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Managing Ireland's Visual Amenity

An Evaluation of Visual Impact Assessment Practice and Local Authority Management Policies for the Visual Amenity in Ireland

Volume 1 of 2

Submitted as fulfilment of the requirements for the degree of PhD by research to Trinity College, Dublin.

William Patrick Prendergast

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SUMMARY

The EU Directive (85/337/EEC) introduced the requirement to conduct EIA for major developments in 1988 and the new Planning and Development Act in 2000 introduced the requirement that all planning applications be evaluated using sustainable development as one of the criteria in the decision-making process. This thesis documents the results of two surveys conducted to investigate how the planning and development system manages the visual amenity in Ireland for which these two pieces of legislation are significant.

The first survey examined the quality of visual impact assessments (VIA) carried out within a sample of environmental impact statements (EIS) prepared for the development control process in Ireland. The sample included 164 EISs submitted between 1997 and 1999 within three categories of development; piggeries, quarries and urban developments. The findings supply evidence on the nature, visualization techniques used and the quality of visual impact assessment practice during this period. The extent to which VIA have complied with the Irish Environmental Protection Agency (EPA) guidelines and disparities between the results for each development category are examined. The survey concluded that (i) the standard of VIA is less comprehensive than might be expected, and (ii) the use of visualization techniques for VIA could be substantially improved.

The second survey examined development policies used within the planning and development system to manage the visual amenity. Four stakeholder groups of the planning system were interviewed including planners, design professionals, environmental non-governmental organizations and the environmental spokespersons for the main political parties in Ireland. These findings supply information on the development pressures impacting most significantly on the visual amenity, policies protecting the visual amenity within County and City Development Plans, other development policies impacting on the visual amenity, and methods used to enhance the visual amenity.

The results indicate that although development policies protecting the visual amenity have been largely successful to date, development policies and strategies for enhancing the visual amenity lack coherence and focus. The concept of a National Landscape Plan is considered as a framework to facilitate the co-ordination of physical developments across development sectors and a set of guidelines for the visual amenity are presented as a contribution towards the preparation of the National Landscape Plan.

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GLOSSARY OF TERMS

ASI	Areas of Scientific Interest
CAD	Computer Aided Design
CDP	City or County Development Plan
CPD	Continuous Professional Development
DTM	Digital Terrain Model (shape of the terrain surface)
DEM	Digital Elevation Model (shape of the terrain surface)
EDA	Exploratory Data Analysis
EIA	Environmental Impact Assessment
EIS	Environmental Impact Statement
EPA	Environmental Protection Agency
GIS	Geographic Information Systems
ICTs	Information and Communication Technologies
IFS	Indicative Forest Strategies
IPC	Integrated Pollution Control
IUCN	International Union for the Conservation of Nature and Natural Resources
LAP	Local Area Plan
LIA	Landscape Impact Assessment
NHA	National Heritage Areas
NIAH	National Inventory of Architectural Heritage
NMA	National Mapping Agency
NSS	National Spatial Strategy
OSi	Ordnance Survey Ireland
OSNI	Ordnance Survey of Northern Ireland
RPS	Record of Protected Structures
SAAO	Special Area Amenity Order
SAC	Special Areas of Conservation
SEA	Strategic Environmental Assessment
SPA	Special Protection Areas
TIN	Triangulated Irregular Network (shape of the terrain surface)
TPO	Tree Protection Order
VAC	Visual Absorption Capacity
VIA	Visual Impact Assessment
ViSC	Visualisation in Scientific Computing
ZVI	Zone of Visual Influence
24/7	Twenty four hours a day and on seven day week basis

CHAPTER ONE

INTRODUCTION

1 INTRODUCTION

1.1 THE NEED FOR THIS RESEARCH

Ireland's landscape is not solely the result of natural processes.

> *"It was formed through an interplay of geology, climate, ice-age, the growth of the bogs, the arrival of man, early agriculture, the spread of Christianity and its associated culture, several partial colonisations, the enclosure of fields and the planting of hedgerows, the growth of towns, the development of the demesnes, the ongoing vernacular building, the effects of population growth and the ensuing famine, emigration, the growth of the new State, rural development, Tidy Towns Groups, FAS schemes, population pattern changes, the growth of leisure activities – gardening, golf courses, tourist developments, exposure to the world media, the adoption of non-native building styles, and a whole range of factors which have given us the landscape of today. In other words, our created landscape is a by-product of a whole range of natural and cultural factors interacting in an ad hoc way."* (Rountree, 1997, 11)

This description portrays a very powerful image of the dynamic nature of landscapes due to the combined influences of nature and the nation's people using the land as a resource to provide for life. What is less obvious, but as important, is the impact that landscape has on the overall quality of life.

However, Ireland's development and future now face unprecedented change as Ireland's rapid economic growth places stresses and strains on the systems which are there to protect its landscape (Starrett, 2002). There has been a dramatic increase (94%) in the number of planning applications in Ireland between 1993 and 2003 (DoEHLG, 2003), which put has unprecedented pressure on the planning and development system (Figure 1.1). Additionally Ireland's National Development Plan; 2000-2006 (DoT, 2000) commits an investment in the region of €52 Billion to be spent during the period mainly in the areas of infrastructure development, education and training, the productive sector and the promotion of social inclusion. More coherent and consistent policies are now urgently required at national, regional and local levels to provide a guiding vision to ensure this high level of development does not degrade Irish landscapes with inappropriate developments. Protecting the landscape in this time of change demands partnership and co-ordination between those agencies and activities which have a potential to impact on it (Starrett, 2002).

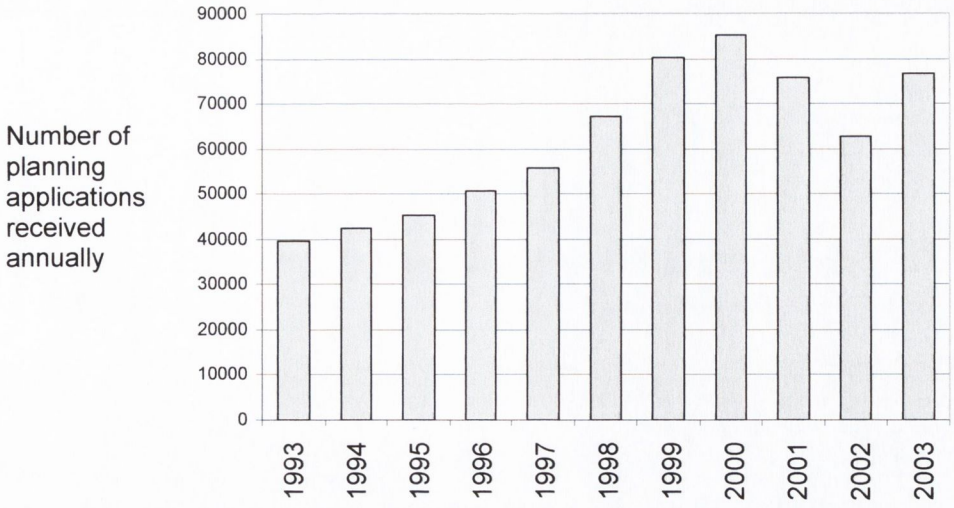


Figure 1.1 Dramatic increases in the number of planning applications received in Ireland (DoEHLG, 2003).

In the absence of any consistent and standardised approach to landscape, there is a danger that agencies will act in an ad hoc and ill-informed way. In the current climate of rapid economic development, this would represent a real threat to the well being of the Irish Landscape (Starrett, 2002). Consequently, it becomes important to identify what activities are having the greatest impact on landscape and how the system which is protecting the landscape is performing under this increased workload. Is it providing the level of protection intended and can the weaknesses in the system be identified and rectified to ensure it delivers?

1.2 AIMS OF THIS RESEARCH

Although the original planning and development Act (Oireachtas, 1963) provided for the preservation of amenities including natural habitats, cultural heritage and the visual amenity the main focus taken was on natural habitats. Landscape preservation policies during the 1970s and 1980s tended to concentrate on areas of outstanding natural beauty supporting high species diversity of flora and fauna. The introduction of EIA (Environmental Impact Assessment) into Ireland's planning and development system in 1988 (DoE, 1989) re-emphasised the importance of the landscape in the planning and development system, helped to raise awareness of the need to protect the environment and has stimulated much needed research which in turn has significantly improved environmental knowledge.

The passing of the Heritage Act (Oireachtas, 1995) in the 1990s included a much expanded interpretation of heritage than heretofore and significantly raised the priority of heritage protection not only within the planning and development system, but throughout all central and local government plans and programmes within a framework set out in the National Heritage Plan (DoAHGI, 2002b).

A number of recent initiatives recommended a new more holistic approach to protecting landscapes. The Department for the Environment and Local Government issued draft guidelines for landscape assessment encouraging local authorities to conduct landscape character assessments of their areas to better inform the review process of development plans (DoELG, 2000). The expanded interpretation of heritage also included landscapes which led to the publication of the Heritage Council's Policy Paper on Landscape (The Heritage Council, 2002) and Ireland ratified the European Landscape Convention (Council of Europe, 2000) in the same year. All of these initiatives have conspired to significantly raise the awareness and importance of landscape in the planning and development system.

The protection of landscape is widely acknowledged to include cultural heritage, natural habitats and the visual amenity (Starrett, 2002; Aalen *et al.*, 1997; Oireachtas, 1995), but although definitions and interpretations are available for both cultural heritage and natural habitats, the term 'visual amenity' is rarely explained. It was interpreted during the 1970s and 1980s as the preservation of outstanding views and prospects. However, if traditional approaches used for protection of natural habitats and cultural heritage have shifted from identifying and protecting the 'good bits' to a more holistic approach where the whole landscape is assessed, can the same be true for the visual amenity? Should there be a move to examine the visual amenity of ordinary landscapes to conserve and enhance this amenity for the benefit of local communities?

1.3 THE RESEARCH QUESTIONS

1.3.1 Research Question 1

What is the standard of visual impact assessment (VIA) practice in Ireland?

Certain categories of proposed major developments must carry out an EIA (environmental impact assessment) and submit an EIS (environmental impact statement) as part of the

documentation for planning permission. Landscape is one of the environmental factors examined during EIA and as part of this landscape assessment an examination of visual impacts on the visual amenity is carried out. The first survey will attempt to evaluate the quality of VIA (visual impact assessments) within EIS submitted to the planning and development system in Ireland during a specific review period.

1.3.2 Research Question 2

Is EIA achieving its Primary aim in Ireland?

The primary aim of EIA is to facilitate the modification of designs of proposed developments to ensure they better fit the receiving environment (Council of the European Communities, 1985; CAAS, 1995a). The results of both surveys will be used to attempt to determine if EIA is achieving this primary aim. These results will be correlated with other studies conducted in Ireland and internationally to identify if they conform to any overall trends.

1.3.3 Research Question 3

How can the management of Ireland's visual amenity be improved?

The second survey entails interviewing the stakeholders of Ireland's planning and development system to assess the performance of development policies contained within City and County Development Plans in managing the visual amenity. The investigation will try to identify:

a) Development pressures impacting most significantly on the visual amenity;
b) Current policies used to protect the visual amenity within CDPs (County and City Development Plans);
c) Other development policies impacting on the visual amenity;
d) Methods currently used to enhance the visual amenity.

The investigation will also attempt to identify any weaknesses in current development policies and suggest how these weaknesses might be resolved.

1.4 RESEARCH METHODOLOGY

The research carried out two separate surveys to answer the research questions posed. The first survey examined current Visual Impact Assessment (VIA) practice in documentation submitted to the development control process for planning permission and the second survey investigated the performance of local authority policies used to manage the visual amenity.

1.5 FORMAT OF THESIS

Chapter Two explores the dynamic nature of landscapes, the concept of sense of place and the main drivers effecting change of place in the modern world. It outlines the need for a planning and development system to manage landscape change and then explains the processes of the Irish planning and development system. It then describes the evolution of policies used to protect landscapes and the visual amenity and finishes up with a section on landscape aesthetics and how personal preferences might affect one's aesthetic appreciation of landscape and the visual amenity.

Chapter Three examines the techniques and methodologies currently used for landscape impact assessment (LIA) which presently includes the assessment of visual impacts. A proposed theoretical framework is developed and presented for visual impact assessment (VIA) as an individual and separate assessment from LIA to provide an overview of the specific information needs and flows within VIA.

Chapter Four describes the methodologies used for the two surveys. The survey of VIA practice uses the proposed theoretical framework as a 'good practice' against which current VIA practice is evaluated for three different development categories which prepare EISs as part of the documentation submitted for planning permission. The survey of visual policies examines local government policies used to manage the visual amenity by conducting a series of interviews with a sample of the stakeholders of the planning and development system (Appendices K, L, M & N).

Chapter Five supplies the results of the survey of visual impact assessment practice, part of which have been already published in two reviewed papers (Appendix O). The results

indicate much room for improvement and indicate a likelihood of an overall problem with EIA generally.

Chapter Six supplies the results of the survey of visual policies used by local authorities to manage the visual amenity. These results identify the most significant development pressures impacting on the visual amenity in urban and rural areas and examine the operation of protection and enhancement strategies for the visual amenity in detail.

Chapter Seven discusses both sets of results in terms of the three research questions posed. The discussion suggests that the proposed theoretical framework presented for VIA may be useful in improving knowledge of the information needs and flows for VIA as a 'good practice' model. Alternative approaches for getting better value for money for EIA are also examined to improve the quality of information supplied for development control decisions. Finally, a set of guidelines for the visual amenity are developed and presented as a contribution towards a National Landscape Plan to act as a framework to coordinate all developments impacting on the landscape and the visual amenity.

Chapter Eight presents a summary of the findings of this research, a list of recommendations to resolve the difficulties noted in the findings and identifies areas suitable for further research.

1.6 CONCLUSIONS

There is an increasing awareness by planners and environmentalists that protecting Irish landscapes is an important national goal, and that all development proposals should be judged in relation to the balanced attainment of the objectives of environmental quality, social justice and economic growth (Comhar, 2002). The importance of finding this balance is a challenge not just to the small number of people who control change of the landscape, but to the whole nation. However, are the existing mechanisms within the planning and development system up to the task of finding an acceptable balance between these competing interests?

CHAPTER TWO

LITERATURE REVIEW – MANAGING IRELAND'S LANDSCAPES

2 LITERATURE REVIEW – MANAGING IRELAND'S LANDSCAPES

2.1 THEORIES OF LANDSCAPE AND ITS MANAGEMENT

The word *landscape* originated from the word 'landschaft' (German spelling) and 'landskab' (Danish spelling) both meaning an area administered by a form of democratic government (Olwig, 2002). Meetham (1993) suggests it originated from the Dutch word 'landschap' meaning 'land + ship', but both agree that it entered the English language in the late 16th century denoting a picture of natural scenery. By the late nineteenth century, the basis for the contemporary definition of landscape took shape as "a portion of land or territory which the eye can comprehend in a single view, including all the objects to be seen, especially in its pictorial aspect" (Pearsall, 1998, p1034).

Sauer introduced the term landscape into American geography in 1925 in his 'Morphology of Landscape' (Leighly, 1963). He downplayed the subjective aspects of landscape and stressed that it was an objective area that could be studied scientifically by observation. He suggested that landscape was defined as "an area made up of a distinctive association of forms, both physical and cultural. However, since most landscapes have become cultural landscapes due to the human impact on them through the millennia it became obvious that it was seldom possible to reconstruct the appearance of a natural landscape" (Leighly, 1963, p326). Consequently the Sauer (Berkeley) School of landscape study became the study of cultural history. This tradition of landscape analysis focussing on Sauer's themes of artefactual analysis and cultural history continues to flourish.

The study of landscape has also been influenced by the German term '*Landschaft*' associated with the continental European School of '*landschafts-geographie*' with its roots in the late 19th century when a number of models were developed for formal landscape analysis (Olwig, 2002). Some of these models distinguished the natural landscape from the cultural landscape and in doing so recognised the importance of human influence on the evolution of landscapes, however many did not, such that this school progressively distanced itself from human geography. It mainly focussed on the physical landscape and the natural processes that both gave rise to and are continually modifying the shape and form of the terrain.

The English school of geographical analysis continued to focus on both physical and cultural aspects, however weighted more towards cultural, and have investigated historical meaning associated with cultural artefacts. Cosgrove argues that the perceptions of those viewing the landscape are important and proposed the notion of iconography or symbolism drawn from art history and landscape interpretation. Landscapes may be represented in paintings, in text, or on the ground using earth, stone, water and vegetation, and it is possible to derive meaning from each by placing them in the context and time of the painter /author /creator, thereby increasing the cultural significance. There have been many attempts by Ruskin, Hoskins and others to achieve stability of meaning for landscape as a response to the perceived chaos of the modern world (Cosgrove & Daniels, 1985). However, the postmodernist concept of the world emphasises the inherent instability of meaning, our ability to invert signs and symbols, and to recycle them in different contexts, thus transforming their reference. This notion of landscape as iconography is disputed by Olwig. 'It is not enough to study landscapes as a scenic text. A more substantive understanding of landscape is required, derived from the historical study of changing conceptions and uses of land and landscape, country and countryside, and nature. Such an understanding recognises the historical and contemporary importance of community, culture, law, and custom in shaping human geographical existence' (Olwig, 1996).

Two significant changes have occurred since the 1970s and 1980s; physical geography has been re-energised by environmental investigation of natural processes to inform policies for, and the attainment of sustainable development, and the application of social and political theory to landscape interpretation to attempt to identify influences that shape landscape change. This investigation of the drivers that shape public policy at national and local levels is also an important step in formulating concepts and ideas for implementing policies for sustainable development. Landscape study therefore, is multifaceted and examined in part by many different disciplines, and geographical study predominantly examines the natural aspect of 'space' and the cultural aspect of how human influences change 'space' into a 'place' for living.

2.1.1 Space and Nature

- **Theories on the Evolution of Space**

Geomorphology examines physical landscapes or landforms, to identify recognisable features of the earth's surface with characteristic shapes typically on the basis of the natural processes, which give rise to these features (Cooke and Doornkamp, 1990). There is a close relationship between studies of the physical landscape in geology and physical geography, both of which investigate by empirical research the natural processes which acted to create and are still modifying landscapes.

