'Programming of the implementation of the Plan' was scheduled by setting a timetable for specific actions detailing the institutional framework involved in realising these actions (MEPPPW and OCOG, 1997). Bearing in mind that this monitoring exercise relates only to purely transport planning requirements as opposed to environmental impact monitoring, it is interesting to look at the 'feedback process' adopted in the plan (Figure 8.2). The Plan was updated in 2000, 2003 and 2004, by means of comparing the current situation, with the situation after the implementation of the 'improvement measures'. These measures include various other transport studies and the construction of transport projects. The reason for such an elaborate monitoring process, which is surprising for Greek planning

practice (Zagorianakos, 1998), can be attributed to the pressure felt by the Organising Committee to construct the Olympic projects in time for 2004.

FIGURE 8.2: FEEDBACK PROCESS FOR UPDATING THE ATHENS 2004 TRANSPORTATION PLAN



Source: MEPPPW and OCOG, 1997, p. 79, figure 7.2

It has to be noted that the Olympic Games gave Athens a unique opportunity to realise 'large scale' transport infrastructure development, to '... *heal urban planning wounds, restore continuities, and offer solutions to Athens which will endure, well beyond the time horizon of the Olympic Games in 2004.*' (Vlastos, 1998b, p. 3). In a city that possesses over 53% (TCG, 2000a, p. 59) of the private car fleet of Greece, where car ownership has quadrupled in the last 25 years (TCG, 2000a, p. 49-50) and public transport use has decreased from 65% to less than 42% (E.T. 2000e; Attiko Metro, 2000b), the application of environmental impact monitoring within this transport planning monitoring exercise, will be an important step towards the integration of the environment into transport planning.

8.2.3.2. External integration

The objective of the Olympics 2004 Transportation Plan is to provide successful management of:

- departures and arrivals of visitors,
- everyday traffic in Athens during the Games,
- high quality transportation of the athletes and the Olympic Family which consists of the athletes, the members of the National Olympic Committees, Very Important Peoples (VIPs), Referees and the Media. It is calculated that over 1,400 cars and

1,100 buses will be needed during the Games to cover their transportation needs (MEPPPW and OCOG, 1997).

Although this objective lacks any reference to the identification and description of the Plan's environmental impacts, there is a statement by the authors regarding the Plan's emphasis on the 'environmentally friendly transportation modes', on safety and 'in particular that of the Olympic Family' (MEPPPW and OCOG, 1997).

The environmental orientation of the Plan is reflected in the text by two major provisions. First, provision has been made in the Plan to link the major highways with the area of the Olympic Game installations. This aimed at utilising the optimum capacity of the road network on the one hand, and at 'minimising atmospheric and noise pollution around the 'sensitive' Olympic Games Area on the other. It is proposed to affect these by traffic control measures at nearby junctions, and an integrated network of pedestrian zones. (MEPPPW and OCOG, 1997). It can be assumed, that tackling atmospheric and noise pollution will be restricted to the confined area of the Olympic Games installations (such as parking lots) rather than the whole transport network which will suffer as a consequence of the Games. Also, environmental concerns are directly associated with concerns over safety and minimisation of travelling time.

Second, a programme was under way with the aim of extending the public transport network, upgrading its quality of service, and discouraging 'the unnecessary use of private cars, where public transport services offer an attractive alternative.' (MEPPPW and OCOG, 1997). The measures suggested in the Plan for the 'maximisation of the use of public transport services' and for the 'reduction of normal traffic during the Games and in particular during the peak hours', involve (as far as public transport is concerned) the utilisation of 'special' bus lanes, the establishment of more frequent public transport services throughout the critical hubs of the network, the issue of discounted or free tickets when purchasing tickets for the games, and public information measures. The measures for traffic minimisation include the flexible operation of retail businesses, the flexible organisation of summer vacations for the citizens of Athens, and total or partial restriction of vehicle access in the inner or outer ring of Greater Athens (MEPPPW and OCOG, 1997). These measures are nevertheless presented in a fragmented way suggesting a lack of any systematic assessment of the environmental impacts of the transport issues. They seem to have been drawn from measures and traffic policies that have been developed irrespective of the implementation of the Games.

Another issue pertinent to the external type of integration is the 'tiering' of transport planning studies. There exists a plethora of transport studies and plans in the same or different hierarchy of planning that the Plan has drawn on and is influenced by. The 'integration' of the Plan with other available or pending studies, was given thorough consideration by the Plan's authors, since the presentation of the studies and research relating to Athens transport system occupies a whole chapter in the Plan's text (14 out of 84 pages). Specifically, these studies comprise a variety of different sources such as traffic studies (Attiko Metro, 1999; APTO, 1996; DENCO, 1997), 17 transport databases, the construction studies for the major transport project, and the traffic studies and General Urban Plans of all the municipalities in Greater Athens Area. These studies and research have minimal environmental components without reference to SEA. The proceedings of an International Seminar organised by the International Olympic Academy held in Olympia in 1994 (Kang, 1994; Kandilis 1994), did not form part of the 'identification of the baseline situation' (MEPPPW and OCOG, 1997). If the conference proceedings were taking into account throughout plan making, considerable insights concerning scoping the significant issues to be included in the SEA, could have been gained.

8.2.3.3. Methodological integration

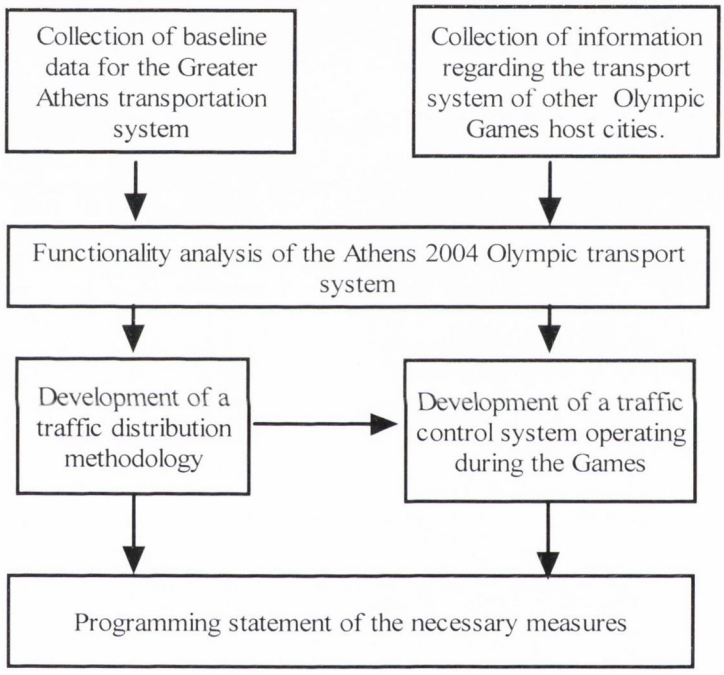
The study for the implementation of the Transportation Plan follows a specific methodology (Figure 8.3). The last stage of the methodology refers to the 'programming statement on the necessary measures' and is directly related to the monitoring of implementation of major transport projects. According to the proposed SEA Directive's current provisions, the plan would have qualified for an environmental assessment. The draft Directive requires that '*an environmental assessment shall be carried out for all plans and programmes, which ... set the framework for future development consent of projects listed in Annexes I and II to Directive 85/337/EEC*' (CEU and EP, 2000, article 3 para. 1).

There was no sign of integration of SEA or any other environmental management tools throughout the preparation of the study. The vigorous transport scoping and transport 'monitoring' stages adopted in the Plan, would have formed an integral part of a potential integration of SEA with the planning process. How feasible an integrated-SEA would have been, given that the Plan's regional and urban focus, and the developmental context of the Olympic Games is uncertain? An examination of similar Olympic case studies where elements of SEA-integration took place, provides some of the answers.

An 'environmental monitoring' example was found in the Sydney 2000 Olympics Greenhouse Report (SOCOG, 1998). The two cities share similarities in the way they have attempted to deal with environmental problems of transport. The transport related measures specified in the Australian Greenhouse Report, are similar to those specified in

the Greek Transportation Plan. The environmental policy framework regarding the transportation facet of the Olympic Games in the two cities however, is quite different. According to the views of the Sydney Organising Commitee for the Olympic Games (SOCOG) expressed in the Greenhouse report, '*... the aim at the 2000 Olympic and Paralympic Games is to have no spectators arriving at competition venues in private vehicles.*' (SOCOG, 1998. p. 16) and in the document Environmental Guidelines, '*public transport being the only means by which spectators will be able to directly access events at major Olympic sites.*' (Sydney Olympics 2000 Bid Ltd, 1993, p. 8).

FIGURE 8.3: METHODOLOGY OF ATHENS 2004 TRANSPORTATION PLAN



Source: MEPPPW and OCOG, 1997, p. 7, figure 1.1.

Australians seem to have an increased environmental focus in the organisation of what they call 'Green Games' since they are proud to quote Juan Antonio Samaranch' s[9] statement that ' *... the Olympic Games in the year 2000 were awarded to the city of Sydney, Australia, partly because of the consideration they gave to the environmental matters.*' (SOCOG, 1999, p. 11). It is not surprising, therefore, that one of their 'transport benchmarks' was to shift visitors' behaviour and perception on using public transport throughout the 60-days of the Games: '*Compared to previous Games or other large Australian events, this is the first time that spectators have been encouraged to use public transport to such an extent ... Sydney will be left with the legacy of improved public transport, not only in terms of the physical infrastructure, but also people's behaviour.*' (SOCOG, 1998, p. 17). The planning framework was also integrative with regard to social

[9] President of the International Olympic Committee.

impacts, since soon after the announcement of the success of the bid in 1993, a 'Preliminary Social Impact Assessment' for the Games was prepared (Cox, 1996; Keys Young, 1994).

The Sydney 2000 Olympics Greenhouse Report (SOCOG, 1998), provided the methodological background for estimating, monitoring and comparing the environmental impacts of greenhouse emissions derived from the Games' implementation (Table 8.1). The process included three stages. The first is the scoping and 'prediction' stage where the significant environmental issues were selected and estimations were made for the greenhouse emissions levels throughout the Games. These included four key areas: energy, transport, waste and tree planting (SOCOG, 1998).

TABLE 8.1: THREE ENVIRONMENTAL APPRAISAL STAGES IN SYDNEY'S 2000 OLYMPIC GREENHOUSE CHALLENGE

The Olympic Greenhouse Challenge commenced in November 1997 with the signing of SOCOG's Greenhouse Challenge Agreement. It will continue until the close of the Games and has three stages: Stage 1: scope the project and identify Olympic-related greenhouse issues, report these findings in the *First Olympic Greenhouse Challenge Report*, and build greenhouse partnerships with SOCOG sponsors; Stage 2: undertake further investigation into estimating greenhouse gas emissions and greenhouse gas reductions during the Games, report these findings in a *Pre-Olympic Greenhouse Report,* and continue working with sponsors and other organisations involved in the Games; Stage 3: monitor actual energy used by venues, fuel used by transport, quantity of waste produced during the Games and actual number of trees planted, convert these to actual greenhouse gas emissions, compare these to estimates, and provide an assessment of actual greenhouse performance of the Games in a *Post-Games Greenhouse Report*.

Source: SOCOG, 1999, p. 8.

The second stage included the actual monitoring of these emissions during the Games, and the third the 'assessment' stage, compared the predicted with actual emissions in order to identify the 'ecological footprint' of the Games. It has to be noted that although the measurements are presented numerically in terms of 'actual greenhouse emissions', there were no quantitative targets. In the author's view, the use of quantitative targets that are set to environmental indicators for the four key environmental areas selected in the first stage, would have provided a higher degree of effectiveness in the monitoring exercise.

Another example of procedural integration is the SEA of the Cape Town 2004 Olympic Bid (Barbour and Robertson, 1998; SRK, 2000). The independent Olympic Assessment Team undertook the first SEA by a bidding city (CPOAT, 1997). This SEA exercise can also be described as a 'Sustainability SEA' since the object of assessment was not only on environmental, but also on 'socio-economic' impacts: '*The main objectives of the SEA were to identify and evaluate the long term systemic impacts of preparing for and hosting the Games in Cape Town on the region's economic, social and biophysical systems.*' (Barbour and Robertson, 1998, p.1). The methodology included the development of a 'value framework' that enabled the selection of issues to be assessed (*i.e.* scoping) in accordance

with public policy developmental goals, specialist investigations and analysis of the results, and public participation. Given the fact that Cape Town's Bid was unsuccessful, and that South Africa faces '*enormous social, economic and cultural challenges*' (Barbour and Robertson, 1998, p.1), two conclusions can be reached. First, the preparation of a SEA, did not guarantee a successful outcome, since it was the 'non-SEA' city that will host the Olympics 2004. In other words, there are limitations to what SEA can achieve especially when it forms part of a wider context where other material considerations are also taken into account in taking a certain decision. Second, in the light of the inherent structural and political imbalances of Cape Town [*i.e.* developmental imbalances, recent emergence from apartheid and its status as a developing country (Barbour and Robertson, 1998)], the selection of SEA to assess the environmental and socio-economic impacts of the Games is seen as a vote of trust in its methodological and environmental protection credentials.

8.2.3.4. Substantive integration (documentation of SEA)

The absence of an integrated-SEA in the Olympics 2004 Transportation Plan was characterised by the lack of relevant documentation of environmental impacts. The only evidence for the documentation of environmental impacts, though weak, was provided in the environmental theme of the Bid File. According to ATHOC, the adverse environmental effects of the Games were minimised:

- by the construction of 'a large amount of basic traffic improvement projects' (new airport, highways and two Metro lines), and
- by a series of 'other forms of intervention' with the objective of speeding up traffic flow and reducing environmental pollution. These include new trunk and tram services, park-and-ride and pedestrianisation schemes, modernisation of the signalling system and checks on exhaust emissions and noise levels (OCOG, 1997f).

These mitigation measures however, lack a cohesive framework that would integrate the potential SEA elements into a recognisable form. There is no evidence of a systematic attempt to assess environmental effects. The relevant section seems rather to be a selection of public transport projects and traffic management measures, the overall effect of which will help to achieve the environmental objective. The optimism for successful implementation is supported by an 'Air Quality Management Study' which estimates that the transport projects will cut atmospheric emissions by 35% (OCOG, 1997a).

What form of SEA documentation could have been incorporated into the regional/urban level of decision making, given the particular needs of the organisation of the Olympic Games? The Sydney 2000 Greenhouse Challenge Project for example, which resulted in the preparation of the 'Greenhouse Report' established three stages of documentation, that followed an environmental appraisal procedure (Table 8.1): The 'First Olympic

Greenhouse Report' presented the findings of the scoping of significant issues related with the Games. The Pre-Olympic Greenhouse Challenge Report provided *ex-ante* estimations of greenhouse emissions before, and actual reductions during, the Games. The Post-Games Greenhouse Report will document the 'environmental footprint' of the Games in terms of greenhouse gases. Furthermore, the SEA of the Cape Town 2004 Olympic Bid also showed elements of substantive integration (Barbour and Robertson, 1998; SRK, 2000). After scoping, at the second phase of the SEA, a number of specialist reports were prepared. These included two reports on public participation and sustainability, a transportation assessment and, most importantly, an 'assessment of the potential impacts of the Cape Town Olympic Games on the Natural-Urban System Environment' (SRK, 2000).

It is a commonly accepted view that PPPs could never be carried out as part of a SEA (Partidario, 1992; Wood, 1988). It is a positive sign that in the case of the Cape Town 2004 Olympic Bid, the whole planning process was integrated in the SEA. According to the authors of the SEA report, '*The findings of the specialist studies were summarised, synthesised and analysed so as to provide a holistic assessment of the potential systemic impacts of biding for and hosting the Games in Cape Town in 2004. These findings were presented in the Draft Strategic Environmental Assessment*' (SRK, 2000, p. ii). In the last phase of the process, the Draft SEA report was reviewed by interested and affected parties and suggested changes, before the preparation of the Final SEA report.

8.2.3.5. Social integration and integration of human resources

The consultation exercise for the Athens 2004 Transportation Plan involved a wide range of competent and other authorities and bodies such as various government ministries, academic bodies and independent professionals.

Around 32 experts from over 20 different disciplines were involved in the preparation of the winning Bid File for the Olympic Games in 2004. These included expertise in engineering, environment, transport, telecommunications, and accommodation. The most frequently quoted expertise was 'Architects/Town planners' (6 out of 32). The environmental issues were covered by 10 experts, mainly architects/town planners, and the transportation issues by a transport engineer and his team. This latter team, included five purely transport non-environmental experts. This suggests that if significant environmental negative impacts were identified by the transport team, these might not have been fully taken into account by the team. Given that the environmental team did not include a transport expert, it can be assumed that given the composition of the planning team, the human resources available would make the successful application of a transport-SEA a quite difficult task.

According to the interviewees, the Olympic Bid Committee co-operated closely with every planning team responsible for each theme included in the Olympic Bid File. Similar co-operation between transport and environmental experts, and the rest of the planning team was also reported. There was also co-operation and communication between the planning team and government authorities and organisations. In particular, the authorities responsible for transport and environmental policy were more closely involved throughout the consultation process. These were the Ministry of the Environment, Physical Planning and Public Works (MEPPPW) which is the planning authority in Greece responsible for determining environmental protection policies, the Ministry of Transportation and Telecommunications, the various public transport organisations such as Attiko Metro, OASA (Athens Public Transport Organisation) and its affiliates ETHEL (Athens Bus Company), ILPAP (Athens and Piraeus Trolley-Bus Company), ISAP (Athens and Piraeus Electric Railway Company), and OPEPA (Organisation of Planning and Environmental Protection of Athens). This extent of consultation over transport planning, especially when it is not mandatory, indicates positive social integration and would have been beneficial to SEA, if applied. Consultation involved both transparency and information sharing among a multi-disciplinary team of experts.

This team effort can be partly attributed to the regional and national significance of the organisation of the Olympic Games. The consultation phase was extended until after the submission of the Plan and into the period of implementation. In June 1998, the Technical Chamber of Greece and the International Union of Architects, organised an International Symposium in Athens entitled Olympic Games: 'The City and the Day After' (TCG and IUA, 1998). The overriding objective of the symposium which played the role of 'a wide consultation forum', was an open discussion about the impacts stemming from the organisation of the Olympic Games in 2004 (TCG and IUA, 1998).

Another indicator of the existence of balanced consultation is the role of NGOs. In the case of Sydney 2000 for example, one of the five winning entries in the design competition for the Olympic Village was a Greenpeace Australia submission (The Irish Times, 2000). According to the Sydney Olympics 2000 Bid Company, '*This brought about a strong working association between Greenpeace and the Bid office, leading to the development and adoption of the Greenpeace Australia Guidelines for the Olympic Village*' (Sydney Olympics 2000 Bid Ltd, 1993, p. 1). In Greece on the contrary, there were cases where environmental NGOs were voicing their opposition to the organisation of the Games (Dimitrakoudi, 1999). In contrast to Sydney, in Athens environmental NGOs are seen as having a public information role. According to ATHOC, one of the most important features of the environmental education programmes ... '*is that the environmental organisations*

active in Athens and Greece are taking part in it.' (OCOG, 1997f, p. 58). A reason for some NGOs' opposition to the Games is that, notwithstanding the developmental benefits stemming from the Games, the environmental and traffic costs of transport infrastructure development will be high. This stand, is at the heart of the environmental movement in Greece since, traditionally, one of areas where NGOs are most active, is in voicing their opposition to public and private investments they consider environmentally unfriendly (NCSR, 1997). It is doubtful, however, that the low organisational level and development characteristics of the majority of Greek environmental NGOs, and their rather antagonistic relationship with the government, could enable a co-operative relationship similar to the one seen in Sydney (NCSR, 1997; Zagorianakos 1998).

In Athens, public participation was absent before the publication of the Transportation Plan. According to the interviewees the reasons for this were the difficulties involved in wide public participation at a regional and national level of planning and programming, and the limited time available for Plan preparation.

Financial, organisational and temporal difficulties inherent in public involvement at high levels of decision making has been highlighted throughout the examination of all regions in this thesis. The fact that there were no mandatory requirements for such an endeavour in this case study, renders its application even more difficult. Nevertheless, the experience from similar planning endeavours such as in Sydney and Cape Town, show that with political will supported by policy, public participation can be encouraged in various ways. Within SOCOG's environmental policy commitment '*to work co-operatively with the public, community groups, business and government agencies to achieve its sustainable objectives*' and alongside the commitment to the 'principles of Ecologically Sustainable Development', it is not surprising that a number of initiatives have been put in place to facilitate transparency, partnership development, and public involvement. In June 1997, the first meeting of the Olympic Environmental Forum[10] was held in Sydney and similar meetings were held every fortnight. In October 1997 a Communications Strategy was developed. There, the means to communicate Sydney's achievements in a transparent and effective manner was outlined. In May 1999, a 'Games Workforce Environmental Training Plan' was finalised. The plan integrated skills and environmental awareness into the training programmes of the Olympic Games workforce. In February 1999, an Environment Volunteer Procurement Strategy was developed. At the time of writing, SOCOG co-ordinates 50,000 volunteers and 2,000 staff. The 'Sponsor's Environmental Network' is an

[10] Olympic Environmental Forum is a mechanism allowing open communication between environmental NGOs and Olympic organisers.

initiative that enables Sponsors to network on environmental issues, share knowledge and showcase environmental policies and achievements (SOCOG, 1999).

8.2.4. Conclusions of the case study in Athens

This section aims to fulfil the objectives set by the research to be fulfilled by the case studies (section 2.3.5), as these apply to the Athenian case study. One of these objectives was to detect the reasons for the lack of integration of SEA with transport planning in Athens, and explain the contrast between the low degree of integration in land use plans and the high degree of integration in strategic PPPs. Chapter 4 and 5 revealed that the major obstacles for the application of SEA in Greek strategic planning, and especially throughout the statutory land use development planning, is related to the lack of finance, methodological knowledge and technical expertise. Evidence gained throughout the examination of this case study suggests that the higher integration in strategic PPPs is because of the significant developmental considerations at that level. At the strategic decision making level, the PPPs policies relate to larger geographical areas and, as such, affect a higher proportion of the population, compared with land use planning. This case study supports this observation since positive elements of integration are evident in the examined Plan. This case study, a strategically transport-related one, is of regional and national significance as it concerns the organisation of the Olympic Games. Extensive agency consultation took place, a wide variety of experts were involved with evidence of good co-operation among them. Furthermore, provisions for monitoring of measures suggested in the Plan were made and a scoping exercise undertaken.

Another objective of the use of the case studies was the application of the evaluative framework developed in this thesis (chapter 2) in order to detect the reasons for the existence or lack of integration of transport planning with SEA. There was minimal integration of SEA in the Athenian case study, and where elements of integration were found, these were mainly restricted to the socio-economic issues of transport planning, rather than to environmental issues. For example, only the socio-economic part of transport planning was linked with other pertinent studies at different levels of decision making. The documentation of environmental impacts was mainly project oriented. The rationale in the Plan's text was that the construction of basic transport infrastructure and traffic management measures would have indirect environmental benefits. There was, however, no justification for the relationship between these two. Furthermore, no alternative actions were proposed and evaluated. Provisions for monitoring did not include environmental impacts. There were no provisions for public participation and the discussion of transport and environmental experts was restricted to socio-economic and environmental issues regarding transport impacts.

It would be expected that owing to the regional and national significance of this case study, and because of the experience of other cities that put forward bids for the Olympic Games, the SEA input would be higher than in the other PPPs examined in Athens. Indeed, in the case of the Athens 2004 Transportation Plan, all the usually encountered obstacles for the application of SEA in Greek strategic planning, and especially throughout the statutory land use development planning were absent. There were beneficial implications of the Olympic Games to the Greek economy as the international experience gained from previous Olympic Games Bid competitions was drawn on, and more than 30 experts from over 20 different disciplines were employed in the preparation of the winning Bid File for the Olympic Games in 2004.

The reasons for the domination of developmental considerations over environmental ones and the resulting absence of both a SEA and adequate 'SEA elements of integration', can be attributed to a number of reasons. These are probably related to the unfamiliarity or lack of trust in the benefits of SEA integration, the government focus on the cultural aspects of the Athens candidacy instead of environmental protection, or simply to the lack of environmental assessment tradition in Greek regional and spatial planning.

Another objective of the case studies was the recommendation of ways to promote better practice on SEA/transport planning integration in the studied regions (section 2.3.5). The interviewees contacted for the purpose of this case study maintained that there are two main reasons responsible for the absence of SEA or other environmental assessment tools in the Transportation Plan. These are the political and, as such, confidential, nature of the Transportation Plan with its direct implications for the organisation of the Olympic Games, and the procedural, methodological and institutional difficulties involved in impact assessment at this strategic level of decision making. The environmental assessment activities undertaken in other Olympic Games' candidate cities, can provide valuable lessons to the Greek government. In the Sydney 2000 Olympics for example, good practice initiatives included the on-going monitoring of greenhouse gas emissions, the integration of social impacts from an early stage throughout the production of a 'Preliminary Social Impact Assessment' report, the involvement of environmental NGOs in the design phase of the study for the Olympic Village and the institutional arrangements for the involvement of the public (*e.g.* Communication Strategy, Games Workforce Environmental Training Plan, Environmental Volunteer Procurement Strategy). In the Cape Town 2004 Olympic Bid, all socio-economic and environmental aspects of the Olympic Games proposal were accommodated under the umbrella of a SEA methodology. This gives an indication of the value placed on SEA. Nevertheless, the examination of a single document such as the Cape Town 2004 Olympic Bid cannot provide general conclusions on the effectiveness of the use

of SEA in this particular bid. There is evidence to suggest that although SEA had a prominent status in the preparation of the Olympic Games documentation, the implementation of the requirements specified in these documents might have been poor (Mentzis, *pers. comm.*[11]).

In addition to the above recommendations for stimulating practice on integration, the extension of the positive elements of integration found in the Athens 2004 Olympic Games Transportation Plan, can also provide Athens with the opportunity to move beyond the 'project-EIA' culture regarding transport planning. Therefore, the undertaking of an assessment of the transport-related environmental effects of the Olympic Games in 2004 and the integration of the outcome before, during and after the Games is a feasible endeavour. The introduction of a flexible process that is cost-efficient, qualitative, focused and participatory and the training of ATHOC's staff on SEA will benefit the organisation of the Games in three ways. First, information will be generated for appropriate measures to anticipate, control and mitigate environmentally harmful actions. This information can be particularly useful in planning for the 'day after' the Games and, as such, effectively portray ATHOC's long-term vision for local environmental quality. Second, the environmental profile of Athens as a city, will be promoted internationally since it will set itself in a position to compare and compete with other cities organising the Games. Third, if the potential SEA exercise is structured in such a way as to incorporate the requirements of the proposed SEA Directive (CEU and EP, 2000), it would greatly facilitate the smoother introduction of EU environmental legislation.

Finally, the presentation of the Athens 2004 Transportation Plan, allows the inference of conclusions with relation to the nature and form of SEA *per se*, and in particular the changes necessary to accommodate the specific conditions to Greek transport planning. This research showed that the transport planning process has many procedural similarities with basic SEA methodology. Taking into account the inherent weaknesses of the Athenian planning system (chapter 4), it can be postulated that the methodological and procedural flexibility of SEA is the key for its future integration in transport studies in Athens.

8.3. Eco-Audit of the Irish National Development Plan 2000-2006 (1999)

8.3.1. The National Development Plan

The Irish National Development Plan 2000-2006 (NDP) is a broad strategic document, which details the development priorities for Ireland until the year 2006. It will form the basis of discussions for the Community Support Framework (CSF) for the period 2000-2006 with

[11] Personal communication.

the European Commission (EC). NDP has a strong socio-economic focus since it builds on recent economic progress in order to strengthen the foundations for further and sustainable progress (GoI, 1999). The term 'sustainable progress' seems to relate mainly to 'sustainable socio-economic growth' rather than to 'environmental sustainability' (*i.e.* development with the overriding objective of environmental protection) or 'Sustainable Development' (*i.e.* development where environmental and socio-economic considerations are equally balanced). One of the national objectives that underpin the NDP strategy, is the continuation of 'sustainable economic and employment growth' (GoI, 1999). The utilisation of the term 'sustainable growth' might be somewhat misleading (as it means 'steady rate of increase') in describing the environmentally sustainable course of action, which is evident in other parts of the Plan. The NDP gives much higher priority to the environment than its predecessors (WWF, 1999), and partly owing to the preparation of an Eco-Audit, claims to be committed to environmental concern within all policy decisions (GoI, 1999).