Different theories have been advanced for the evolution of landscape from "catastrophism" in the 18th century which advanced the theory that the earth was created (biblical account 6000 years old) and shaped by catastrophic events and otherwise remains unchanged. This theory of "catastrophism" was challenged in the 19th century by a theory of "uniformitarianism" which proposed that landscape change was gradual by constant natural processes over time (Whewell, 2001).

An evolutionary theory of landscape throughout time was advanced in the early 20th century by the proposal of a cycle of erosion whereby landscapes evolve through stages of uplift which are then eroded by fluvial action into flat, low energy systems (King & Schumm, 1980). Occasional uplift can occur to rejuvenate the system, which then progresses through the evolutionary stages again due to the actions of erosion.

The theory of plate tectonics and continental drift was also advanced in the early 20th century to explain volcanism and the spatial migration of continents throughout geologic time by proposing a hot liquid core for the earth from which convection currents generate the dynamics within the system (Wegener, 1966). However, the temperature and dynamism of the system diminishes over time, thereby proposing a planetary lifecycle in terms of geological time.

In the late 20th century the theory of equilibrium systems of the earth's surface was advanced which proposed that landscapes reflect the interactions between the earth's lithosphere, atmosphere, hydrosphere and biospheres (Chorley & Kennedy, 1971). This theory proposes that these spheres are open systems, which exchange matter and energy, and that there is a tendency towards equilibrium with a balance between inputs and outputs

and a progression towards low energy states. This theory of equilibrium systems led to the concept of sustainability whereby if pollutants are introduced into any of these life sustaining spheres they would degrade the quality of that sphere and since these spheres exchange matter and energy, the degraded sphere could lead to the degradation of the other spheres also. This highlighted the need to be conscious of the human influence on landscape change to ensure that "physical development that meets the needs of the present should do so without compromising the ability of future generations to meet their own needs" (Brundtland *et al.,* 1987).

- **Absolute and Relative Space**

Locations in absolute space can be defined mathematically using coordinates such as Cartesian coordinates (x, y, z) relative to a defined origin or geodetic coordinates (latitude, longitude and height) on a planetary body. But locations are also dynamic due to movements of stars and their planets within the cosmos and movements of the earth's surface due to the motion of tectonic plates, so a fourth dimension of time is also required to quantify absolute positions in space (ISO, 2003).

Additionally the location of a feature can be defined relatively to the location of another feature in three-dimensional space and the location of one event can be defined relatively to other events in the fourth dimension of space – 'time'. Locations defined with coordinates are said to be in absolute space, whereas locations defined between features or events are said to be in relative space. The acceptance of time as one of the dimensions of space is important in emphasising the dynamic nature of space and that the only true constant in space is change throughout time (Figure 2.1).

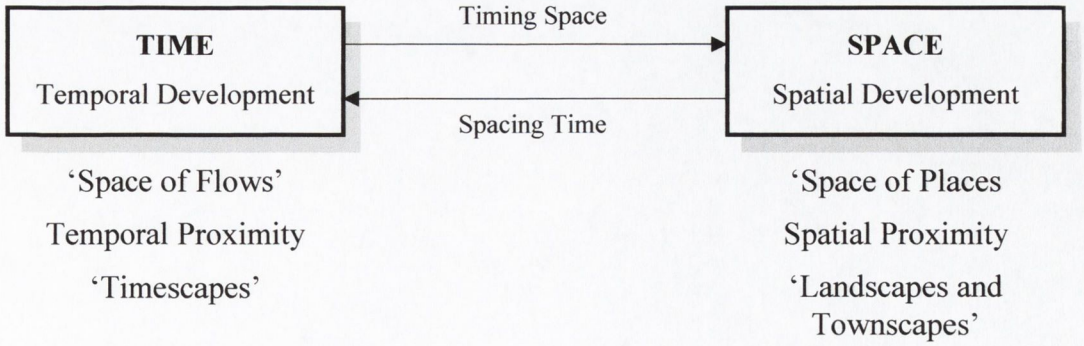


Figure 2.1 Mutual interactions of Space and Time adapted from Drewe (2005).

Once features or events are recorded in an integrated space-time continuum their associations and relationships can be spatially and temporarily analysed and compared. The emergence GIS (Geographic Information Systems) during the 1980s and 1990s provided the tool required to conduct both spatial and temporal analyses in multi-disciplinary research of social phenomena. Modelling of space using CAD (Computer Aided Design) and GIS tools has also created the concept of cyberspace to create models of particular aspects the real world in virtual space. However, real space and virtual space have one major difference other than that of reality. Space or land has two unique qualities, that of permanency and immovability (Larsson, 2000). The fact that land or space cannot be created or destroyed except for the changes that erosion and deposition can cause gives it a particular value as a commodity and the fact that it is immobile means it is fixed within the dimensions of space and time. Conversely virtual space can be created, destroyed, modified, or re-located in this new realm of un-regulated space.

- **Ownership of Space**

There is an established relationship between land and power, with a direct correlation between the amount of power and the size of landholding. Large landholdings equate to power and plenty, whereas small landholdings equate to absence of power and poverty. National or property boundaries denote the limits of power, so boundaries between adjoining properties or nations can become an interface of friction in the exercise of power and ownership.

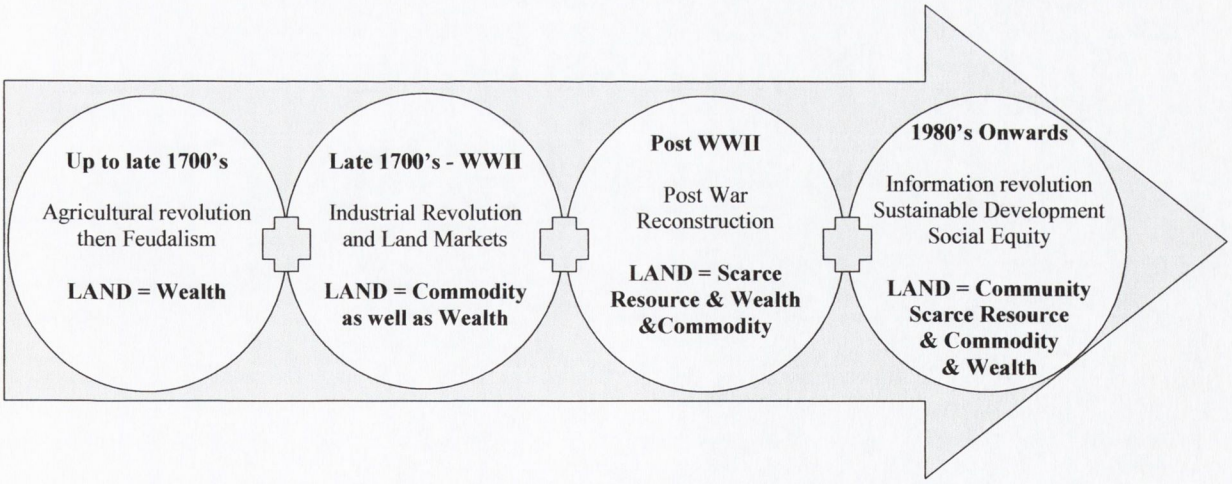


Figure 2.2 Development of concept of land in the humankind / land relationship in the Western World adapted from Ting & Williamson (1994).

In the early stages of human settlement land was undisputedly the primary source of wealth and power (Figure 2.2). The king or queen owned all land directly or indirectly and he/she granted use of these lands to their subjects in return for rendering military or other services.

The rise of capital during the industrial revolution usurped land's position as the primary source of wealth, and the emphasis moved away from the physical ownership of land to the conversion of land to capital for mobility of assets. The post WWII reconstruction period and subsequent population boom saw the need for better spatial planning, particularly in urban areas giving rise to land administration laws and systems to address land reform and re-distribution of ownership of space. Finally, concerns about the environment, sustainable development, and social equity became evident from international instruments such as Agenda 21 (UN Conference in Rio, 1992) and the Habitat II Global Plan of Action (UN Conference in Istanbul, 1996). The information revolution has great potential to support the complex decision-making demands of sustainable development. The more difficult hurdles are the fundamental legal and institutional reforms necessary for data-sharing and also managing the usual access/privacy tensions in the community, private sector and government (Ting & Williamson, 1999).

Land ownership provides the citizen with ownership rights, but the concept of citizens having those rights of ownership has to be accepted and granted by the State which Ireland has done in Articles 42 and 43 of the Constitution (Oireachtas, 1937). Ownership of land however, does not confer absolute power over property. Different ownership rights come with different types of land tenure. Leasehold is an ownership right for a particular length of time, so it could be considered a temporal ownership of space, since the ownership changes from the leaseholder back to the owner at the end of the time of the lease. Freehold is another type of ownership right deriving its name from feudal times where the holding of the land was given 'free' of taxes from the feudal lord, which is not affected by any temporal dimension and includes an unconditional right to dispose of the property at will (Simpson, 1978). Activities for which the land or space can be used are regulated and use-rights and in certain cases licences must be acquired for certain uses or change of uses of land or space. Similarly, development rights must be obtained before commencement of construction of any physical developments (Larsson, 2000).

The exclusion of people from the right of ownership or from certain landscapes is an effective technique of using access to land as an instrument of power. It is estimated that between 1948 and 1985 the predominantly white South African security forces forcibly resettled approximately three million black South Africans from designated "white areas" and relocated them to black township ghettos (Elder, 1995). The displacement of native American Indians and Australian aboriginals to reservations was used not only to exclude

these native peoples from 'white areas', but also to disavow them of their native land rights (NLC, 2003). Closer to home the ownership of land has a particular relevance for the Irish nation whose ancestors were continuously removed from good land in many plantations over the centuries by successive British monarchs culminating in the Cromwellian plantation of the 1640s and 1650s. This isolation of peoples from land ownership with the exclusion of the travelling community from land by the NIMBY (not in my back yard) brigade as yet unresolved by successive Irish administrations is yet another example of exclusion of communities from land as an instrument of power.

Cosgrove and Daniels (1988) explored traditions in landscape art, stressing that this mode of representation had close links with changes in land ownership and social relations in the countryside, seen to contain an iconography, a set of symbols that create certain meanings of place with the interests of particular class groups in mind. These symbols expressed a particular relationship between these groups and the landscape, a particular mode of land ownership and husbandry, which equated with power and encouraged the preservation and maintenance of certain spaces and social relations. The creation of large estates in colonised countries, such as the demesnes in Ireland, with their Victorian and Georgian mansions and large parkland properties walled in from the 'natives' are examples of these symbols of domination in colonial and imperialist traditions, which reinforced the association between landscape ownership and power.

Ownership of land can operate at a number of levels from the individual at the bottom through community or tribal lands to national territory. Since the late eighteenth century the 'Nation State' has become the typical form of State, and Donnan & Wilson (1999) define it as a territory, preferably coherent and demarcated by frontier lines from its neighbours, within which all citizens without exception come under the exclusive rule of the territorial government and the rules under which it operates. It has been said that territory, language, culture, religion, history or race are possible but not necessary factors in the creation of a national identity; what is close to universal in human social organisation, is the tendency to develop collective identities; a process basically the same whether the organisation is the clan, the tribe, the family or the nation, a primal need for tribal affiliation and warfare (Allott, 1998). National identity portrays a sense of pride nationally and internationally, declaring that a particular ethnic group or race will govern and determine their own future from this day forth. Power comes with the responsibility to

govern, and many may have fought and died to acquire the power to rule and decide how States should be governed.

These national identities can be a powerful basis for place-based politics, where political candidates can appeal to particular ethnic groups for votes, such as the Jewish or Irish ethnic groups in the United States. But the resurgence of nationalism over the last few years is hardly surprising since 'national identity' makes it possible to locate oneself in the world. However, there is a distinction to be made between 'Nation State' and 'native nation'. Allott (1998) states that a 'native nation' is a people of common heritage, language, geography, culture, political system, and desire for common association and that there are less than two hundred nation-states, but as many as three thousand 'native nations'. Therefore the scope for ethnic friction is obvious. In Europe the desire for a national identity has re-asserted itself as a key feature of collective human nature during the 1990s. Long suppressed nations in central and eastern Europe have suddenly reappeared, a movement directly opposed to the supranational ambitions of European Union. The new emphasis on the nation is in part a reaction against pressures towards homogenisation, the reduction of national differences, and particularly globalisation.

2.1.2 Place and Culture

The landscape of 'space' can be transformed into the landscape of 'place' by human influence so that the landscape can produce a 'sense of place'. The physical and biotic world has been so strongly modified by human agency that the resulting "landscape" is a synthesis of natural and cultural elements. Natural environments unaffected by human agency and produced by geological, climatic and biological processes alone are now very rare if non-existent. Today, landscape can more accurately be described as "cultural landscape" with "the countryside" and "rural landscapes" being as artificial and as removed from "natural wilderness" and "pristine" as urban landscapes (Aalen *et al.,* 1997). Modern landscapes are a repository of historical evidence, which can be deciphered and explored and understood somewhat in a way that a geomorphologist might explore and understand a landform, observing its characteristics and seeking to determine the process that created it (Muir, 1998).

- **Physical Properties of Place**

Landscape only influences the planning process by a peripheral interest in scenery and landscaping, but landscape has a far wider impact on the human experience of place, by

providing a more satisfactory experience to those living in or visiting that place (Beer, 1993). Landscape is a crucial component of sense of place which can be associated with unique topographic features visible over great distances such as Ayres Rock in Australia, or Benbulben in Sligo so that just a glimpse of the feature can instil a feeling of arrival and of homecoming (Muir, 1998).

Small elements of uniqueness differentiate one place from another and gives them their local distinctiveness and character, and adds to the enjoyment of place (Muir, 1998). Sense of place can also be associated with very ordinary features, a school once attended, a significant local monument, a favourite swimming or fishing place, or a particular tree with a name cut into it's bark. Bulldozing development sites and eradicating existing terrain and vegetation features before new developments are constructed obliterates these features and breaks these links with the past. People who previously lived in such areas are denied associations to their previous existence, thus severing their roots, and impoverishing their sense of place. Insertions into the landscape should be made with the same informed consideration and sensitivity now customary when amending a piece of existing architecture by respecting the layout of historic settlements and field patterns (Aalen *et al.*, 1997). The conservation of existing cultural heritage by incorporating it into designs for new developments is a way to maintain those links with the past and sustain the sense of place. One way of retaining sense of place is through use of the place names. Old Irish place names are often associated with local landscape features or local historical events and can greatly contribute to our sense of place by supplying a cultural insight to an otherwise ordinary place (Robinson, 1996).

- **Social Properties of Place**

Sense of place can also result from experiences with human beings on a family, friends or community level, so it can be a social experience as well as a personal experience. The positive feelings of particular attachment to home places can be especially strong, not just for the physical aspects of the locality and the homestead, but for the social aspects as well. It is the dwelling of parents, where brothers and sisters grew up, with memories of good times playing and laughing, and bad times of crying and sad moments. It can also be a place of negative feelings of fear, disgust, sadness and exclusion where attachment is replaced with detachment and instead of producing a feeling of warmth can produce a shiver down one's spine as a sense of place. We can also get a sense of returning to our

roots, a link to our ancestors, in the local graveyard visiting graves of relations that date back a number of generations, providing a sensation of who we are.

Collective identity and sense of place is one of the primary social functions of residential differentiation for most people in modern societies. Friendships developed at school or with neighbours can be long lasting and social links to community developed through activities, being a member of the choir, or playing on the football team, develop enduring networks of links to people in the community. Place-based identities are important to provide a local link for linguistic accents and dialects, and a social link to community. Sense of place helps to protect the region's cultural heritage and promote cultural awareness and strong kinship ties (Tuan, 1993).

2.1.3 Drivers Effecting Change of Place

Wars, urbanisation, deforestation, transport networks, irrigation, industrialisation, flooding using dams, drainage of wetlands, and agricultural practices have all played their part in utterly changing our landscapes throughout the millennia such that few purely natural landscapes remain (Aalen *et al.,* 1997).

Globalisation is giving rise to the convergence and harmonisation of products and place both spatially and temporally. Traditional development often produced increasing diversity within the landscape, but the rapid rate of change of modern development practice is producing the opposite effect by homogenising our landscapes (O'Regan, 1998). Modern cultural landscapes such as shopping malls, centre city office blocks and theme parks are becoming more and more alike, no matter which city or country they are located, such that local distinctiveness is being replaced by placelessness. The centres of many cities are becoming more and more alike with the encroachment of multinational chains such as McDonalds, and others. Modern city centre architecture uses international designs without local features of distinctiveness. The forces facilitating placelessness include mass communication and consumption, impersonal large societies, standardisation of products and land-use codes, centralised governments, homogeneous economic systems, and personal preferences influenced by mass culture (Vogeler, 2002).

The farming community play a dual role as the nation's food producers, but also as guardians of the countryside and nature. The aims of the CAP (Common Agricultural Policy) as stated in article 39 of the Treaty of Rome are to raise agricultural productivity by

improving efficiency, and to ensure a fair standard of living for the farming community (European Council, 1957). These aims were to have been achieved via pricing measures by ensuring fair prices for produce by selling into intervention, and structural measures, such as the Farm Modernisation Scheme (FMS) and via headage payments for livestock. However, smallholders were very definitely discriminated against because the grants were only available to farmers who were classified as 'commercial', with farming as their main income (Crowley, 1998). So poorer western areas of Ireland with predominantly small farms, which were not viable and required double jobbing to support a family, received less investment than the prosperous large farming areas in the east and south. The consequences of the implementation of this policy has been to force large numbers of smallholders out of farming and off the land, at a time when a range of measures are required by rural communities to retain their populations by developing more sustainable farming and rural practices that are also economically viable.

The farming community also play an important role for the nation as the guardians of the countryside, and a number of schemes have supported and attempted to enhance that role, such as the Rural Environmental Protection Scheme (REPS), and the Nutrient Management Planning (NMP) schemes. However, most agricultural developments are classified as exempted developments under the Irish planning and development system, so there is little control of quality of architectural designs and building materials used. The last three decades has seen a proliferation of substandard agricultural developments, which have significantly contributed towards the degradation of rural landscapes. This trend needs to be urgently reversed to appreciably improve materials and designs used to ensure agricultural developments are sustainable and can contribute positively to the landscape.

A range of factors are bringing pressures to bear on landscapes and causing changes that are both subtle and dramatic, and many are occurring at great speed. Often changes are unintentional consequences of other activities where the roles and values of landscapes are not taken fully into consideration. In the past, the conservation approach has been species or site specific, however, the fragility of whole landscapes is now an issue and landscape management approaches can only be successful in the future if they encompass the economic viability of rural communities (Stanners & Bourdeau, 1994). An understanding of the important links that exist between cultural landscapes and the people who live within them is essential for promoting both environmentally sensitive changes and social-economic integration. This requires a framework of national and international supports,

which recognises the European interest in the future of rural communities and their landscapes.

2.1.4 Governance of Place

Human agency creates places and alters landscapes through the activity of living, but what influences human agency? Alderfer's ERG (Existence, Relatedness and Growth) theory of motivation suggests that all needs can be classed into three groups; existence needs, relatedness needs and growth needs (O'Grady, 2001). Existence needs include basic physiological, safety and security needs. Relatedness needs include all social benefits derived from interactions with other people and groups. Growth needs are self-actualisation needs to develop personal skills, abilities and personalities. Humans quickly appreciated that better results were achieved through collective action, but collective action requires consensus on the goals to be attained and the actions best suited towards achieving them, so institutions of governance were developed to regulate collective action.

Government in one shape or form is one of humanity's oldest institutions, and politics is based on the assumption that social conflict is inevitable on how society should use its resources and who should receive benefits. The American constitution states that government is established to protect and maintain individual rights, whereas a dominant western view of the purposes of government are to resolve conflicts through the use of power, provide public services such as law enforcement, and transportation routes, setting goals for public policies to improve the quality-of-life of citizens, and preserving the culture of society, such as customs, language, beliefs and values. Governance systems have developed through the millennia from 'rule by one' to 'rule by many' to such an extent that most of the western world is now governed by representational democracies which utilise the concept of majority rule.

In Marx's materialistic world of capitalism, the importance of land and property as a symbol of power is strengthened by the fact that land and property is a scarce non-renewable and non-mobile resource. Land cannot be produced, ergo its appeal to the capitalist class as a symbol of their wealth and power. However, Marxism considers that the welfare state is a concession to the working class; a necessary ransom the ruling class must pay for its survival to counteract any resistance to the unequal accumulation and distribution of wealth (Hubbard *et al.*, 2002).

Race, religion and competing economic interests are the driving forces behind politics worldwide, and the ideology of political regimes in government is one of the most influential forces shaping landscapes through the policies they enact and implement during their terms in office. The intimacy of the association between economic interests and the regime in power and how public policy is influenced and manipulated by that association can impact adversely on landscapes. The economic argument is that investments for development are provided to make profit, but since they are increasingly trans-national in nature, the conditions to entice investments to a preferred location requires maximisation of profits at the expense of other issues, predominantly social or environmental issues. The political argument is that regimes are in power to improve the quality-of-life of the citizens, and economic issues are given priority to create employment and to increase taxes to provide the capital necessary to fund social and environmental programmes. Therefore, landscape quality can become a tradable commodity to secure an investment, provide employment, and nurture votes for the next election.

Pluralist Theory suggests that many different interest groups compete to control public policy in a pluralist liberal democracy. Groups tend to form spontaneously around important issues, and there are so many groups that no single group can dominate, so power is fragmented and influence is unidirectional from the bottom up (McGuirk, 1991). Interest groups compete and check and balance each other through negotiation, bargaining and compromising and group competition leads to equilibrium. The State is depicted as a referee mediating between the competing groups and establishing the equilibrium, rather than as an active innovator of policy. However, groups may not be equal in size, expertise, resources including finance, aims, influence, and the ability to mobilise the group when required such that some groups can dominate in particular sectors, or for particular issues. The assumption that uni-direction of influence from the citizens to politicians will ensure the wishes of the majority will automatically be put into effect is unfounded since the resources deployed by some groups can ensure the equilibrium established is biased in their favour (Hubbard *et al.*, 2002).

Due to the character and timing of competition between interest groups, decisions and public policies tend to be sectoral in nature, without an overall vision of what one wants to achieve in the medium to long term. Landscape under this governance model is a commodity to be used by the most vocal or influential group to meet their own needs under their own agenda, and because there is no national vision or context into which sectoral

policies should fit, there is no test whether particular policies compete with other sectoral policies, or whether they meet the common good (McGuirk, 1991).

What is interesting is that landscape is mostly dealt with in a sectoral manner without any coherent context and is treated as a commodity, a tradable asset by economic interests. The arrival of green politics during the 1980s has considerably altered the traditional landscape of right and left politics, but will require major training and educational programmes to raise the awareness and understanding of the important issues of the green agenda.

- **Management of Land and Landscapes**

When the concept of land changed from 'wealth' to 'wealth and commodity' it became necessary to establish land administration systems for two main reasons. Fiscal land administration systems were implemented to establish taxation systems to provide income for governments to replace the loss of taxation and services under the feudal system and judicial land administration systems were used to document the legal aspects of properties in order to provide security against investment capital (Ting & Williamson, 1999). Both systems created large national databases of land information. Later in the post World War Two era when land also became a scarce resource a third land information system was generally established to document land-use and development rights. These three land administration systems comprise the core governmental land management systems of today (Figure 2.3).

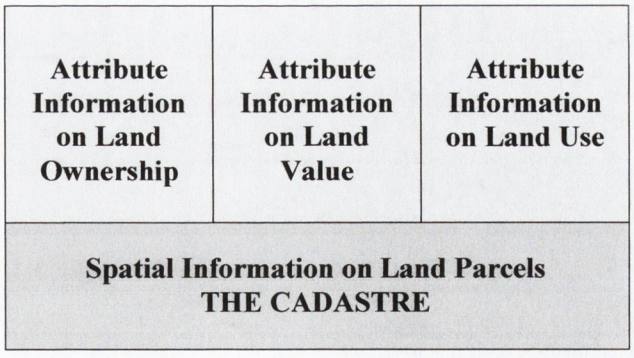


Figure 2.3 The four basic components of Land Management (Williamson, 1994).

Landscape management means action, from a perspective of sustainable development, to ensure the regular upkeep of a landscape, so as to guide and harmonise changes, which are brought about by social, economic and environmental processes (Council of Europe, 2000). Ting & Williamson (1999) have identified the need to combine these three separate

land administration systems of ownership, value and land-use into a multi-purpose land management system to assist achieving the goal of sustainable development.

Enemark (2004) develops Williamson's concept of the components of land management further by suggesting the component of land-use is split in two to form land-use which includes the formulation of policies for spatial planning and land development which includes construction regulations and the issue of permits for development (Figure 2.4). However, in Ireland, Enemark's land-use and land development components are contained as one within the planning and development system.

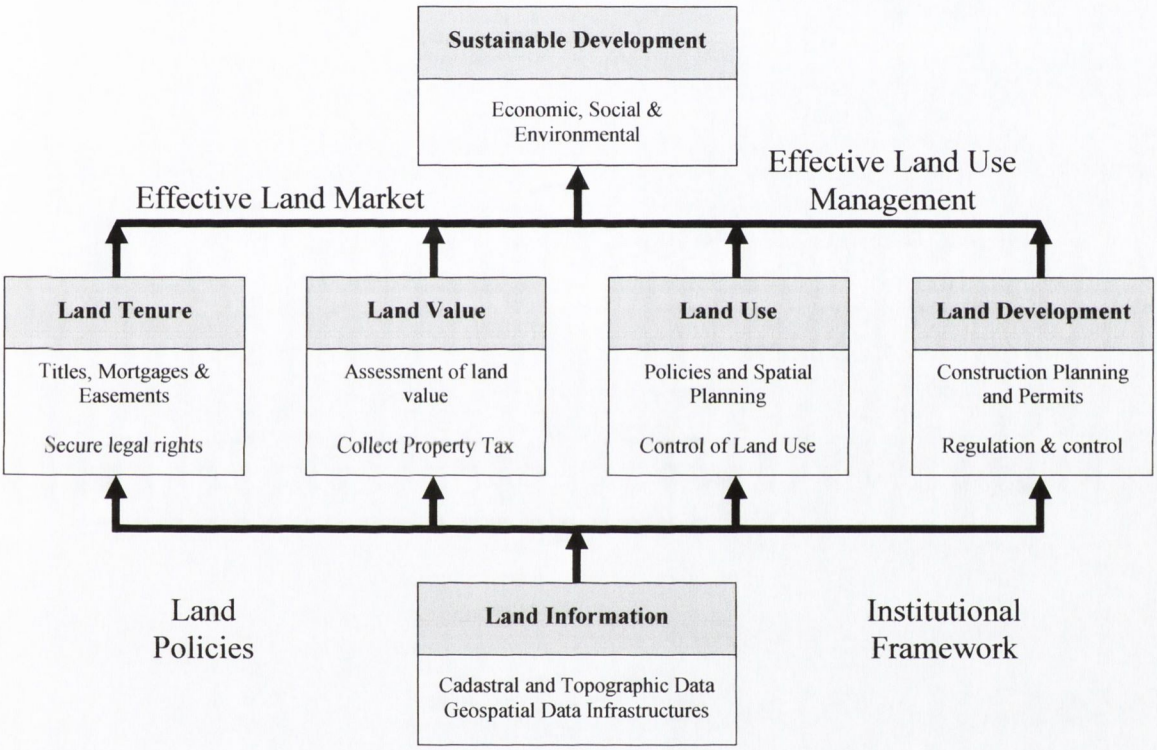


Figure 2.4 A Global Land Management Perspective (Enemark, 2004).

2.2 IRELAND'S PLANNING AND DEVELOPMENT SYSTEM

Human endeavours are constantly changing landscapes to provide sustenance, shelter and security for living, and civilisations throughout time have developed different means to manage those changes. The foci of these management activities have been modified and altered according to the changing concepts of landscape and the evolving roles land plays in society. As rates of physical development and urbanisation dramatically increased during the 20th century it became necessary to introduce formal systems to manage planning and development and these systems have become increasingly important during

the last few decades when the theory of land was yet again adapted into a 'scarce community resource' (Ting & Williamson, 1999).

2.2.1 Historical Review

Ireland's local government system is based on the British model and has its origins in the Local Government (Ireland) Act, 1898. Originally it contained county councils, urban district councils and rural district councils, however, the rural district councils were abolished in 1925. By 2000 Ireland had 89 local authorities at two levels comprising 34 County and City Councils, which are the main providers of local government services, and 55 Town Councils, which provide a reduced range of services.

Ireland's planning and development system is based on the local government planning and development Act (Oireachtas, 1963), which introduced Ireland's first statutory system of physical planning. The system was introduced during a period of intense development activity in Ireland to identify and surmount obstacles in the translation of economic and social objectives into buildings, construction works and other forms of development (Grist, 1983). The Act resulted in the establishment of planning departments within local authorities and professional planners slowly began to take over the planning functions from the area engineers within the engineering departments of local authorities.

The planning and development system includes three main processes:

a) The Forward Planning process - the preparation of Development Plans and related documents as necessary and every five years and the zoning of land to change the use rights associated with land.
b) The Development Control process – the evaluation of planning applications for proposed developments to obtain development rights and the right to appeal planning decisions by local authorities to An Bord Pleanála (the Planning Appeals Board).
c) The Enforcement process – ensuring that conditions applied to zoning and planning decisions are adhered to and that preservation orders and conservation designations are not infringed.

The preamble to the Planning and Development Act (Oireachtas, 1963) describes the intent of the Act as:

"An Act to make provision, in the interests of the common good, for the proper planning and development of cities, towns and other areas, whether urban or rural (including the preservation and improvement of the amenities thereof)..." *(Oireachtas, 1963, p1)*

The reference to the 'common good' refers to Article 43 of the Irish Constitution which establishes the right of private ownership of property, but then qualifies that right saying that the exercise of that right ought to be regulated by the principles of social justice in a civil society, and that the State on occasion may delimit the exercise of those rights by law to ensure the needs of the common good are secured (Oireachtas, 1937). The 'common good' is defined as "for the benefit of or the interest of all" (Pearsall, 1998, p370).

Therefore all decisions within the planning and development system are required to place the interests of the local community and society at large above the interests of the proponents of particular zoning or planning applications. Initially decisions attempted to strike a balance between the economic needs of proponents and the social needs of society. However, the planning and development system in Ireland has operated in a way that many perceive that the interests of the 'common good' have not been served. There are many instances of the zoning of land by elected members within the forward planning process against the advice of professional planners, and the Flood tribunal has been sitting since 1997 deliberating these allegations with some successes. There are also many instances of planning decisions within the development control process taken against the advice of the professional planners, and the development control process is perceived as a barrier to development by investors and developers alike. This requirement for planning decisions to be in the interests of the 'common good' was recently modified to also include sustainability (Oireachtas, 2000), so decisions should now attempt to strike a balance between the economic needs of proponents, the social needs of society and sustainable needs of the environment.

The local authority's elected members (local politicians) perform reserved functions and executive functions are performed by the County or City managers or delegated officials. The review and preparation of CDPs (County and City Development Plans) and variations to CDPs within the Forward Planning process are executive functions, and the adoption of CDPs is a reserved function carried out by the elected members. Similarly, although planning decisions are an executive function, elected members may intercede in particular cases to effect a particular decision. Consequently, the planning and development system is

a political process where elected members make the final decisions on forward planning policies and have a veto on development control decisions.

2.2.2 Forward Planning Process

The main instrument for the regulation and control of development is the CDP, which includes a written statement and land-use plans setting out the development objectives for the area. The CDP may contain development objectives from a long list of issues included in the Third Schedule of the Act, but it must contain development objectives for the following (Oireachtas, 1963, Section 19):

a) for the development and renewal of obsolete areas;
b) for preserving, improving and extending amenities;
c) for the provision of new and the extension of existing water supplies and sewerage services in rural areas;
d) for improving the convenience and safety of road users and pedestrians by the provision of parking places or road improvements in urban areas;
e) for setting the use rights (residential, commercial, industrial, agricultural) of land within urban areas.

Four main sections are normally included in the CDP. The first section normally includes:

a) A strategic review and analysis of progress made since the last CDP;
b) An examination of demographic trends and regional context of the area in question;
c) The identification of opportunities and constraints for the time period of the proposed CDP.

The second section sets out the strategy for the administrative area and lists the policies with regard to development, such as protection polices for the visual amenity and land-use policies to entice particular type of developments into certain areas.

The third section lists the specific development control and land-use objectives proposed in order to achieve the policies outlined in section two. These policies and objectives relate to a wide range of issues where the local authority either plays a lead role or has an involvement in the provision of services. These issues can include population and settlement patterns, housing, water and sewerage, waste, transportation infrastructure, urban and rural development, tourism and community facilities among others.

The fourth area includes development guidelines and standards in areas such as siting, layout and design of proposed developments. CDPs should be reviewed every five years and variations to the CDP can be introduced during this five-year period to allow for unforeseen circumstances. The planning authority, in exercising development control, must consider the provisions of the CDP, and try to secure its objectives.

The CDP was initially intended to be a dynamic and positive document, but due to the over emphasis of the control function which demanded a disproportionate amount of staff and resources, the lack of central guidance for the promotion of positive aspects of planning, and the lack of a forward commitment of finances meant that CDPs have developed more into control documents rather than positive documents (Grist, 1983). This emphasis on control has led local authorities to be over-cautious in trying to cater for all eventualities by including every conceivable objective. Consequently generalised aspirations instead of specific proposals are usually included so that at the end of the five-year period many objectives are still unachieved thereby reducing the credibility of CDPs.

The National Sustainable Development Srategy (DoELG, 2002) does acknowledge that the current review and preparation of CDPs will have to be amended so that planning authorities can incorporate considerations of sustainable development into their policies. The EU recently issued a new Directive in this regard on Strategic Environmental Assessment (SEA) to ensure that the preparation of plans or programmes which set the framework for future planning and development consent of projects includes EIA as part of the preparation or review process with a view to promoting sustainable development (2001/42/EC). Member States were required to adopt national legislation to implement the Directive by June 2004, which means that CDPs at all levels will require EIA to ensure the policies included are sustainable and if they are considered likely to have significant effects on the environment.

Since there are 34 major local authorities the format of the CDP can be quite varied and the development objectives and policies may not be compatible between adjacent local authorities. Coordination of CDPs was to be effected through regional coordination by the Minister for Local Government and nine planning regions were established in this regard in the original Act but the authorities were only constituted when required. These regional planning authorities did not assume any role of importance but for one notable exception. The LUTS (Land-Use and Transportation Study) initiative in the Greater Cork Area in

1978 provided a coordinating framework and a long-term (20 years) vision for major infra-structural regional developments in the area between adjacent local authorities (Skidmore *et al.,* 1978), which in hindsight was considered to have been very successful. This lack of regional planning was rectified with the establishment of eight regional planning authorities in 1994 (Oireachtas, 1994). These new regional authorities must draw upon the local authority resources in their areas thereby exacerbating further the critical understaffing of professional planners.

Meath County Council adopted a CDP in 2001, against the advice of their planning department, which flagrantly disregarded some policies within the Strategic Planning Guidelines for the Greater Dublin Area. In the ensuing High Court case, Meath County Council argued that the Strategic Planning Guidelines had no national context since the National Spatial Strategy (NSS) had not been published at this time. Mr Justice Quirke decided that the term 'have regard to' did not require 'compliance with' but to give 'reasonable consideration of' the guideline (Quirke, 2002). The fact that the NSS has now been published has not resolved this issue because a precedent has been set that is likely to raise its head again in the future. The Minister for the Environment and Local Government may need to bring forward statutory measures to ensure policies in CDPs are consistent with NSS policies and Regional Planning Guidelines in the future. Regional and national planning authorities in Denmark have a veto on policies adopted within local development plans to ensure they are consistent with regional and national forward planning policies (Enemark *et al.*, 2002).