8.3.2. The Plan's relevance to Greater Dublin

NDP sets out objectives and investment priorities of IR£ 40.588 billion (52 billion ECU in 1992 prices) over the period 2000-2006 of public, EU and private funds. These resources will be allocated to five Operational Programmes (OPs) which comprise three National or Inter-regional OPs, two Regional OPs and a separate OP for the PEACE Programme. The OP for the 'Social and Economic infrastructure' absorbs half of the total proposed budget (IR£ 20.948) with the transport part of it accounting for 39% of the OP.

Public transport measures for the Greater Dublin Area, account for 25% of the transport funding allocations, reflecting the national significance of public transport priorities for Greater Dublin (GoI, 1999). Chapter four in the NDP, presents the strategy for transport in the Greater Dublin Area which follows the Dublin Transportation's Office's (DTO) transport integration strategy. There is, therefore, a number of transport infrastructure measures scheduled such as road projects, light and suburban rail, bus network development, public transport integration, and traffic and demand management. In order to justify the increased (in comparison to previous NDPs) focus on public transport infrastructure, the Plan reiterates DTO's alarming estimates that population growth and car ownership rates have already well exceeded the projected level of 1995 (GoI, 1999). Two other transport and planning studies (DKM, 1999; Fitzerald *et al*, 1999; Brady Shipman Martin, 1999) also support the 'public transport argument' for Dublin: ' *... the future spatial development of the region must be based around public transport*' and ' *... public transport investment, on a scale not hitherto contemplated, is now essential in Dublin*' (GoI, 1999, p. 54). The environmental benefits of the transport provisions in the NDP, however, have been criticised. WWF maintains that there appears to be an unwillingness to introduce effective curbs against the expansion of car ownership and use. It also argues that there is

substantial investment proposed in public transport but it is still a very small percentage of the overall transport spend. (WWF, 1999). The reasons for giving investment priority to road infrastructure, are attributed in the NDP's text to the '*immediate infrastructural bottlenecks, the heavy reliance on roads for the transport of people and goods and the lack of alternative networks of real scale for inter-urban transport in Ireland*' (GoI, 1999, p. 216). The concern is, however, that at least in the longer term, this approach might lead to a 'Sisyphus' scenario where a more efficient road network will also facilitate and encourage greater private car use, which will result in further congestion, which in turn will justify more road building (WWF, 1999).

8.3.3. The Eco-Audit of policies

The establishment of a process of 'Eco-Auditing of policies in specific sectoral areas and of national development plans' was a political priority for the Irish government and the pilot Eco-Audit of the NDP is the first test of the proposed system (Table 8.2 and Table 8.3).

TABLE 8.2: TIMESCALE OF PILOT ECO-AUDIT EXERCISE S
• Pilot eco-audit exercises identified by November 1999 • Pilot eco-audit to be completed by mid March 2000 • Departments to evaluate their pilot eco-audits in March/April 2000 • Green Network to evaluate the outcome by June 2000 • A basis for future eco-auditing

Source: Provided by Mr Noel Casserly, Assistant Principal, Department of the Environment and Local Government.

The Eco-Audit involves the establishment of a formal procedure for identifying the environmental impacts of sectoral policies and programmes and for mitigating their adverse impacts (ENDS, 1999). It is referred to as 'environmental appraisal' (ENDS, 1999) similar to the 'Environmental Appraisal of Development Plans' in the UK, a voluntary partial-SEA system established in the UK in 1993 (DoE, 1993). It is also seen as complementing the separate formation of SEA for major plans and programmes (GoI, 1999). There is also similarity with the UK 'Policy Appraisal' (DETR, 1998a; DoE, 1991), an environmental appraisal procedure for government departments. They bear similar scope, implementation structures (government departments and statutory consultees) and procedures (they are continuous and iterative and include screening, scoping, impact assessment and documentation). Eco-Audit has a clear focus on 'integration' since it enables the environmental dimensions of policy to be considered concurrent with the broad social, economic and other dimensions. (ENDS, 1999). In keeping with the 5th Environmental Action Programme (CEC, 1992a) and the European Union Treaty [Article 175(1)], the incorporation of Eco-Audit in an integrative framework is seen by the Irish government as a 'vital element in the achievement of Sustainable Development' (ENDS, 1999).

TABLE 8.3: SCHEDULED PILOT ECO-AUDIT EXERCISES*
Department of Arts, Heritage, Gaeltacht and the Islands: - the review of the Programme of Works on the Royal Canal, *Department of Education and Science*: - construction of two identical schools in Offaly and Laois, one using traditional methods and the other using principles of sustainability and the 'eco-school', Department of Enterprise and Food - Rural Development Plan, *Department of Public Enterprise* - the introduction of a working target of 500 Mwe of additional electricity generating capacity from renewable sources for period 2000-2005, *Department of Health and Children* - establishment of a project team to undertake development of a National Toxicology centre, *Department of Tourism, Sport and Recreation* - the productive sectors in the two regional tourism Operational Programmes under the National Plan, *Department of Finance* - Pilot Eco-Audit of National Development Plan 2000-2006.

Source: Provided by Mr. Noel Casserly, Assistant Principal, Department of the Environment and Local Government.
** Last updated July 2000.*

The scope of Eco-Audit covers new or substantially modified policies, which are included in legislative proposals, plans, programmes and policy statements in the areas of agriculture, energy, transport, industry, tourism, forestry, marine and natural resources. Some confusion exists on how substantial a policy should be in order to undertake an Eco-Audit. At least two similarities can be exerted with the 'proposed CEC Directive on SEA' (CEU and EP, 2000). The first relates to the field of application of the specified SEA process. The second relates to the existence of a common 'screening element', which, in the case of NDP, it can be understood as a proactive preparation test, in view of the future enactment of the SEA Directive. The Eco-Audit exercise, however, refers to strategic sectoral plans, rather than land use development plans that would come under the remit of the SEA Directive (Table 8.3).

Notwithstanding the existence of various elements of SEA integration found in development plans and other transport-related documents, Eco-Audit of policies is the only true example of SEA found in Ireland. For the purpose of the case study analysis, the NDP and other supporting documentation were reviewed and five interviews were undertaken with the main agents involved in its preparation (Appendix 2). The government departments involved in the Eco-Audit were contacted. These were the Department of Finance with overall responsibility, and the Department of the Environment and Local Government (DoELG), which had an advisory role. Owing to the political and, as such, controversial, nature of the topic under investigation, the identity of the interviewees was protected in the current text. The following section examines the application of Eco-Audit to the NDP, against six elements of integration of SEA into transport planning.

8.3.3.1. Procedural integration

The objective of the Eco-audit is to ensure that the environmental impacts of policies are identified as early as possible and that action is taken where appropriate to eliminate or

mitigate any potential adverse impacts identified (DoELG, 2000). A specific procedure has been developed by the DoELG, and applied throughout the pilot exercises. This procedure incorporates three of the early stages of a SEA. In particular, there is 'screening for the need of an Eco-Audit' which involves the identification of those policies and policy changes, that are likely to have 'substantial environmental impacts' (DoELG, 2000). The degree to which the screened policies have significant environmental impacts and therefore subject to an Eco-Audit, is determined by the utilisation of a screening and scoping checklist (Table 8.4).

TABLE 8.4: ECO-AUDIT SCREENING AND SCOPING CHECKLIST

Effect of Policy on:	Significant	Of some significance	Insignificant	None
Water Quality & Quantity · Water Quality · Polluting discharges to surface, ground or marine waters · water quantity				
Air Quality · Air Quality (Local) · Air Quality (Transboundary) · Polluting discharges to atmosphere · Emissions of greenhouse gases				
Biodiversity · Quality of areas of habitats · Populations or range of species · Protected areas · Threatened or protected species				
Land Use · Land use patterns · Landscape				
Resource Conservation · Energy use · Waste Recovery · Natural resource/ material use · Extraction or use of non-renewable resources				
Waste · Waste Production · Disposal				
Architectural and Archaeological Heritage · Buildings and structures of architectural or historic importance · Archaeological sites, monuments and artefacts				
Health & Welfare of Population · Noise levels · Security & Safety of the public				
Dangerous Substances · Use of Dangerous Substances · Risk of accidents during the transport, use and manufacture of dangerous substances				

Source: Eco-Audit of Policies: Guidelines, Annex A (DoELG, 2000).

The checklist has a double purpose. First, at a generic level, the headings of the checklist are utilised as environmental criteria in order to assess the significance of the policies and determine the extent of more detailed assessment (impact screening). Second, the headings

are broken down into sub-headings that are used as sub-criteria to determine significance to specific environmental themes (impact scoping). These two layers of assessment provide the necessary sieving of important issues, and avoid unnecessary efforts, focusing on insignificant issues. The criteria for selecting the policies, plans and programmes to be subjected to an Eco-Audit are i) when significant environmental effects are likely to occur in respect of any areas listed in the 'screening-scoping' checklist, ii) when environmental effects of some significance are expected in two or more areas of the checklist, and iii) when there is uncertainty in the determination of significance. These screening criteria, however, do not eliminate the most immediate purpose, which is the establishment of more detailed environmental or Sustainable Development benchmarks against which the estimation of significance can be based. Taking into account the current policy framework and the data available, these benchmarks could be quantitative and qualitative environmental quality standards and targets either agreed under EU and international agreements (such as the Kyoto commitment), or be the result of consultation between government departments. In the transport field in particular, there is an array of appropriate documentation and research regarding the setting of indicators and environmental impacts (see section 7.2.3.2 of the NDP).

According to the Eco-Audit guidelines, certain methodological stages need to be addressed (but not documented) throughout the preparation of an Eco-Audit (Table 8.5).

TABLE 8.5: CONTENT OF ECO-AUDIT

In addition to the issues addressed as part of general policy development and appraisal (policy aims and objectives, costs *etc*) an Eco-Audit will address the following:

- the significant positive or negative environmental impacts, whether direct or indirect. In identifying these impacts the Eco-Audit will, in particular quantify in so far as possible the environmental effects listed in the Annex and their significance for the state of the environment, nationally and in a transboundary/global context,
- the alternative policy options considered,
- description of measures to eliminate/mitigate any harmful environmental impacts likely to arise,
- identification of environmental policies, standards and licensing requirements with which policy and/or projects implemented under policy will comply, and
- provision for assessment of impact following implementation.

Source: Eco-Audit of Policies: Guidelines, Annex A (DoELG, 2000).

The NDP incorporated a summary of the main conclusions of the Eco-Audit and attempted to accommodate some of the requirements listed in Table 8.5. The author of the summary concluded that '*there would be impacts* [of the NDP's policies on the environment], *ranging from the insignificant to the significant...*', and '*The* [environmental] *impact ... places a premium on the pursuit of policies which promote economic efficiency, with less intensive resource use and less environmental stress.*' (GoI, 1999, p. 302). The examination of the

environmental impacts stemming from transport however, showed a lack of analytical vigour in impact assessment. In particular, there were conflicting views on the environmental impact of transport as presented in various strategic documents, and in the Eco-Audit.

The Environmental Protection Agency (EPA) for example pointed to the transport sector as an area where main threats to the environment arise (EPA, 1999b), and the Dublin Transportation Office stressed that growth in demand for transport has exceeded previous projections (DTO, 1999; 1998). The NDP, however, concluded that the overall impacts from road development and the provision of public transport in mainly one city, will be beneficial for the country as a whole (GoI, 1999). Road building, however, does not lead to an increase in car ownership and usage neither contributes to the realisation of the Kyoto limit. The environmental impacts of car ownership and usage are particular concerns in shaping current Irish environmental policy making. According to EPA, Ireland's growing economy is leading to increased car ownership. The total number of vehicles increased by 49% between 1987 and 1997. This resulted in increased traffic congestion and noise in urban areas (EPA, 1999b). Greenhouse gas emissions are also of concern. According to EPA, '*Increasing CO_2 emissions from burning of fossil fuels have implications for our ability to meet this agreement. In a business as usual scenario, exceedance of the Kyoto Limit is predicted in the short term.*' (EPA, 1999b, p. 19). Furthermore, the NDP recognised the difficulty to stay within the limits of the Kyoto protocol in the context of current rapid economic growth. (GoI, 1999).

The Eco-Audit guidelines encouraged the quantification of the environmental effects of policies (Table 8.5). There was however, no evidence of such quantification in the Eco-Audit report, included in Appendix 4 of the NDP's text. The report noted that the unavailability of data at this high level of decision making makes the quantification of environmental impacts impossible. It suggested that this task can be undertaken at a lower decision making level through the monitoring of the implementation of Operational Programmes (GoI, 1999). There was also a reference in the Report to the use 'of indicators of environmental performance at Operational Programme project selection' (GoI, 1999). The World-Wide Fund for Nature (WWF) identifies a possible problem in that respect:

> *'Chapter 12 [of the NDP] refers to a number of criteria that will be incorporated into project selection procedures. Environmental impact is one of a number. The weight attached to any of these considerations will vary in the light of specific programme or measure objectives. This is of particular concern - environmental impact must be taken into account in all projects and measures that have a significant impact. Because this is not explicitly stated, it is probable that economic arguments will be used to override environmental considerations in respect of for example major infrastructure projects.'* (WWF, 1999, p. 6).

The Eco-Audit of the NDP devoted a whole chapter to the 'identification of environmental policies, standards and licensing requirements with which policy and/or projects implemented under policy will comply' (Table 8.5). In relation to transport, there are references to the contribution of Structural Funds and Cohesion Funds to transport infrastructure proposals, to the relevance of Sustainable Development of EU Treaties and agreements such as the Kyoto commitment to the reduction of greenhouse gases, and to recommendations for further measures such as the planned National Greenhouse Gas Abatement Strategy (GoI, 1999).

There is weak documentation in the NDP concerning the remaining four requirements specified in the guidelines (Table 8.5). In particular:

- the Eco-Audit did not consider any alternative policy options neither did it assess any alternative policy scenarios. This can be partly attributed to the ineffective timing of the Eco-Audit, as it appears that it was carried out after scoping, that is after the formulation of the issues addressed as part of the general policy development and appraisal,
- there were no mitigation measures suggested, at least as far as transport planning is concerned,
- there were no provisions made in the Eco-Audit for monitoring of potential impact following implementation,
- there was no distinction made between direct and indirect impacts.

The Eco-Audit procedure was supplemented by internal consultation (within and between government departments) and the provision of documents for public information (GoI, 1999).

Another indicator of a positive procedural integration of SEA with transport planning, is the continuation of the SEA exercise (in this case the Eco-Audit) in parallel with the implementation and review of the transport planning exercise (in this case the NDP). There is evidence to suggest that the Eco-Audit is a continuous process, since the further application of the exercise at a later tier of decision making is advocated in the Eco-Audit report, especially in relation to individual OPs (GoI, 1999). In addition, the internal Eco-Audit guidelines refer to the need for further guidelines on the contents of Eco-Audits of policies, which will be kept under review in the light of experience and the application of the Eco-Audit to national development plans (DoELG, 2000). These statements are positive signs of the 'iterativeness' of the process since the eight pilot projects currently under appraisal (Table 8.3), offer valuable insights into improving the Eco-Audit when applied throughout the preparation of the next NDP. It is evident, however, that time is a crucial

consideration when designing such assessment exercises since the variation of current Irish (and EU) economic, political and administrative conditions over the following six years, might alter drastically.

8.3.3.2. External integration

The documents that have informed the NDP and are relevant to Eco-Audit, are: i) the National Sustainable Development Strategy which established an assessment methodology based on the use of quantitative environmental indicators (GoI, 1997; EPA, 1999a), and ii) a report produced by EPA entitled 'Environment in Focus' that includes a broad overview of current trends on environmental quality, and of economic and social driving forces exerting pressure on the environment (EPA, 1999b). Four further documents will also be useful in the future and especially in informing the Eco-Audits of the OPs, namely the:

- 'Environmental Evaluation of the Irish CSF 1994-1999,
- 'Environmental Indicators and Structural Funds Programmes in Ireland: A Guidance Document' prepared by ERM Consultants for the CSF Co-ordinating Committee,
- Handbook on Environmental Assessment of the Regional Development plans and EU Structural Funds Programmes, and
- methodological Working Papers: *Vademecum* for Structural Funds Plans and Programming Documents and the Ex-Ante Evaluation of the Structural Funds Interventions, Indicators for Monitoring and Evaluation (GoI, 1999).

The above documentation shows the concentration to impact assessment methodologies and the use of indicators in the future drafting of OPs and NDPs. It also explains that the continuation of SEA-related procedures (such as the SEA for the previous NDP and the current Eco-Audit) is primarily influenced by the EU environmental regulations regarding financial aid.

The 'environmental indicator' approach suggested in the Eco-Audit report at an OP level, could have been adopted throughout the preparation of the NDP. It seems that one of the reasons for not undertaking an 'indicator-based assessment' was the scarcity of information at this strategic planning stage' (GoI, 1999). As far as the transport sector is concerned however, this argument can not be maintained as there is a bulk of literature (both in Ireland and abroad) that if put together, would have provided valuable insights, both in terms of data availability and setting of quantitative indicators, as well as in terms of methodologies and assessment techniques. An indicative list of such research and planning documents in Ireland includes: (DTO, 1999; DTO, 1998); (GoI, 1997; EPA, 1999a; EPA, 1999b); Knight, and Feeney, 1999; Oscar Faber, 1999; Oscar Faber, 1999; and three reports mentioned in the Eco-Audit report *i.e.* 'Environmental Evaluation of the Irish CSF 1994-99', 'Environmental Indicators and Structural Funds Programmes in Ireland: A

Guidance', and 'A Guide for the *Ex-Ante* Evaluation of the Environmental Impact of Regional Development Programmes' prepared by ECOTEC for DGXVI.

8.3.3.3. Methodological integration

It would have been beneficial in terms of resource efficiency, minimisation of administrative bureaucracy, better environmental management, and therefore, informed decision making, if an integrated approach to environmental, economic, gender, poverty and rural impact assessment of the NDP was attempted. The above themes of national policy have three common properties. First, they are included in the NDP's objectives and strategies (with the exception of the environmental theme). Second, the impacts of the Economic and Social Infrastructure Programme on these themes (excluding the economic theme) are documented in a three-page text in the NDP. Third, evaluation criteria, which will be explicitly incorporated into the project selection procedures of all implementing bodies under the National Development Plan, will be assigned to all these themes. They are therefore, well suited to provide Sustainable Development targets set to appropriate indicators and thus, adequately address the performance of the specific Programme, or the overall impact of the Plan. The unification of these impact assessments, would require the use and modification of institutionally and publicly accepted indicators that could be used throughout the identification of environmental baseline; *ex ante* impact assessment, mid-review monitoring of implementation, and *ex post* evaluation of the Plan as a whole.

The quantification of targets might pose difficulties. There is however, an array of appropriate indicators regarding the environment at the disposal of Departmental experts. In addition, four quantitative targets have been established in the Plan regarding 'poverty proofing'. The development of the computerised data management system for the current NDP and its constituent OPs will be an essential tool in that respect as it can be used ' ... *for monitoring, ... and for the provision of up-to-date and comprehensive information on the NDP and CSF 2000-2006*' (GoI, 1999, p. 214). This approach could also be linked to the preparation of the National Spatial Strategy currently under preparation, and thus influence, and be influenced, by information on the spatial distribution of socio-economic and environmental impacts at a regional level.

The successful application of this model however, will depend on government's administrative flexibility and capacity regarding environmental management, and on the fair weighting of the significance of environmental impacts alongside other socio-economic impacts of the NDP. The latter concern raises the issue of the role that SEA should play in this integrated impact assessment model. As far back as the late 80s, arguments had been expressed that appropriate documentation would be of paramount importance if SEA would retain its environmental protection identity in a fully integrated planning schema

(Wood, 1988). In the early 90s, there was perhaps too great a demand placed on the role of SEA and major changes in planning culture and practice would have been required to effectively accommodate SEA requirements (Partidario, 1992). During the late 90s, Lichfield (1996a) maintained that successful integration had more to do with the nature of decision making (*i.e.* whether other socio-economic considerations dominate over the environmental ones) rather than any technical and methodological designs.

The 'integration' paradigm has also been debated at an EU level, especially throughout the preparatory process for the drafting of a proposal for a SEA Directive. During the statutory consultation phase, the Committee of the Regions maintained that the first step towards Sustainable Development, (which is the final destination of EU' s environmental policy and was a principle endorsed by the proposed draft SEA Directive), would necessitate that environmental issues are considered in conjunction with social and economic issues. (COR, 1997: CdR 172/97 fin). According to the Committee of the Regions, however, this 'unification of planning issues' does not safeguard the 'integration of the environment into decision making' since it will still be at the discretion of the decision taker to consider, or not, the results of a SEA (CoR, 1997).

It can be concluded that, regardless of the methodological framework selected for SEA integration, the subjectivity involved in taking decisions on adopting certain policies and excluding others cannot be disregarded. I can be argued, that the application of an 'integrated appraisal/planning framework' might provide a more methodologically 'reasoned' justification for disregarding environmental protection concerns. For example, the definition of 'cost-effectiveness', one of the criteria that will be used for the project selection procedures under the current NDP, is the '*overall benefits, as reflected in the above criteria, in relation to project costs*' (GoI, 1999, p. 212). Given that the 'above criteria' are mostly of economic nature (*i.e.* OPs and project objectives, economic impact, and financial viability) and the three out of eight criteria are of socio-economic nature, then the concerns over the limited influence of the environmental impact in project selection (one criterion out of eight) appears to be justified.

What therefore would the role of an 'integrated SEA framework' be, and how could SEA respond to this challenge? First, an 'objectives-led' approach could be adopted where the overall objective of the NDP has to be decided. If the objective of 'achieving Sustainable Development' is chosen, then the environmental criteria should have equal weight with the socio-economic ones. If 'sustainability' or 'Ecologically Sustainable Development' is chosen, then some of the environmental criteria should be given priority over the socio-economic ones. Under the current 'Sustainable Economic and Employment Growth' objective (GoI,

1999), the environmental criteria could be abandoned altogether without breaching the objective.

Second, from a technical point of view, the use of a simple 'compatibility matrix' of the type recommended by the British DETR for their use in the Environmental Appraisal of Development Plans (DoE, 1993) could be useful for decision makers and assessment teams for checking the areas of consistency and conflict between suggested and alternative measures, policies and programmes[12]. In order to better inform decision making, this matrix can also be combined with appropriate documentation in the form of 'commentary boxes' where significant conflicts are identified, mitigation measures discussed, and alternative options suggested.

Third, as Scholten and Ruis (1999) suggest, if it is found at the scoping stage that both environmental and economic objectives are not fully compatible, there should be at least one alternative that meets the environmental objective. Then from that alternative it can be learned which concessions must be made in the economic objective in order to achieve the environmental objective. Unlike the case with the current NDP, this approach presupposes the early integration of SEA (and any other management tools) with the planning process. Finally, in a communal and integrated, impact assessment model where all methodological tools merge their identity and procedures, SEA should not be preoccupied with such 'personality complexes'. It would be more constructive for SEA and the other participatory tools, to contemplate over possible benefits, rather than be preoccupied over 'identity costs'. Expected benefits could very well be:

- the provision of incentives for an administrative reorganisation that will aim at resource and organisational efficiency,
- cost-effectiveness from anticipating costly interventions at a programme and project level of decision making,
- better decision making as the conflicts between sectors of the economy and society are clarified and documented,
- the compact and comprehensive way that the information on overall effects is presented, and
- the encouragement of more transparency and inter-departmental communication.

The adoption and successful implementation of these or similar approaches at a national development planning level, would undoubtedly lead to a higher contribution to Sustainable Development, as opposed to sustainable economic growth (which is the NDP's objective).

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[12] See figure 5.1 (DoE, 1993) for an illustration of a compatibility matrix and para. 5.3; 5.5-5.9 (DoE, 1999).

8.3.3.4. Substantive integration (documentation of SEA)

According to the guidelines for the Eco-Audit, its conclusions should be i) summarised in memoranda to government on policy and legislative proposals, and ii) included in explanatory memoranda to Bills and policy statements (DoELG, 2000). The Eco-Audit of the NDP exceeded these specifications. A discussion of the environmental impacts of transport infrastructure and measures was presented in various sections in the NDP text. There are two paragraphs in the three-page summary of the Eco-Audit of the NDP (*i.e.* Appendix 4, para. 4.7 and 4.10) and a more detailed account of the environmental impacts of the suggested road network and public transport provisions for the Greater Dublin Area. Although there is recognition in the text of adverse effects of emissions, noise and sensitive areas from road transport, the report concludes that there will be improvements in environmental conditions from road infrastructure development, since '*the elimination of congestion due to through-traffic, and improvement of journey times and traffic conditions, will also have beneficial effects on vehicle emissions*' (GoI, 1999, p. 80). Since this is the only reference in the NDP to environmental effects that are summarised in the Appendix, it can be concluded that the environmental benefits will occur indirectly by satisfying the economic and social exclusion objectives. It can also be assumed that as a result of 'limited information on overall impact', the predictive uncertainty involved at this high tier of decision making and the experimentation stage of Eco-Audit, rendered the use of the checklist specified in the Eco-Audit guidelines somewhat superfluous. It is also stated in the text that all road projects in the NDP likely to have significant effects on the environment will be subject to an Environmental Impact Assessment (GoI, 1999, p. 80).

According to NDP's text where the environmental effects of the Economic and Social Infrastructure Programme are discussed, the large investment in public transport will have substantial environmental benefits particularly in the Greater Dublin Area. (GoI, 1999). There was an assumption made here that the environmental benefits in emission and noise level reduction will occur by a 'switch to public and non-motorised transport'. The DTO maintained in 1999 that by 1997, travel demand was growing at a far higher rate than had been anticipated in the original DTI Study of 1995 (DTO, 1999). The 1999 'Dublin Transportation Blueprint 2000-2006' aims at accommodating over 45,000 to 104,000 additional peak hours trips to anticipate that growth in demand travel. There is no evidence to suggest that a 'switch to public and non-motorised transport' can be taken for granted since:

- there were 73% of peak hours car trips generated in DTI area in 1999[13] compared to only 19% by bus (DTO, 1998),

[13] Estimations made in September 1998. For 1999, the current rate (*i.e.* 1998) of progress was assumed (DTO 1998, p, 10, table 4.1).

- in 1999, car ownership rates had substantially exceeded those projected for 2001 (DTO, 1999), and
- the completion of the C-ring and the connection of Dublin with routes to other parts of Ireland under the Roads Project, might eliminate congestion in the short term but might not decrease car use and ownership rates.

Emphasis is also given in the NDP, to the development and implementation of a 'comprehensive demand management strategy for the Dublin Area' which was published after the publication of the Eco-Audit for the NDP. In the 1999 'Study of Road Pricing in Dublin' (Oscar Faber, 1999), there are innovative recommendations on demand management measures. These include a cordon arrangement based initially around the city centre, which predicts a reduction of vehicle hours in the central Dublin Area at a scale of 11.9% to 24.6%, peak period charging, and electronic vehicle detection backed up by a camera-based enforcement system. The 'methodological integration capacity' of this study is substantial as its recommendations include the preparation of a full social cost-benefit appraisal, an impact distribution study (spatial distribution and distribution of impacts across different socio-economic groups), and a detailed cost-benefit analysis (Oscar Faber, 1999). The Eco-Audit for the OPs and the National Spatial Strategy can benefit from the development of these studies by informing the areas in the Greater Dublin Area on the spatial impacts of transport.