2.2.3 Development Control Process

Citizens are obliged to obtain development rights (planning permission) for physical developments they wish to construct and the development control process evaluates planning applications submitted for these proposed developments (Figure 2.5). Some categories of development are exempted from the need to obtain development rights so these developments may proceed without reference to the development control process. Other categories of developments apply for development rights to another development control process in a separate planning and development system such as afforestation to the Forest Service. Other categories of developments must also undertake an EIA (environmental impact assessment) and submit an EIS (environmental impact statement) as part of their documentation submitted to obtain development rights (DoE, 1989 & 1998). In addition to development rights, developments for particular activities require licences to

operate such as an Integrated Pollution Control (IPC) licence from the Environmental Protection Agency (EPA) (Oireachtas, 1992a), or licences for aquaculture developments in the foreshore area and exploration of minerals and hydrocarbons in the foreshore and offshore areas from the Department of Communications, Marine & Natural Resources. The process also provides for the right of appeal of local authority decisions to An Bord Pleanála (The Planning Appeals Board). Figure 2.5 highlights the area of difficulty between the local authority development control process and the EPA system of evaluating and issuing IPC licences, both of which might be required for one proposed development.

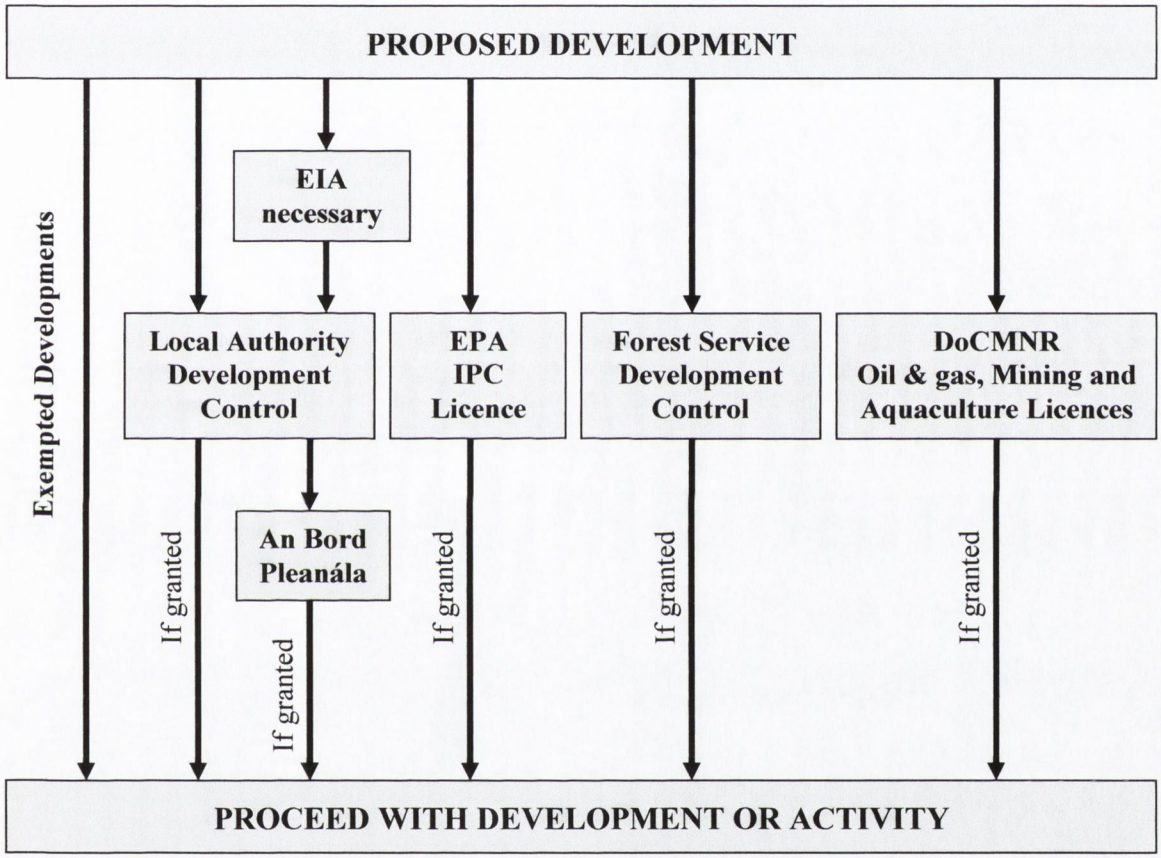


Figure 2.5 Overall concept of Ireland's Development Control processes to obtain development rights for physical developments or licences to operate prescribed activities.

- **Planning Applications to obtain Development Rights**

Details of proposed developments including architectural plans are submitted to the planning authority to obtain development rights (Figure 2.6). The public are informed of the planning application by publishing a notice in a national newspaper and by erecting a site notice on the property boundary facing the adjoining roadway. Granting or refusing development rights is an executive function carried out by the manager of the local

authority but in practice this function is delegated to the planning authority. A decision must be made within eight-weeks of the date of receipt of the application or the planning authority can extend this period by requesting further information from the applicant or by agreement. The public may participate in the process by submitting their observations on the development proposal in writing to the planning authority during the initial eight-week consideration period, or their objections to An Bord Pleanála to a planning authority decision with 3 weeks of the decision being published.

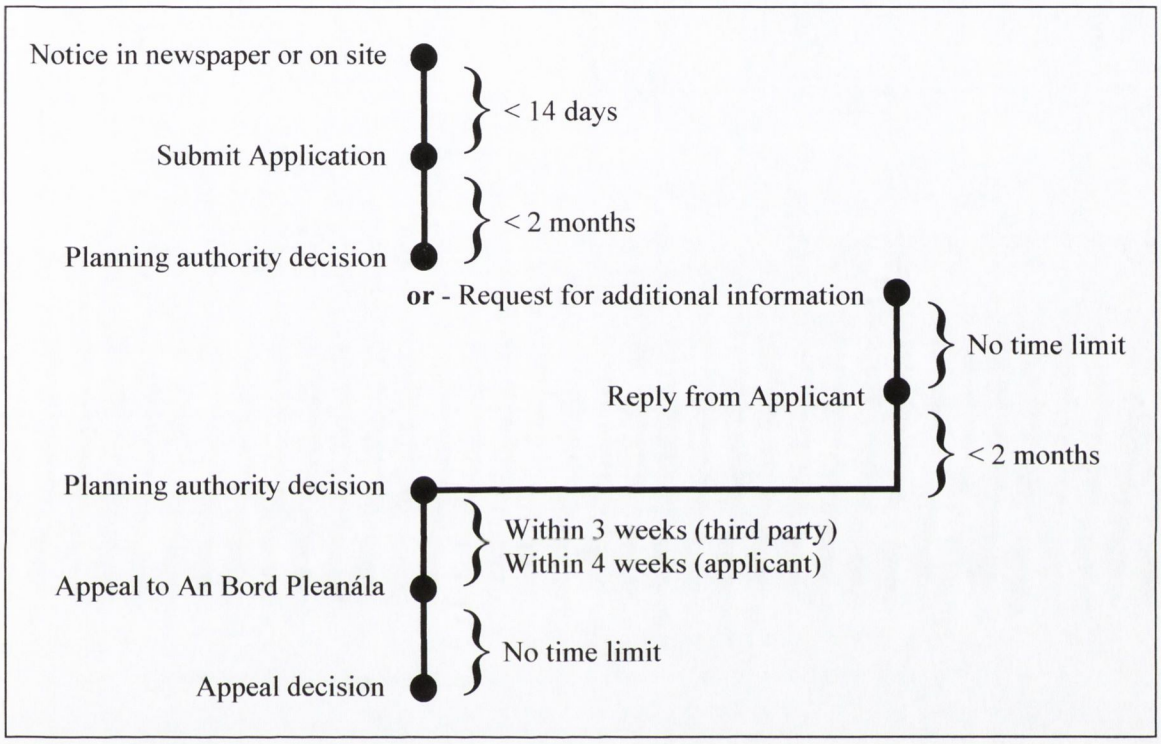


Figure 2.6 Planning Application Procedure (Blackwell and van der Kamp, 1986).

The original applicant or any person who already made a submission in writing to the planning authority can appeal the planning authority's decision to An Bord Pleanála which conducts an independent examination of the application. The Board's decision may again be challenged within eight-weeks of their decision by taking a judicial review to the High Court if there are substantial grounds that the decision is invalid and should be quashed.

When making a decision planning authorities are restricted to considering the proper planning and development of the area concerned, including the preservation and improvement of amenities, the development plan, and any written submissions made on the proposed development. In cases of proposed developments which are likely to have significant effects on the environment, the planning authority must also consider the EIS

submitted with the application. Where development consent is refused or granted with conditions, the authority must give reasons for their decision, which provides the applicant with an opportunity to either contest the reasons on appeal or re-submit a revised application. Development rights obtained normally expire after five years (Oireachtas, 2000a).

The absence of a commitment to the principle of control can be traced to the national character and history. A people who for centuries could not own land and were specifically excluded by virtue of their religion, are not easily persuaded that they should be curtailed in exercising their rights of ownership, even for the common good (Grist, 1983). However, rights of ownership are commonly misunderstood. They do not include a right to change the activity on land which is controlled by the local authority via the zoning procedure and they do not include development rights which must be obtained prior to development commencing.

- **Exempted Developments**

The original Act (Oireachtas, 1963) lists the following as exempted developments:

a) Agricultural use of land and developments associated with that use;
b) Forestry use of land and developments associated with that use;
c) Developments by all 89 local authorities within their own jurisdictions;
d) Road construction and maintenance by local authorities;
e) Provision of services by local authorities or utility agencies;
f) Land reclamation developments.

However, this list increased significantly during the 1980s and 1990s by the addition of certain urban renewal schemes, advertisements, light rail schemes, energy supply facilities, and the supply of waste recycling facilities under a wide range of legislation. Local Councillors also have a facility under the City and County Management Act (Oireachtas, 1955) to direct a decision granting development consent on a case-by-case basis which is not used regularly, but sufficiently enough to degrade the visual amenity over time if good practices are not applied. The exclusion of a growing number of developments from the provisions of the development control process weakens the process and provides a loophole for these developments not to conform to local development policies.

- **Environmental Impact Assessment**

The European Union (EU) issued a Directive (85/337/EEC) requiring Member States to introduce assessments on the effects of certain public and private development projects on the environment (Council of the European Communities, 1985). The measure automatically came into force in Ireland in July 1988 when the initial three-year period expired, and the requirement was eventually enacted into Irish law in 1989 (DoE, 1989). This initial Directive has since been amended (97/11/EC) to strengthen the provisions of EIA in a trans-boundary context (Council of the European Communities, 1997). These EU Directives were enacted in Ireland via a wide range of national legislation, which can be loosely grouped into four categories:

a) Environmental Impact Assessment regulations to enable the EU Directives on EIA;
b) Local Government (Planning and Development) regulations, which incorporate the requirement for EIA into the development control process;
c) Environmental Protection Agency regulations, which establish the Irish agency and outlines its functions and responsibilities;
d) Various regulations where Ministers may grant consent for specialised developments (exempted developments) outside of the development control process.

The EIA process includes four phases including screening, scoping, assessment and preparation of the EIS (Figure 2.7). Screening determines whether EIA is necessary for the particular development proposal. If EIA is found to be necessary there is an optional scoping phase where developers can consult with the planning authority to identify the impacts which are both likely and significant to result from the proposed development. The assessment phase conducts an EIA to identify significant adverse impacts and use mitigation measures to ameliorate these impacts. The final phase is the preparation of the EIS to present the findings and the evidence supporting those findings (CAAS 2002).

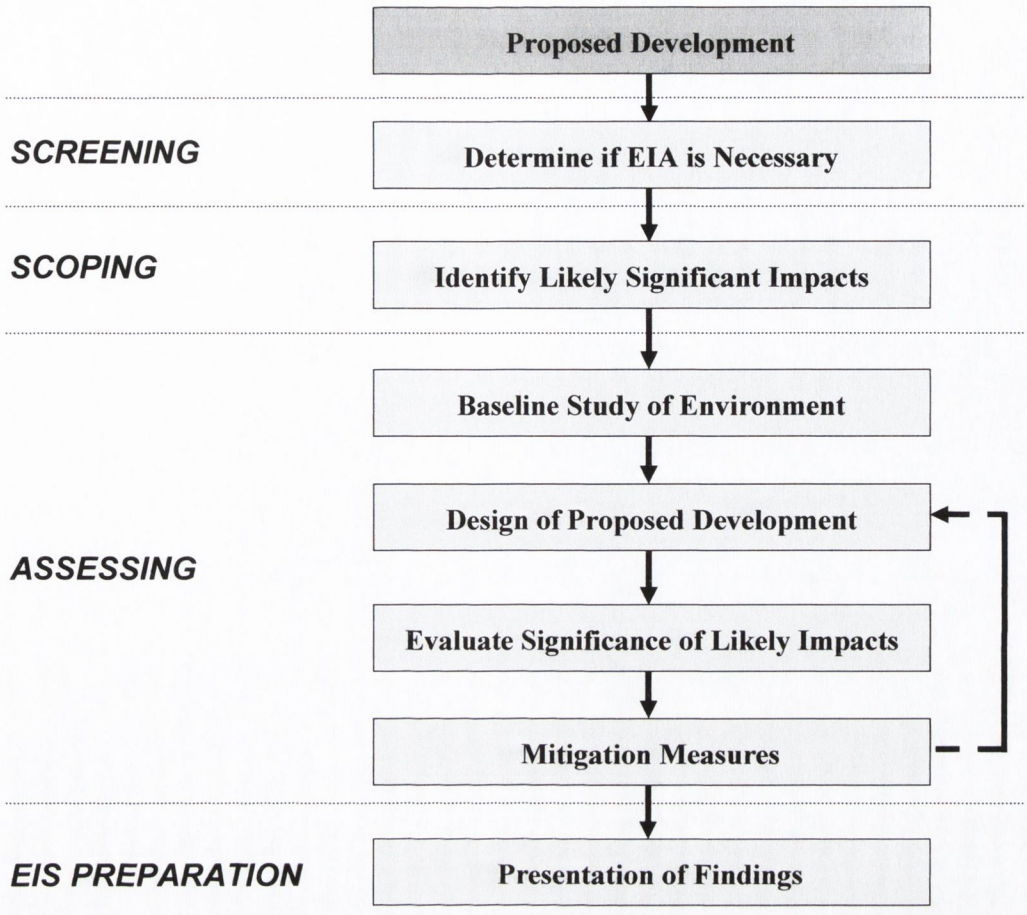
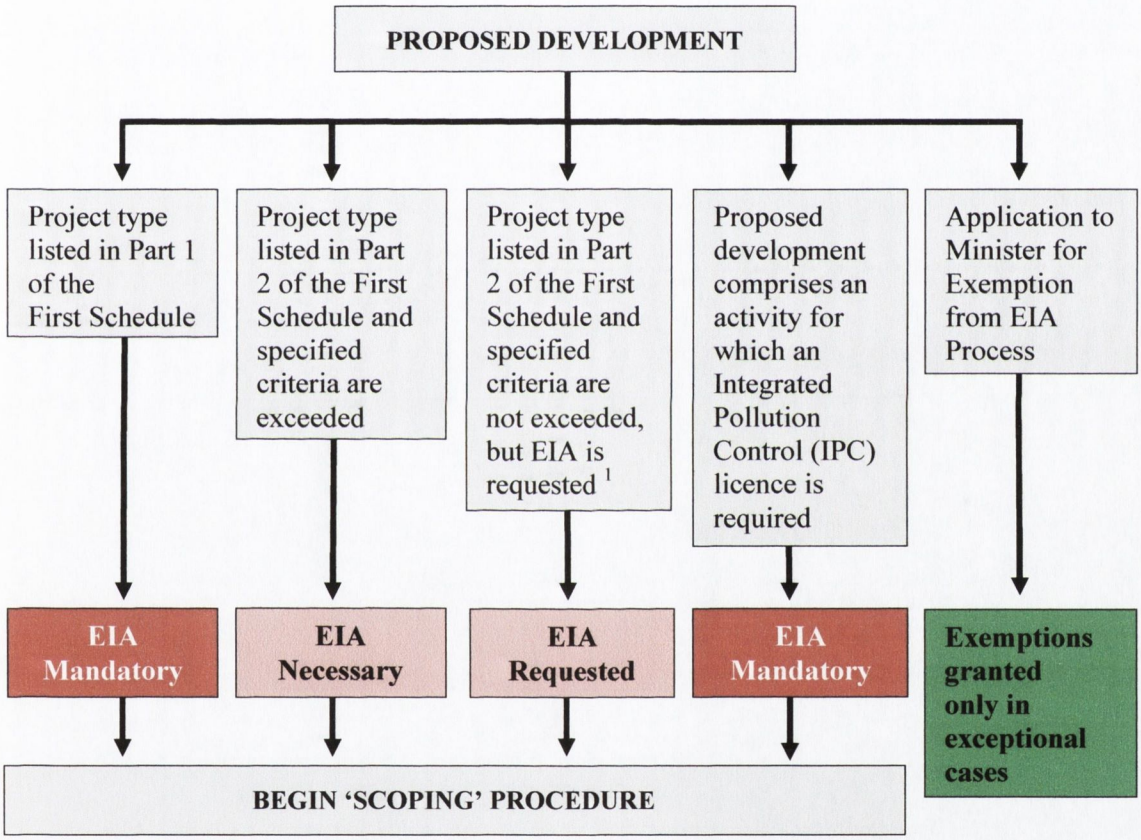


Figure 2.7 Environmental Impact Assessment process adapted from CAAS (2002).

The regulations require that certain major developments be assessed for likely environmental effects before development rights are granted, so development proposals must undergo a screening procedure to identify if EIA is necessary (Figure 2.8). These major developments include a list of development types where EIA is mandatory (Annex I) and another list of development types where EIA is necessary if the project parameters exceed prescribed threshold values (Annex II). Planning authorities may also request EIA for developments which are sub-threshold if they consider that the proposed development is likely to have significant effects on the environment and criteria are included in the legislation for determining if EIA is required in this situation. EIA is also mandatory for proposed developments which comprise an activity for which an Integrated Pollution Control (IPC) licence is required. Finally, a project proponent may apply to the Minister of the Environment, Heritage and Local Government for an exemption from EIA, but these exemptions are rarely if ever granted.

The scoping phase was introduced in 1998 (DoE) on foot of the second EIA Directive (European Council, 1997) and is used to identify the impacts which are likely to be significant for specific development proposals and which should be examined during EIA. The EPA Advice Notes on Current Practice may be helpful to in this regard (CAAS, 1995b & 2003). Scoping can be an informal meeting with the planning authority to discuss the proposal or it can be a more formal procedure where the planning authority is requested for their written opinion on the scope necessary for the EIA (DoE, 1998). It may also be prudent for the planning authority to contact prescribed organisations, NGOs (Non Government Organisations) and the local community to identify at an early stage any concerns they might have (CAAS, 2002).



[1] where the Minister, An Bord Pleanála or a competent authority considers there is a likelihood of significant effects on the environment.

Figure 2.8 Screening procedure to decide whether EIA is necessary.

The assessment phase conducts an examination of the likely significant effects on the environment identified during scoping and comprises the four steps outlined in Figure 2.7. Step one involves a baseline survey to record the existing condition of the environment before development commences against which any predicted impacts will be judged. The survey examines a wide range of environmental factors including human beings, flora and

fauna, soil, water, air, climatic factors, material assets (including architectural, archaeological and cultural heritage), the landscape, and the interrelationship between these factors. Due to varied nature of these environmental factors it has become normal for the EIA to be carried out by multi-disciplinary teams (CAAS, 2002).

Step two involves the design of the proposed development which should examine a range of design alternatives including alternative locations, alternative scale and form, alternative textures and colours, and alternative site layouts. If the initial design of the proposed development prior to the screening phase progresses so far that many of the alternatives have already been decided then this step will not achieve what it purports to do. By the start of this step the EIA process should have identified the likely significant impacts and conducted the baseline study with respect to those impacts. Consequently it should be possible to estimate the major difficulties likely to be identified in the next step (evaluate significance of impacts) and cater for them using a range of design alternatives. This should ensure that the bulk of the mitigating measures required are included at this stage.

Step three conducts an assessment of the significance of the impacts by predicting their nature and magnitude and the sensitivity of the receiving environment. A wide variety of techniques and methodologies are used to assess the many environmental factors required. It should be noted that repeatable scientific methods should be used to collect the evidence required to evaluate the significance of the impacts (CAAS, 2002)

Step four proposes mitigation measures for the impacts identified to be significant in the previous step. Mitigation measures such as screening using vegetation screens or earthen banks are normally proposed for impacts found to be likely, significant and adverse (CAAS 1995a). Mitigation measures could also include design modifications and the provision of infrastructure or public service improvements to maintain and enhance impacts found to be likely, significant and positive.

The final phase prepares an EIS where the results of the EIA are provided along with the evidence supporting the findings. The EIS is then used as part of the supporting documentation when applying for development rights within the development control process.

- **Evaluations of Quality of Environmental Impact Assessment**

EIA was introduced in Ireland in 1988, so like any new procedure one could expect an initial period where practitioners and consultants underwent a steep learning curve to develop an understanding of the requirements necessary. A preliminary evaluation of the quality of EISs was conducted on a sample of 40 EISs from the 222 EISs submitted in Ireland between July 1988 and April 1992 (Lee & Dancey, 1993). This survey found that the majority (60%) of the EISs reviewed were of unsatisfactory quality. Best performance was associated with EISs from the more recent portion of the sample, for at least medium sized projects, EISs prepared by multi-disciplinary teams, and EIS average length of at least 50 to 100 pages. Poor performance was associated with EISs prepared in the earlier portion of the sample, those relating to certain types of infrastructural projects, those related to smaller projects and EISs of less than 50 pages. The same characteristics associated with good and bad performance have also been identified in parallel studies in the UK (Lee & Brown, 1992; Lee & Dancey, 1993). These results established that there was an improvement in EIS results during the review periods which indicated that consultants were improving their knowledge, techniques and methodologies.

The report (Dancey and Lee, 1993) made a number of recommendations including that EIA guidelines be published and training courses be provided. Subsequently, the Institute of Public Administration published a set of draft guidelines and the EPA published draft guidelines in 1995 (CAAS, 1995a). The report also recommended that EIS quality should be assessed to monitor quality improvement and the findings published to disseminate best practice. However this recommendation was not carried out and few other quality assessments are available for EIA quality in Ireland.

Lee and Colley (1993) suggest that the successful implementation of EIA requires more than formal approval of EIA legislation or regulations. They found that a minority of EISs were of good quality, but that the majority of EISs reviewed were not of the required standard. They recommend the publication of guidelines and the provision of training to address the problem. They also identified the problem of EISs being biased in favour of the development proposal and suggest this is an understandable temptation for developers, but state that if unchecked biased EISs can reduce the status of statement to public relations documents. Consequently systematic review of EISs is recommended to improve the quality of EISs and reduce the temptation for bias.

The European Commission has conducted three five-yearly reviews of the performance of the EIA Directives. The second review recommended the adoption of a formal EIS quality control mechanism among other things to try to improve the quality of information contained in EISs (European Commission, 1997b). The third review of the EIA Directive observed that current research conducted in about half the Member States on the quality of information contained in EISs has shown that up to 50% of EIS do not fully meet the requirements of the Directive. It also stated that the quality of EIS information influenced the decision making process so it urged Member States who have not yet done so to introduce formal provisions for the review of information supplied within EISs (European Commission, 2002). To date this recommendation has not been implemented in Ireland.

The numerous criticisms of EIA procedures in Ireland led to the European Commission issuing a Reasoned Opinion against Ireland due to its failure to fulfil its obligations under the EIA Directive (European Commission, 1997b). Many of these criticisms relate to a lack of EIA conducted for Annex II projects, the lack of proper practical compliance with the issue of IPC (Integrated Pollution Control) licences, insufficient information and lack of public participation in projects involving IPC licences, the provision of EIA information outside the statutory timeframe for development consent, and the commencement of construction before development consent is acquired (European Commission, 1997b).

2.2.4 Enforcement Process

Enforcement of planning control can be taken against the owners of properties in four instances; unauthorised developments, the enforcement of conditions applied to permissions granted for proposed developments, the enforcement of conditions applied to permissions granted for the retention of unauthorised structures, and the unauthorised use of land (Oireachtas, 2000a).

A planning authority is only obliged to take enforcement action if directed by the Minister, but has the option to do so where it becomes aware of these instances either through its own actions or where it receives representations from the public (Oireachtas, 1963). However, under the new Act (Oireachtas, 2000a) planning authorities are obliged to follow up genuine complaints within a given timeframe. The original Act (Oireachtas, 1963) included a provision for 'retention' to retrospectively legitimise desirable developments already constructed, but this provision is regularly used to acquire adjournments of enforcement proceedings to thwart the operation of the enforcement process (Grist, 1983).

Enforcement measures include the issue of warnings, enforcement notices and taking court action. Actions may also be taken against a developer to the Circuit or High Court to obtain an injunction to stop the construction of an unauthorised development or the unauthorised use of a development.

Blackwell and van der Kamp (1986) state that there is apparently no commitment to enforcement particularly in the light of the high degree of non-conformity identified in a survey of the development control process. 42% of plans implemented were found to be not in accordance with the plans submitted for development rights and/or conditions imposed on development consent decisions.

2.3 PRESERVATION AND IMPROVEMENT OF AMENITIES

The original Act (Oireachtas, 1963) outlined only two development objectives which were mandatory for both urban and rural CDPs. These were the development and renewal of obsolete areas and preserving, improving and extending amenities, which roughly equate to enhancement and protection, and the preamble to the Act made particular reference to the preservation and improvement of amenities.

Bord Fáilte was established in 1955 and quickly recognised that some developments to accommodate tourists were incompatible with the preservation of amenities. In view of the economic significance of tourism to the economy these amenities 'had real cash' value that needed protection. However, planning authorities were more successful in only listing amenities for protection because of their financial constraints, than at persuading the landowners to actively protect them. Tree protection orders, conservation orders and special amenity area orders have not been successful in the majority of cases. Notwithstanding this difficulty the provision of open space and landscaping in residential developments has improved substantially and the proliferation of roadside advertising hoardings in the open countryside has been largely avoided when compared to some European Countries (Grist, 1983).

Figure 2.9 Areas of Outstanding Natural Beauty (AONB) identified for preservation (An Foras Forbartha, 1977).

It is acknowledged that pressures on all landscapes, but especially the finest landscapes, are going to increase from leisure pursuits and agriculture (Williams, 1998). This has led to the practice of designating these finest landscapes and applying conditions to decisions granting development rights, which required adverse impacts on the designated landscape areas or features to be eliminated or minimised. Preservation practice worldwide since

the1970s has focussed on identifying and designating outstanding landscape areas and landscape features for protection with country's planning and development systems. The landscapes outlined in Figure 2.9 were identified in a national survey in response to an IUCN (International Union for the Conservation of Nature and Natural Resources) pilot project to prepare a world-wide inventory of outstanding landscapes (An Foras Forbartha, 1977). This important resource was then subsequently used by local authorities to inform the formulation of development policies when reviewing CDPs in the forward planning process. The landscapes designated have predominantly included natural landscapes for a wide variety of reasons which merited their protection.

2.3.1 Designating Natural Habitats for Protection

The protection of wilderness areas which have had little human influence in modifying the landscape into a place for living and natural habitats which support large or special biological species are the main thrust of these types of designations. They contain the two categories of Special Areas of Conservation (SACs) and Special Protection Areas (SPAs) designated under the European Union's NATURA 2000 programme and three categories of areas including National Heritage Areas (NHAs), Nature Reserves and Refuges, and Landscape Features of Natural Interest designated under Irish legislation.

- **Special Areas of Conservation**

The designation of SACs was proposed under the Habitats Directive (92/43/EEC) for the conservation of natural and semi-natural habitats and species of flora and fauna (Council of the European Communities, 1992). The Directive stipulates that each member state must designate their most important natural areas as SACs, specifies the scientific criteria for the selection of sites, and restricts the grounds that can be used as justification for damaging a site. These important natural areas should include maritime habitats, grasslands, blanket bogs and heaths, raised bogs and fens, woodlands, wetlands, artificial habitats, and habitats important to identified special species.

The total number of candidate SACs already publicly notified and formally transmitted by Ireland to the European Commission was 364 by the end of 2001 (DoELG, 2002a). However, five Irish NGOs (The Irish Wildlife Trust, The Irish Peatland Conservation Council, An Taisce, Birdwatch Ireland and Coastwatch Ireland) proposed an additional 408 sites for inclusion in the Irish government's list of candidate SACs which contain 148 sites not proposed by Dúchas (The Heritage Service), and 260 sites proposed as NHAs

which warrant designation as SACs. The European Court upheld the proposal of extra sites by issuing a judgement requiring Member States to submit an "exhaustive list of sites which have an ecological importance at national level" (European Court of Justice, 2000).

Progress in implementing the Habitats Directive has been particularly slow in Ireland, and according to a WWF (World Wildlife Foundation) report, Ireland's implementation record was the worst in Europe. The report represented the implementation process as a 30km race, with Denmark in first place at 21Km and Ireland in last place at 8Km (WWF, 2001). Some concessions have been won on the number of additional sites and information on 24 raised bogs as candidate SACs and 75 raised bogs as candidate NHAs were transmitted to the European Commission in 2002. The Minister for the Department of the Environment and Local Government also announced that more sites (rivers, to support the conservation of salmon and otters and on fens and other wetland habitats) would be listed as candidate SACs in the near future. The EU Commission had hoped to finalise the list of SACs for the Atlantic region of Europe excluding offshore sites by 2003.

Although the process of formally adopting these proposed sites is not yet complete, they are fully protected under the planning and development system from the time of their notification to the landowner. Irish planning and development legislation requires planning authorities when considering an application for a development that is likely to have a significant effect on an SAC, to ensure that appropriate assessment of the implications of the development for the conservation status of the site are undertaken. However, NGOs have indicated that SACs and SPAs damaged by unauthorised developments are not being restored even though 75% funding is available from the European Commission (IPCC, 1998), suggesting that the enforcement process of planning and development system is not as effective as it might be.

- **Special Protection Areas**

The EU Birds Directive (79/409/EEC) was the stimulus to designate Special Protection Areas (SPAs) as nature reserves for wild birds, which were vulnerable to habitat change, or due to their rarity or being in danger of extinction (Council of the European Communities, 1979). A significant number of these SPAs are coastal sites and include some foreshore or sub-tidal areas.

These designated habitats are protected in the context of pollution control, disturbance of habitats and deterioration of habitats. SPAs are protected by planning authorities under the planning and development system in a similar manner to SACs effective from the date landowners are notified of the proposed designation. By the end of 2001 Ireland had designated 110 SPAs and landowners were informed during 2002 of the intention to designate an additional 26 SPAs and extensions to the boundaries of 9 existing SPAs. A small number of additional SPAs are expected to be proposed before the final completion of the designation process in 2003.

Management plans have been prepared or are in preparation for each of the SPAs with the primary objective to maintain or enhance the favourable conservation status of the birds. However, according to a Birdwatch Ireland survey 26% of aquaculture operations are within SPAs already designated. Management plans for SPAs with existing aquaculture operations or with the potential for future aquaculture developments contain specific Aquaculture Zone Management Plans (AZMPs). These AZMPs are subject to public consultation and divide SPAs into four sub-zones from highly sensitive zones to external influence zones. Aquaculture operations will be excluded from the highly sensitive areas, and more research is needed to assess the influence of aquaculture operations on the bird's habitats to develop good practice procedures for the future (IPCC, 2000).

The EU Habitats Directive (92/43/EEC) established a European ecological network called NATURA 2000, which is the centrepiece of the EU nature and biodiversity policy, thus fulfilling the EU obligation under the UN Convention on Biological Diversity (Council of the European Communities, 1992). The NATURA 2000 network includes all areas designated as SACs and SPAs, and the aim of the network is to assure the long-term survival of Europe's most valuable and threatened species and habitats.

- **National Heritage Areas**

Areas of Scientific Interest (ASIs) established under the original Wildlife Act (Oireachtas, 1976b) were designed to identify natural areas to be used as guidance for planning authorities but the Act conferred no legal protection for them. The new Wildlife Amendment Act (Oireachtas, 2000b) provides a mechanism to give statutory protection to NHAs which has included all the areas identified under the old designation of ASI (Figure 2.10).

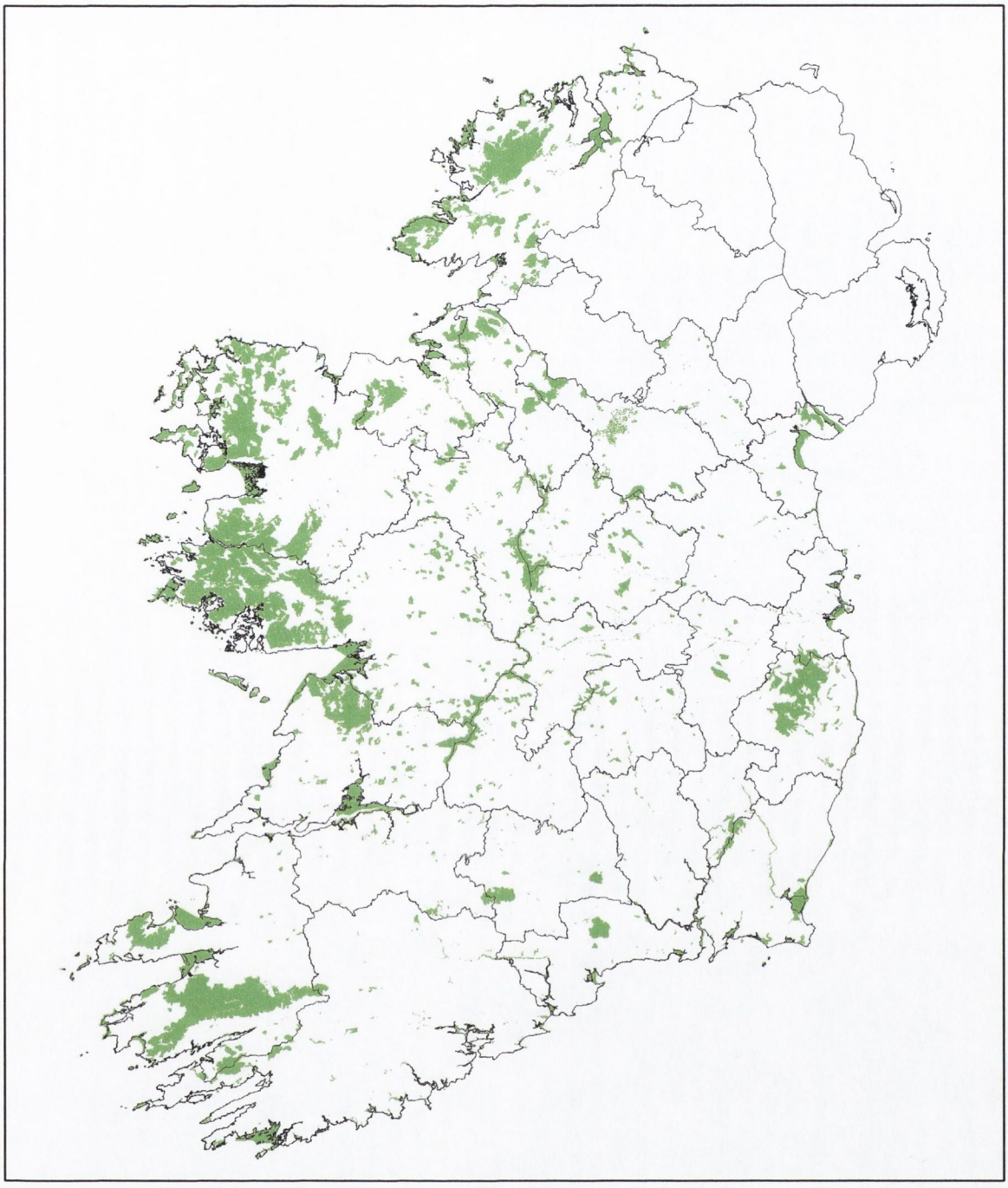


Figure 2.10 National Heritage Areas already designated covering approximately 11% of the land areas of the State (www.heritagedata.ie/).