8.3.3.5. Social integration

The term 'Social Integration', indicates a transparent Eco-Audit procedure through widespread consultation. This might involve communication among a variety of 'social partners' (such as competent authorities, government agencies, organisations, organised local groups and environmental NGOs) and public participation.

According to the Eco-Audit guidelines, the extent of consultation is decided internally. It is left to the discretion of individual government departments and their associated agencies (such as EPA) to decide whether or not a policy should be subject to an Eco-Audit, and further consultations should be undertaken with other departments. A description of the consultation process was contained in an 11 page Appendix of the NDP. The consultation included the circulation of a draft overview of the Plan prior to finalisation, and sectoral meetings with regional and public authorities and with the Economic and Social Partners (COMHAR[14]). These initiatives, however, barely extended to environmental interests outside

[14] COMHAR, the National Sustainable Development Partnership, established in early 1999. It is a grouping of NGOs that provide the forum for national consultation and dialogue on all issues surrounding Ireland's pursuit of Sustainable Development. It plays an important role in the development and implementation of policy and the integration of environmental considerations into policy development.

government departments and agencies (WWF, 1999). Although there was no mandate for consultation with environmental NGOs, the Department of Finance that had the overall responsibility for the Eco-Audit of the NDP, consulted two environmental NGOs. WWF maintained, however, that although environmental interests had been represented on the National Economic and Social Forum since its establishment in 1993, environmental NGOs were not included in the consultation process on the same terms as the other partners (WWF, 1999).

The interviews with government officials involved in the preparation of the Eco-Audit of the NDP revealed that because the Eco-Audit is a continuous, as well as a learning process, inter-departmental co-operation is of paramount importance. As one interviewee noted '*It's the only way you can get these kind of exercises done, by having 'plus' co-operation with a multitude of people and exchanging information*'. Furthermore, another interviewee noted that '*the more transparent the process is, the better it will stand in the longer term*'.

In conclusion, the consultation exercise for the Eco-Audit of the NDP, was more proactive compared to the mandatory guidelines, but failed to accommodate the minimum requirements of a transparent environmental appraisal process. As such, the opportunity to further integrate different views (both on the methodological side and the content of the Eco-Audit), was not fully utilised.

Public participation was not undertaken for the Eco-Audit of NDP. This is a particularly difficult issue for all government administrations internationally that have attempted to introduce SEA systems at a national level (Zagorianakos, 1998). Nevertheless, compared to other countries, Ireland is a country were public participation at a regional level has been successfully implemented. For example, during the preparation of the 1999 'Strategic Planning Guidelines for the Greater Dublin Area', a series of public participation initiatives took place such as notices placed in national newspapers, direct consultation with a small number of relevant interest groups, and the distribution of a Public Briefing Document and a Questionnaire. A summary of the results of this public participation exercise appeared in an Appendix of the Guidelines (Brady Shipman Martin, 1999). Examples where proactive public participation was exercised at a national level (which shares similar methodological, temporal and financial difficulties with the regional level) include the 1997 'National Sustainable Strategy' with the publication of 'discussion documents' (GoI, 1997), and the on-going 'National Spatial Strategy' where the Consultation Paper that aims at seeking views from the general public and interested parties, was published on the Internet.

8.3.3.6. Integration of human resources

Expertise involved in the preparation of the Eco-Audit was recruited from the Department of Finance, which had the overall responsibility for the Eco-Audit of the NDP. In addition, there was substantial contribution from the DoELG, which was responsible for drafting the guidelines. The expertise included surveying and town planning, economics and environmental economics. The interviewees noted that there is scope for 'further resources to be put into the system' in terms of expertise requirements as ' *... at this stage it does require both our own Ministry and other Departments to make real commitments to resources to it* [Eco-Audit]'. A decision, however, has to be made on whether there will be a building up of expertise within the organisation or if external advice will be sought.

The administrative flexibility and capacity of a given organisation is an important contributor to successful integration of SEA with spatial and transport planning. Appraisal experts can facilitate integration by sharing information and closely co-operating with experts in other administrative structures within or outside the organisation. For the Eco-Audit of the NDP, successful expert consultation and co-operation would have the benefits of 'refining' the Eco-Audit process and methodology in the light of experience elsewhere, and initiating a multi-disciplinary approach to policy appraisal. There are at least three administrative structures that could potentially accommodate interdisciplinary expert co-operation and information sharing. After the completion of the Eco-Audit, the individual departments will undertake an initial review of the process. It is at the discretion of the individual Departments to decide whether to assign the review to an external consultancy or if it will be undertaken internally by the Departments. If the review is undertaken internally, this will be done by people other than those involved in the preparation of the Eco-Audit. The Departments' results of Eco-Audit and the recommendations for the Eco-Audit as a process, will be submitted to the 'Green Network of Departments' which will make final recommendations after one year, in order to further develop the approach. As an interviewee noted, the Green Network of Departments is a ' *... high level group, representative of those departments where the question of the integration of environmental considerations is considered to be appropriate. Its whole mission if you like is to put forward the integration agenda ... dealing with cross-sectoral issues ...*'.

The Green Network is also guided by a philosophy of sustainability. As an interviewee stated ' ... the Eco Audit exercise has been suggested by the Sustainable Development Strategy, and the Green Network of Departments is the structure which is in charge of bringing this forward ... ' . As such, it is in an appropriate position to provide focus for inter-departmental, inter-sectoral assessment expertise. The potential staffing of the Green Network with an 'Integrated Appraisal Unit' or a wider 'Environmental Unit' which will

either co-operate with, or be comprised by experts in the Environment Units already in place in various Departments (e.g. Department of Agriculture, Department of Public Enterprise), may further promote environmental integration at an administrative level. The 'integration capacity' of the Green Network could be increased by the consultation (or possibly merging) of bodies with similar technical competencies such as the Central Evaluation Unit due to be established in the Department of Finance. The Central Evaluation Unit will be charged with the function of providing an on-going evaluative input into the work of each of the Monitoring Committees and of carrying out or commissioning any evaluations which may be required at OP or CSF level (GoI, 1999). There are plans for the Unit to be staffed by a balanced mix of internal and external expertise comprising a small number of persons, generally recruited through open competition, and appointed on a full time basis, augmented by external experts recruited on short-term contracts. (GoI, 1999).

Finally, the three 'horizontal co-ordinating committees' including the Environment Co-ordinating Committee, which is responsible for monitoring the situation across OPs and for reporting progress to the CSF monitoring committee, can provide transparency for the above administrative structures. They might also be useful in checking the effectiveness of the Eco-Audit and further refining the process. One interviewee was in favour of involving the 'ground level' implementing bodies and local authorities during Programme implementation, in order to receive meaningful feedback on the effectiveness of the Eco-Audit methodology and especially of the 'screening-scoping checklist: *'I would be a bit concerned if the checklists are drawn by environmentalists independent of people on the ground who have to implement the projects ... there is a danger of becoming a 'theoretician's checklist'. You need to bring on board the people who will actually implement the projects on the ground ...'*.

8.3.4. Conclusions of the case study in Dublin

The Eco-Audit of the Irish National Development Plan was a major step towards integrating environmental concerns into all other policy areas (WWF, 1999). The Eco-Audit model is still at an early stage and probably needs time to perfect a sophisticated methodology. Furthermore, the establishment of an environmental appraisal system at a national policy level poses difficulties well known to countries that have attempted it. It is not surprising therefore that the Eco-Audit Report noted that *' ... The possibility of the emergence of some unsustainable patterns of development within the framework of the Plan cannot be excluded.'* (GoI, 1999, p. 303).

One of the objectives of the case studies was the application of the evaluative framework developed in chapter 2 in order to detect the reasons for the presence or absence of integration of transport planning with SEA in the selected case studies. The Eco-Audit of the

NDP has a medium degree of integration. One of the reasons for this intermediary degree of integration elements is the existence of relevant guidelines on the one hand, and the lack of experience in their application as a result of the their recent initiation on the other. The Eco-Audit of the NDP revealed a number of positive elements of integration. These include the incorporation of procedural elements such as screening, scoping and the 'identification of environmental policies with which policies implemented will comply' There were signs of a continuous and iterative process. There was also evidence for the existence of socio-economic impact assessment tools such as gender, poverty, and rural impact assessment. The results of the Eco-Audit were documented throughuout the NDP's text and summarised in an Appendix, along with the documentation of consultation. Finally, consultation with NGOs was undertaken alhough it was not mandatory. The application of the Eco-Audit failed however on a number of fronts. Procedural integration was minimal since there was poor implementation of the guidelines. The Eco-Audit did not participate in the formulation of alternatives for the NDP, mitigation measures were left for the next stages that of the Operational Programmes, significance of environmental impacts of transport could not be determined with certainty, and although there is a plethora of Sustainable Development indicators at a national policy level specified in various documents there were no quantitative environmental targets set. Although experience of SEA was gained throughout the carrying out of a SEA of the previous NDP (DG XI, 1997), the above weaknesses in SEA application point to a lack of analytical rigour in SEA. Furthermore, there was no public participation for the Eco-Audit and although environmental NGOs were consulted, there was evidence to suggest that this was not done to the same extent as with the other social partners (WWF, 1999).

Another objective of the case studies was the identification of recommendations to promote better practice on SEA/transport planning integration in the studied regions (section 2.3.5). In that respect, there is enormous scope for developing the Eco-Audit model. If an integrated approach to environmental appraisal is chosen, then work needs to be done for administrative co-ordination and co-operation, methodological clarity and effectiveness, increased transparency, and public participation and resource efficiency. The experience that will be gained throughout the preparation of other pilot Eco-Audits and the monitoring of implementation and evaluation of OPs that follow, is a first class test for Eco-Audit to contemplate current thinking on environmental policy making. A number of steps in this direction can be recommended such as the use of a more quantitative-oriented appraisal based on indicators; the introduction of public participation procedures and closer consultations with environmental NGOs; the establishment of a methodological, comprehensive and cross-sectoral process; and the dedication of more human resources to the whole exercise. Practical recommendations include the development of a computerised

data management system for the current NDP and its OPs, the use of a 'compatibility matrix' of the type used by the British DETR adopted for the needs of assessment at a national policy level, and the reorganisation of existing administrative structures such as the staffing of the Green Network with experts responsible for social and economic assessments.

The remaining case study objective, relates to suggestions for the facilitation of the tiering of SEA from the national and regional level to land use plannng level, and of the facilitation of the future enactment of the proposed SEA Directive. Whatever the fate and form of the Eco-Audit, its current procedure and methodology can be highly beneficial to Irish local planning authorities where the incorporation of SEA into development plan making is lagging behind. The successful voluntary British system of 'Environmental Appraisal of Development Plans', in place since 1993, can provide useful insights into the Irish planning system which shares so many similarities with the British system (Grist, 1996, Killen, 1999). Guidelines for land use SEA that are inline with draft guidelines under preparation on Landscape Assessment for local authorities (Moriarty and O'Sullivan, 2000a), and planning guidelines on development plans (Moriarty and O'Sullivan, 2000b) are needed. In Ireland, contrary to the situation in the UK, the extension of SEA from a national planning tier down to the local planning tier also provides a research opportunity to compare these top-down (Ireland) and bottom-up (UK) approaches to Sustainable Development. Finally, although there is expression of political will expressed in various documents (GoI, 1999; DRA, 1996) for the introduction of a SEA system for land use plans (similar to the proposed SEA Directive's), these plans have not materialised. The introduction of SEA guidelines that take into account the provisions in the proposed Directive on SEA, will be a step towards its easier implementation in Ireland.

8.4. Sustainability Appraisal of the Sustainable Development Strategy for the South East of England (1998)

8.4.1. The Sustainable Development Strategy and its context

The Sustainable Development Strategy for the South East of England (SDS) (SERPLAN, 1998b) is a broad policy document that provides the regional context for local authority development plans and strategic decisions. It is also a consultation mechanism that brings together a wide range of organisations in order to influence the formulation and implementation of regional policies. Its overriding aim is ' *to produce a more sustainable pattern of development, focused on making better use of the urban areas in the region, and to promote a switch from unnecessary use of the private car to greater use of public transport.*' (SERPLAN, 1998b, p. 1). The Strategy stresses three major policy themes: i) the 'environmental enhancement and natural resource management' which has an urban and

rural branch: the promotion of 'urban renaissance' '*in a physical sense*' and '*also by helping the development of more balanced urban communities with proper social and educational facilities*', and the moving towards 'a prosperous and multi-purpose countryside' (protection of the wider countryside and designated areas), ii) the encouragement of economic success (maintenance of the region's competitiveness), and iii) the promotion of opportunity and equity (especially in the provision of affordable housing) (SERPLAN, 1998b).

In order to achieve this aim, the Strategy focused on three other policy themes: the regeneration and renewal theme (identification of Priority Areas for Economic Regeneration), the concentration of development (reuse of existing buildings and previously developed land and its relation to transport), and sustainable transport. In relation to transport, the strategy recognises the lack of accessibility and its consequences to the economic environment. It suggests:

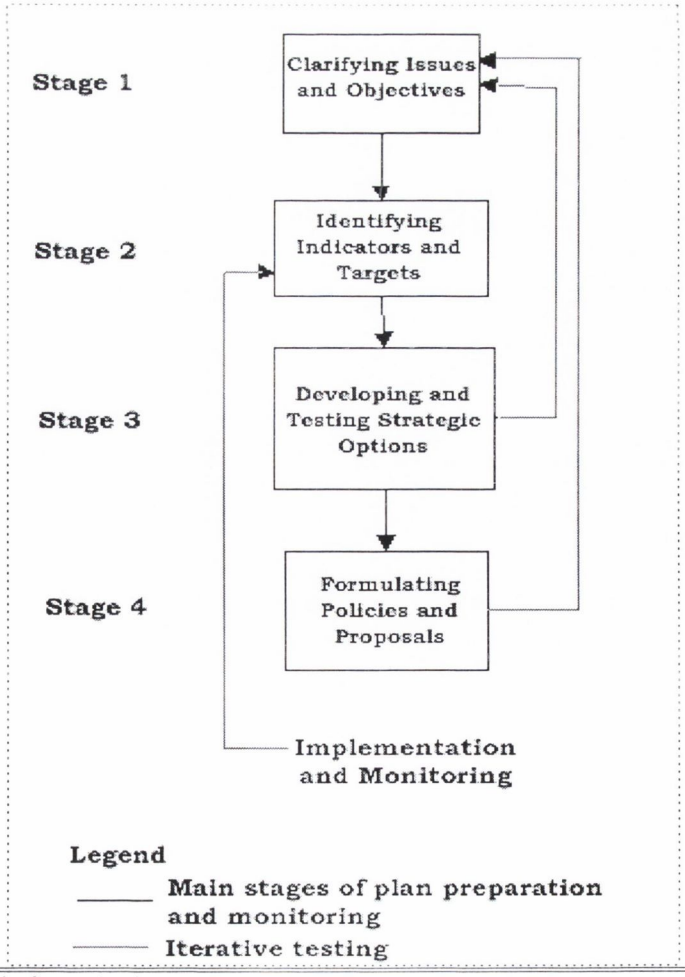
- the implementation of demand management measures (*i.e.* congestion charging, tolling and parking levies),
- better integration of transport and spatial planning (*i.e.* less peripheral development 'as this has given rise to particularly unsustainable travel patterns' in the past),
- the maintenance and management of the existing networks (road, rail, bus, pedestrian and cycle),
- the encouragement of walking, cycling and the use of local services, and
- the funding of key investments in public transport by potential investors.

It is characteristic that one of the eight headline targets of the Strategy is to achieve an aggregate regional car mileage in 2016 below that of 1998.

The methodological framework was based on the Sustainability Appraisal (SA), which was developed by the London and South East Regional Planning Conference (SERPLAN) and integrated various SEA stages into the regional planning process (SERPLAN, 1998a; SERPLAN, 1996a). From the outset, the SA adopts five sustainability principles that underpin the whole strategy. These are Environment, Futurity, Development, Social Equity and Participation. Each of these is accompanied by the definition of a series of objectives for the Strategy (Table 8.7). This 'objectives led' planning approach to sustainability, is complemented by the definition of a 'refine as you go' socio-economic and environmental set of indicators under each objective. This set of indicators/objectives provides the assessment framework, which is used throughout plan making and appraisal, monitoring, and possibly, review of the Strategy.

Both the SA and the Strategy, form part of a general sustainability and environmental appraisal context regarding national, regional and local authority planning, and transport. A number of documents relevant to sustainability were published before, during, and after the regional Strategy-making process. In February 1998, a consultation paper for a 'revised national Sustainable Development strategy' was published. There, a framework for SD was set and the term SD was defined as '*a new and integrated way of thinking about choices right across Government, and throughout society, so that we can all share in the highest quality of life now, without passing on a poorer world to our children.*' (DETR, 1998). In October 1998, a 'good practice guide on Sustainable Development Planning' was published (DETR, 1998b) introducing a methodology for integrating SD into development plan making (Figure 8.4). This methodology was based on the 1993 government advice on the 'Environmental Appraisal of Development Plans' where a type of SEA process was suggested aimed at incorporating sustainability concerns into local authority plan making (DoE, 1993).

FIGURE 8.4: SUGGESTED APPROACH TO INTEGRATING SUSTAINABLE DEVELOPMENT INTO DEVELOPMENT PLAN PREPARATION (UK)



Source: DETR, 1998b, figure in chapter 6.

In March 1999, the 'Strategy for a Sustainable Distribution' was published, aimed at producing an integrated transport strategy for the sustainable distribution of goods and services in the UK (DETR, 1999h). It focused on cost efficiency, safety, and minimisation of environmental impacts (DETR, 1999h). In May 1999, the 'UK strategy for SD: A Better Quality of Life' reflected the British government's commitment to establish SD frameworks for each English region by the end of 2000. There, a monitoring system was developed in order to measure progress towards SD through a system of headline indicators which identify key issues relating to quality of life (DETR, 1999d). In December 1999, the UK government published a baseline assessment based on the 'Quality of Life Counts Indicators for a Strategy for SD for the UK'. In this document, the set of indicators was extended and targets were set to some of indicators. There was also a commitment for an annual publication of 'progress reports' from the year 2000, which will enable government to adjust its policies and to 'look to others to join in where a trend is unacceptable' (DETR, 1999c).

The evolution of 'Environmental Appraisal' dates back to 1993 where the government guidance on the 'Environmental Appraisal of Development Plans' was published (DoE, 1993). New proposals for a guidance on the 'environmental appraisal of development plans', are set out in the consultation draft of the revised Policy Planning Guidance Note 12 on development plans (DETR 1999j). This process has evolved in its terminology (*i.e.* Sustainability Appraisal), rationale (*i.e.* integrated approach which aims at promoting Sustainable Development), methodology (*e.g.* it is based on indicators for assessment, monitoring and public participation), process (*e.g.* it is a more iterative and 'objectives led' approach), and geographical scope (*i.e.* it is extended from the development planning to the regional planning and transport sector, and possibly to government policy level). Also in 1991, the former Department of the Environment issued guidance on 'Policy Appraisal and the Environment' where government departments were encouraged to assess all potential effects of new policy proposals (DoE, 1991; DoE, 1994). After a review in 1997 (DETR, 1997), the Department of the Environment and Local Government (DETR) published a revised policy guidance (DETR, 1998a) supplemented by a 'Review of Technical Guidance on Environmental Appraisal' (DETR, 1999b). At a regional planning level, the environmental appraisal process has been developed by regional conferences, which are strategic groupings of local authorities similar to SERPLAN. The experience gained was fed into the updated Policy Planning Guidance Note 11 on regional planning, which specified that regional plans should include an appraisal of their implications for the environment and sustainability (DETR, 1999e). In August 1999, the British government issued consultation draft proposals for a 'Good Practice Guide on Sustainability Appraisal of

Regional Planning Guidance' (DETR, 1999f), which incorporated the basic elements of SERPLAN's SA of the SDS examined here.

The above sustainability and environmental assessment initiatives had a major impact on transport planning. This can be seen by the development of Multi-Modal Studies. The aim of the Multi-Modal Studies is to investigate problems with all modes of transport and to seek solutions to these problems. The Studies identify a number of different options aimed at addressing the problems within the study area. Each option consists of a transport plan, that is, a collection of quite specific interventions. The results of the Studies will be used by the Regional Planning Bodies to develop and review Regional Transport Strategies (DETR, 2000b). The 2000 'Guidance on the Methodology for Multi-Modal Studies' (DETR, 2000b) uses an 'Appraisal Summary Table' which displays the degree to which the five objectives for transport (environment, safety, economy, accessibility and integration) can be achieved. This integrated type of appraisal provides a summary of the impacts of an alternative option, the degree of detail of which has to be sufficient to enable the use of project-Environmental Impact Assessment and CBA. This integrated approach to regional planning, is largely based on CBA and Environmental Impact Assessment. The Guidance forms part of a wider 'integrated transport framework' which is included in the government's White Paper on an Integrated Transport policy (Table 8.6).

TABLE 8.6: FOUR THEMES OF UK'S INTEGRATION TRANSPORT POLICY

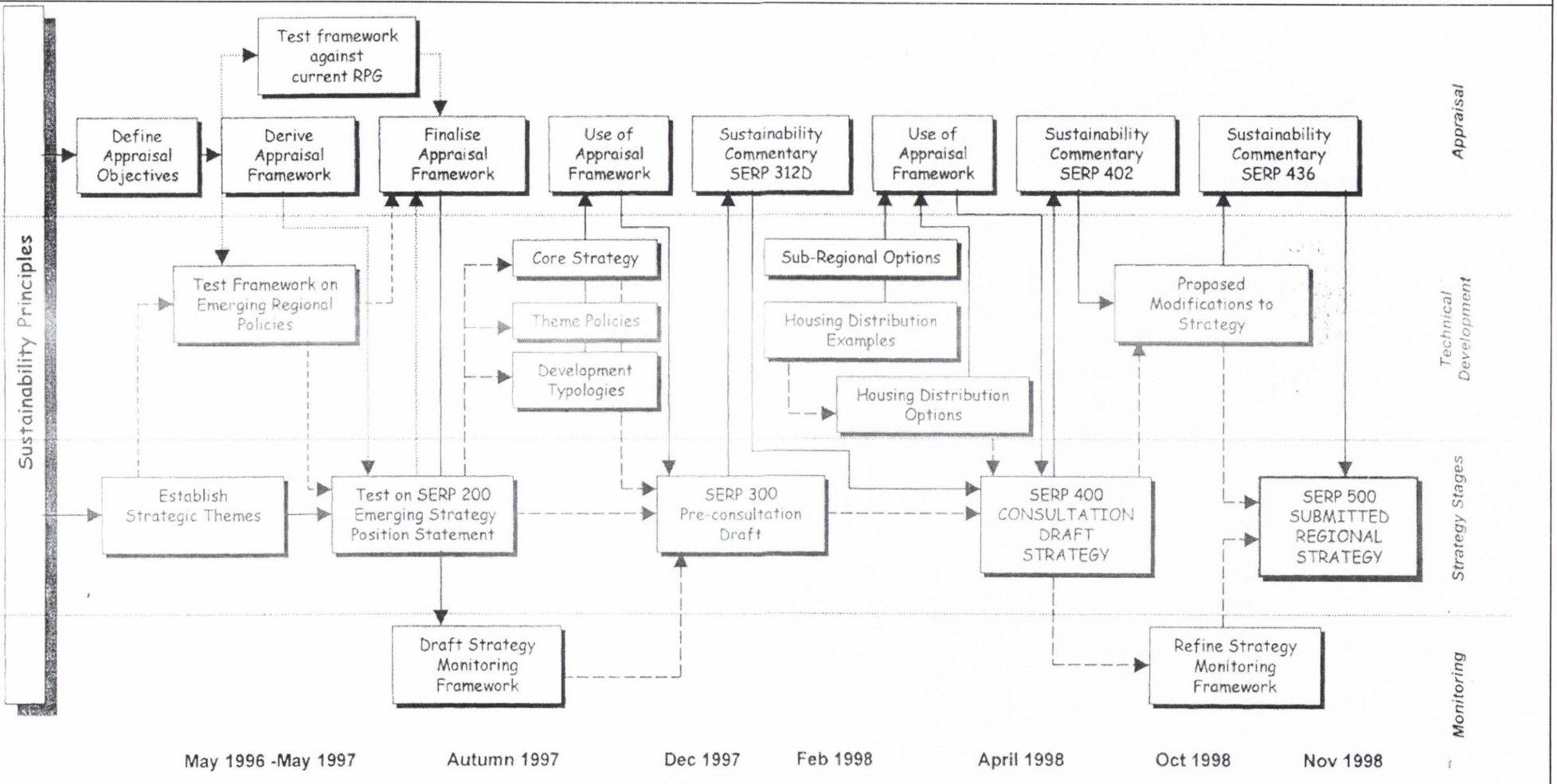
The White Paper 'A New Deal for Transport' suggests that integration should increase, with the aim of ensuring that all decisions are taken in the context of the government's integrated transport policy. More specifically, this means:

- integration within and between different types of transport, so that each contributes its full potential and people can move easily between them,
- integration with the environment, so that the transport choices available support a better environment,
- integration with land use planning, at national, regional and local level, so that transport and planning work together to support more sustainable travel choices and reduce the need for travel, and
- integration with policies for education, health and wealth creation, so that transport helps make a fairer, more inclusive society.

Source: DETR, 2000b, para. 3.3.19.

Finally, the UK is undergoing a series of reorganisations that influence transport and the environment, such as the advice on 'Green Transport Plans' (Oscar Faber *et al*, 1998), the Transport Bill (House of Commons, 1999), the ten year plan for investment in transport (DETR, 2000a), the new 'National Road Traffic Reduction Targets' report (DETR, 2000c; DETR, 1999i), the establishment of benchmark standards in the National Air Quality Strategy, and the revision of the RPG: transport (DETR, 1999g).

FIGURE 8.5: PROCEDURAL INTEGRATION OF SUSTAINABILITY APPRAISAL INTO THE REGIONAL STRATEGY (1996-98)



Source: SERPLAN, 1998a, figure 1, p. 5.

In the UK, there is emphasis on harmonious integration to bring about the expected benefits of this integration. The examination of various elements of the SEA process and the way that they have been linked with the regional planning process follows.

8.4.1.1. Procedural integration

The SA examined here is one of the first in the UK. It has been adapted for use in the SA of the regional development strategy for Northern Ireland and in other regions of the UK. In the current case study, the relationship between SEA and the regional planning process incorporates all the elements of positive procedural integration. As such, the basic SEA elements were found alongside the planning stages (*i.e.* vertical integration). Both processes are continuous and iterative and SEA participates from an early stage of the planning process (*i.e.* temporal integration) by setting overriding sustainability principles. These govern the rest of the assessment and planning process. Figure 8.5 shows the procedural stages involved in the sustainability assessment of the Strategy, which took place between late 1994 and late 1998. It has to be noted that the authors of SERPLAN's documentation use interchangeably the terms 'Environmental Appraisal', 'Sustainability Appraisal' and 'Environmental Assessment'. In the SDA and SA texts it is noted that '*Although entitled an environmental appraisal, the framework was wider in scope and does provide for a full sustainability appraisal.*' (SERPLAN, 1998c, p. i). The use of any particular technique for 'screening' for the need for a SEA was not necessary, as the requirement for its preparation and integration was provided by DETR: '*Although it is not statutory to carry out a Strategic Environmental Assessment (SEA) at present, the Department of the Environment has indicated to SERPLAN that they would like one to be undertaken.*' (DETR, 1996a, p. i). Another, rather indirect rationale for the application of this SEA, was the anticipation of the future enactment of the proposed SEA Directive: '*The European Union is currently examining Environmental Statements to cover plans and programmes and a Directive may be issued later this year, although it would not become law in member states for several years.*' (SERPLAN, 1996a, p. i).