NHAs are the basis of the protection system and for natural habitats of national importance in Ireland, which are places where plants and animals exist in a relatively natural state. Many NHAs are also designated either wholly or in part under the other designations of SACs and SPAs, and approximately 1200 sites covering 750,000 Ha (circa 11% of area of State) have already been proposed as NHAs, of which 286 are coastal sites (Figure 2.10). There is no timetable for the completion of the designation of NHAs under the new Act.

The Minister designated 75 raised bogs as NHAs 2002, and the designation of other NHAs is expected to continue during the coming years as rapidly as resources permit.

- **Nature Reserves and Refuges**

As well as the ASIs identified under the original Wildlife Act (Oireachtas, 1976b), 17 statutory nature reserves and 25 wildfowl sanctuaries in coastal areas and 7 refuges for fauna relating to breeding seabird populations mostly in remote and inaccessible locations were also designated under this Act. Many of these sites have now been re-designated as NHAs, but the retention of this designation category in the new legislation suggests that some of these sites may not be of national importance to warrant protection as NHAs, and will retain their original designations.

- **Geological, Geomorphological and Features of Natural Interest**

The interpretation of 'habitat' under the new Wildlife (Amendment) Act (Oireachtas, 2000b) includes other interpretations as well as ecosystems for flora and fauna. These include specific localities where a particular fossil, mineral, geological or geomorphological (distinguished by physical, geographical, vegetational or other features) feature is to be found. This new definition of 'habitat' is more inclusive and is moving towards a more holistic notion of landscape.

2.3.2 Heritage Amenity Designations

Although the original Act (Oireachtas, 1963) permitted the inclusion of development policies in relation to the preservation of buildings of artistic, architectural or historical interest, few attempts were made either at a local level or at a national level to take any active measures to ensure the protection of these features. One notable exception was that CDPs included lists of buildings for protection identified by planning authorities in an *ad hoc* manner without setting out the criteria for including such buildings in these lists. The definition of heritage amenities was significantly widened within the Heritage Act (Oireachtas, 1995) to include archaeological objects and monuments, architectural heritage, structures with ecclesiastical associations, landscapes, seascapes, wrecks and climatological, ecological, geological or pedological factors which may be useful to understanding the past. This new definition of heritage and the establishment of the Heritage Council stimulated many research efforts to catalogue the national heritage in a comprehensive manner. The new planning and development Act (Oireachtas, 2000) has

since introduced a much broader list of development objectives which could be included in CDPs to give effect to the protection of these features.

- **Archaeological and Historical Monuments**

Although the State manages over 800 major sites, which have been transferred either to State ownership or State guardianship, many important archaeological sites are privately owned, but are specifically protected from being damaged or interfered within the legislation (Oireachtas, 2000a). Licences are required for archaeological excavation, and a number of registers of national heritage are being compiled or being maintained:

a) Register of historic monuments;
b) Register of historic shipwrecks;
c) Sites and Monuments Register (SMR), which records approximately 120,000 archaeological sites in Ireland. This dataset was recently withdrawn to correct some errors of location in the database and was expected to be re-released in February 2005.

Even though these registers provide baseline data to describe the monuments, very little monitoring and preservation is conducted and many commentators have reported incidences of 1500 monuments being destroyed per year (ICOMOS, 2000), and widespread dilapidation of Irish monuments mainly due to vandalism, pollution and neglect (The Heritage Council, 2001).

- **Architectural Heritage**

Since the enactment of the original planning and development Act in 1963 planning authorities listed buildings and structures for protection within CDPs without any statutory backing. However, the Heritage Act provided the necessary legislation to protect architectural heritage in 1995, and planning authorities now maintain a Record of Protected Structures (RPS) at local level, and the Department of The Environment, Heritage and Local Government are currently surveying and compiling a National Inventory of Architectural Heritage (NIAH) of buildings and structures from 1700 to the present day which are important from a national perspective (www.heritagedata.ie/). The NIAH can also record the heritage value of interiors of structures for the first time.

Architectural heritage has been given a wide ranging definition within the Heritage Act to include all structures and buildings, traditional and designed, and groups of buildings

including streetscapes and urban vistas, which are of historical, archaeological, artistic, engineering, scientific, social or technical interest, together with their setting, attendant grounds, fixtures, fittings and contents, and, includes railways and related buildings and structures and any place comprising the remains or traces of any such railway, building or structure (Oireachtas, 1995). It should be noted that this definition includes urban vistas for the first time. Local authorities aim to effect protection of these features by two main means, the publication of updated RPS and the designation of architectural conservation areas within CDPs. Many local authorities are currently carrying out local surveys to identify buildings and structures which are of local significance and correlating these lists with the NIAH to ensure buildings and structures of national importance are included in the updated RPS. Structures included in the updated RPS may qualify for conservation grants to assist active protection measures (www.heritagedata.ie/).

- **Place-names Heritage**

The primary administrative land unit in Ireland is the townland for which approximately 60,000 names are available from the Census of Ireland Index of 1861. These names are anglicised versions of the original Irish (Gaelic) names, written phonetically in English, and although this resulted in some beautifully sounding place-names, they mostly lost the meaning behind the name. Irish place-names tend to associate historical event(s) or social meanings with the place or feature and can make a significant contribution to the sense of place, whereas the phonetic anglicised versions have no historical information embedded in them (www.heritagedata.ie). An Irish language research unit established in the 1970s has already researched and documented the original Irish versions of townland names for approximately 60% of the country and this important work continues in the Heritage Service within the Department of the Environment, Heritage and Local Government.

However, much more research of Irish place-names for settlements, localities, fields and landscape features is urgently required to preserve this important heritage before it is lost forever, and some significant contributions have already been made by local heritage groups, and other local research projects funded by the Heritage Council.

2.3.3 Visual Amenity Designations

The original planning and development Act (Oireachtas, 1963) included a provision whereby local authorities could include the preservation of views and prospects and of amenities of places and features of natural beauty or interest as development objectives

within their CDP. The Act provided for the making of Special Amenity Area Orders (SAAO) to protect areas of special amenity by virtue of their natural beauty, or their scenic or recreational amenity value, but this provision was not much used by planning authorities (Grist, 1983). The protection of amenities also provided for the protection of trees via Tree Protection Orders (TPOs), the preservation of rare species of flora and fauna via conservation orders, the creation of rights of way, the enhancement of areas by landscaping, and the control of noise, vibration, litter and advertising hoardings.

The term 'visual amenity' is not defined in any of the Irish legislation, and very few documents were found to give a more complete interpretation of its meaning than that of 'landscape scenery'. The term 'scenic beauty' is used by Rosenberger and Smith (1998) in the United States as a relative measure of the public's visual preference for landscape. It expressly excludes values for culture and ecology, professional evaluations and the application of any landscape theory and only measures the public preferences on a ten point scale where the 'scenic beauty' of different landscapes are rated relative to one another.

The term 'aesthetic significance' is commonly used in Australia as a component of an evaluation of cultural heritage and is the result of a professional evaluation based on specific criteria (Lennon & Townsley, 1998). It also includes other responses as well as visual such as sound and smell.

The US Forest's Service Visual Resource Management System (U.S. Forest Service, 1974) uses the term 'visual quality' to distinguish between visual responses to landscape and non-visual responses. It is this distinction to only consider visual responses of local communities which was accepted as the meaning of the visual amenity for this research.

Notwithstanding the lack of definition of the term, designation of the visual amenity in Ireland took two forms. Upland areas and ridgelines were zoned as high amenity areas within the forward planning process to provide a certain level of protection within the development control process for these areas which were highly visible from the locality. Scenic viewpoints and scenic routes were listed in most CDPs for protection within the development control process. No formal designation process was used and no criteria were elaborated on what constituted a view worthy of preservation. Similarly no methodologies were developed to identify views, or re-evaluate existing views during the review of the

CDPs during the forward planning process. Scenic routes and panoramic viewpoints identified on tourist maps or by planners using local knowledge were listed for protection. Water areas were a noticeable absence from many of the scenic areas designated in CDPs (An Foras Forbartha, 1977).

The absence of 'landscape' and the 'visual amenity' in any formal process of assessment led to the recommendation to use three explicit criteria as a coherent set of procedures for the identification and review of landscapes and visual amenities and their designation as high amenity areas (CAAS, 1997):

a) Capacity to Absorb Development – a landscape's Visual Absorption Capacity (VAC) is influenced by its landform (terrain shape), the prevalence and height of vegetation, and the prevalence and height of existing developments.
b) Disproportionate Visual Impacts – Skyline ridges, tops of hills and mountains, coastlines, promontories, headlands, lakeshores, and banks of large rivers are conspicuous landscape features, which have a low potential to absorb new development without causing disproportionate visual impacts.
c) Degrees of Sensitivity – areas of distinctive landscape character are assigned a sensitivity rating based on (a) and (b) indicating the extent to which the landscape would be vulnerable to change in its character. Five different sensitivity ratings were proposed including vulnerable, sensitive, normal, robust and degraded. Landscape character areas would then become the focus of policies affecting the development control process.

However, the landscape features specified as having disproportionate visual impacts do not include landscapes areas of special importance such as SACs, SPAs, and NHAs already identified using scientific criteria. Although coastlines, lakeshores and banks of large rivers are included, it does not specify a recommended size of buffer zone to protect this land/water interface, and does not consider protecting the water area from developments at all.

The protection of landscape is widely acknowledged to include cultural heritage, natural habitats and the visual amenity (Starrett, 2002; Aalen *et al.*, 1997; Oireachtas, 1995), but although definitions and interpretations are available for both cultural heritage and natural habitats, the term visual amenity is rarely explained. It has been used in the past to refer to the preservation of outstanding views and prospects. However, if traditional approaches

used for protection of natural habitats and cultural heritage have shifted from identifying and protecting the 'good bits' to a more holistic approach where the whole landscape is assessed, can the same be true for the visual amenity? Should there be a move to examine the visual amenity of ordinary landscapes to conserve and enhance this amenity for the benefit of local communities?

2.3.4 Landscape Character Assessment

Landscape has always been important to society, but its importance has grown during the last few decades by the need to incorporate landscape considerations into environmental decision making, and more recently as the emphasis of sustainability has increased (Swanwick, 2002a). This increasing importance of landscape led to the formulation of different approaches to assessing landscapes (Figure 2.11).

LANDSCAPE EVALUATION	LANDSCAPE ASSESSMENT	LANDSCAPE CHARACTER ASSESSMENT
• Focused on landscape value • Claimed to be an objective process • Compared value of one landscape with another • Relied on quantitative measurement of landscape elements	• Recognised role for both subjectivity and objectivity • Stressed differences between inventory, classification and evaluation of landscape • Provided scope for incorporating other people's perceptions of landscape	• Focuses on landscape character • Divides process of characterisation from making judgements of value or sensitivity • Stresses potential for use at different scales • Links to Historic Landscape Characterisation • More recent emphasis on need for stakeholders to be involved
Early 1970s	**Mid 1980s**	**Mid 1990s**

Figure 2.11 The Evolution of Landscape Character Assessment (Swanwick, 2002a).

The one factor that distinguishes these new methodologies of landscape characterisation from previous approaches was that they examine all landscapes rather than just identifying and designating outstanding landscapes. Landscape character assessment is a tool for identifying the features that give a locality its 'sense of place' and pinpointing what makes it different from its neighbouring areas. It provides a framework for describing an area by identifying what is present and what is distinctive, so that change can respect local character, or add to it, or even change it if that is what is desired (Swanwick, 2002b). Landscape character assessment involves two stages:

a) Characterisation – produces a description of the landscape (focussing on distinctive features) and divides it into areas of common character

b) Making Judgements – participation of the stakeholders (local politicians, planners, and local communities) in the characterisation process will lead to better decisions based on better information.

Although this method provides a description of the landscape features and distinctiveness that gives rise to landscape character, it does not account for customary values by local communities for specific landscapes as proposed by CAAS (1997) for the identification and designation of high amenity areas due to the lack of public participation in the process.

This absence of landscape and the visual amenity in any formal process of assessment was highlighted during the Heritage Council's Tullamore conference on Ireland's Landscape (Phillips, 1999) and the Heritage Council funded a landscape character assessment of Counties Clare and Leitrim as a pilot project to examine the benefits of this new approach (The Heritage Council, 2002).

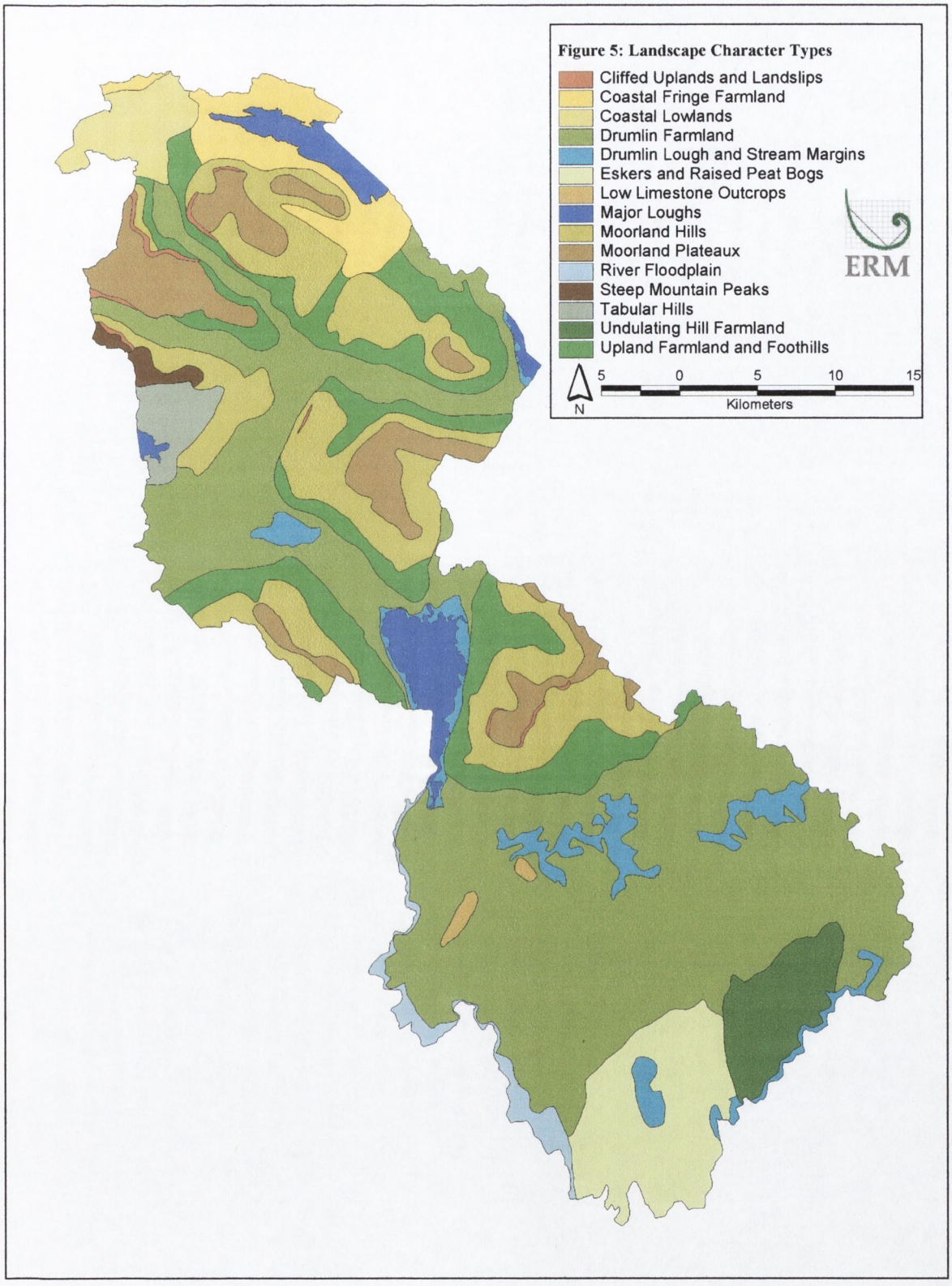


Figure 2.12 Landscape character types in County Leitrim (Martin & Critchley, 2002).

Landscape character types were identified using common combinations of topography, geology, vegetation and human influences, for example drumlin farmland (Figure 2.12). Then these landscape character types were divided into landscape character areas - discrete geographical areas of particular landscape types (Figure 2.13).