The sustainability principles established by SERPLAN, determined the adoption of objectives, assessment criteria and indicators which formed the framework and determined the methodology that guided the assessment, evaluation and monitoring process. The Sustainability Panel established by SERPLAN in late 1994, endorsed the framework and methodology put forward by the SEA sub-group within SERPLAN in May 1996. The appraisal framework (Table 8.7) was refined by means of testing it against selected policies from RPG9 (DETR, 1994), and further consultation with various working groups within SERPLAN's Secretariat.

TABLE 8.7: SUSTAINABILITY ASSESSMENT FRAMEWORK: OBJECTIVES AND CRITERIA (SERPLAN)

Sustainability Principle	Objective	Assessment Criteria
Environment	Protect and enhance biodiversity	Does the policy/proposal threaten or enhance natural habitats or wildlife?
	Protect and enhance the landscape and countryside	Does the policy/proposal threaten or enhance areas of open land?
	Reduce global warming and energy use	Does the policy/proposal help to reduce global warming; encourage energy efficiency; use of renewables?
	Reduce air pollution	Does the policy/proposal contribute to air pollution?
	Protect and improve the management of the aquatic environment	Does the policy/proposal reduce need for water and/or promote reuse? Is it compatible with the EA Catchment Management Plans: Shoreline Management Plans?
	Provide for the efficient use of mineral resources	Does the policy/proposal reduce need for minerals and or increase recycling?
	Reduce the amount of waste requiring final disposal	Does the policy/proposal reduce waste production and/or increase recycling?
	Increase energy efficient transport modes	Does the policy/proposal promote modal shift from private cars to public transport, cycling and walking; promote alternative fuel technology?
	Enhance quality in the urban environment	Does the policy/proposal improve the quality of the urban environment; encourage 'sustainable compactness' (*providing multi functional urban communities which are not subject to town cramming*)
Development	Providing for current needs	Does the policy/proposal provide for the needs of current generations?
	Reducing the reliance in private transport and reducing travel lengths	Does the policy/proposal encourage a reduction in travel and transportation and/or encourage the use of other modes?
	Providing for needs in a resource efficient way	Does the policy/proposal encourage the efficient use of resources (*i.e.* land, energy, materials and water)?
	Provide for an environmentally efficient economy	Does the policy/proposal promote quality of life whilst protecting human health and the environment?
	Promote better land use	Does the policy/proposal minimise use of greenfield land; enhance role of town centres
Futurity	Provision of future needs	Does the policy/proposal provide for the needs of future generations?
	Maintain and improve future choices	Does the policy/proposal maintain or increase the choices available to future generations to meet their needs? Does it apply the precautionary principle?
	Consider future impacts	Does the policy/proposal have any significant or detrimental or beneficial impacts on the environmental quality/capacity or social equity of future generations?
Equity	Reduce unemployment	Does the policy/proposal provide opportunities for disadvantaged groups and the (long-term) unemployed?
	Increase education attainment	Does the policy/proposal provide educational or training opportunities?
	Reduce crime	Does the policy/proposal improve safety and/or tackle the causes of crime?
	Provide better housing provisions	Does the policy/proposal improve the housing conditions of households?
	Improve public health	Does the policy proposal improve the health and living conditions of individuals and communities?
	Promote an accessible and safe transport system	Does the policy/proposal improve access; improve safety; provide for a clean and efficient transport infrastructure for all individuals'?
Participation	Capacity for future review and public input	Does the policy/proposal allow for future amendment?
	Level of local policy determination (subsidiarity)	Does the policy/proposal delegate 'appropriate' decisions down to the local level? (Appropriate is not a fixed concept but must be debated and agreed as part of the plan process. However, there are some obvious decisions that need to be taken at a regional level in order to secure the objectives of sustainability stated in this table)

Source: SERPLAN, 1998a, Annex 1.

The revised framework was used by SERPLAN's working groups both as a 'guideline' when starting the formulation of policies as well as a 'formal assessment' tool after the finalisation of the draft regional strategy.

The Regional Strategy was accompanied by the final SEA report that was produced by the SEA sub-group after analysing the working groups results. These were put under the statutory consultation process, which further refined the whole process. The last stage of the process was the submission of both documents to DETR, including requirements for monitoring the effectiveness of the implementation of the RPG.

SERPLAN (1998a) was eager to highlight the importance of an early start of the SEA, and its operation 'in parallel' with the planning process. Figure 8.5 illustrates the connectivity of SEA with planning throughout the statutory planning stages. SERPLAN is similarly keen to emphasise the 'continuous and iterative nature of the assessment process': '*Where aspects of the strategy changed, then the impacts of these changes were assessed: thus various components of the appraisal were carried out several times as the Regional Strategy was re-drafted.*' (SERPLAN, 1998a, p. 3).

8.4.1.2. External integration

External integration refers to the linkage of the integrated SEA/planning process with other PPPs. It was examined by means of checking the degree to which the relevant PPP documentation has fed back into the SEA/planning process.

It is recognised that the development of the five sustainability principles underpinned both SA and the development of the Strategy, and secured close integration between these processes (SERPLAN, 1998a). This 'objectives-led' approach was complemented by the production of a number of main objectives for each of the principles. Many of the objectives were drawn from internal and external sources, such as the environmental objectives (SERPLAN, 1995b) and some of the Equity objectives, which were taken from the Local Government Management Board report on sustainability indicators (LGMB, 1996; LGMB, 1994). Sustainable transport was approached throughout the consideration of measures which were compatible with the government's transport policy (*e.g.* DETR, 1998e; DETR, 1998f; DETR, 1999g). These measures revolved around the reduction of traffic congestion, demand management, modal shift, and integration with land use planning (SERPLAN, 1999).

The adoption of the SA process, was also influenced by a world-wide trend towards good practice on environmental and social impact assessment (SERPLAN, 1998a). This included

the United Nation's 1992 'Earth Summit', the European Union's (EU) 5th Environmental Action Programme 'Towards Sustainability' (CEC, 1992a) and the draft EU Directive on SEA (CEC, 1997c). Within the UK, SA was seen to incorporate a number of methodological elements of environmental appraisal tools already in existence at national and local levels (DoE, 1991; DoE, 1994; 1998a). The need for environmental appraisal was first realised in the government White Paper on the Environment (DoE, 1990), and the 'Environmental Appraisal of Development Plans' (DoE, 1993). Furthermore, its application was recommended in Planning Policy Guidance (PPG) Note12 (DoE, 1992).

Another important indicator for a successful 'external integration' of the common SEA/planning process, is its connectivity with PPPs at a lower level of decision making such as county structure plans, district-wide local plans and other policies and programmes. SERPLAN asserts that since most local authorities in South East England are undertaking environmental appraisals of their statutory plans, this practice can be linked to SAs of regional plans (SERPLAN, 1998a). Other policies and programmes that were particularly influential throughout the preparation of the Strategy were the:

- objectives set for the policies and programmes listed in the Strategy's chapter where the spatial implications of the policies for different types of areas and for some key sub-regions were examined (SERPLAN, 1998b, p. 125-135),
- Regional Economic Development Strategies, Local Transport Plans, Rural Development Programmes, and
- priorities set for the Single Regeneration Budget.

SERPLAN goes as far as to suggest that the use of some kind of 'Environmental or Sustainability Appraisal or checklist' by these PPPs, should make a substantial contribution towards their integration with the aims and objectives of the Strategy. It recognises however the limitations of such endeavour by noting that '*There are limits to the range of issues which the regional planning strategy tackles and there are good reasons why other less directly relevant strategies and programmes, for education or social services for example, should undergo similar appraisals.*' (SERPLAN, 1998a, p.1).

8.4.1.3. Methodological integration

There were no other environmental management tools alongside SEA. The SA for the Regional Strategy used assessment, evaluation and monitoring of SEA methodology in a cross-sectoral and objectives-led framework. These were based on an inter-linked set of socio-economic and environmental principles, objectives, assessment criteria, indicators, and in some cases, targets. If the provisions of the proposed Directive on SEA were applied in the examined case, the assessment might have required the consideration of the likely effects on the environment including secondary, cumulative, synergistic, short, medium and

long-term, permanent and temporary, positive and negative impacts (CEU and EP, 2000). The interviewees however, considered that these and other parameters might have rendered a more complicated and more cumbersome process, which would be in danger of loosing its integrative characteristics. In this hypothetical case, a separate SEA rather than an integrated assessment might have been undertaken. The fact that the draft SEA Directive focuses on the environmental theme of Sustainable Development and is not designed to fit into an integrated schema of planning, might pose questions on whether the Sustainability Assessment of RPGs are in line with the 'spirit' of the forthcoming SEA Directive.

One of the advantages of the SA methodology is the multi-purpose use of indicators which makes it amenable to more accurate assessment, guides the collection of data, measures the effectiveness of the Strategy by monitoring its implementation, informs the general public, and (if combined with quantitative targets) enables easier evaluation. The refinement of indicators which is crucial to the use of representative, communicative and reliable indicators, requires the use of careful monitoring (SERPLAN, 1998b), an issue that seems to be taken seriously by SERPLAN. This 'rediscovery' of monitoring seems to accord closely with the government's departure from a 'predict and provide' approach, to embrace a 'plan, monitor and manage' approach to planning (SERPLAN, 1998b). One of the tasks of the SEA sub-group (Assessment, Monitoring and Implementation Group) within SERPLAN, was to develop a framework for monitoring the Strategy's policies to feed into a revised Strategy (SERPLAN, 1996a). The monitoring framework will be based on the 'Appraisal Framework' structure using the 'principles-objectives-indicators' approach. There was however scepticism expressed on the efficacy of the monitoring framework. One of the concerns of the assessment team was that some of the objectives may not be accurately measured, owing to the limited impact land use can have on certain variables *e.g.* level of unemployment. (SERPLAN, 1996a). Another problem facing monitoring, is the lack of data availability: '*Data availability, and especially data availability for the SERPLAN area, has been a real problem in the past. Recent experience would suggest that this problem is getting worse, rather than better, in some subject areas.*' (SERPLAN, 1998b, p. 153). The issue is considered so significant, that the Strategy contains a specific policy to address it. The problem is also tackled by the increasing use of a GIS-based information system. SERPLAN also suggests that the Headline Targets of the Strategy can set the structure for local level sustainability targets. A 'shared responsibility' approach is suggested where all local authority areas in the region are expected to contribute towards meeting targets that are set in the Strategy, thus extending the monitoring framework to the local level of planning: '*In all cases, the local planning authority, should propose and justify the nature of the actions or targets for its area which will make the maximum possible contribution to*

the regional target. Local level targets can then be negotiated and agreed.' (SERPLAN, 1998a, p. 70).

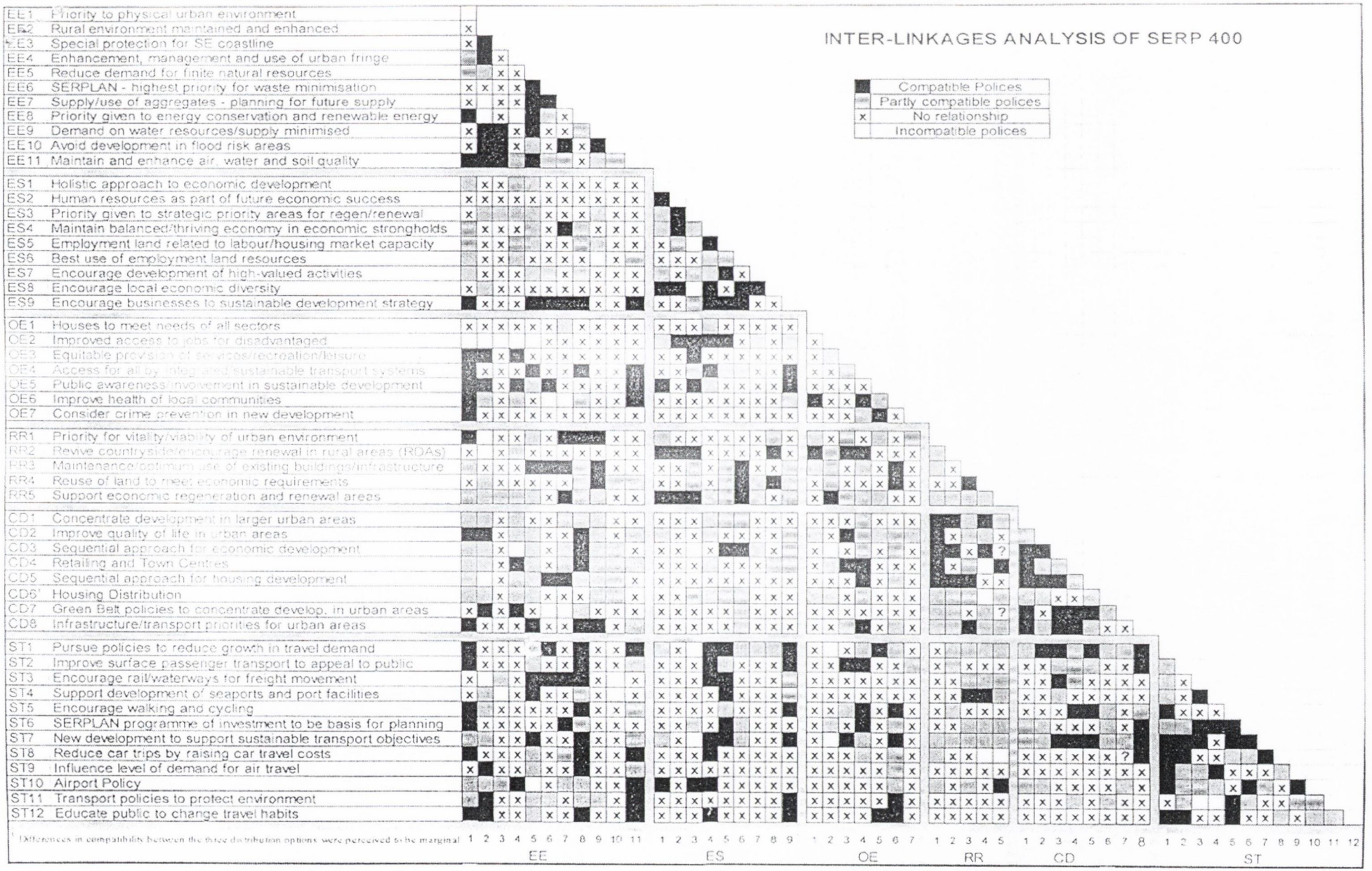
There are methodological lessons to be learned from this integrated SEA. First, it is imperative that for a SEA to be carried out at this level of planning, clear policy statements should be produced. According to the SEA sub-group, '*This is because different working groups have produced policies of different lengths, which evidently has an impact on the assessment.*' (SERPLAN, 1996a, p. 8). The ambiguity in the wording of policies was 'polished' through a refinement process: '*... in many instances, improvements to the wording of policies brought additional clarity to policy objective and/or implementation mechanisms;*' (SERPLAN, 1998a, p. 11).

Second, a further stage in the SA was to check for internal consistency between the policies, to safeguard that they are mutually supportive and do not work against one another. An 'Inter-linkages Analysis Table' was used for analysis (Table 8.8), which is similar to the 'compatibility matrix' used in the 'Environmental Appraisal of Development Plans' guidance (DoE, 1993, Figure 5.1).

The 'Inter-linkages Analysis Table' was used twice throughout the SA process, first for an analysis of the broad policy objectives during the draft Strategy formulation, and second for checking the compatibility of policies and proposals before the final Strategy including a summary of the results contained in the SEA report.

Third, the SA was also extended to cover the spatial distribution of effects of the sub-regional variations and options identified in the 'Spatial Implications' chapter of the Strategy. This initiative is particularly relevant to the local level of planning and appraisal, since it can link the possible environmental appraisals at a local authority planning level with the SA at a regional level. The 'tiering' of spatial assessments from the regional to local level is illustrated in this case study by the evaluation of four housing distribution options that were considered for inclusion in the Strategy by SERPLAN's Members' Policy Group and the further selection of a number of specific policies for each of 14 identified localities: '*Initial assessments were made of the implications of pursuing a range of spatial development options, which included the development of some locational criteria, for possible new settlements.*' (SERPLAN, 1998c, p. iii). It was stressed however that, these recommendations '*... were indicative rather than prescriptive at their current state of development and would require more detailed assessment at the sub-regional, as well as the regional level, as they were developed and refined.*' (SERPLAN, 1998a, p. 11).

TABLE 8.8: INTER-LINKAGES ANALYSIS TABLE (SUSTAINABILITY APPRAISAL, SERPLAN)



Source: SERPLAN, 1998c, p. 54

Fourth, the 'traditional' role of 'mitigation measures' as it is inherited by the project-specific EIA, and specified in the draft SEA Directive's text, is substantially weakened or even not existent. The way that 'mitigation of negative environmental impacts' was perceived in the SA of the Strategy, was by the continuous adjustment of policies throughout the iterative stages of the SA process in order to produce positive effects (SERPLAN, 1998c, p. iii). The measures envisaged, according to the draft SEA Directive, 'to prevent, reduce and offset any significant adverse effects on the environment' (CEU and EP, 2000, Annex 1, para. g) are indirectly included in the Strategy's multi-appraised policies. This 'assimilation' of mitigation measures into the SEA process, might however render the documentation and identification of a beneficial influence of SEA to planning, rather vague. Is this a price that SEA has to pay (*i.e.* lack of tangible evidence of the mitigation of negative environmental effects) as it proceeds toward policy integration?

Finally, an issue that has been evidenced in the other two case studies examined, relates to the limitations in the scope of SEA/PPP, especially at higher levels of decision making. There were concerns, expressed throughout the development of the SEA methodology, that the established integrated assessment might not cover project-related activities. The authors of the SERPLAN report argued that the draft Regional Strategy may be susceptible to impacts that are outside SERPLAN's control. These include infrastructure projects, the impacts of which are unlikely to be reported during the SEA process (SERPLAN, 1996a). The regional level of SEA application implies that this statement may have implications for the application of the proposed SEA Directive at that planning and programming level. According to the draft SEA Directive's text, an environmental assessment shall be carried out for plans and programmes 'which set the framework for future development consent of projects' (CEU and EP, 2000). The Strategy sets the framework for projects implemented throughout the comprehensive land use planning system, by means of meeting targets specified in the Strategy (SERPLAN, 1998a). The capacity however to implement a 'tiered' system of assessment where SEA reports, inform SEAs further down the planning hierarchy (*i.e.* structure, unitary and district plans) can, in reality be substantially curtailed by a lack of information regarding local implementation. The authors of the SDS maintained that in a number of cases, it was not possible to identify with confidence whether the impact of a policy would be positive or negative because so much depended on the manner of its implementation through Structure and Local Plans (SERPLAN, 1998c).

8.4.1.4. Substantive integration

An indication of the existence of substantive integration, is the documentation of the SEA exercise and the follow up after the adoption of the PPP in question. Since the implementation phase of the Strategy has just begun, there is at present only limited reference to the monitoring schedule. With regard to the documentation of SEA, this was comprehensive enough to exceed the requirements of the draft SEA Directive, the 'Environmental Appraisal of Development Plans' guide and the 'Policy Appraisal' guide. Overall, there were at least 14 different documents directly related to the preparation of SEA, published in a four year period (1994-1998) (SERPLAN, 1998a). As shown in Figure 8.5, there were three formal (but not statutory) stages where SERPLAN's appraisal of the sustainability implications of the Regional Strategy was documented.

After the initial testing procedures for deciding on the appraisal framework, a 'sustainability commentary' (SERPLAN, 1997a) of the pre-consultation draft of the Strategy was published. The purpose was to inform SERPLAN's elected member bodies on the decisions about the sustainability principles they were asked to take at the Regional Planning Conference in December 1997. In April 1998, a sustainability commentary of the review of the consultation Strategy was published (SERPLAN, 1998c), which incorporated new housing options and the findings of the assessment of the Strategy. In October 1998, Conference Members were again advised on the sustainability implications of the proposed amendments of the Strategy in the form of a commentary (SERPLAN, 1998d).

There are plans to extend the monitoring phase of the SEA process. These include the publication of a regional annual monitoring report with key indicators and targets and (if not published separately) a commentary on the implications of the information presented there. A fuller monitoring report will also be published at 3-5 year intervals in order to address changing circumstances in some subject areas (SERPLAN, 1998b, p. 153). At a local level, local authorities are expected to document the contribution of local targets to regional targets, and communicate the results annually to SERPLAN.

The volume of documentation certainly promotes transparency of SEA (testified by the author's access to the evaluation of this case study), and most importantly, regarding public participation. The information included in the SA was however somewhat repetitive, and might appear complicated to those unfamiliar with the issues involved.

8.4.1.5. Social integration

Social integration means consultation with social partners such as competent authorities, government agencies, organisations, organised local groups, environmental NGOs and the encouragement of public participation throughout the integrated SEA/Planning process. Consultation and public participation was a priority in the SA process. One of the sustainability objectives of the Strategy is to ensure the involvement of the public and major stakeholders in the development of the strategy and in its implementation (SERPLAN, 1998b). Consultation arrangements were provided by the Regional Planning Conference throughout the Strategy refinement, and the Sustainability Panel that made recommendations on issues relating to Sustainable Development to the Conference. The Sustainability Panel which met during 1995 and 1996, comprised representatives from SERPLAN's constituent local authorities, together with invited individuals from industry, academia and the voluntary sector (SERPLAN, 1998c).

Conferences followed the timetable of document publication. In December 1997, SERPLAN's elected members decided on the assessed pre-consultation draft. On April 8 1998, the Conference dealt with the responses received to the informal consultation in the revision of the draft Strategy. On 16 October 1998, a Conference meeting agreed the modifications and amendments to the policies of the Consultation draft Strategy. Before submission, the Conference Members were advised on the sustainability implications of the proposed amendments, in the form of a commentary (SERPLAN, 1998d).

Public participation was provided in the form of the public consultation draft strategy and strategy assessment consultation papers (SERPLAN, 1998c; SERPLAN, 1998e). The latter, were combined to incorporate an assessment of the Strategy within the appraisal framework, the findings from the inter-linkages matrix, consideration of new housing options, and the assessment commentary for these options (Table 8.9).

The public participation exercise elicited 928 responses. There is evidence to suggest that this stage was poorly integrated with the rest of the SA process as concerns were expressed throughout the development of the SEA methodology. In particular, the authors of the Strategy maintained that the Strategy might have been susceptible to impacts that are outside SERPLAN's control. These fears were realised during RPG's examination in public. With regard to sustainability, economic development and transport, the view of the 'Public Examination Panel' was that SERPLAN's definition of sustainability was biased towards environmental considerations.

TABLE 8.9: SUMMARY OF SUSTAINABILITY COMMENTS ON HOUSING PROVISION OPTIONS (SERPLAN)

Option	Spatial implications of option	Sustainability implications of option
1. Lower level provision	Provision beyond Housing Capacity Study (HCS) 'potential supply' required in 5 counties, often in areas with tight constraints Reduces difficulties of providing housing in west, particularly south-west of region Housing demand in 8 counties not met	Reduces potential for damage to environmental assets/resources in west, maintaining future choice Reflects pattern of projected employment growth but do not full match them Seeks to maintain regional economic base and reduce long-distance commuting through local employment/housing balance Possible difficulty of access to employment in east Risks of long-distance commuting to employment strongholds Significant traffic congestion on form/pattern of development and management
2. Upper level provision: achievable supply/ moderated demand	Provision beyond HCS 'potential supply' required in 6 counties; requires highest aggregate additional allocation of three options Provision beyond HCS 'potential supply' all in west and south-west, often in areas with tight constraints Closest match between housing demand and supply on county-to-county basis	If greenfield development, could have generated potential impact on designations Significant traffic congestion in areas with highest additional allocation Reflects pattern of projected employment growth but does not meet them in full Seeks to maintain regional economic base and reduce long-distance commuting through local employment/housing balance, but at cost of some environmental attrition in the west of the region Many impacts dependent on form/pattern of development and management
3. Upper level provision: potential supply/ moderated demand	Provision beyond HCS 'potential supply' all in west and south-west, often in areas with tight constraints; though levels not as high as in Option 2 Allocations do not meet projected demands in some counties and exceed it in others, with implications for local access to housing and patterns of migration Significant additional provision required	Significant traffic congestion in areas with highest additional allocation Encourages energy efficient transport modes, and safe and accessible transport systems Allocations reflect pattern of projected employment growth, but do not meet them in full as closely as in Option 2 Higher risks than Option 2 of long-distance commuting and possible difficulty of access to employment in the east Seeks to maintain regional economic base and reduce long-distance commuting through local employment/housing balance, but at cost of some environmental attrition in the west of the region (though less than Option 2) Many impacts dependent on form/pattern of development and management
4. New and enlarged settlements	Important that settlements complement, rather than compete with areas of economic regeneration	Opportunity to encourage energy-efficient development and transport modes, but latter is dependent on settlements reaching critical mass Increase in longer-term opportunities/choices Impact on environmental assets and natural resources will vary depending on location Main benefits of programme not apparent during current plan period due to disruptive construction, early lack of amenities and services *etc.*

Source: SERPLAN, 1998a, p. 8, Table 1.

The Panel maintained that 'constraints to economic growth can, and should, be lifted.'; ' ... congestion ... is not to be regarded as a constraint on development.'; ' ... the location of housing, jobs and services will not have much effect on travel patterns ... ' and that 'the policy which dealt generally with transport demand management should be deleted' (PEP, 1999). SERPLAN's response to the Panel's report is revealing. Its comments were that

'The Panel Report does not reflect the basic aims and principles of Sustainable Development as set out in the Government's Strategy for Sustainable Development. It describes instead a conflict between the environment and the economy.

The sustainability appraisal of Draft RPG is dismissed. The contrasting views are evident in the case of transport. SERPLAN maintained that the Panel's approach to sustainable transport, which involves more car and lorry traffic and congestion, would result in increased pollution, environmental deterioration and damaging effects on the regional economy. SERPLAN considers however, that sustainable transport will be brought about by reducing traffic congestion, through demand management, modal shift and integration with land use planning (SERPLAN, 1999).

These contrasting views highlight the limitations of SEA with regard to its sustainability vigour, stemming from areas outside SEA's 'field of competence, such as the general people's view on sustainability and how this should be achieved. Given the definition of Sustainable Development by SERPLAN, it is not surprising that the Panel's perception of Sustainable Development was perceived as a 'threat' by SERPLAN: '*These threats posed by the Panel Report can be contrasted with what SERPLAN was seeking to achieve in Draft RPG...*' (SERPLAN, 1999, para. 1.6). As a 'defence mechanism' therefore, SERPLAN triggered a wide-ranging national debate including the publication of its response to the 'Report of the Public Examination Panel' (SERPLAN, 1999); meetings with Ministers; discussion with Local Government Authorities, regional partners and other regions. SERPLAN also acknowledged that the assessment of policies against the 'Participation' objective posed difficulties: '*It may be that this is an inevitable outcome of a regional level appraisal of a regional strategy. In some cases, policies were judged to perform poorly against these objectives because of the nature of the agencies responsible for implementation.*' (SERPLAN, 1999, p. 14).

8.4.1.6. Integration of human resources

The process of applying the SA throughout the Regional Strategy was managed by SERPLAN's Assessment, Monitoring and Implementation Group which consists of 16 members. These are representatives from 7 local planning authorities, comprising 4 County councils, 2 borough councils, 1 district council, 2 environmental consultants, 2 regional government organisations, 1 academic, 1 environmental consultee and 3 SERPLAN Secretariat's officials. There were also 20 members of the Sustainability Panel who were responsible for developing and progressing the SA framework. The Panel included

representatives from 7 local authorities, involving 5 County councils, 1 borough council, 1 district council, 2 environmental consultants, 1 regional government organisation, 3 academics, 1 environmental consultee, 3 non-environmental NGOs, and 3 SERPLAN Secretariat's officials (SERPLAN, 1998a). The fact that 5 of the Panel's members were also included in the Assessment, Monitoring and Implementation Group, can be regarded as an attempt for communication between the two teams. The majority of experts in both groups were planners and environmental experts. This observation, combined with the dominance of County councils in the composition of the assessment teams, leads to the conclusion that the regional SEA process and methodology was very much based on the local level Environmental Appraisal experience. County councils have considerable experience on the application of the 'Environmental Appraisal of Development Plans'. Two of the pioneering local authorities that undertook environmental assessment of their development plans before the establishment of the government guidelines (*i.e.* DoE, 1993), have representatives in the two assessment teams. The future possible extension of this or similar qualitative exercises (as opposed to the quantitative 'Policy Appraisal' which is based on a CBA approach) to the government policy level, might, in the future, provide for a complete 'tiered' Environmental Assessment process, starting from a policy down to plan, programme and project level.

Another 'lesson learned' from the application of SEA at this generic, regional level of assessment was that greater responsibility should be given to SEA teams if environmental considerations are to be integrated in the planning process. The authors of the SDS argued that the production of the Strategy required a more integrated approach to policy development than could readily be delivered by topic-based working groups (SERPLAN, 1998a). As such, a new approach to policy formulation and Appraisal was adopted: '*Policies have been discussed and agreed with the Working Groups, rather than being drafted by them. It follows that the Secretariat, under the supervision of the Assessment, Monitoring and Implementation Group, has undertaken much of the detailed appraisal work itself.*' (SERPLAN, 1998c, para. 3.2). The integration of planning and SEA teams provided a better appraisal of policies, than if SEA and planning teams were lacking in co-operation and comprising two separate groups with distinct responsibilities. The relevant texts, however, did not adequately address two issues: i) the formulation of environmentally friendly alternative objectives/policies at an early stage of the planning process where SEA was present, and ii) the lack of extending the appraisal scope to cover a wide range of impacts (*i.e.* cumulative impacts). These are indications of the need for closer

communication amongst the members of the assessment teams leading to benefits for the final SEA/planning product.

8.4.2. Conclusions of the case study in London

This section aims to synthesise the research results obtained from the London case study in relation to the objectives put forward in section 2.3.5. One of the objectives of the case studies was the application of the evaluative framework developed in this thesis (chapter 2), in order to detect the reasons for the existence or lack of integration of transport planning with SEA in the selected case studies. The Sustainability Appraisal of the Regional Development Strategy for South East England was effectively an integrated SEA exercise. Positive elements include the integration of most of the SEA stages, its iterative and continuous procedural structure, its early initiation alongside transport planning, the adoption of an objectives-led approach based on targets, the focus on monitoring and documentation of impacts, extensive consultation, and a cross-sectoral approach to the assessment of effects. This rightly justifies its sustainability terminology. It is, however, a pioneering exercise for both methodology and procedure. Negative elements include the limited focus on transport impacts, the lack of conflict resolution mechanisms to resolve communication difficulties arising from different interpretations of the sustainability concept, lack of integration of some of the provisions of the proposed SEA Directive, a failure to organise public participation procedures and a lack of closer co-operation among a wide variety of experts.

There are two additional practical considerations that may limit SEA's capacity to facilitate Sustainable Development through close integration with planning. First, more experience on similar integrated appraisal systems and better communication between different levels of assessment are needed, if regional Sustainability Appraisal is to be successful as an intermediary to implementation of national sustainability policies at the local level, and at the same time inform government of local needs. In which case, 'Policy Appraisal in Government Departments' and 'Environmental Appraisal of Development Plans' may need to be restructured, in order to connect with regional SA methods and procedures through a flexible 'tiering' of Sustainable Development indicators. Furthermore, the incorporation of the requirements of the proposed SEA Directive will strengthen regional planning practice. Second, this case study clearly demonstrated that the successful application of SEA, and implementation of its output, depends on the successful operation of regional planning within which it operates. This is a factor that is traditionally considered as being outside SEA's 'field of competence'. The implementation of SEA's findings depends on

government commitment, delivery of legislation and adequate budget. It also depends on the co-ordination of national, regional and local authority administrative structures to successfully work towards implementation. A move towards Sustainable Development will require education and information sharing, particularly in relation to environmental aspects.

Another objective of the case studies was the recommendation of ways to promote better practice on SEA/transport planning integration in the studied regions (section 2.3.5). Some 'lessons learned' appropriate to this level of decision making are:

- the need for clearer articulation of policies so that they become 'appraisable',
- the importance of a compatibility matrix, to minimise the complexity involved in assessing various development sectors against various types of effects,
- the significance of an early start of SEA in the integrated process,
- the advantage of the use of a simple assessment table in different stages of the process (*i.e.* appraisal, monitoring),
- the value of environmental and socio-economic indicators in guiding environmental and planning assessment,
- the failure of the participation objective in pursuing Sustainable Development which requires that efforts and resources be put into research; and
- the appropriateness of the development of a GIS-based information system to promote effective monitoring and integration of SEAs at different levels of transport planning.

Another case study objective was to provide suggestions for the facilitation of the future enactment of the proposed SEA Directive. This case study showed that an attempt was made to incorporate the requirements of the proposed SEA Directive. This was done to a certain extent in the documentation of the environmental impacts of the Regional Strategy, in the provisions for agency consultation and pubic participation, in the incorporation of SEA stages in the regional planning process and in the explicit focus on sustainability considerations. SA appraisal however, was based on an 'indicators' approach to SEA, whereas the proposed SEA Directive advocates an 'incremental' approach (*i.e.* reliance on a list of minimum SEA requirements). Although the SA approach can be considered as more advanced than SEA in terms of methodology and process, there are two elements of the proposed Directive, that if adopted by SERPLAN, would render a more rigourous environmental assessment process. First, a more systematic approach to SEA would place the focus of the assessment on different types of environmental impacts such as

cumulative; synergistic; short, medium and long term; permanent and temporary; positive and negative (CEU and EP, 2000). This however could not been done without increasing the complexity of the assessment methodology. Second, more effort could be made to link SA with Environmental Appraisals of development plans and project-EIAs. Also, the unification of environmental databases in planning authorities throughout the various decision making tiers and closer co-operation between planning authorities throughout Plan implementation and monitoring, is an important element for the 'tiering' of SEAs.

Another case study objective was to answer the questions that arose from the research results presented in chapters 5-7 regarding the degree of integration of SEA with transport planning in the three regions. In London, the dominant question related to the absence of integration at the strategic level of transport planning (and in particilar at the regional level) although there is evidence of research and implementation experience on SEA. Indeed, compared to the land use planning level, SEA integration at a strategic transport planning level is limited. This is in view of the emerging SEA practice at a regional level (*e.g.* DETR, 1999f) and the existing government guidance on Policy Appraisal (DETR, 1998a; 1997; DoE, 1994; 1991). The reaon for the lack of SEA integation at the strategic level can be attributed to the fact that SEA is considered by transport planners to be somewhat cumbersome, and methodologically 'imature'. An indication of this assumption is that Policy Appraisal was not adopted by public servants (DETR, 1997). The examination of this case study further supported this argument. This case study revealed that a technically successful SEA can not always guarantee a sustainable outcome. SEA is becoming one amongst many tools for Sustainable Development. The following question is therefore relevant: Will the contribution of SEA to regional planning be merely methodological? Within integrated SEA/regional planning, SEA may need to move away from a limited process that assesses the environmental effects of policies, to a 'partner' that participates in the formulation of policies that are within 'society's current scale of values'. SERPLAN's account on the current limitations of sustainability assessment provides a pragmatic message:

> *'The outcome of any assessment does not offer an 'ideal' solution, nor is the assessment the sole determinant for developing a regional strategy. ... In particular, society's current scale of values and its economic structures, predicated upon the global push for high levels of economic growth which include perverse incentives to individuals (e.g. greater subsidies for drivers of large cars who drive many miles), require fundamental change before more sustainable approaches to development become widely acceptable in practice. In the context of the Regional Strategy for the South East, these considerations influenced the drafting of the strategy and led to some 'unsustainable' policies being included in the proposed strategy.'* (SERPLAN, 1998a, para. 2.2).

8.5. Synthesis

This final section of the thesis provides a comparative synthesis of the results obtained throughout the examination of the case studies. It therefore performs a comparative evaluation of the findings of the case studies. One of the case studies objectives was the application of the evaluative framework in order to detect the integration of transport planning with SEA in the selected case studies. Table 8.10, shows the outcome of the comparative analysis of the three case studies examined in this thesis against certain SEA elements of integration.

It is evident that these results, are similar to the results obtained from the quantitative assessment of the three regions presented in chapters 5, 6 and 7. This indicates that the case studies demonstrate a similar degree of SEA integration within the three regions. London incorporates most SEA elements of integration with transport planning, followed by Dublin and Athens.

TABLE 8.10: COMPARATIVE APPRAISAL OF CASE STUDIES AGAINST THE SEA ELEMENTS OF INTEGRATION

SEA Elements of Integration	Case Studies		
√: Satisfaction of the particular SEA element of integration by the case studies	Athens	Dublin	London
X: SEA element of integration is not satisfied by the case studies	Olympics 2004	NDP 2000-6	SD Strategy
A) Procedural integration:			
A_1) Vertical (as many of the SEA procedural stages as possible)	X	√	√
A_2) Continuous and iterative SEA/transport planning process	X	√	√
A_3) Temporal (early integration)	X	X	√
B) External integration (*i.e.* tiering of environmental objectives)	√	√	√
C) Methodological integration: Use of other environmental management tools (approaches) alongside SEA	X	X	√
D) Substantive integration (documentation of SEA)			
a) Is the outcome of the SEA exercise documented?	X	√	√
b) Was there any follow up after the adoption of the PPP?	X	√	√
E) Social integration			
Involvement of competent authorities, government agencies, organisations, organised local groups,	√	√	√
Proactive involvement of environmental NGOs and the public	X	X	X
F) Integration of human resources: Co-operation and communication amongst the planning and assessment teams			
The assessment experts are part of the planning team	√	√	√
The assessment experts are part of a separate team within the planning team	√	X	√
Assessment team consists of experts outside the organisation organising and preparing the transport-PPP (*i.e.* environmental consultants)	√	X	X

The Athens 2004 Olympic Games Transportation Plan incorporated the least SEA elements of integration with transport planning of the three case studies examined (see chapter 5). This was expected, since, in contrast with the case studies in Dublin and London, the

aim of the planning exercise was not the environmental assessment of transport policies. The Athens 2004 Olympic Games Transportation Plan proved to be a realistic reflection of the strengths and weaknesses of Greek strategic planning which partly account for the lack of SEA application. Dublin is currently developing an integrated policy-SEA model of assessment. The weaknesses of this case study reflect the difficulties involved in SEA at this high level of decision making. A possible transference of experience from the British 'Environmental Appraisals' and 'Sustainability Appraisals', will greatly facilitate the 'tiering' of SEAs in Ireland. This will also facilitate a smoother implementation of the potential enactment of the SEA Directive. In London, integrated-SEA is taken a step further. This case study was the most integrated example of SEA found throughout the research for this thesis. The experience with Environmental Appraisals at a land use planning, and policy level, seemed to be the driving force for the Sustainability Appraisal of the Regional Development Strategy. The examination of this study, however, raises questions about the role of an integrated-SEA in promoting Sustainable Development, since the application of a Sustainability Appraisal does not eliminate unsustainable outcomes.

The remaining objectives that apply to all three case studies, were the recommendation of specific measures for transference of experience between Athens, Dublin and London, and suggestions for the facilitation for the future enactment of the proposed SEA Directive. The examination of the three case studies showed that on-going environmental impact monitoring (as was the case with SERPLAN's Sustainability Appraisal and Sydney Olympics 2000) is feasible. This however requires (especially when the quantification of impacts is attempted), the commitment of resources, the existence of political will to actually undertake such a task, organisational capacity, the existence of a monitoring programme designed throughout PPP making, and the development of environmental databases.

The integration of social impacts in the transport planning/SEA exercise is better promoted when there is previous experience on Social Impact Assessment (as was the case with the Eco-Audit and Sydney Olympics 2000) and increased organisational capacity and political will in order to bring interested parties together. The presence of cross-sectoral administrative structures for the co-operation of experts, and the development of an integrated database is also required. All three case studies revealed that political will through, for example, commitment to the principles of Sustainable Development are central to the initiation of SEA at an early stage of the transport planning process. The involvement of environmental NGOs seemed to be related to the commitment to Sustainable Development considerations and in some cases (*i.e.* Eco-Audit and Sydney 2000) can

be justified by the controversial issues examined in the PPP. In summary, the development of environmental databases, the reorganisation of institutional structures to organise consultation and public participation, and the focus of competent organisations on training and co-operation of transport experts on the socio-economic and environmental impacts of transport, are all areas with room for improvement in the three case studies.

Overall, it can be concluded that given the similarities of transport planning with SEA, their integration can occur by extending existing transport planning practice to cover environmental impacts. Therefore, the key to successful integration is the flexibility of SEA to accommodate transport planning procedures and principles that are unique in each region. Chapter 4 showed that in Athens, there is generally underdeveloped transport planning/SEA practice based on lack of implementation, limited resources and lack of political will to promote SEA. The focus therefore should be on the achievement of realistic expectations regarding integration. The proactive fulfilment of the proposed SEA Directive can provide the appropriate focus and prepare Athens for the future fulfilment of an integrated SEA similar to the advanced systems found in London, and to a lesser extent in Dublin. The most effective way to achieve this is to incorporate the proposed SEA Directive's requirements into existing mandatory planning specifications (MEPPPW, 1997b; MEPPPW, 1997c) and by the provision of appropriate training for government staff in transport SEA issues.

In Dublin, there was an expression of political will for the introduction of a SEA system for land use and sectoral plans similar to the proposed SEA Directive. Furthermore, financial resources were committed and guidelines prepared for a policy SEA. These initiatives however, lack the substantial experience on SEA at the local/regional level, which was found to be extensive in London. Given that the Irish planning system shares similarities with the British system, transference of experience from London PPPs would be highly beneficial for Dublin. Experience can be transferred from the Environmental Appraisals of development plans and Sustainability SEAs of regional planning guidance that can be incorporated into the Irish planning system.

In London, the institutional fragmentation of responsibilities regarding transport management, poses difficulties for effective public participation. Transference of experience by Dublin on innovative ways to involve the public at a regional level will greatly benefit SEA integration in London. Similar benefits should be expected from the application of a flexible SA to incorporate the provisions of the proposed SEA Directive.

Finally, a conclusion stemming from the case studies regarding the evolution of SEA, is that change in current planning practice in order to integrate SEA, does not necessarily result in high expenditure and the use of complicated methodologies. Simplicity in assessment, public involvement, reorganisation of existing institutional structures, and better co-operation among the members of the planning team, can achieve satisfactory results.

9. Conclusions and Recommendations

9.1. Introduction

The aim of this research was to recommend the integrated elements of a SEA/transport planning model, and to test these in Athens, Dublin and London. In order to fulfil this aim, the following objectives were addressed in the previous chapters:

- to develop a framework within which integration of SEA with transport-related strategic actions can be evaluated;
- to apply this framework to a number of transport-related documents prepared by public and private bodies in Greater Athens, Greater London and Greater Dublin regions;
- to examine why and how SEA is, or is not, integrated with transport planning practice in each of the regions examined;
- to modify the framework in light of the research results, in order to make it applicable across EU member states;
- to recommend transference of experience on SEA-integration among the regions examined.

In particular, the review of the literature enabled the development of a framework within which integration of SEA with transport-related strategic actions was be evaluated (chapters 2 and 3). This integrative-SEA/PPP framework was applied to a number of transport-related documents prepared by public and private bodies in Greater Athens, Greater London and Greater Dublin regions (chapters 5-7). In Chapter 8, an in-depth analysis of a characteristic case study from each region based on the elements of the integrative framework, was displayed. An examination of the reasons for the existence or absence of SEA integration in the three regions and the recommendation of transference of experience among them was provided. Ways for the facilitation of the future enactment of the proposed SEA Directive were suggested, and specific questions that arose from the research results presented in chapters 5-7 were answered. Chapter 9, draws together the findings of the study to satisfy the aim of the thesis. This chapter, therefore, restates, refines and represents the evaluative framework in a form that will enable it to be used by other researchers looking at similar issues in other areas, focuses on a cross-regional comparison of practice on SEA integration, and suggests specific measures to improve integration in each region. The chapter concludes with the proposition of

further areas of research on the integration of SEA into PPPs and with a summary of the important issues emanating from the research.

9.2. *Recommendations on the integrative SEA/PPP framework*

The aim of this research was to recommend the elements of an integrated SEA/transport planning model (chapter 1). Existing literature presents various integration models and the difficulties in bringing together environmental planning and management approaches, within strategic policies, plans and programmes is highlighted. A review of the literature led to a research designed to incorporate all possible elements of SEA integration into the transport policy, planning and programming process. Since literature on transport SEA is limited, the review included a general SEA literature for the purpose of development of the framework (chapter 3). The resulting 'integrative' framework was tested in three EU regions, Athens, Dublin and London (chapters 5-7).

This research has led to a proposal for the successful integration of transport programming, planning and policy actions with the SEA process. This proposal has the form of the revised 'evaluative framework' that was developed throughout this thesis (Table 9.1). The main benefit deriving from that framework, is based on the assumption that the encouragement of closer integration of the SEA with the PPP[1], will initiate a closer integration of the environment into decision making. The integration of environmental considerations into non-environmental policies is one of the principles of the 5th and 6th EU's EAP and in that respect, the revised framework will contribute to the easier implementation of the future SEA Directive and to the evaluation of its implementation.

The revised 'evaluative framework' can be used as a) a decision making and research tool to review and compare practice on SEA between similar or different SEA systems, and as b) a planning or evaluation checklist devise in order to help design a future or/and enable the evaluation of past integrated SEA/PPP exercises. The first use is particularly relevant in the context of the European states that will join the EU in the future, and the latter use, can contribute towards the implementation and evaluation of the proposed SEA Directive, after its future enactment. It is especially useful to national and regional administrators involved in environmental

[1] The PPP and SEA were seen as forming part of procedural, administrative, institutional and social processes.

policy making and legislation, researchers, business managers and environmental auditors, local authority and sectoral planners, and SEA practitioners.

TABLE 9.1: THE REVISED EVALUATIVE FRAMEWORK

Is/was the SEA procedurally integrated with the PPP?

1.a. How many stages of the SEA process (Figure 9.1) will be/were incorporated in every PPP stage?

1.b. Will/Did the SEA team participate in the setting of the PPP's aims and objectives?

1.c. Will/Did the public participate in all/some stages of the integrated SEA/PPP?

1.d. Will/Did the PPP making include the monitoring of the previous PPP and proposals for the monitoring of the following PPP?

2. Is/was the SEA externally integrated with the PPP?

2.a. Are/Were the objectives, policies and measures of the integrated SEA/PPP, in conflict with objectives and initiatives set in PPPs in the same or different decision making tiers or organisations?

3. Is/was the SEA methodologically integrated with the PPP?

3.a. Is/Was SEA a separate methodology or formed part of an umbrella methodology which incorporated PPP making and other planning/management tools?

4. Is/was the integrated SEA/PPP process transparent?

4.a. Is/Was there documentation of the:

- integrated SEA/PPP process,
- environmental reasons for taking decisions throughout the process,
- outcome of public participation and consultation,
- periodical publication of the outcome of the monitoring exercise.

5. Is/was the SEA socially integrated with the PPP?

5.a. What consultation methods were/will be used in order to involve the competent authorities, government agencies, organisations, organised local groups, environmental NGOs and the public in general throughout PPP/SEA making?

5.b. In how many stages of the integrated PPP/SEA process will/did the public participate? (type, duration and timing of participation)

5.c. Are/Were there any participation and consultation procedures in place?

6. Is/was there a satisfactory utilisation of the human resources?

6.a. Are there any administrative/corporate procedures/incentives in place for the encouragement of close co-operation and communication between:

- assessment/planning teams,
- members within the teams, and
- teams with the public and consultees.

6.b. Are there any administrative/corporate procedures/incentives in place for the acknowledgement/management of errors as a result of uncertainties?

6.c. Is/Was the integrated PPP/SEA process cost-effective and time-efficient?

Since its development was based on an international SEA literature review, the framework applies to all types of PPPs. Its testing at the three EU capital cities with contrasting but interrelated transport planning and environmental policy frameworks, was successful in documenting the degree of integration. The revised framework therefore partly reflects the characteristics of the planning systems (Greek, Irish and British) in these regions but is flexible enough to be used by other researchers looking at similar issues in other settings.

Although the revised integrative framework can be used as a general guide for the review and evaluation of effective practice on SEA integration, the following considerations should be taken into account when selecting the criteria for the measurement of the degree of integration:

The inter-connectiveness of the 'elements of integration' should be taken into account when classification (of elements) and evaluation (of criteria) is undertaken, in order to avoid double-counting. Elements of SEA integration are linked with each other and the integration of one element will influence the integration of other elements. This is particularly relevant when weighting the relevant criteria.

Attention to comparative aspects should be drawn when making comparisons. The revised 'evaluative framework' can be used in conjunction with a set of selected indicators/targets in order to quantify the degree of integration and allow for comparisons. The outcome of the comparison between integrated PPP/SEA exercises (based on such an integrative framework) is strongly dependent on the appropriate selection of criteria. The comparative aspects that should be taken into account in the selection of representative criteria are country specific, since they depend on the particular methodological, institutional, administrative and cultural circumstances of the planning systems. It is for this reason that guidelines and research has to be country oriented and ideally, be flexible enough to apply in a case-by-case mode. The development of similar SEA processes (such as the possible adoption of the EU wide proposal for an SEA Directive) facilitates comparison. The adoption of the same criteria but different SEA processes, might lead to different evaluation results. The definition of the SEA process that the thesis adopts is therefore indicative since different procedures exist in different countries/regions. This SEA process has been suggested by Therivel (*e.g.* Therivel and Partidário, 1996; Therivel and Thompson, 1996; Therivel, 1993; Therivel *et al*, 1992) and is one of the most comprehensive and complete that can be found in the literature (Figure 9.1). These characteristics make it more appropriate for research reasons rather than when used to reflect a situation in actual plan making. It might therefore be necessary that the suggested SEA process is configured by the planner/evaluator in order to fit in the specific requirements of the planning system in place. The future enactment of the proposed SEA Directive will undoubtedly contribute towards the harmonisation of SEA processes and the minimisation of incompatibility between SEA processes. The proposed SEA Directive might however take a few years to be enacted and fully implemented. Even when that happens though, there will still exists more 'advanced' or less 'advanced' SEA systems, as the experience accumulated by voluntary efforts, such as the Environmental Appraisal in Britain, will certainly provide an 'added value' for SEA to these countries, compared with countries with minimal experience such as in Greece. Therefore, the SEA process that will be selected for use in the evaluative framework after the enactment of the proposed SEA Directive, should still reflect the implementation 'on the ground' of the given

SEA system, rather than the mandatory but potentially not enforceable requirements of the law.

Finally, the originally developed 'evaluative framework' (Table 2.1) is different compared to the revised one (Table 9.1) in terms of type, form, and structure:

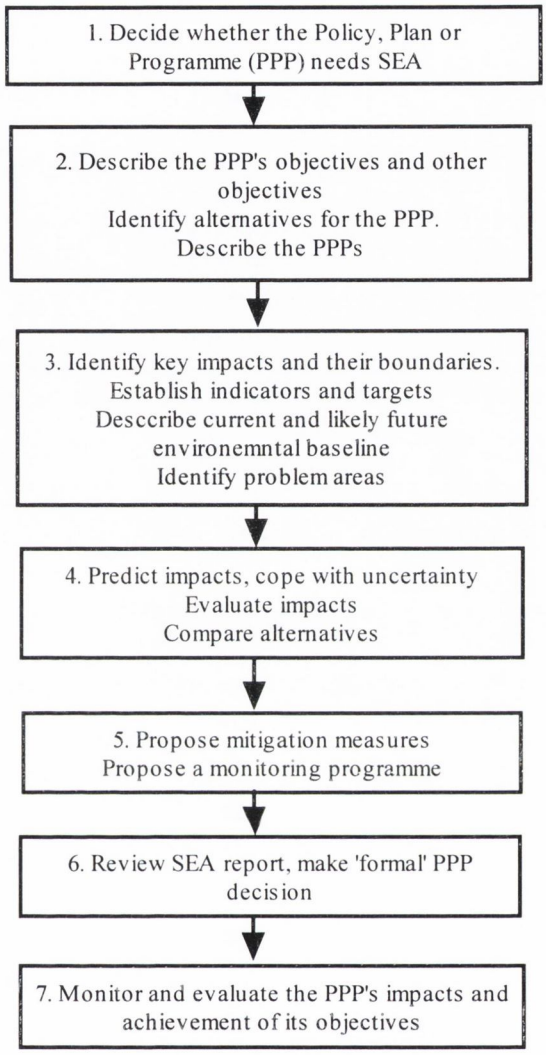
Type: As a result of its wide application to various PPPs, the evaluative framework cannot be considered a technique or methodology but rather a conceptual structure within which comparisons between SEAs can be made, and measurements of the connectiveness of SEA with PPP making can be taken.

Form: The revised 'evaluative framework' (Table 9.1) is better presented in a questionnaire form, where a planner/evaluator can design (*ex ante*) or monitor/audit (*ex post*) a given integrated SEA/PPPs exercise.

Structure: The revised 'evaluative framework' should be seen under the light of two separate conclusions concerning the structure of the integrative framework. These include the integration of human resources and monitoring.

The quantification of the human resources integration requires further research. Three criteria were used throughout the research to detect the degree of human resources integration. These were type of expertise, employment conditions, and degree of co-operation. These criteria are non-quantitative, in that they do not contribute, as the other types of integration do, to the overall quantitative comparison of the experience of integration amongst the three regions examined. They are, however, measurable in a statistical sense (chapters 5-7) and, as such, useful in drawing conclusions for each individual region. The reason for their exemption from the 'evaluation of integration between regions' exercise, is that they are intentionally descriptive. This means that they are capable of describing the co-operation between the actors directly involved in PPP making and transport-SEA, but do not measure the degree of successful integration. In order to do that, value judgement should be exercised on whether, for example, the utilisation of in-house expertise rather than an external consultant is an indication of integration or disintegration of PPP/SEA processes. The issue under investigation appears to be extremely vulnerable to interviewees' subjective attitudes and behaviour and, therefore, requires a different research approach altogether that cannot be undertaken in the duration of a PhD thesis (chapter 2). These selected criteria, are however effective in providing the generic parameters of organisational capacity within each region. As such, they are also useful in supplying information to future research projects that might focus on the quantification of these parameters of human integration in more detail.

FIGURE 9.1: SEA PROCESS



Source: Therivel and Partidario, 1996, Figure 1.1, page 6

The design and effectiveness of the monitoring exercises should be further researched. The monitoring of the implementation of PPPs' adopted policies, as well as of the environmental impacts of these policies, is one of the determining factors in evaluating the degree of integration in the examined regions. Therefore, only on the spot investigation and follow up in an adaptive way, will allow for the effective assessment of the monitoring exercises for all the PPPs involved. The efficiency or applicability of this approach, however, would have required a long period of empirical investigation to produce results, as it is dependent on existing financial and temporal requirements that are not currently available. The temporal components of impact monitoring (*i.e.* 10-20 years for the different time scales of each PPP) do not allow it to be tested within the time limitations of a PhD thesis. Therefore, a careful phrasing of this element of integration is necessary to avoid misconception of what is actually measured. Monitoring mechanisms in place,

rather than the effectiveness of these mechanisms, (which could be the topic of future research) was under investigation.

The notion of integration adopted in the research for this thesis describes the activity of 'merging'[2], *i.e.* embodiment of both processes into a common process rather than absorption of the one into the other. The research showed that an integrative SEA approach to planning, should share some of the characteristics of both Policy, Plan, and Programme (PPP) and SEA processes. In order that the two processes are virtually 'merged', the PPP process should incorporate as many stages of the SEA process as possible, with particular emphasis on the early stages of the PPP, it should be continuous and iterative, and regularly updated through monitoring. It should be open to other planning processes at various decision making levels, to other methodological approaches, and to social groups and individuals throughout all stages of the process. All predicted impacts and their relevance to social groups, the outcome of public participation and consultation, and technical uncertainties should be documented. An integrated PPP/SEA should involve lay people and expertise from both outside and within the competent organisation in constructive co-operation. Finally, it should be time and resource efficient and aim at increasing administrative capacity.