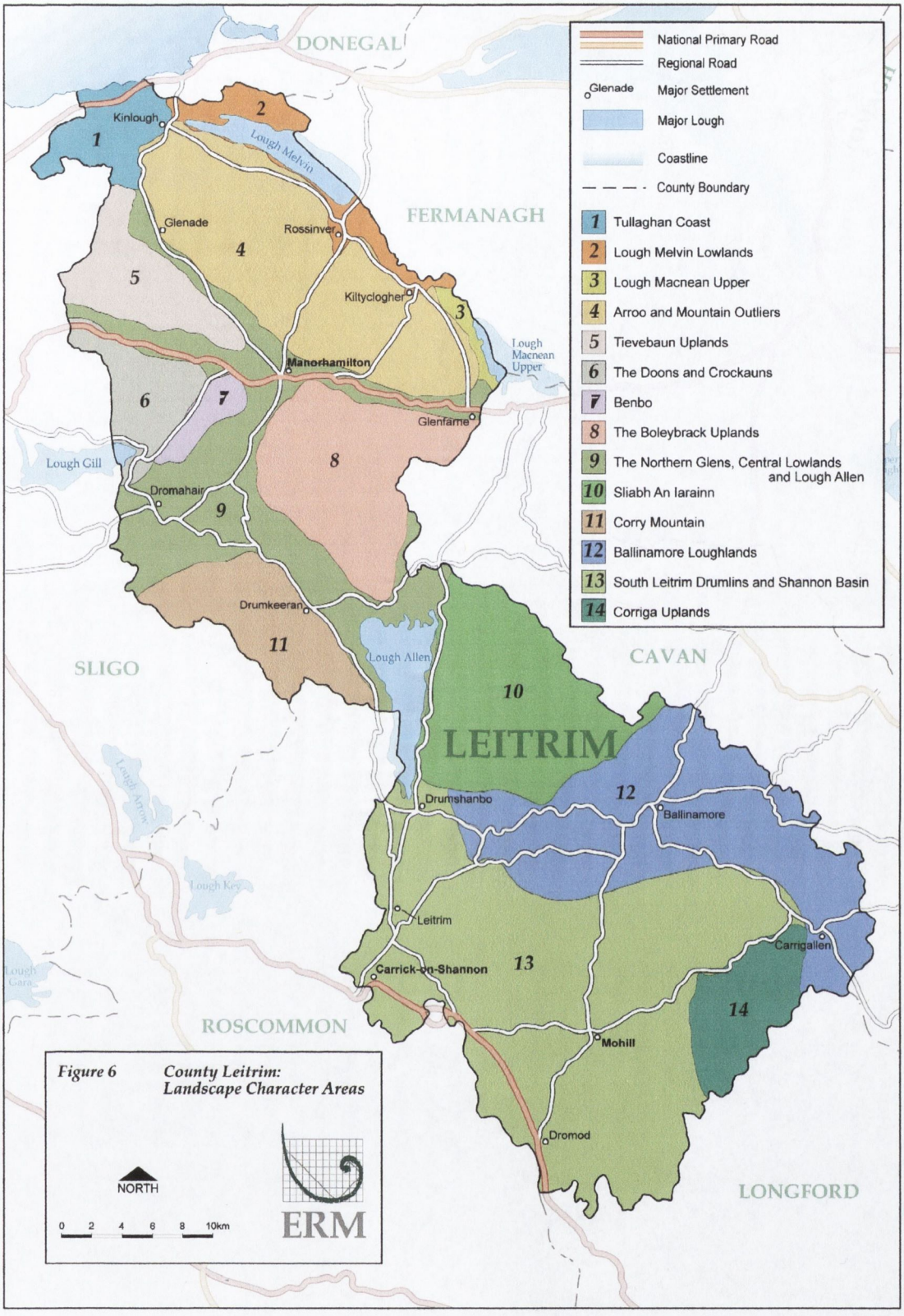


Figure 2.13 Landscape Character Areas in County Leitrim (Martin & Critchley, 2002).

Once the character areas were identified a consultative phase was held to collect stakeholder input on the accuracy of the characterisation and the value placed on different landscapes by the local community. The sensitivity of the landscape to accommodate

change without detriment to its existing character was also an important factor identified. The intention was that the information collected could be used in three main ways:

a) New developments should respect the existing landscape character;
b) Management plans including conservation policies should be put in place for valued landscapes;
c) Different forms of new development would take cognisance of the sensitivity of the landscape to accommodate change.

The Department of the Environment and Local Government pre-empted the results of the Heritage Council's pilots in Counties Clare and Leitrim by issuing draft guidelines for landscape assessment (DoELG, 2000). Although these guidelines used the same three steps of landscape character, landscape value and landscape sensitivity, the landscape characterisation stage included a new dimension which incorporated the visual amenity (Figure 2.14).

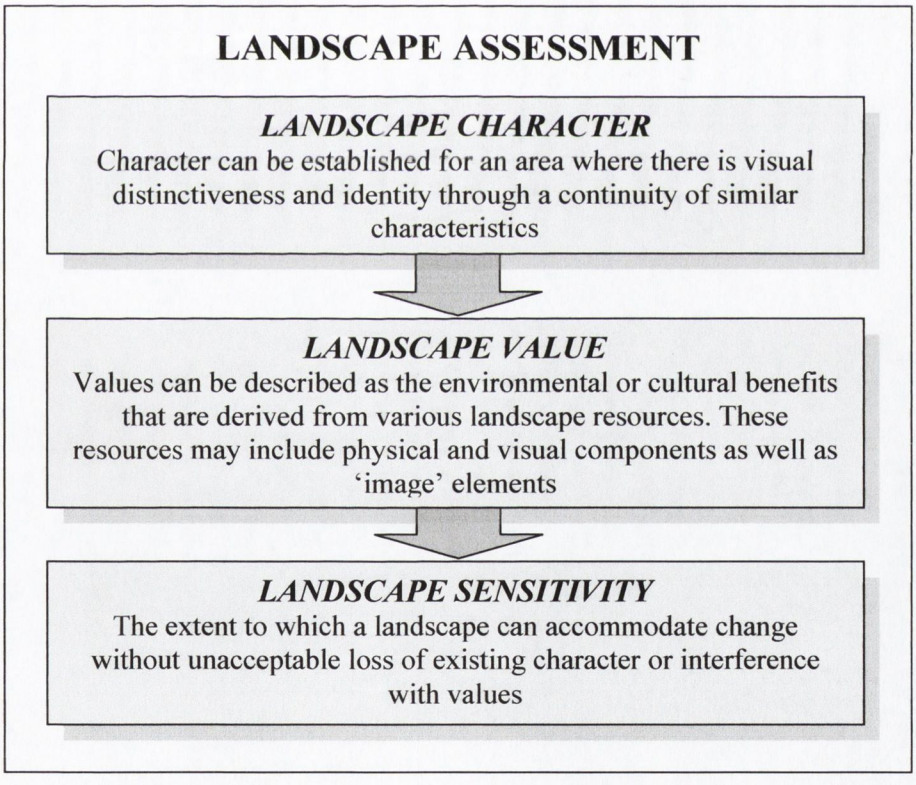


Figure 2.14 Three stages of Landscape Assessment process (DoELG, 2000).

Landscape character areas are identified by a combination of:

a) Physical units - using landform and land-cover to define the boundaries similar to existing methods of landscape character assessment;

b) Visual units - the physical limits of views or prospects, which might contain a number of physical units;
c) Image units – areas from which a dominant physical feature acting as a major focal point (i.e. Benbulben) can be seen giving rise to a place identity.

The inclusion of visual units and image units in the Irish landscape assessment guidelines is an important development especially as far as the visual amenity is concerned. A valley would be a classic example of containment of a view into a visual unit. The greater the variation in topographical relief the more relevant is the identification of visual units because the ridgelines of the topography or water catchment areas contain specific views. Whereas a combination of landform and land-cover are used to identify physical units, landform is the dominant feature which defines visual units, though in flat areas these would be much reduced due to the screening effects of hedgerows and vegetation. The third element, image unit, is where a particular landscape feature is of such dominance that it creates a place identity and is distinct from physical units of landscape character type or visual units of contained visual areas.

The requirement to complete a survey of communities to identify and quantify customary values for landscape may not be easily completed due to the lack of any formal structures for public participation with local communities. However, the recognition and acceptance that this co-operation with the public is needed to begin to understand landscape is an important step forward.

2.4 LANDSCAPE AESTHETICS

Allen (2001) defines amenity as 'something that provides or enhances material comfort', so in the absence of a definition being available the meaning being used in this research for the term 'visual amenity' refers to 'something that provides or enhances visual comfort (aesthetic pleasure)'. This meaning requires viewers and the value they place in the aesthetic experience, and therein may lay the problem, because different people react differently to similar aesthetic experiences.

Aesthetics is defined as that which is concerned with the visual characteristics of objects and the human being viewing them, which makes the object pleasing or displeasing to the senses (U.S. Army Construction Engineering Research Laboratory, 1989). It is also

defined as the branch of philosophy that deals with the nature of art, beauty and taste, with a view to establishing the meaning and validity of critical judgements concerning works of art (Ching, 1995). Pearsall (1998) defines it as a set of principles concerned with the nature and appreciation of beauty, especially in art.

Beauty can be defined as a combination of qualities such as shape, colour of form that pleases the aesthetic senses, especially sight (Pearsall, 1998). Ching states that shape suggests an outline with some emphasis on the enclosed area or mass, whereas colour is a combination of the hue, saturation and brightness of an object, and form refers to the principle that gives unity to a whole. So beauty is the harmonious combination of all of these qualities, which is considered visually pleasing. A beauty spot then, in the context of landscape, is a location from which a specific view or panorama of landscape or cityscape is considered visually pleasing by virtue of its shape, colour and form.

Pearsall (1998) states that taste is the ability to discern what is of good quality or of high aesthetic standard. Therefore taste requires mental ability to decide if there is no conflict in an object or a view and if the combination of qualities is pleasing or not. Aesthetics then, is essentially a visual experience with respect to the sense of sight only, and although the other four senses of sound, smell, touch and taste are not centrally involved, the signals they collect can enhance the aesthetic experience.

The act of seeing is a dynamic and creative process, which is capable of delivering a stable, three-dimensional perception of the moving changing images, which make up our visual world (Ching, 1995). Ching also proposed the following three steps for the sophisticated image processing carried out between the eyes and the brain:

a) Reception - eyes receive energy input in the form of light;
b) Extraction - basic visual features are extracted from the visual input;
c) Inference – conclusions are made about reality on the basis of the extracted features.

The variation in people's personal abilities to carry out each of these three steps shapes people's perceptions of the world around them. Variations in the physiological power of reception of the eye are diverse and extraction is the ability, both visual and mental, of discrimination, permitting fine distinctions to be made about the visual images being received. Inference is the mental ability to confirm or amend one's previous understanding

of the world from these fine distinctions. Consequently, individual concepts of the world can be quite varied.

Carlson (2000) states that the use of formal methods can be more precise that intuitive methods and include those qualities that constitute object form including shapes, patterns and designs as well as textures lines and colours. Therefore formalism theory holds that aesthetic appreciation of objects is the appreciation of aspects of form of objects – shape, pattern, design, texture, colours and lines, so an object judged to be aesthetically good would be an object that has unity, harmony and balance between its aspects of form.

2.4.1 Individual Preferences

Factors, which shape perceptions, are personal values, likes or dislikes and sentimental associations influenced and developed from personal experiences and from education. Education offers another dimension, but is not a prerequisite, since the perceptions of uneducated people are just as valid as those of experts in some circumstances. Even though a group of viewers may be viewing the same scene at the same instant, their perceptions of the experience can be quite different. It is this element of individuality that complicates aesthetic judgements. Any landscape is composed not only of what lies before the eyes but also what lies within the brain (Meinig, 1979). Psychologists and others have investigated how people perceive landscapes and cityscapes. Landscape preference research attempts to understand what factors influence a person's preference for one landscape (or cityscape) over another. If landscape attributes that positively or negatively influence an individual's preference could be identified, then assessment of the visual amenity could be made more objective (Ortolano, 1997).

Visual appreciation of landscape quality is generally accepted to be more subjective than objective, since judgements made about places are personal. The old adage that "beauty is in the eye of the beholder", still applies in that what one person considers beautiful, another may not. However, many judgements may be widely shared by others, so although aesthetic appreciation of landscape may be personal, judgements can be more objective if aesthetic feelings are descriptively explained and justified (Taylor, 1994). People from different socio-cultural backgrounds may have significantly different aesthetic feelings but by describing their reasoning their judgements can be either accepted or refuted. In addition to being shaped by perception, aesthetic judgements can also be influenced by perceptions shaped by society's values. As society changes and fluctuates so perceptions of

landscape can change to reinforce society around it. Perceptions are therefore dynamic and evolving both at personal and societal levels. There is a widely held perception that the word landscape refers to distant views of rural areas of either natural wilderness or ordered scenes of attractive farmland, but this traditional notion of landscape views is being challenged by the increasingly urbanised world. Views of the built environment are becoming more widespread and are beginning to condition and change the perception of landscape and landscape views.

Landscape values include aesthetic, ecological, historical, socio-cultural, religious, and mythological beliefs, and are sometimes less than accurately described as subjective. McCormack and O'Leary (2002) state that the attainment of a meaningful life is contingent upon aesthetics and that an aesthetically stimulating landscape experience can contribute to quality-of-life. They propose seven modes of landscape aesthetic experience which involve a complex interplay of perceptions and meanings. These modes are:

a) Visual composition - The factors of form, space and light comprise the basis of the compositional structure of the forest (landscape) and of the aesthetic experience in visual terms.
b) Sense of place – besides being experienced as the physical containment of space into place, involves its public use and appreciation based on a general awareness of a particular meaning.
c) Intellectual stimulation – aesthetic response from 'sight' can be heightened by the introduction of information or 'insight' that visually and/or graphically stimulates the intellect concerning ecology or culture.
d) Human bond with nature – the 'biophilia' hypothesis (Kellert & Wilson, 1993) and related research are a forceful argument for the preservation, conservation and/or enhancement of natural and naturalistic forests (landscapes) in order to satisfy the basic need for nature with humans, and, so, contribute to an aesthetic satisfaction.
e) Primal biological mode - modern humans retain a genetic link to landscape for survival based on 'prospect, refuge & hazard' as the basis for explaining landscape aesthetic experience.
f) Utilitarian mode - exploitation of forests (landscapes) to sustain human life should use balanced and judicious management practices provided they achieve also visual harmony.

g) Spiritually symbolic mode - the potent and transcendental symbolism of passage from 'dark to light' within forests (landscapes) provide experiences that are spiritually meaningful and thus aesthetically enriching.

2.5 CONCLUSIONS

This Chapter explored the theories and concepts behind landscape evolution and established that the only true constant is the dynamic nature of landscape and visual amenity. It has always changed and it will continue to do so due to the combined actions of humans and nature. The pace of that change is steadily increasing and humans now have the technology to effect major changes in the landscape and the visual amenity much more rapidly than with previous generations. There is a need to manage this change to ensure landscapes are not irreparably damaged, and to ensure that the planning and development system established over 40 years ago has the resources necessary to manage Ireland's landscapes.

Landscape management has predominantly used protection approaches to preserve the pristine landscapes and many different areas have been designated for protection during the last 40 years. However a new holistic approach to landscape management is emerging where all landscapes, not just the pristine, but the ordinary landscapes where most people live will be managed. This new approach has stimulated a number of research projects to improve knowledge of landscapes and the visual environment, such as the pilot landscape characterisation in Counties Clare and Leitrim carried out by Environmental Resources Management Ltd on behalf of the Heritage Council (The Heritage Council, 2002) and the guidelines on landscape and landscape assessment issued by the Department of the Environment and Local Government (DoELG, 2000). However, it remains to be seen if the new knowledge these initiatives generate leads to improved management of landscape change.

The next Chapter will examine the techniques and methodologies developed to assess the visual amenity and how that knowledge might influence approaches taken to manage the visual amenity.

CHAPTER THREE

VISUAL IMPACT ASSESSMENT

3 VISUAL IMPACT ASSESSMENT

3.1 THE RELATIONSHIP BETWEEN LANDSCAPE IMPACT ASSESSMENT AND VISUAL IMPACT ASSESSMENT

Landscape Impact Assessment (LIA) is defined as an estimation of the likelihood of change in the fabric, character and quality of the landscape in an environment resulting from a proposed development (IL & IEA, 1995). This means that LIA is the prediction of change in the fabric, character and quality of the landscape, whereas visual impact assessment is the prediction of change in the visual amenity due to those changes in the landscape.

Landscape fabric focuses on direct impacts upon specific landscape elements, for example as a copse, a river, or a field pattern. Landscape impact assessment should examine the condition of these elements and their sensitivity as receptors to landscape change and should also try to predict and quantify any direct effects on these landscape elements.

Landscape character centres on subtle changes upon the overall pattern of landscape elements, which give rise to regional and local distinctiveness such as the drumlin landscapes of Sligo and Cavan, and the small fields and stone walls in Connemara. Many factors contribute to forming these character areas such as landform, geology, historical and current climates, and cultural associations, to name a few. LIA should try to determine the elements which give rise to the distinctiveness of the existing landscape, and try to predict and quantify changes to these patterns which would alter that local or regional distinctiveness.

Landscape quality focuses on designated landscapes including national heritage areas, special areas of conservation, special protection areas, and protected heritage sites among others. These areas have been designated as special landscape areas by central or local government to protect their special aesthetic qualities, cultural qualities, historical associations or their natural habitats for flora or fauna. Certain development restrictions may apply which may have a bearing on particular development proposals. LIA should determine if the development site is within or adjacent to any special landscape areas and what development constraints might apply.

Visual Impact Assessment (VIA) is defined as an estimation of the likelihood of changes in the landscapes' visual amenity resulting from a proposed development (IL & IEA, 1995). Visual impacts therefore, are considered to be a subset of landscape impacts. They relate solely to changes in visual amenity of the landscape, and the effects that those changes have on people (Figure 3.1).