9.3. Cross-regional comparison of practice on SEA-integration

9.3.1. All cases reviewed

The empirical part of this study (chapters 5-7) showed that experience on the integration of SEA into land use plans and transport related strategic PPPs differs among the regions examined.

Overall, an integrated transport/SEA planning practice is comparatively well established in London, followed by less well-established integration in Dublin, with minimum integration evidenced in Athens (Figure 9.2). There were only a few similarities among the three regions. All regions scored high on the elements of SEA integration that are common in planning practice such as the setting of environmental objectives, the procedures for public participation and agency consultation, and the identification of environmental problems of the study area.

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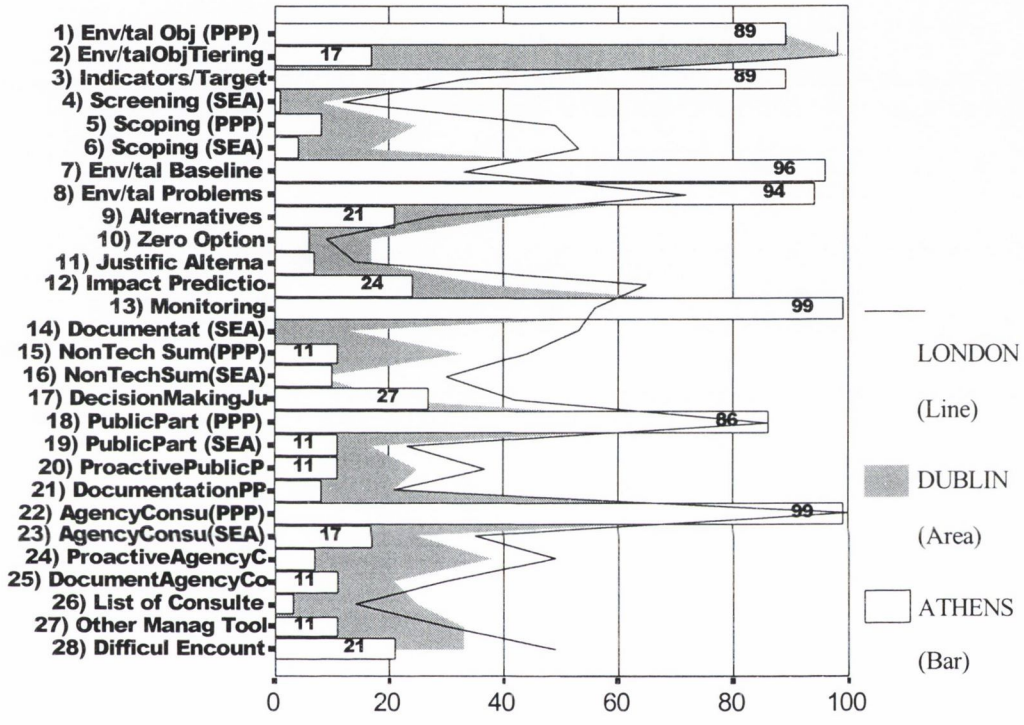
[2] 'merge' = (cause two things to) come together and combine (Oxford University Press, 1992, p. 562).

All regions were poor in their screening for SEA, the consideration of the 'zero option', and the consideration of other management tools. These similarities illustrate omissions of planning practices in the three regions and are the points where an attempted integration of SEA should be targeted.

FIGURE 9.2: COMPARATIVE EXAMINATION OF EXPERIENCE ON SEA INTEGRATION IN ATHENS, DUBLIN AND LONDON (ALL PPPS)



There were, however, more contrasting differences among the regions, especially between London and Athens. The differences between London and Dublin were less pronounced and can be explained by the similarities in their planning systems (chapter 4). The prevalence of positive elements of integration in London, is because of the existence of guidelines on the Environmental Appraisal of land use development plans and Regional Planning Guidance (DETR, 199b; DETR, 199f; DETR, 1998g; DoE, 1993). In contrast, mandatory or voluntary regulations regarding SEA are non-existent in Athens, and in Dublin institutionalised SEA (*i.e.* policy-SEA), has only recently been established. Therefore, there is a big gap between Athens and London in relation to integration practice. The differences

between London and Athens were more acute for a number of elements of integration. These were the setting of environmental objectives considered at different level of decision making, scoping (SEA and PPP), documentation of impact prediction and the outcome of SEA, production of a non-technical summary both for the SEA and the PPP, and seeking proactive public participation and agency consultation.

The areas where the SEA profile in London was considerably better than in Dublin, were scoping, SEA documentation and the production of a non-technical summary (SEA). Although practice on integration in London was better than in Athens and Dublin, and integration practice in Dublin was better than in Athens, there are a few elements where practice in Athens was better than that in Dublin. The existence of mandatory specifications for land use plans in Athens (MEPPPW, 1997b; MEPPPW, 1997c), contrary to the situation in London and Dublin, enabled the setting of quantitative targets, the description of the environmental baseline, the identification of environmental problems of the study area, and provisions for plan monitoring, on a wider scale.

The interviews however revealed, that these elements were characterised by weak implementation (such as monitoring), and were not incorporated in the planning exercise in a comprehensive manner. In Dublin, the documentation of a list of consultees in the planning report, and the consideration of alternatives and the 'do nothing' scenario, scored higher than in London and Athens.

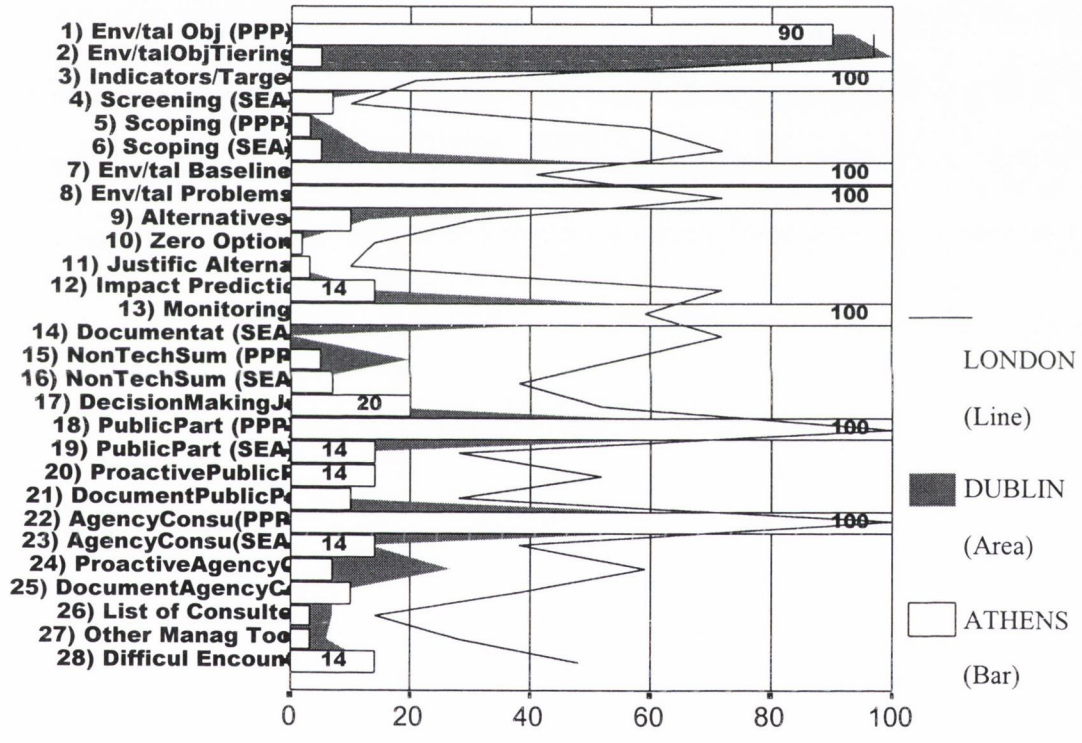
9.3.2. Land use plans

More elements of integration of SEA were incorporated in the transport part of land use plans in London than in either Athens or Dublin (Figure 9.3). This was especially the case with the scoping requirements for land use plans and SEA, the documentation of SEA (*i.e.* documentation of environmental impacts in a separate SEA report, documentation of a non-technical summary, and documentation of difficulties encountered throughout plan and SEA preparation), and proactive public participation and agency consultation.

The existence of the UK government guidance on the 'Environmental Appraisal of Development Plans' since 1993 (DoE, 1993) and the flexibility of the British planning system, explains the wide spread conformity within local planning authorities of basic SEA requirements. In Dublin, despite the government's

commitment to the establishment of a SEA system of plans and programmes in anticipation of the SEA Directive, such provisions are lacking. Athens is a characteristic example of the lack of both political will as well as methodological and procedural infrastructure requirements regarding SEA. This is the result of ineffective institutional provisions for environmental protection, the restricted role of local authorities in relation to plan making and implementation, and little public support in plan making and environmental management (chapter 4).

FIGURE 9.3: COMPARATIVE EXAMINATION OF EXPERIENCE ON SEA INTEGRATION IN ATHENS, DUBLIN AND LONDON (LAND USE PLANS)



Percentage of land-use plans that incorporate an element of integration

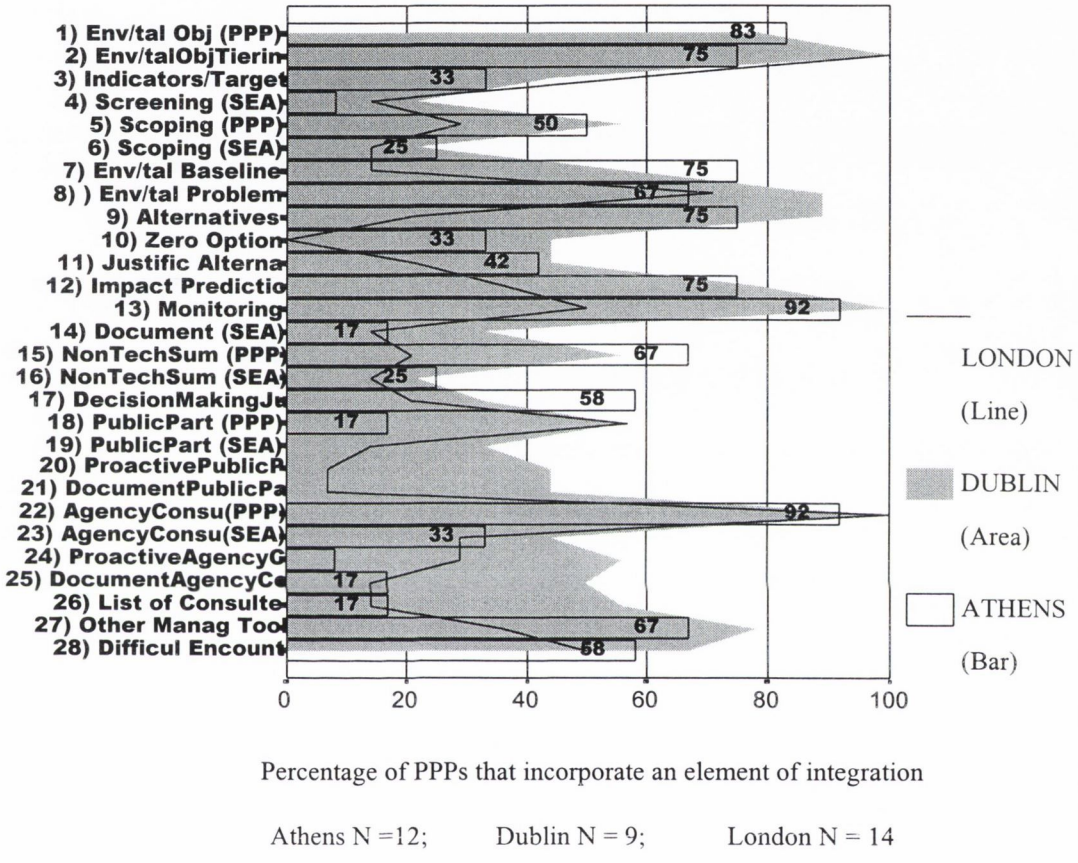
Athens N = 59; Dublin N = 15; London N = 29

9.3.3. Transport-related strategic documents

The situation in the three regions regarding the transport-related strategic PPPs (Figure 9.4) is markedly different compared to the situation with land use plans. Practice in Dublin was found to be best, followed by Athens, with London incorporating the least elements of integration. As with the land use plans above, all regions shared some similarities in the incorporation of integration elements that are close to a common planning practice. These include the setting of

environmental objectives adopted from PPPs at a higher or lower decision making level, the identification of the environmental baseline and environmental problems of the study area, and provisions for public participation and agency consultation.

FIGURE 9.4: COMPARATIVE EXAMINATION OF EXPERIENCE ON SEA INTEGRATION IN ATHENS, DUBLIN AND LONDON (TRANSPORT-RELATED STRATEGIC PPPS)



Dublin and Athens had very similar responses on integration, especially in basic elements of integration such as scoping (PPP and SEA), the documentation of environmental assessment and inclusion of a non-technical summary (PPP and SEA), and in the consideration of other management tools. In view of a lack of regulations on SEA in these two regions, the existence of strong SEA elements can be explained by a common need to minimise existing environmental pressures on the urban environment that are intensified by planned and current development of transport infrastructure. Ireland is experiencing unprecedented economic growth (the highest rate of growth in the EU). This is also fuelled by EU Objective 1 financial aid, which it receives. Athens is expecting substantial financial gains from hosting the Olympic Games in 2004.

Furthermore, the absorption of the EU's financial assistance by these regions is also related to the delegation of SEA responsibilities in the form of Structural Fund regulations (*i.e.* environmental profiles) (chapter 4). It is for this reason that SEA is more likely to follow a top-down rather than a bottom-up approach to plan making in the future in Ireland and Greece. The regulatory role of the EU, both in relation to the potential enactment of the SEA Directive and environmental regulations guiding Structural Funds, is important in shaping positive attitudes to SEA in these countries.

A notable difference between Dublin and Athens is the widespread application of innovative ways of public participation and consultation in Dublin, which is well beyond the practice in Athens or London. The low degree of integration found in London can be explained by the disillusionment of planners (expressed throughout the interviews) about the lack of methodological rigour of SEA, the lack of quantitative environmental data, and the possible delays emanating from public participation and extended consultation procedures involved in SEA.

In conclusion, the strongest points found in the three regions (*i.e.* the elements of integration that were incorporated most in current transport planning practice) were: vertical integration in Athens with the application of basic common SEA/planning procedural stages, social integration with the undertaking of innovative methods of public participation in Dublin, and external and human resources integration with opportunities for successful 'tiering' of SEA processes and close co-operation and variety of expertise in planning and SEA teams in London. Transference of experience among the three regions should focus on these elements.

9.4. Specific recommendations to improve integration in the three regions

9.4.1. Athens

Athens, and Greece in general, face a number of institutional, financial and cultural barriers that inhibit the widespread integration of SEA, especially at a land use planning level. However, the fact that several elements of integration already apply at the strategic level of transport planning, as the Olympic 2004 Transportation Plan revealed, implies that the barriers related to methodological and human resources integration can be easily lifted. This requires that Greece concentrates on simple procedural, methodological and institutional changes that should aim to ameliorate (transport) planning practice, rather than try to digest northern European SEA practices that are alien to its planning culture (chapter 4). Preparation for the

enactment of the proposed SEA Directive will provide the first step towards a more extensive integration of SEA, similar to the situation in the other two northern European regions. Possible efforts towards this direction, will also be useful to Eastern European countries that will join the EU in the future, since they share similarities with the southern member states in the organisation and management of environmental policy making.

It is recommended that land use planning practice in Athens should adopt a more flexible and adaptive approach and that planning should be seen as a process with interrelated stages not merely focusing on the initial (*i.e.* identification of current situation) and final stages (*i.e.* suggestion of measures). In order for impact assessment methodologies to be accepted in everyday planning practice, a number of issues should be addressed. On a technical front, these include the completion of the national cadastral system the development of which is currently taking place, and the creation of a central inter-sectoral environmental database that will provide quantitative information to local planners. The role of local authorities should also be enhanced in preparing, implementing and, more importantly, monitoring plans' recommendations. Attempt at decentralisation is currently under way that aims to provide local authorities with more planning responsibilities.

It can be concluded from the comparison of the three regions experience, that the existence of mandatory or 'semi-mandatory' requirements is of paramount importance for the wide spread application of SEA. The flexible nature of the British planning system which focuses on 'encouragement and advice' rather than on the 'enforcement of strict specifications' as is the case in Greece, seems to be beneficial for the extension of non mandatory provisions for SEA amongst the authorities involved. The application, however, of a similar approach to Greek planning, should be seen in the context of a different planning culture (chapter 4), if transference of experience between these two regions is to be successfully attempted. Therefore, SEA practice, in line with the proposed SEA Directive's provisions can be boosted by the modification of mandatory planning guidelines to include the information presented in the Annex of the draft SEA Directive (Appendix 5). At a regional level, these could take the form of internal guidelines for those reviewing the relevant plans. Institutional capacity strengthening should back up these initiatives. The proposed establishment of a 'National Centre for Sustainable Development and the Environment' by the Greek government could provide the appropriate framework for the administration and monitoring of SEA. The existence

of institutions that act as representatives of central government in the SEA, project-EIA, and planning processes, does not however guarantee operational efficiency and successful implementation of monitoring programmes. It might be more appropriate to consider the experience of other countries where these institutional bodies are staffed by independent groups of experts, and have a technical rather than institutional role. Attention should therefore be focused on the procedural and methodological functions of a SEA process, such as quality of environmental statements and advice on methodologies, rather than administrative control.

Emphasis must be placed on institutional co-operation. The Greek Ministry of the Environment has been criticised for its lack of political commitment towards the environment and weak co-operation with other 'powerful' ministries (TCG, 2000a; Zagorianakos, 1998; Polyzos and Vlastos, 1993). Government departments and regional organisations responsible for the implementation of environmental policies in Athens generally act in isolation. Cross-sectoral communication across agencies should be encouraged, if institutional fragmentation is to be successfully tackled. This can be encouraged by the establishment of interdepartmental committees for co-ordinating issues relative to the environment as is the experience in other countries (*i.e.* the Netherlands and Canada), and the temporary transference of departmental staff and their training on cross-sectoral issues.

The establishment of a national environmental policy framework and the codification of planning and environmental legislation, are two more critical aspects of integrated SEA in Athens. Environmental policy making lacks a comprehensive framework for future action on the major environmental problems facing Athens, and Greece in general. The current 'Master Plan for the Environmental Protection of Greater Athens dates back to 1983, and as the Athenian case study showed, it is not taken into account for the future development of Athens. A White Paper on the environment should be prepared at a national level to act as an indicative 'commitments document' that will guide future action. An important reform process is necessary in order to support the implementation of this suggestion. This involves the bringing together of all the 'bits and pieces' of environmental and planning law, dispersed throughout different acts, in order to create a consistent and thus more efficient legal framework.

Finally, public involvement is also a basic requirement for integrated-SEA and more attention must be focused on how this can be improved. Its effectiveness depends

on cultural and economic patterns, as well as environmental awareness. Public participation is particularly weak in both project-EIA and planning practice in Athens. It is, therefore, necessary to find adequate participatory and conflict resolution mechanisms adapted to the Athenian cultural and community character to help overcome existing implementation difficulties at an institutional level. This can be promoted by research and workshops to identify appropriate methodologies that are consistent with Athenian community needs and traditions. Relevant questions around this are: how it should be conducted? who should participate? and when should it take place? Mechanisms for negotiation and environmental mediation are also important and should be developed and implemented.

9.4.2. Dublin

The study in Dublin demonstrated a low percentage of incorporation of elements of SEA integration in land use plans, contrary to transport-related strategic PPPs where more elements were incorporated. Owing to the procedural similarities of SEA and planning (chapters 6 and 8), recommendations for enhancing practice on SEA integration, should focus on the transport planning facet of land use plans.

The preparation of guidelines for SEA of land use plans similar to the guidance on the 'Environmental Appraisal of Development Plans' (EADP) in Britain, is of paramount importance. The successful transference of experience is guaranteed by the similarities that the two planning systems share. Furthermore, EADP guidelines incorporate a considerable amount of the proposed SEA Directive's provisions and, as such, the political commitments of the Irish government on the initiation of a SEA system for land use and sectoral plans can, at least partly, be fulfilled. Nevertheless, the EADP guidance has been criticised for its lack of methodological rigour especially in relation to the consideration of alternatives, inadequate involvement of the public in the Appraisal process and incomplete documentation requirements. Local planning practice in Dublin is particularly problematic in relation to these issues (Figure 9.3) and any future guidelines should strengthen these requirements. Considerable support to address these shortcomings can be obtained from the experience gained by the application of SEA elements of integration at a regional level and in particular at a policy level. The consideration of alternative scenarios for proposed action and innovative ways of involving the public, are prominent issues in the regional planning process and, as such, transference of experience could be useful for local authority planners. Care, however, is needed in applying these techniques to comprehensive land use planning, as there are distinct

differences between comprehensive and sectoral planning. Local authority finance and delays in plan authorisation will determine the degree to which innovative public participation and consultation with NGOs can be improved. Organisational capacity and administrative efficiency will be required to facilitate this.

At a national policy level, guidelines for a policy-SEA (*i.e.* Eco-Audit) were recently put in place. These are restricted to a screening and scoping exercise for the identification of the significant issues to be considered in the assessment. These guidelines, should however be used carefully. Although useful to help the rapid identification of environmental factors, scoping guidelines can never be fully comprehensive. The range of different situations and environmental factors that are involved in policy processes and the uncertainty involved in cause-effect relationships can never be fully covered. Therefore, they should not be adopted as requirements but only as indicative tools.

The adoption of quantitative targets specified in national environmental policy documents such as the Irish Sustainable Development Strategy, and the utilisation of computerised data banks based on monitoring of environmental impacts, will strengthen the methodological capacity of environmental assessments at a policy level. The Eco-Audit should also be integrated with social and economic impact assessments that have been exercised during the preparation of the National Development Plan. This will give an insight into the interrelation of socio-economic and environmental themes in policy making, thus promoting sustainability.

The last recommendation relates to the closer co-operation and communication between experts throughout the process of environmental policy formulation. Further integration of experts in different administrative structures is required in order to initiate a multi-disciplinary approach to policy-SEA. The reorganisation of existing cross-sectoral administrative structures such as the 'Green Network of Departments' is essential in order to bring together expertise from various Departments and thus promote information sharing among practitioners from different areas of interest. This will help focus on the interrelations between environmental and socio-economic impacts and avoid conflicts arising throughout assessment.

9.4.3. London

The study in London showed that in contrast to Dublin and Athens, there were more elements of integration in land use plans compared to transport-related strategic PPPs. The discretionary nature of the British planning system with the voluntary application of government guidance on EADP since 1993 seems to pay dividends. Criticisms of the qualitative and procedurally disintegrated nature of Environmental Appraisal, have led to an emerging, objectives-based, sustainability approach to SEA. This approach is still at an early stage of development and guidance is to be published shortly.

The thesis identified a set of key issues that are fundamental to the integration of SEA in land use planning that, if implemented, will improve the efficiency of the emerging Sustainability Appraisal processes and enable 'tiering' of assessments. Monitoring of the plan and mitigation measures are important especially in providing a link throughout national, regional and local levels of plan making. It is necessary that the same or similar set of quantitative environmental and socio-economic indicators is used for review, assessment and monitoring to provide uniformity and consistency in the process. The difficulty with the setting of appropriate indicators, however, is that the task that is assigned to them is overwhelming *e.g.* they should accurately apply at different planning levels and be comprehensive to a variety of societal groups. Four recommendations can be useful in promoting effective monitoring. These are data availability, design of a monitoring exercise, periodical documentation and public participation. Data availability, especially at a regional and national level, is one of the reasons for the lack of monitoring in all three regions. The organisation of GIS-based monitoring systems and their co-ordination by national statistics agencies is considered by some to be a key to effective monitoring. This requires co-operation between the various planning levels through sharing of information, and possible establishment of planning officers in local authorities and regions responsible for updating the relevant data. Furthermore, PPP monitoring should be designed during plan making, and plan review should be based on the outcome of a continuous monitoring exercise. The production of monitoring guidelines for all decision making levels, the appropriate financing of local authorities or groups of authorities that jointly undertake monitoring, and the review by the public of a monitoring report published periodically, will stimulate monitoring practice.

As the case study illustrated (chapter 8), research is needed on methodologies that integrate socio-economic and environmental assessment tools. If, for example, the target is the facilitation of public participation, it would be useful if the distribution of impacts to various social groups is presented in a comprehensive manner in the relevant planning or SEA documents. An integrated methodology should however tackle technical problems, such as uncertainty and complexity, which are particularly acute at a regional and national level of policy making.

The appropriate integration of expertise through the re-examination of dominant 'local rationalities', is of particular relevance for an effective integrated-SEA. Human resources integration, can be encouraged by the organisation of open and informal meetings between members of planning and assessment teams within the organisation undertaking the integrated exercise. These meetings should also ensure the involvement of a wide range of NGOs and interest groups. This will result in a more transparent process and maximise the successful implementation of the proposed policies.

The last recommendation for London, and Britain in general, relates to provisions for the preparation of the potential enactment of the SEA Directive. The potential issue of Sustainability Appraisal guidelines for land use plans and (possibly RPGs) should give emphasis on the proposed SEA Directive's requirements that are not included in the current EADP advice and, as such, are infrequently met in land use planning practice in London. These include a number of procedural and documentation requirements such as screening for the need for SEA, consideration of alternatives (and do-nothing option) and justification of the selection of the preferred option, public participation and agency consultation throughout SEA and documentation of their outcome, and inclusion of a list of consultees in the SEA/planning report. These requirements are closely related to planning practice and therefore will not add any further delays or financial burdens to the existing planning and Environmental Appraisal process.

9.5. Further research questions on SEA integration

Practice on integration of methodological approaches, would be beneficial to transport planning and SEA, if the practitioners involved were more generalists in their disciplinary field of expertise. In the short term, this can be promoted by appropriate training that focuses on issues and viewpoints outside particular disciplines. Groups that should be targeted for training include administrators

responsible for carrying out SEAs or supervising the procedure, experts who work within the administration or external consultants who support the administration in the preparation of a SEA, the general public and NGOs. The adoption of a long-term view would require that SEA be included on the curriculum of the Universities in a variety of subjects, especially in those where environmental management is not a core activity.

Institutional fragmentation was seen, both in the literature and in the research, to be a significant hindrance to integration within organisations that prepare and assess PPPs. A pertinent question that arises is whether institutional reorganisation of existing structures is preferred over institutional reform. The latter implies the initiation of something radical, *i.e.* administrative structures that were not there before, whereas the former requires the reorganisation of existing structures and resources. The research showed that the cost effectiveness and possible avoidance of unnecessary bureaucracy, makes institutional reform more preferable and, as such, an easier option for administrators and employees to implement. The interviewees also expressed the opinion that a change in working relationships and the initiation of 'cultural flexibility' might have better results than dedication of financial resources and complicated procedures.

An issue that requires further research is the methodological complexity of an integration exercise. There are at least three areas where complexity is generated: through the integration of environmental and socio-economic themes, the integration of sectors, and the integration of assessment at different levels of decision-making. Future research has to concentrate on balancing the need for less complexity with the need to represent information and prediction with an acceptable degree of detail and uncertainty.

Questions also arise as to the role of SEA in the future and, in particular, in relation to the tiering of PPPs. New approaches to an integrated assessment have been developed that seem to substitute SEA at a policy level. Integrated Environmental Assessment (IEA), for example, claims that SEA is too formative and systematic to apply at a policy level where the degree of detail in assessment is less (chapter 3). IEA asserts greater procedural flexibility, as it does not specify any particular point of application in the policy process. A pertinent research question is whether a possible decrease of SEA's scope to plans and programmes (*i.e.* proposed SEA Directive) in order to leave the policy area to other forms of assessment like IEA, will further

promote methodological clarity and effective tiering, as was the case with project-EIA and SEA.

Finally, social integration seems to be the 'Achilles' heel' of current SEA and planning practice. This has a methodological and procedural side. A better insight into these weaknesses may be gained if the question that is so common in the literature concerning SEA is rephrased. Instead of asking what are the changes needed so that SEA can better inform decision makers, it might be more appropriate to seek for the necessary changes in SEA so that it not only informs decision makers, but members of the public as well. To do that, SEA should follow a quite different path than it currently does. It has to, to a certain degree, give space to, or rather welcome other methodological tools such as Social Impact Assessment (SIA). SEA should be integrated (and this is also a weakness of IEA) not only with economic assessment, but also with Social Assessment. The role of SIA could be the prediction of spatial and temporal distribution of impacts to societal groups. Then lay people, as well as politicians can make an informed decision on whether or not to support a given PPP, and thus help towards its implementation. However, this is easier said than done. This approach to integration, increases methodological complexity, requires organisational efficiency and flexibility for the reduction of procedural delays, and, especially at a policy level, might be abandoned altogether because of issues of confidentiality. These problems, however, should not discourage research on a more participatory form of integration in the future.

9.6. Epilogue

The aim of this thesis comprised two sections. The first section related to the development of the elements required for an integrated SEA/transport planning model. The second section related to the evaluation of experience on integration in Athens, Dublin and London using these elements as a framework for analysis. Two major findings relevant to the thesis twofold aim can be asserted.

As far as the first section is concerned, the review of the literature undertaken in order to develop the SEA integrative framework (chapter 3) and the research conducted to test it (chapters 5-8), showed that, within the three regions examined, practice of integration does not match the theoretical account of integration. Although there is relative consensus on the elements of successful integration, practice on its application in transport planning is poor. The complexity of the issues

involved and the political components of the concept render both research on integration and the attempt to implement it, difficult.

As far as the second section of the thesis aim is concerned, an assumption was made early in the evolution of this thesis (chapter 2). This was that regions with considerable SEA experience would demonstrate a higher degree of SEA/transport integration, than regions with limited SEA experience. The research showed that, indeed, London and to a lesser extent Dublin, with experience and institutional structures in place regarding SEA, exhibited more integration characteristics than Athens where SEA practice and regulations were non-existent. The research also showed that these are not the only determinant factors for the promotion of integration. Political will to implement existing SEA provisions, the commitment of financial resources, organisational capacity and favourable attitudes of practitioners and social groups towards integration are equally, if not more, important in the promotion of better practice. This statement is supported by the research findings showing that integration in transport-related strategic PPPs in London was lower than in Athens, even though in London there were voluntary SEA-related specifications in place for more than a decade, whereas Athens lacks such a SEA regulatory framework.

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APPENDIX 1: LIST OF DOCUMENTS REVIEWED

Athens

LAND-USE PLANS

- Community of Ecali, Plateia Ekklisias, Athens 14565
- Community of Nea Penteli, Agias Paraskevis 22, Athens 15236
- Community of Papagos, Tepeleniou 32, Athens 15669
- Community of Thrakomakedones, Protagora & Plateia Aristotelous 13671
- Municipality of Agia Paraskevi, Mesogeion 463, Athens 153 43
- Municipality of Agia Varvara, Aristomenous 12, Athens 12351
- Municipality of Agioi Anargiroi, Dimokratias kai I. Merla, Athens 13561
- Municipality of Agios Dimitrios, Agiou Dimitriou 55, Athens 17343
- Municipality of Agios Ioannis Rentis, Mpichaki 8, Athens18233
- Municipality of Alimos, Aristotelous 53, Athens 17455
- Municipality of Amarousion, Chatziantoniou 10, Athens 15124
- Municipality of Amarousion, Dim. Ralli 37, Athens 15124
- Municipality of Ano Liosia, Plateia Iroon, Athens 13341
- Municipality of Argiroupoli, Kyprou 68, Athens 16410
- Municipality of Aspropyrgos, Leoforos Dimokratias 18, Athens 19300
- Municipality of Athinaion, Liosion 22, Athens 10438
- Municipality of Axarnes, Plateia Ag. Nikolaou, Athens 13761
- Municipality of Chaidari, Leoforos Athinon 181-183, Athens 12461
- Municipality of Chalandri, Zalokosta 4, Athens 15233
- Municipality of Cholargos, Perikleous 55, Athens 15561
- Municipality of Dafni, Ellis 16 kai Kanari, Athens 17235
- Municipality of Egaleo, Ieras Odos 364, Athens 12243
- Municipality of Elliniko, 33 Odou 13, Athens 16777
- Municipality of Filothei, P. Kalliga 31, Athens 15237
- Municipality of Galatsi, Archimidous 2 kai Yppokratous, Athens 11146
- Municipality of Glyfada, Saki Karagiorga 2, Athens 16675
- Municipality of Ilion (N.Liosia), Protesilaou 83, Athens 13122
- Municipality of Ilioupoli, Protopappa kai Venizellou, Athens 16310
- Municipality of Irakleion, St. Karagiorgi 13, Athens 14121
- Municipality of Kaisariani, Filadelfeias & Vryoulon 125, Athens 16121
- Municipality of Kallithea, Mantzagriotaki 76, Athens 17676
- Municipality of Kamateros, L.Filis 66, Athens 13451
- Municipality of Kifisia, Dionisiou & Myrsinis, Athens 14562
- Municipality of Koridalos, Grigoriou Labraki 231, Athens 18110
- Municipality of Likovrysi, Ag. Varvaras 25, Athens 14123
- Municipality of Melissia, Kykladon 1 & Dimokratias, Athens 15127
- Municipality of Metamorfosi, Deligianni 3, Athens 14452
- Municipality of Moschato, Korai & Ithakis, Athens 18345
- Municipality of Municipality of Neo Psichico, Tertseti 44, Athens 15451
- Municipality of Nea Chalkidona, Dekeleias 31, Athens 14343
- Municipality of Nea Erythrea, Nik. Plastira 14, Athens 14671
- Municipality of Nea Filadelfeia, Dekeleias 97, Athens 14343
- Municipality of Nea Ionia, Antl/siou & Ag. Georgiou 40, Athens 14234
- Municipality of Nea Smyrni, El. Venizelou 14, Athens 17121
- Municipality of Nikaia, Grevenon 5-7, Athens 18450
- Municipality of Paleo Faliro, Ag.Alexandrou 70, Athens 17561

- Municipality of Papagos, Anastaseos 90, Athens 15669
- Municipality of Pefki, El. Venizelou & Riga Feraiou, Athens 15121
- Municipality of Peristeri, Plateia Dimokratias, Athens 12134
- Municipality of Petroupoli, Kosta Varnali 76-78, Athens 13231
- Municipality of Psichiko, Stratigou Kalari 13, Athens 15452
- Municipality of Tayros, Peiraios & Eptalofou, Athens 17778
- Municipality of Vari, Vas. Konstantinou 25, Athens 16672
- Municipality of Voula, Alkionidon 18, Athens 16673
- Municipality of Vouliagmenis, Afroditis 2, 16671
- Municipality of Vrilissia, Dim. Vernardou 23, Athens 15235
- Municipality of Vyronas, Karaoli kai Dimitriou 32, Athens 16233
- Municipality of Ymyttos, Plateia Iroon Politechneiou 1, Athens 17237
- Municipality of Zografos, Theologou 22, Athens 15773

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- Bexley BC, Unitary Development Plan 1999, Monitoring and Review stage, G. Bryant, Group Planner, Environmental Services, Address: Wyncham House, 207 Longlands Road, Sidcup, Kent DA15 7JH.
- Brent BC, Unitary Development Plan 1999, Deposit draft, Phil Rankmore, Head of Transportation Unit, Brent House, 349-357 High Road, Wembley, London HA9 6BZ
- Bromley BC, Unitary Development Plan 1999, Review stage, Mike Ibbott, Environmental planner and LA 21 Officer, Planning Department, Civic Centre, Stockwell Close, Bromley BR1 3UH.
- Camden Borough Council, Unitary Development Plan 1999, Review stage, Elizabeth Teymour, Planning Officer, Planning Department, Address: Camden Council, Camden Town Hall, Judd Street, London WC1H 9JE.
- Corporation of London, Unitary Development Plan 1999, Review stage, Mark Trevetham, Planning Officer, Planning Department, PO Box 270, Guildhall, London EC2P 2EJ
- Croydon BC, Unitary Development Plan 1999, Review stage, Ken Dryden, Transport Planner, Address: Planning Department, Taberner House, Park Lane, Croydon CR9 1JT
- Enfield BC, Unitary Development Plan 1999, Review stage, Steven Tapper, Development and Transportation Planning, Enfield Borough Council, PO Box 53, Civic Centre, Silver Street, Enfield EN1 3XE
- Hackney BC, Unitary Development Plan 1999, Review stage, P.A. Davis, Chief Town Planner, 161 City Road, London, EC1V 1NR
- Hammersmith and Fulham BC, Unitary Development Plan 1999, Review stage, Trevor Harvey, Principal Officer, Policy Unit, Address: Town Hall, King Street, London W6 9JU.
- Harrow BC, Unitary Development Plan 1999, Consultation stage, Glenn Jones, Planner Planning Department, Address: PO Box 37, Harrow HA1 2UY.
- Haunslow BC, Unitary Development Plan 1999, Review stage, Carrie Roberts, Environmental Support Officer, Planning Department, Address: Hounslow Borough Council, Civic Centre, Lampton Road, Hounslow TW3 4DN
- Havering Borough Council, Unitary Development Plan 1999, Review stage, Tim Jonson, Director of Environment and Planning, Planning Department, Address: Mercury House, Mercury Gardens, Romford RM3 8UU.

- Hillingdon BC, Unitary Development Plan 1999, Deposit stage, Dave Roy, Policy Manager, Planning Department, Address: Civic Centre, Uxbridge, Middlesex UB8 1UW.
- Islington BC, Unitary Development Plan 1999, Consultation stage, Jill Rae, Planning Officer (Policy), Planning Department, Address: 222 Upper Street, PO Box 3333, London N1 1YA.
- Kensington and Chelsea BC, Unitary Development Plan 1999, Pre-deposit stage, Christine Mc Goldcick, Planning Officer, Policy team, Address: Room 317 Town Hall, Hornton Street, London W8 7NX
- Kingston-upon-Thames BC, Unitary Development Plan 1999, Adoption stage, Tom Holstein, Director of Environmental Services, Planning Department, Address: Environmental Services, Kingston Upon Thames Borough Council, Guilhall II, Kingston Upon Thames, Surrey KT1 1EU.
- Lambeth BC, Unitary Development Plan 1999, Review stage, Peter Holland, Head of Planning, Courtenay House, 9-15 New Park Road, London SW2 4DU
- Lewisham BC, Unitary Development Plan 1999, Pre-deposit stage, G. Atkinson, Principal Planner, Leisure Economy, Address: Lawrence House, 1 Catford Road, London SE6 4RW.
- Merton BC, Unitary Development Plan 1999, Deposit draft, Jed Lawrenson and Steve Cardis, Policy and Information Team, Address: Environmental Services, Civic Centre, London Road, Merton, Surrey SM4 5DX.
- Newham Borough Council, Unitary Development Plan 1999, Review stage, Dave Whittaker, Principal Planner, Planning Policy and Research Group, Address: Town Hall Annexe, Barking Road, East Ham, London E6 2RP.
- Redbridge BC, Unitary Development Plan 1999, Deposit stage, Steve Rogers, Head of Planning Policy and Information, Planning Servises, Address: Town Hall, 128-142 High Road, Ilford, Essex IG1 1DD
- Richmond Upon Thames Borough Council, Unitary Development Plan 1999, Review stage, P. Crimes, Senior Planning Officer, Address: Civic Centre, 44 York Street, Twickenham TW1 3BZ.
- Southwark BC, Unitary Development Plan 1999, Public Participation stage, Silvia Francis Mullins, Planning Officer, Address: Planning Department, Chiltern House, Portland Street, London SE17 2ES.
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- Waltham Forest Borough Council, Unitary Development Plan 1999, Pre-deposit stage, Nigel Kent, Planning Director, Highways and Services, Address: 16 The Ridgeway, Clingford, London E4 6PS.
- Wandsworth Borough Council, Unitary Development Plan 1999, Review stage, R.J. Stone, Group planner- Transportation Unit, Address: Town Hall, Wandsworth High Street, London SW18 2PU.
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APPENDIX 2: LIST OF INTERVIEWEES

[The underlined names, indicate those interviewed for the case studies.]

Athens

Argyrakos, D. Consultant to the Minister for Transport.

Chalkias, G. Local Authority Planner, Municipality of Kamateros.

Delloukas, G. Attiko Metro, Project Manager.

Efthimiopoulos, G. Olympic Games 2004 Bid Committee, Transport Section.

Frantzeskakis, G. Traffic Engineer, Representative of the Olympic Games 2004 Bid Committee Dossier.

Hatzibiros, K., Lecturer (EIA), N.T.U.A.

Hantzou, C. Civil Engineer, Directorate of Olympic projects "Athens 2004" S.A.

Hatzimikes, F. Architect, Head of the Environment Section, Organisation of Athens.

Karadimitriou, N. Civil Engineer, Directorate of Olympic projects "Athens 2004" S.A.

Karagounis, G. Local Authority Planner, Municipality of Athinaion.

Karanikas, E. Freelance planner.

Kondylatos, P. Local Authority Planner, Amarousion Municipality.

Kontogiannis, T. Athens Public Transport Organisation.

Kontzagiorgis, G. Transport planner, ENVECO LTD, Scientific member of the Olympic Games 2004 Bid Committee, Environmental Section.

Kourtis, C. Architect-City Planner, Representative of the Olympic Games 2004 Bid Committee Dossier.

Koutrouba, F. Traffic Engineer, Organisation of Athens.

Kyriazis, K. Local Authority Planner, Municipality of Ano Liosia.

Marnelis, E. Planning Directorate, Greek Rail Network, Athens and Piraeus Electric Company.

Mentzis, A. Research student, Imperial College London.

Michail, G. Architect-City Planner, Member of the Technical Chamber Work Group for the International Symposium "Olympic Games and the City: The Day After", Athens 23-25 June 1998, Hotel Grande Bretagne, Athens.

Mitrousis, E. Local Authority Planner, Municipality of Alimos.

Nathenas, G. Head of the Transportation Planning Section, Organisation of Athens.

Nellas, K. Attiko Metro Ltd., Head of Planning Department.

Papagiannis, E. President of the Society for Urban and Spatial Planners.

Papagrigoriou, S. Team Co-ordinator - Organising Committee "Athens 2000" - Environmental Section.

Pertselakis, K. Local Authority Planner, Argyroupoli Municipality.

Polyzos, C. Deputy rector (National Technical University of Athens), Urban planner, Representative of the Organising Committee "Athens 2004" S.A.

Pyrgiotis, G. Architect-City Planner, Representative of the Organising Committee "Athens 2004" S.A.

Sperelakis, G. Ministry of the Environment, Physical Planning and Public Works, Directorate General for Public Works, Road Transportation Unit.

Synadinos, P. Architect-City Planner, Representative of the Olympic Games 2004 Bid Committee Dossier.

Tomazinaki, C. Consultant to the Minister for the Environment.

Vlastos, T. Transport Expert, Department of Rural and Survey Engineering, National Technical University of Athens.

Zekkos, K. Transport Planner, Dromos Ltd..

Dublin

Bowman, J. Comhar-the National Sustainable Development Partnership – Chair.

Casserly, N. Assistant Principal, Department of the Environment and Local Government.

Clenaghan, C. Environmental Protection Agency (EPA).

Coghlan, M. Department of the Environment and Local Government (Steering Committee).

Convery, F. Department of Urban and Regional Planning, University College Dublin.

Conway, M. Dublin Corporation.

Cremins, R. Dun Laoghaire – Rathdown County Council.

Curran P. Secretary to COMHAR, Environment Policy Section,.

Feehan, J. Environmental Protection Agency (EPA).

Feenay, B. Goodbody Economic Consultants.

Frank, G. Agenda 21 and Green Network, Department of the Environment and Local Government.

Goldman, J. Colin Buchanan and Partners Ltd.

Griffin, M. Department of the Environment and Local Government, Water Resources Sector.

Higgins, J. Principal Officer, in charge of Structural Funds and Eco-Audit, Department of Finance.

Keith, S. Planner, Fingal County Council.

Kennedy, K. Planner, South Dublin County Council.

Knight, P. Oscar Faber Transportation.

Lynch, C. Department of Public Enterprise.

Mat, C. Responsible for drafting the National Spatial Strategy, Department of the Environment and Local Government.

Mc Donough, J. Department of Public Enterprise, Public Transport Division.

McCarthy, C. D.K.M. Consultants.

Murray, S. Planner, Brady Shipman Martin.

O'Connor, J. Assistant Secretary, Development and Planning Division, Department of the Environment and Local Government.

Stapleton, L. Environmental Protection Agency.

Sheriden, T. Responsible for Operational Programmes and SEA, Department of the Environment and Local Government.

Whelan, P. Principal Environmental Health Officer, Dublin Corporation.

Wilson, M. Transport planner, Dublin Transportation Office.

London

Brittain, A. Department of the Environment, Transport and the Regions (DETR).

Dykins, P. Government for London (GoL).

Fairholme, N. Transport Planner, London Planning Advisory Committee (LPAC).

Hunt, K. Department of the Environment, Transport and the Regions (DETR).

Irwin, J. Environment Agency.

Jackson, P. The London and South East Regional Planning Conference (SERPLAN).

Lingayah, S. New Economics Foundation.

Pollard, V. Environment Agency.

Sanderson, J. Transport Planner, London Planning Authority Committee (LPAC).

Simon N. Department of the Environment, Transport and the Regions (DETR).

Smith, G. English Nature.

Smith, S. Researcher, Environmental Policy and Management, Imperial College.

Tomlinson, P. Transport Research Laboratory (TRL), Environmental Assessment and Policy Centre, and responsible for drafting the Strategic Environmental Assessment of Multi-Modal Studies.

Wheeler, A. The London and South East Regional Planning Conference (SERPLAN).

APPENDIX 3: EVALUATION CRITERIA

CRITERIA THAT CHECK THE VALIDITY OF THE RESPONSES TO THE EVALUATIVE FRAMEWORK	
The regions' experience regarding the integration of SEA with the transport planning process, was judged against the following criteria denoting the possible types of integration	
EVALUATIVE FRAMEWORK	CRITERIA
Environmental Objectives 1a) Environmental objectives considered at different levels of decision making 1b) Indicators/targets	Reference (in the document reviewed) to the environmental objectives of plans at lower or higher planning tiers; Joint plan-making with neighbouring authorities and/or production of a common report; Adoption of environmental limits/targets set at EU and international level *e.g.* EU's 5th Environmental Action Programme, Kyoto Conference
Screening 2a) Screening for the need for SEA 2b) Screening for the need for the PPP (Policy, Plan, Programme)	Establishment of screening criteria; screening checklist; reference to circulars (deferent departments within the organisation), local authority regulations, national legislation to determine the need for impact assessment of the PPP
Scoping 3a) Scoping for SEA 3b) Scoping for the PPP	Scoping matrix, reference in the document to impact significance, justification in the document for including or rejecting a certain policy/action
Environmental baseline 4a) existing environmental problems	Maps, written descriptions of the topography, tables of land-use zones, green belts
Alternatives 5a) zero option 5b) documentation of the reasons for rejecting alternatives	Matrices; justification in the document for including or rejecting an alternative option
Assessment of likely significant environmental effects	Statement on how environmental impacts were addressed
Mitigation measures	List of policies that were re-examined after the consultation process
Impact monitoring 8a) Was there any mechanism in place to monitor implementation?	Monitoring programme as part of the planning exercise, monitoring stations, monitoring personnel, monitoring report
Documentation of the environmental impact assessment 9a) publication of SEA report 9b) statement on how the environmental or planning assessment was undertaken 9c) non-technical summary of the SEA and transport planning process 9d) Justification included in the PPP/SEA report, of the environmental reasons upon which the decision was based	Impact matrices, expert opinion; prediction models; *etc.*

CRITERIA THAT CHECK THE VALIDITY OF THE RESPONSES TO THE EVALUATIVE FRAMEWORK (CONTINUED)	
Public Participation (PP) 10a) Did the public expressed its opinion on the PPP/SEA? No, it was an internal exercise Yes, Before adoption of PPP Yes, After adoption of PPP 10b) Was PP mandatory for the PPP? 10c) Was PP proactive? (*i.e.* what are the actions/methods taken/used to elicit peoples' views?) 10d) Was there any reference to the results of PP in the PPP/SEA report?	List of interest groups, methods of Public Participation used (*i.e* public survey, leaflets, public display of planning reports *etc.*);
Consultation (C) 11a) Were the appropriate competent authorities consulted on the PPP/SEA? No, it was an internal exercise Yes, Before adoption of PPP Yes, After adoption of PPP 11b) Was C mandatory for the PPP? 11c) Was C proactive? (*i.e.* were the opinions of NGOs sought?) 11d) Was there any reference to the results of C in the PPP/SEA report? 11e) Inclusion of list on consultees in the PPP/SEA report	List of competent authorities and non-governmental organisations contacted; methods of Consultation used (*i.e* round tables, written recommendations *etc.*); Were there any changes in the formulation of the plan's policies as a result of consultation
Environmental management tools	Mix of planning and environmental management methods *i.e.* Cost Benefit Analysis, Multi-Criteria Analysis
Documentation of difficulties encountered from the collection of environmental data	Uncertainty in predictions/scenarios/transportation models/projections documented in the report
Expertise involved in the preparation of the PPP/SEA (if separate exercise)	Environmental experts, Transport experts, Urban Planners, Economists
Employment conditions	Within the organisation External Consultant Full Time Part Time
Degree of co-operation between the experts involved (Good, Mediocre, Bad)	Frequency of meetings and their consistency; ease of information sharing; occurrence of resignations within the planning team;

APPENDIX 4: QUESTIONNAIRE

DEPARTMENT OF ZOOLOGY
UNIVERSITY OF DUBLIN
TRINITY COLLEGE • DUBLIN 2 • IRELAND
telephone: +353-1-608 1366 *fax: +353-1-677 8094*

Date

r Sir/Madame,

attached questionnaire is part of a research degree being undertaken by Efthimis rianakos in the Department of Zoology, Trinity College Dublin. It investigates the experience on gration of the **environmental assessment/appraisal** process with **transport planning**, in the three ater regions of **Athens**, **Dublin** and **London**. The research will also examine the situation in these e regions before the possible enactment of the amended proposal for a European Council ctive on the 'assessment of the effects of certain plans and programmes on the environment' M (96) 511 + COM (99) 73) (For further information and the full text of the Directive visit the wing web-site: <http://europa.eu.int/comm/dg11/eia/sea-legal/context.htm>)

se complete this questionnaire for the current Unitary Development Plan if its Review mmenced after 1997. In any other case, answer the questions for the previous adopted plan. re the case arises of any other colleagues being consulted for this questionnaire, please ide their names and contact addresses. Alternatively, if you feel you are not the right person to is questionnaire, please pass it on to an appropriate colleague.

would be very grateful if you could fill out the questionnaire and return it in the enclosed elope by the [date]. Filling in the questionnaire should range from 5 to 25 minutes. An effort has been made to make it as comprehensive as possible. Feel free, however, to use the attached es to elaborate on any of your answers.

nks in advance for your co-operation,

s sincerely,

Irvine
urer,
artment of Zoology,
y College Dublin

00353 1 608 1926
ail: kirvine@tcd.ie

Efthimis Zagorianakos
Research Student,
Department of Zoology,
Trinity College Dublin

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Fax: 00353 1 83 73 671
E-mail: zagoriae@hotmail.com

QUESTIONNAIRE

se complete this questionnaire for the current Development Plan if its Review has commenced after . In any other case, answer the questions for the previously adopted plan.

Please state whether:

questionnaire is completed for the current UDP commenced in *(please state date .....)*

OR

questionnaire is completed for the UDP adopted in *(please state date .....)*

ame of local authority:

age at which the UDP is: (Please tick the appropriate box and indicate dates where possible)

ew ☐ **(date of commencement: .....)**

ultation ☐

osit draft ☐

ic Local Inquiry ☐

ifications ☐

ption ☐ **(date: .....)**

itoring ☐

ave you prepared/are you preparing an Environmental/Sustainability Appraisal for your Unitary evelopment Plan (UDP)? (*Please tick the appropriate box).*

☐ No ☐ I do not know/I am not sure ☐

Were there any environmental objectives related to transport, considered during the preparation of the DP?

Yes ☐ No ☐ I do not know/I am not sure ☐

se give an example:

Were there any environmental targets set to environmental indicators related to transport?

Yes ☐ No ☐ I do not know/I am not sure ☐

se give an example:

f answered Yes in 4 or 5) Were any of these environmental objectives/standards/indicators, stablished:

ternational level ☐ Example: .....

uropean Union level ☐ Example: .....

tional level ☐ Example: .....

cal level ☐ Example: .....

eighbouring, planning authority level ☐ Example:.....

id you undertake any 'screening' exercise to determine the need for an Environmental/Sustainability ppraisal for the transport part of the UDP? (*i.e.* establishment of screening criteria; screening checklist).

Yes ☐ No ☐ I do not know/I am not sure ☐

se give an example:

id you undertake any 'scoping' exercise to determine what significant environmental impacts should be nsidered in an Environmental/Sustainability Appraisal?

Yes ☐ No ☐ I do not know/I am not sure ☐

se give an example:

id you undertake any 'scoping' exercise to determine what significant issues should be considered in the ansport part of the UDP?

Yes ☐ No ☐ I do not know/I am not sure ☐

se give an example:

id you describe the baseline environment in the UDP?

Yes ☐ No ☐ I do not know/I am not sure ☐

id you describe any environmental problems which are relevant to the transport part of the UDP?

Yes ☐ No ☐ I do not know/I am not sure ☐

se give an example:

id you consider any alternative transport options/scenarios?

Yes ☐(*Go to 13)* No ☐(*Go to 15)* I do not know/I am not sure ☐(*Go to 13)*

se give an example:

id you consider the zero/do nothing option? (*i.e.* the future transport situation if no intervention is

anned)

Yes ☐ No ☐ I do not know/I am not sure ☐

e give an example:

id you document in the UDP's text, the reasons for rejecting alternatives?

Yes ☐ No ☐ I do not know/I am not sure ☐

e give an example:

id you document in the UDP the likely environmental effects of implementing the transport policies?

Yes ☐ No ☐ I do not know/I am not sure ☐

e give an example:

id you consider any measures to prevent, reduce or offset any adverse environmental effects of nplementing the transport policies of the UDP?

Yes ☐ No ☐ I do not know/I am not sure ☐

e give an example:

there any mechanism in place to monitor implementation of the UDP's transport policies?

Yes ☐ No ☐ I do not know/I am not sure ☐

f an Environmental/Sustainability Appraisal was undertaken) Was the nvironmental/Sustainability Appraisal:

part of the UDP's text ☐ a separate document ☐ I do not know/I am not sure ☐

f an Environmental/Sustainability Appraisal was undertaken) Was there any statement in the DP/Environmental Appraisal report, on how the environmental/sustainability appraisal was undertaken?

': Yes ☐ No ☐ I do not know/I am not sure ☐

nvironmental/S Appraisal: Yes ☐ No ☐ I do not know/I am not sure ☐

f an Environmental/Sustainability Appraisal was undertaken) Was there any non-technical ummary of the environmental/sustainability appraisal?

Yes ☐ No ☐ I do not know/I am not sure ☐

Vas there a non-technical summary of the UDP?

Yes ☐ No ☐ I do not know/I am not sure ☐

id you justify (in the UDP/Environmental Appraisal report), the environmental reasons upon which the ecision for adoption was based?

': Yes ☐ No ☐ I do not know/I am not sure ☐

ironmental/S Appraisal: Yes ☐ No ☐ I do not know/I am not sure ☐

se give an example:

t what stages of the UDP process was the opinion of the public sought? *(Please tick more than one box necessary)*

ng Review ☐

re Deposit draft ☐

ng Modifications ☐

ng Monitoring ☐

f an Environmental/Sustainability Appraisal was undertaken) At what stages of the nvironmental/sustainability appraisal process was the opinion of the public sought? *(Please tick more an one box if necessary)*

ng Review ☐ No public participation ☐

re Deposit draft ☐

ng Modifications ☐

ng Monitoring ☐

What are the actions taken to elicit peoples' views? (*i.e.* public display of UDP, public survey, leaflets, *tc.*)

se specify:

Vas there any reference to the results of public participation in the: *(Please tick more than one box if ecessary)*

of the UDP ☐ No reference ☐

ironmental/sustainability appraisal report ☐

se give an example:

At what stages of the UDP's process, were the appropriate authorities consulted?

ing Review ☐

re Deposit draft ☐
ng Modifications ☐
ng Monitoring ☐

f an Environmental/Sustainability Appraisal was undertaken) At what stages of the vironmental/sustainability appraisal process were the appropriate authorities consulted?
ng Review ☐
re Deposit draft ☐ No Consultation ☐
ng Modifications ☐
ng Monitoring ☐

Vas the opinion of environmental Non-Governmental Organisation sought?
the UDP: Yes ☐ No ☐
se specify: .....
he Environmental/S Appraisal: Yes ☐ No ☐ Not applicable ☐
se specify:

Vas there any reference to the results of Agency consultation in the:
of the UDP: Yes ☐ No ☐
ronmental/sustainability appraisal report: Yes ☐ No ☐ Not applicable ☐

Vas there any list of consultees included in the:
of the UDP: Yes ☐ No ☐
ronmental/sustainability appraisal report: Yes ☐ No ☐ Not applicable ☐

Vere there any (other than Environmental/Sustainability Appraisal) environmental and socio-economic anagement methodologies used throughout the preparation of the UDP? (such as Zoning, Multi-Criteria nalysis; Social Impact Assessment; Cost Benefit Analysis)
Yes ☐ No ☐ I do not know/I am not sure ☐
se specify:

id you include in the UDP's text any statement regarding the possible difficulties roughout the planning exercise?
Yes ☐ No ☐ I do not know/I am not sure ☐
se give an example:

f an Environmental/Sustainability Appraisal was undertaken) Did you include in the nvironmental/Sustainability Appraisal report (if any), any statement regarding the possible difficulties ncountered throughout the Environmental/Sustainability Appraisal exercise?
Not any report ☐ Yes ☐ No ☐ I do not know/I am not sure ☐
se give an example:

lease list some of the types of expertise involved in the preparation of the transport part of the UDP (*i.e. ansport planners, economists, environmental experts etc.)* .....
.....

f an Environmental/Sustainability Appraisal was undertaken) Which of the above types of xpertise were involved in the preparation of the Environmental/Sustainability Appraisal?
.....
e of these experts were: *(Please tick more than one box if necessary)*
rnal consultants/full-time ☐ external consultants/part-time ☐
of your planning team/full-time ☐ part of your planning team/part-time ☐
I do not know/I am not sure ☐
would you describe the degree of co-operation between the experts involved: *(please note that the nformation provided in this questionnaire is strictly confidential).*
Good ☐ Mediocre ☐ Bad ☐
nments:.....

Your name: .....
position: .....
willing to discuss this further ☐ Telephone number: .....
uld like to receive a copy of the findings of this research ☐

ank you very much for your help. Please return this form in the attached envelope, or send to: **Efthimis Zagorianakos, 15 Temple View Grove, Dublin 13, Republic of Ireland**.
Any relevant documentation will be gratefully received!

APPENDIX 5: PROPOSED SEA DIRECTIVE

COUNCIL OF THE EUROPEAN UNION

Brussels, 20 March 2000 (OR. en)

5685/00

Interinstitutional File: 96/0304 (COD)

LIMITE

ENV 22
CODEC 68

LEGISLATIVE ACTS AND OTHER INSTRUMENTS

Subject: Common Position adopted by the Council with a view to the adoption of a Directive of the European Parliament and of the Council on the assessment of the effects of certain plans and programmes on the environment

DIRECTIVE 2000/ / OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL

of

ontheassessmentoftheeffectsofcertainplansandprogrammes
ontheenvironment

THEEUROPEANPARLIAMENTANDTHECOUNCILOFTHEEUROPEANUNION,

HavingregardtotheTreatyestablishingtheEuropeanCommunity,andinparticularArticle175(1) thereof,

HavingregardtotheproposalfromtheCommission [1],

HavingregardtotheOpinionoftheEconomicandSocialCommittee [2],

HavingregardtotheopinionoftheCommitteeoftheRegions [3],

ActinginaccordancewiththeprocedurelaiddowninArticle251oftheTreaty [4],

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1 OJC129,25.4.1997,p.14andOJC83,25.3.1999,p.13.
2 OJC287,22.9.1997,p.101.
3 OJC64,27.2.1998,p.63andOJC374,23.12.1999,p.9.
4 OpinionoftheEuropeanParliamentof20October1998(OJC341,9.11.1998,p.18), CouncilCommonPositionof(notyetpublishedintheOfficialJournal)and DecisionoftheEuropeanParliamentof(notyetpublishedintheOfficial Journal).

Whereas:

(1) Article 174 of the Treaty provides that Community policy on the environment is to contribute to, inter alia, the preservation, protection and improvement of the quality of the environment, the protection of human health and the prudent and rational utilisation of natural resources and that it is to be based on the precautionary principle. Article 6 of the Treaty provides that environmental protection requirements are to be integrated into the definition of Community policies and activities, in particular with a view to promoting sustainable development.

(2) The fifth Environment Action Programme: Towards sustainability – A European Community programme of policy and action in relation to the environment and sustainable development [1], supplemented by Decision No 2179/98/EC [2] on its review, affirms the importance of assessing the likely environmental effects of plans and programmes.

(3) Environmental assessment is an important tool for integrating environmental considerations into the preparation and adoption of certain plans and programmes which are likely to have significant effects on the environment in the Member States, because it ensures that such effects of implementing plans and programmes are taken into account during their preparation and before their adoption.

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[1] OJ C 138, 17.5.1993, p. 5.
[2] OJ L 275, 10.10.1998, p. 1.

(4) Theadoptionofenvironmentalassessmentproceduresattheplanningandprogramminglevel shouldbenefitundertakingsbyprovidingamoreconsistentframeworkinwhichtooperateby theinclusionoftherelevantenvironmentalinformationintodecision-making.Theinclusion ofawidersetoffactorsindecision-makingshouldcontributetomoresustainableand effectivesolutions.

(5) ThedifferentenvironmentalassessmentsystemsoperatingwithinMemberStatesshould containasetofcommonproceduralrequirementsnecessarytocontributetoahighlevelof protectionoftheenvironment.

(6) ThesystemsoperatingwithintheCommunityforenvironmentalassessmentofplansand programmesshouldensurethattherearead equatetransboundaryconsultationswherethe implementationofaplanorprogrammebeingpreparedinoneMemberStateislikelytohave significanteffectsontheenvironmentofanotherMemberState.

(7) ActionisthereforerequiredatCommunityleveltolaydownaminimumenvironmental assessmentframework,whichwouldsetoutthebroadprinciplesoftheenvironmental assessmentsystemandleavethedetailstotheMemberStates,havingregardtotheprinciple ofsubsidiarity.ActionbytheCommunityshouldnotgobeyondwhatisnecessarytoachieve theobjectivessetoutintheTreaty.

(8) ThisDirectiveisofaproceduralnature,anditsrequirementsshouldeitherbeintegratedinto existingproceduresinMemberStatesorincorporatedinspecificallyestablishedprocedures. Withaviewtoavoidingduplicationoftheassessment,MemberStatesshouldtakeaccount, whereappropriate,ofthefactthatassessmentswillbecarriedoutatdifferentlevelsofa hierarchyofplansandprogrammes.

(9) Allplansandprogrammeswhicharepreparedforanumberofsectorsandwhichseta frameworkforfuturedevelopmentconsentofprojectslistedinAnnexesIandIIto CouncilDirective85/337/EECof27June1985ontheassessmentoftheeffectsofcertain publicandprivateprojectsontheenvironment [1],andallplansandprogrammeswhichhave beendeterminedtorequireassessmentpursuanttoCouncilDirective92/43/EECof 21May1992ontheconservationofnaturalhabitatsandofwildfloraandfauna [2],arelikely tohavesignificanteffectsontheenvironment,andshouldasarulebemadesubjectto systematicenvironmentalassessment.Whentheydeterminetheuseofsmallareasatlocal levelorareminormodificationstotheaboveplansorprogrammes,theyshouldbeassessed onlywhereMemberStatesdeterminethattheyarelikelytohavesignificanteffectsonthe environment.

(10) Otherplansandprogrammeswhichsettheframeworkforfuturedevelopmentconsentof projectsmaynothavesignificanteffectsontheenvironmentinallcasesandshouldbe assessedonlywhereMemberStatesdeterminethattheyarelikelytohavesucheffects.

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[1] OJL175,5.7.1985,p.40.DirectiveasamendedbyDirective97/11/EC(OJL73,14.3.1997, p.5).

[2] OJL206,22.7.1992,p.7.DirectiveaslastamendedbyDirective97/62/EC(OJL305, 8.11.1997,p.42).

(11) WhenMemberStatesmakesuchdeterminations,theyshouldtakeintoaccounttherelevant criteriasetoutinthisDirective.

(12) SomeplansorprogrammesarenotsubjecttothisDirectivebecauseoftheirparticular characteristics.

(13) WhereanassessmentisrequiredbythisDirective,anenvironmentalreportshouldbe preparedcontainingrelevantinformationassetoutinthisDirective,identifying,describing andevaluatingthelikelysignificantenvironmentaleffectsofimplementingtheplanor programme,andreasonablealternativestakingintoaccounttheobjectivesandthe geographicalscopeoftheplanorprogramme;MemberStatesshouldcommunicatetothe Commissionanymeasurestheytakeconcerningthequalityofenvironmentalreports.

(14) Inordertocontributetomoretransparentdecision-makingandwiththeaimofensuringthat theinformationsuppliedfortheassessmentiscomprehensiveandreliable,itisnecessaryto providethatauthoritieswithrelevantenvironmentalresponsibilitiesandthepublicaretobe consulteddduringtheassessmentofplansandprogrammes,andthatappropriatetimeframes areset,allowingsufficienttimeforconsultations,includingtheexpressionofopinion.

(15) Whereretheimplementationofaplanorprogrammepreparedinone MemberStateislikelyto haveasignificanteffectontheenvironmentofotherMemberStates,provisionshouldbe madefortheMemberStatesconcernedtoenterintoconsultationsandfortherelevant authoritiesandthepublictobeinformedandenabledtoexpresstheiropinion.

(16) Theenvironmentalreportandtheopinionsexpressedbytherelevantauthoritiesandthe public,aswellastheresultsofanytransboundaryconsultation,shouldbetakenintoaccount duringthepreparationoftheplanorprogrammeandbeforeitsadoptionorsubmissiontothe legislativeprocedure.

(17) MemberStatesshouldensurethat,whenaplanorprogrammeisadopted,therelevant authoritiesandthepublicareinformedandrelevantinformationismadeavailabletothem.

(18) Wheretheobligationtocarryoutassessmentsoftheeffectsontheenvironmentarises simultaneouslyfromthisDirectiveandotherCommunitylegislation,suchas CouncilDirective79/409/EECof2April1979ontheconservationofwildbirds [1], Directive92/43/EEC,[orDirective../...../ECestablishingaframeworkforCommunity actioninthefieldofwaterpolicy [*]],inordertoavoidduplicationoftheassessment,Member Statesmayprovideforcoordinatedorjointproceduresfulfillingtherequirementsofthe relevantCommunitylegislation.

(19) Afirstreportontheapplicationandeffectivenessofthis Directiveshouldbecarriedoutby theCommissionfiveyearsafteritsentryintoforce,andatseven-yearintervalsthereafter. Withaviewtofurtherintegratingenvironmentalprotectionrequirements,andtakinginto accounttheexperienceacquired,thefirstreportshould,ifappropriate,beaccompaniedby proposalsforamendmentofthisDirective,inparticularasregardsthepossibilityofextending itsscopetootherareas/sectorsandothertypesofplansandprogrammes,

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[1] OJL103,25.4.1979,p.1.Directiveaslastamendedby Directive97/49/EC(OJL223, 13.8.1997,p.9).

[*] tobeinsertedifthatDirectiveisadoptedbeforethisone.

HAVEADOPTEDTHISDIRECTIVE:

Article1

Objectives

TheobjectiveofthisDirectiveistoprovideforahighlevelofprotectionoftheenvironmentandto contributetotheintegrationofenvironmentalconsiderationsintothepreparationandadoptionof plansandprogrammeswithaviewtopromotingsustainabledevelopment,byensuringthat,in accordancewiththisDirective,anenvironmentalassessmentiscarriedoutofcertainplansand programmeswhicharelikelytohavesignificanteffectsontheenvironment.

Article2

Definitions

ForthepurposesofthisDirective:

(a) "plansandprogrammes"shallmeanplansandprogrammes,aswellastheirmodifications

- whicharesubjecttopreparationand/oradoptionbyanauthorityatnational,regional orlocallevelorwhicharepreparedbyanauthorityforadoption,througha legislativeprocedurebyParliamentorGovernment,and

- whicharerequiredbylegislative,regulatoryoradministrativeprovisions;

(b) "environmentalassessment"shallmeanthepreparationofanenvironmentalreport,the carryingoutofconsultations,thetakingintoaccountoftheenvironmentalreportandthe resultsoftheconsultationsindecision-makingandtheprovisionofinformationonthe decisioninaccordancewithArticles4to9;

(c) "environmentalreport"shallmeanthepartoftheplanorprogrammedocumentation containingtheinformationrequiredinArticle5andAnnexI;

(d) "thepublic"shallmeannaturalorlegalpersons,andtheirassociations,organisationsor groups.

Article3

Scope

1.Anenvironmentalassessment,inaccordancewithArticles4to9,shallbecarriedoutforplans andprogrammesreferredtoinparagraphs2to4whicharelikelytohavesignificantenvironmental effects.

2.Subjecttoparagraph3,anenvironmentalassessmentshallbecarriedoutforallplansand programmes,

(a) whicharepreparedforagriculture,forestry,fisheries,energy,industry,transport,waste management,watermanagement,telecommunications,tourism,townandcountryplanningor landuseandwhichsettheframeworkforfuturedevelopmentconsentofprojectslistedin AnnexesIandIItoDirective85/337/EEC,or

(b) which, in view of the likely effect on sites, have been determined to require an assessment pursuant to Article 6 or 7 of Directive 92/43/EEC.

3. Plans and programmes referred to in paragraph 2 which determine the use of small areas at local level and minor modifications to plans and programmes referred to in paragraph 2 shall require an environmental assessment only where the Member States determine that they are likely to have significant environmental effects.

4. Member States shall determine whether plans and programmes, other than those referred to in paragraph 2, which set the framework for future development consent of projects, are likely to have significant environmental effects.

5. Member States shall determine whether plans or programmes referred to in paragraphs 3 and 4 are likely to have significant environmental effects either through case-by-case examination or by specifying types of plans and programmes or by combining both approaches, and in all cases taking into account relevant criteria set out in Annex II.

6. In the case-by-case examination and in specifying types of plans and programmes in accordance with paragraph 5, the authorities referred to in Article 6(3) shall be consulted.

7. Member States shall ensure that their conclusions pursuant to paragraph 5 are made available to the public.

8. The following plans and programmes are not subject to this Directive:

– plans and programmes the sole purpose of which is to serve national defence or civil emergency,

– financial or budget plans and programmes,

– plans and programmes falling under the 2000-2006 programming period under Council Regulation (EC) No 1260/99 of 21 June 1999 laying down general provisions on the Structural Funds [1] or under the 2000-2006 and 2000-2007 programming periods under Council Regulation (EC) No 1257/99 of 17 May 1999 on support for rural development from the European Agricultural Guidance and Guarantee Fund (EAGGF) and amending and repealing certain regulations [2].

Article 4

General obligations

1. The environmental assessment referred to in Article 3 shall be carried out during the preparation of a plan or programme and before its adoption or submission to the legislative procedure.

2. The requirements of this Directive shall either be integrated into existing procedures in Member States for the adoption of plans and programmes or incorporated in procedures established to comply with this Directive.

[1] OJ L 161, 26.6.1999, p. 1.
[2] OJ L 160, 26.6.1999, p. 80.

3. Where plans and programmes form part of a hierarchy, Member States shall, with a view to avoiding duplication of the assessment, take into account the fact that the assessment will be carried out, in accordance with this Directive, at different levels of the hierarchy.

Article 5

Environmental report

1. Where an environmental assessment is required under Article 3(1), an environmental report shall be prepared in which the likely significant effects on the environment of implementing the plan or programme, and reasonable alternatives taking into account the objectives and the geographical scope of the plan or programme, are identified, described and evaluated. The information to be given for this purpose is referred to in Annex I.

2. The environmental report prepared pursuant to paragraph 1 shall include the information that may reasonably be required taking into account current knowledge and methods of assessment, the contents and level of detail in the plan or programme, its stage in the decision-making process and the extent to which certain matters are more appropriately assessed at different levels in that process in order to avoid duplication of the assessment.

3. Relevant information available on environmental effects of the plans and programmes and obtained at other levels of decision-making or through other Community legislation may be used for providing the information referred to in Annex I.

4. The authorities referred to in Article 6(3) shall be consulted when deciding on the scope and level of detail of the information which must be included in the environmental report.

Article6

Consultations

1.Thedraftplanorprogrammeandtheenvironmentalreportpreparedinaccordancewith Article5shallbemadeavailabletotheauthoritiesreferredtoinparagraph3ofthisArticleandthe public.

2.Theauthoritiesreferredtoinparagraph3andthepublicreferredtoinparagraph4shallbe givenanearlyandeffectiveopportunitywithinappropriatetimeframestoexpresstheiropinionon thedraftplanorprogrammeandtheaccompanyingenvironmentalreportbeforetheadoptionofthe planorprogrammeoritssubmissiontothelegislativeprocedure.

3.MemberStatesshalldesignatetheauthoritiestobeconsultedwhich,byreasonoftheirspecific environmentalresponsibilities,arelikelytobeconcernedbytheenvironmentaleffectsof implementingplansandprogrammes.

4.MemberStatesshallidentifythepublicforthepurposesofparagraph2,includingrelevant non-governmentalorganisations,suchasthosepromotingenvironmentalprotectionandother organisationsconcerned.

5.Thedetailedarrangementsfortheinformationandconsultationoftheauthoritiesandthepublic shallbedeterminedbytheMemberStates.

Article7

Transboundaryconsultations

1.WhereaMemberStateconsidersthattheimplementationofaplanorprogrammebeing preparedinrelationtoitsterritoryislikelytohavesignificanteffectsontheenvironmentinanother MemberState,orwhereaMemberStatelikelytobesignificantlyaffectedsorequests,theMember Stateinwhoseterritorytheplanorprogrammeisbeingpreparedshall,beforeitsadoptionor submissiontothelegislativeprocedure,forwardacopyofthedraftplanorprogrammeandthe relevantenvironmentalreporttotheotherMemberState.

2.WhereaMemberStateissentacopyofadraftplanorprogrammeandanenvironmentalreport underparagraph1,itshallindicatetotheotherMemberStatewhetheritwishestoenterinto consultationsbeforetheadoptionoftheplanorprogrammeoritssubmissiontothelegislative procedureand,ifitsoindicates,theMemberStatesconcernedshallenterintoconsultations concerningthelikelytransboundaryenvironmentaleffectsofimplementingtheplanorprogramme andthemeasuresenvisagedtoreduceoreliminatesucheffects.

Wheresuchconsultationstakeplace,theMemberStatesconcernedshallagreeondetailed arrangementstoensurethattheauthoritiesreferredtoinArticle6(3)andthepublicreferredtoin Article6(4)intheMemberStatelikelytobesignificantlyaffectedareinformedandgivenan opportunitytoforwardtheiropinionwithinareasonabletime-frame.

3.WhereMemberStatesarerequiredunderthisArticletoenterintoconsultations,theyshall agree,atthebeginningofsuchconsultations,onareasonabletime-frameforthedurationofthe consultations.

Article8

Decisionmaking

Theenvironmentalreportpreparedpursuantto Article5,theopinionsexpressedpursuantto Article6andtheresultsofanytransboundaryconsultationsenteredintopursuantto Article7shall betakenintoaccountduringthepreparationoftheplanorprogrammeandbeforeitsadoptionor submissiontothelegislativeprocedure.

Article9

Informationonthedecision

1.MemberStatesshallensurethat,whenaplanorprogrammeisadopted,theauthoritiesreferred toinArticle6(3),thepublicandanyMemberStateconsultedunderArticle7areinformedandthe followingitemsaremadeavailabletothosesoinformed:

(a) theplanorprogrammeasadopted,and

(b) astatementsummarisinghowenvironmentalconsiderationshavebeenintegratedintotheplan orprogrammeandhowtheenvironmentalreportpreparedpursuanttoArticle5,theopinions expressedpursuanttoArticle6andtheresultsofconsultationsenteredintopursuantto Article7havebeentakenintoaccountinaccordancewithArticle8andthereasonsfor choosingtheplanorprogrammeasadopted,inthelightoftheotherreasonablealternatives dealtwith.

2. The detailed arrangements concerning the information referred to in paragraph 1 shall be determined by the Member States.

Article 10

Relationship with other Community legislation

1. An environmental assessment carried out under this Directive shall be without prejudice to any requirements under Directive 85/337/EEC and to any other Community law requirements.

2. For plans and programmes for which the obligation to carry out assessments of the effects on the environment arises simultaneously from this Directive and other Community legislation, Member States may provide for coordinated or joint procedures fulfilling the requirements of the relevant Community legislation in order inter alia to avoid duplication of assessment.

Article 11

Information, reporting and review

1. Member States and the Commission shall exchange information on the experience gained in applying this Directive.

2. Member States shall communicate to the Commission any measures they take concerning the quality of environmental reports.

3. Before [*] the Commission shall send a first report on the application and effectiveness of this Directive to the European Parliament and to the Council.

With a view further to integrating environmental protection requirements, in accordance with Article 6 of the Treaty, and taking into account the experience acquired in the application of this Directive in the Member States, such a report will be accompanied by proposals for amendment of this Directive, if appropriate. In particular, the Commission will consider the possibility of extending the scope of this Directive to other areas/sectors and other types of plans and programmes.

A new evaluation report shall follow at seven-year intervals.

4. The Commission shall report on the relationship between this Directive and Regulations (EC) No 1260/99 and No 1257/99 well ahead of the expiry of the programming periods provided for in those Regulations.

Article 12

Implementation of the Directive

1. Member States shall bring into force the laws, regulations and administrative provisions necessary to comply with this Directive before [**]. They shall forthwith inform the Commission thereof.

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[*] Five years after the entry into force of this Directive.
[**] Three years after the entry into force of this Directive.

2. When Member States adopt the measures, they shall contain a reference to this Directive or shall be accompanied by such reference on the occasion of their official publication. The methods of making such reference shall be laid down by Member States.

3. The obligation referred to in Article 4(1) shall apply only to the plans and programmes of which the first formal preparatory act is subsequent to the date referred to in paragraph 1.

4. Before [*], Member States shall communicate to the Commission, in addition to the measures referred to in paragraph 1, separate information on the types of plans and programmes which, in accordance with Article 3, would be subject to an environmental assessment pursuant to this Directive. The Commission shall make this information available to the Member States. The information will be updated on a regular basis.

Article 13

Entry into force

This Directive shall enter into force on the day of its publication in the Official Journal of the European Communities.

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[*] Three years after the entry into force of this Directive.

Article14

Addressees

ThisDirectiveisaddressedtotheMemberStates.

DoneatBrussels,

FortheEuropeanParliament
ThePresident

FortheCouncil
ThePresident

ANNEX I

InformationreferredtoinArticle5(1)

TheinformationtobeprovidedunderArticle5(1),subjecttoArticle5(2)and(3),isthefollowing:

(a) anoutlineofthecontents,mainobjectivesoftheplanorprogrammeandrelationshipwith otherrelevantplansandprogrammes;

(b) therelevantaspectsofthecurrentstateoftheenvironmentandthelikelyevolutionthereof withoutimplementationoftheplanorprogramme;

(c) theenvironmentalcharacteristicsofareaslikelytobesignificantlyaffected;

(d) anyexistingenvironmentalproblemswhicharerelevanttotheplanorprogrammeincluding, inparticular,thoserelatingtoanyareasofaparticularenvironmentalimportance,suchas areasdesignatedpursuanttoDirectives79/409/EECand92/43/EEC;

(e) theenvironmentalprotectionobjectives,establishedatinternational,CommunityorMember Statelevel,whicharerelevanttotheplanorprogrammeandthewaythoseobjectivesandany environmentalconsiderationshavebeentakenintoaccountduringitspreparation;

(f) thelikelysignificanteffects * ontheenvironment;

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* theseeffectsshouldincludesecondary,cumulative,synergistic,short,mediumandlong-term permanentandtemporary,positiveandnegativeeffects.

(g) themeasuresenvisagedtoprevent,reduceandasfullyaspossibleoffsetanysignificant adverseeffectsontheenvironmentofimplementingtheplanorprogramme;

(h) anoutlineofthereasonsforselectingthealternativesdealtwith,andadescriptionofhowthe assessmentwasundertakenincludinganydifficulties(suchastechnicaldeficienciesorlackof know-how)encounteredincompilingtherequiredinformation;

(i) adescriptionofmeasuresenvisagedformonitoringtheimplementationoftheplanor programme;

(j) anon-technicalsummaryoftheinformationprovidedundertheaboveheadings.

ANNEX II

Criteriafordeterminingthelikelysignificanceofeffectsreferredto inArticle3(5)

1. Thecharacteristicsofplansandprogrammes,havingregard,inparticular,to

- thedegreetowhichtheplanorprogrammesetsaframeworkforprojectsandother activities,eitherwithregardtothelocation,nature,sizeandoperatingconditionsorby allocatingresources;

- thedegreetowhichtheplanorprogrammeinfluencesotherplansandprogrammes includingthoseinahierarchy;

- therelevanceoftheplanorprogrammefortheintegrationofenvironmental considerationsinparticularwithaviewtopromotingsustainabledevelopment;

- environmentalproblemsrelevanttotheplanorprogramme;

- therelevanceoftheplanorprogrammefortheimplementationofCommunity legislationontheenvironment(e.g.plansandprogrammeslinkedtowaste-management orwaterprotection).

2. Characteristicsoftheeffectsandofthearealikelytobeaffected,havingregard,inparticular, to

- theprobability,duration,frequencyandreversibilityoftheeffects;
- thecumulativenatureoftheeffects;
- thetransboundarynatureoftheeffects;
- theriskstohumanhealthortheenvironment(e.g.duetoaccidents);
- themagnitudeandspatialextentoftheeffects(geographicalareaandsizeofthe populationlikelytobeaffected);
- thevalueandvulnerabilityofthearealikelytobeaffecteddueto:
  - = specialnaturalcharacteristicsorculturalheritage;
  - = exceededenvironmentalqualitystandardsorlimitvalues;
  - = intensiveland-use;
- theeffectsonareasorlandscapeswhichhavearecognisednational,Communityor internationalprotectionstatus.