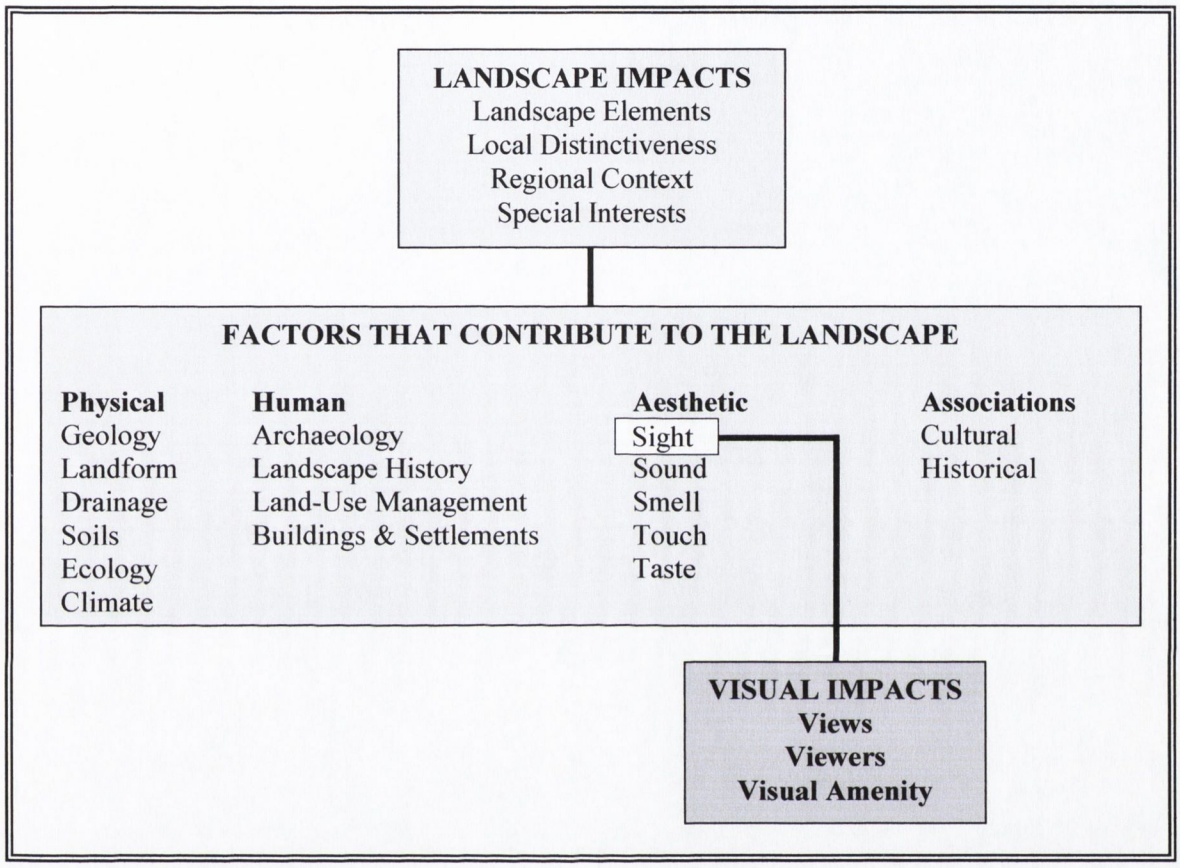


Figure 3.1 Relationship between landscape impacts and visual impacts (IL & IEA, 1995).

VIA is concerned with direct impacts by the development upon landscape views by obstruction or intrusion. Obstruction is where a development blocks a view, and a development may be referred to as obtrusive if it is unpleasantly or unduly noticeable. A development, which is intrusive, is one, which is sufficiently significant in a view that the eye is drawn towards it even though it may be a distant feature. VIA should also identify the viewers likely to be affected by the proposed development by identifying the areas and viewpoints from which the proposed development is likely to be visible and then estimating the types, numbers and sensitivity of viewers likely to view the proposed development from the viewpoints identified. Finally, VIA should quantify the magnitude and significance of likely visual impacts on the overall visual amenity, which can range from adverse to enhancement. Landscape impacts and visual impacts are therefore

separated but related, and the two terms and their interrelationships are summarised in Figure 3.1.

Landscape is generally defined as "*natural or imaginary scenery, as **seen** in a broad view*" (Thompson, 1995). This definition illustrates the important concept that landscape needs to be seen by a viewer which in turn emphasises the importance of the 'human element' associated with visual impact assessments.

3.2 VISUAL IMPACT ASSESSMENT TECHNIQUES

Ortolano identifies three main phases for a visual impact study: inventory, simulation and evaluation (Figure 3.2). The inventory phase involves recording the visual features likely to be affected by a proposed development and includes the identification of viewsheds, the selection of observation points, the determination of landscape and viewer sensitivity, and the identification of visual policies. The simulation phase uses a range of visualisation techniques to portray pre and post project conditions including perspective drawings, photomontages and three-dimensional models. The evaluation phase normally uses a mixture of the public's preferential judgements and of the specialists' professional judgements of aesthetic criteria (Ortolano, 1997) which use various scoring techniques. Since a range of different techniques are required for each phase it is necessary to examine each phase in turn.

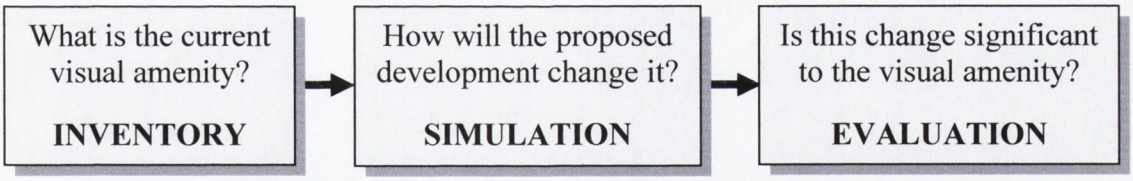


Figure 3.2 Basic concept of Visual Impact Assessment (Ortolano, 1997).

3.2.1 Creating an Inventory of the Visual Resources

The extent of visibility of a development can be determined by using the viewshed technique, also known as Zone of Visual Influence (ZVI). A ZVI is a diagram indicating the spatial extent from which a proposed development is visible, thereby providing a graphic of the extent of visibility of a project. A ZVI is produced by calculating the inter-visibility between a proposed development and the surrounding terrain in a 360^0 arc. It identifies areas from which the proposed development is visible such as a nearby hill, and

areas where the proposed development is not visible such as an area of dead ground behind the hill (Figure 3.3).

The spatial extent of an area from which a proposed development is visible is a function of:

a) The height of the proposed development;

b) The height of the proposed development site relative to the surrounding terrain;

c) The presence of landscape features which might screen the development;

d) The height of the person's eye viewing the scene.

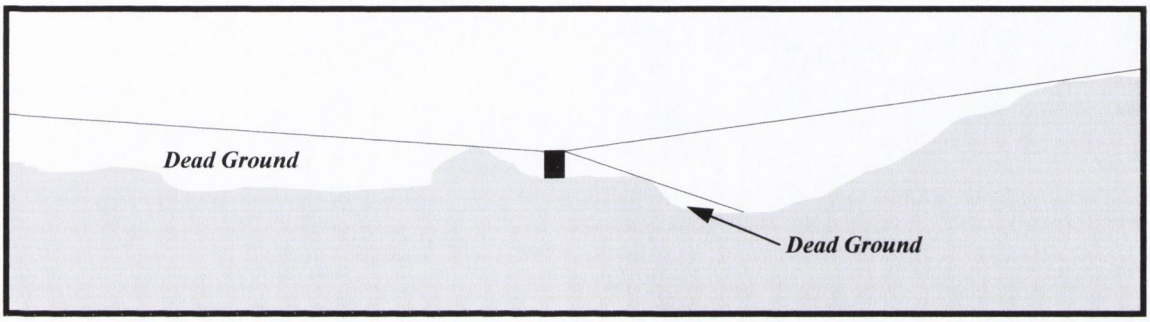


Figure 3.3 Inter-visibility calculations to determine the Zone of Visual Influence.

The primary factor influencing the visibility of a development is its' height. Generally speaking, the taller a development is, the more visible it will be from the surrounding area (A^2 will be more visible than A^1 in Figure 3.4). A secondary factor influencing the visibility of a development is its scale or 'footprint' (ground floor area). Tall structures with large ground footprints will generally be more visible than structures of similar height but with smaller ground footprints (B^2 will be more visible than B^1 in Figure 3.4). The height and scale of the development should be available from the schematics or architectural plans of the proposed development.

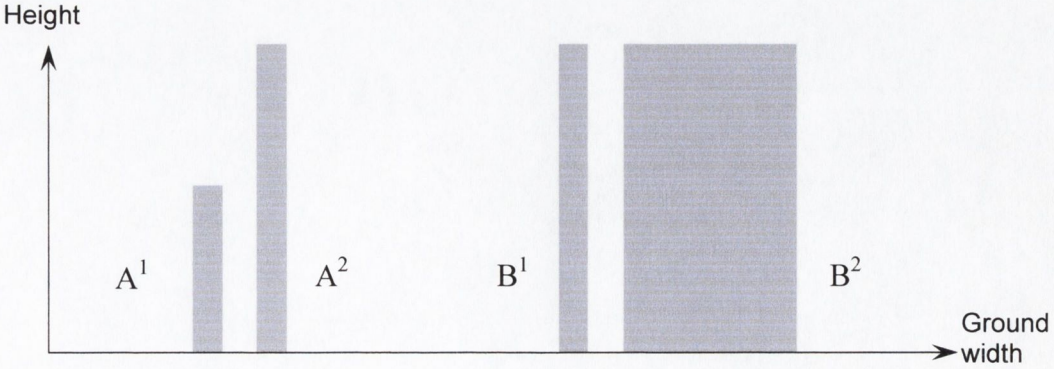


Figure 3.4 Taller buildings (A^2) are more visible than smaller buildings (A^1), but when buildings are of similar height the one with the larger ground footprint (B^2) will be more visible than the one with the smaller ground footprint (B^1).

The height of the site relative to the shape of the surrounding terrain can be acquired from map contours, or its digital equivalent, a Digital Terrain Model (DTM). High resolution DTMs (with less spacing between the posts) will provide better results because they supply a more accurate shape of the terrain, but the size of the digital file and the cost of the data can increase dramatically with increased resolution. OSi currently supplies two DTM products of rural areas only and MapFlow Ltd specialises in supplying two DTM products for urban areas only in Ireland (Table 3.1). OSi have also recently completed the production of a 1:5 000 map series of the rural area in which all features contain 3D coordinates and they are also examining the potential of using LIDAR technology to create a high resolution DTM product for both urban and rural areas (OSi, 2004).

Information on the position, size and height of buildings and vegetation is necessary to estimate how these features might screen the proposed development from being viewed. Most of the currently available DTMs in Ireland only supply height information of the terrain surface and most digital spatial data products do not provide any suitable data for vegetation and although they supply information on the position and size of buildings very few provide information on building heights. Therefore ZVIs for Ireland are not as accurate as they could be due to lack of 3D spatial data for buildings and vegetation.

Table 3.1 Digital Terrain Models supplied for Ireland by Ordnance Survey Ireland and MapFlow Ltd (www.osi.ie & www.mapflow.com).

Quality	Coverage	Resolution	Surface	Lineage	Format
Low	National (less urban areas)	1 kilometre regular grid	Terrain surface	100ft & 250ft contours of old 1/2 inch series	ASCII
Medium	National (less urban areas)	Normally 50m regular grid, but also supply 10m, 25m, & 100m	Terrain surface	Autocorrelation and direct plotting of 10m contours using 1:40 000 aerial photos	ASCII
Medium	25 Urban areas including 5 cities	10 metre regular grid	Terrain surface	Autocorrelation using 1:10 000 aerial photos	ASCII
Medium	5 Cities	10 metre regular grid	Terrain surface + Buildings + Vegetation	Autocorrelation using 1:10 000 aerial photos	ASCII
High	Majority of rural area	TIN	Terrain surface	1:5 000 3D mapping using 1:40 000 aerial photos	?
High	Test areas	Point cloud of less than 1m	Terrain surface + buildings + vegetation	LIDAR point cloud	?

How tall the viewer is and whether they are at ground level or viewing from a top storey window can influence the size of the area, which may be viewed. If a height of 1.7 metres is used for the average standing height of viewers, this may provide the extra height required to view over a building or a screen of foliage which might otherwise block the view.

A ZVI should be calculated from the highest point of the proposed structure to determine the extent of visibility of the proposed development from the surrounding countryside. The visibility of some developments may be extensive, such as a wind-farm, and it may be necessary to produce a separate ZVI from each structure and then a composite ZVI for the whole development. The extent of visibility is known as the visual envelope which should be checked in the field because of localised screening by buildings and vegetation and the low resolution of spatial data normally used. The visual envelope should be overlaid on a topographic map to clearly indicate one of the public's main concerns - whether the proposed development can be seen from an individual's house, a local thoroughfare or a local viewpoint.

Clarke suggests that a ZVI can be divided into three zones (Figure 3.5) relating to the magnitude of the visual impact:

a) The intrusion zone which extends three times the height of the structure from the development where the structure is said to dominate the field of view;
b) The dominance zone which extends ten times the height of the structure from the development where the structure is said to dominate a sector of the field of vision;
c) The visibility zone is the area outside the first two zones from which the development is visible and is seen as belonging to a distant landscape.

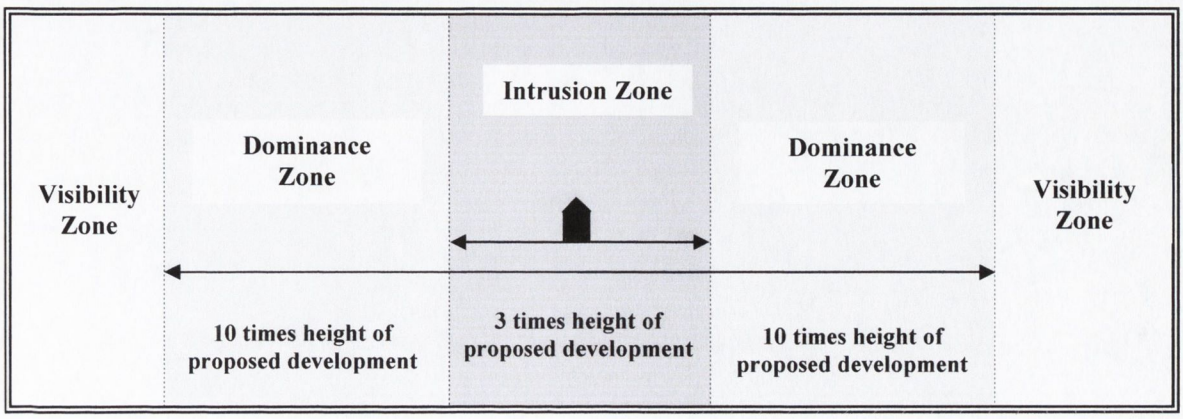


Figure 3.5 Zones of magnitude of visual impact (Clarke, 1989).

This classification does not make any allowances for the height of the terrain, or for the existence of landscape elements with potential to screen the proposed development and thereby reduce the apparent magnitude of the visual impact. A building in a prominent location on top of a hill or on a ridgeline will be far more visible than a development built in a dip in the terrain. Consequently, the intrusion zone for a development on a hill or ridgeline might be larger than just 3 times the height of the development and similarly the presence of any existing buildings or vegetation would reduce the apparent visual impact and thereby the size of the intrusion and dominance zones.

The advantages of producing a ZVI are:

- It identifies the extent of visibility of the proposed development from the surrounding terrain and communicates clearly to planners, decision-makers, local community and interest groups whether the proposed development can be seen from an individual's house, a local thoroughfare or a local viewpoint.
- It is a useful design tool to conduct assessments of alternative sites to enable the site with the least significant ZVI to be identified.
- It is a useful design tool to conduct assessments of alternative siting, layout and site elevations within a site to minimise the potential ZVI.
- It can indicate best positions for mitigation measures.

A number of observation points then need to be selected from within the visual envelope which afford best views of the proposed development. This list of viewpoints should contain any relevant tourist viewing sites, views designated within the local CDP, and viewpoints of local importance. In some cases it may be necessary to include both public and private viewpoints where a proposed development might be so close to a number of buildings that a visual impact might be significant for the few individuals involved. Although it is good practice at this stage to consult with the local authority, and local interest groups to ensure that the principle viewpoints have been selected (IL & IEA, 1995) planning practice in Ireland minimises any information exchange before a planning application is submitted.

A number of techniques are used to determine sensitivity; the extent to which the landscape and viewers will tolerate visual impacts due to the proposed development. Landscape sensitivity is the ability of the receiving environment to accommodate the

proposed development in relation to the land-use zoning of the development site and the proximity of any designated landscapes (LI & IEA, 1995). Both of these issues can be determined by referring to the local CDP which should include land-use maps setting out permitted land-use activities for the development site. Although some landscapes (SACs, SPAs, NHAs, etc.) are designated at European and national level the local CDP should include a list of all designated landscapes within the local authority area and the policies which apply to development within or adjacent to these designated areas.

Sensitivity also depends on the tolerance of viewers (visual receptors) to changes in the visual amenity. Canter states that it is necessary to collect estimates on the types and numbers of visual receptors and the duration of their viewing in order to weight the degree of concern they have for particular landscape features (Canter, 1996). Viewers may be locals living in the vicinity with the view constantly available, or people passing in cars, trains or buses on a regular basis such that they might consciously or subconsciously build a rapport with the view. They could also be day-trippers or tourists who only glimpse the view for a moment which may or may not make a lasting impression. The number of viewers is also important. The view in question might be in an isolated area where there is a minimal amount of through traffic and where only a few families reside. Similarly there may be many viewers from a stretch of motorway on a hill where thousands of commuters pass every day and are familiar with a particular view.

The sensitivities of viewers can also be important. The viewers may be passing a city dump every day and have been brought up with an acceptance of the situation such that the view does not affect them unduly. Non-locals and tourists who pass the same stretch of road might be affronted by the same view. Another view may have a sentimental meaning for viewers who have been reared in the area, or may have a memory associated with the scene or from a painting of the scene by a famous artist. Ortolano states that the criteria for choosing viewpoints often concern both the numbers of likely viewers and the quality of the scene being viewed (Ortolano, 1997). Consequently, it is necessary to discriminate between the different types of viewers and estimate their numbers and the duration of their viewing.

Matrices and checklists are the most favoured techniques used to collect the values and concerns of the visual receptors. Smardon proposes a checklist technique which documents the visual resources of the area and then conducts a survey of the visual receptors to

identify positive visual attractions and negative visual 'misfits' (Smardon *et al.,* 1986). A matrix technique (Table 3.2) is proposed for classifying the sensitivity of visual receptors and visual impact magnitude (LI & IEA, 1995).

Table 3.2 Classification of Sensitivity of visual receptors and Magnitude of visual impacts (IL & IEA, 1995).

RATING	SENSITIVITY OF RECEPTOR	MAGNITUDE OF VISUAL IMPACT
HIGH	High period of exposure to view High degree of exposure to view Receptor function	High value of existing views Large degree of change to existing views Limited availability and amenity value of the alternative views
MEDIUM	Medium period of exposure to view Medium degree of exposure to view Receptor function	Medium value of existing views Medium degree of change to existing views Medium availability and amenity value of the alternative views
LOW	Small period of exposure to view Small degree of exposure to view Receptor function	Low value of existing views Low degree of change to existing views Good availability and amenity value of the alternative views

However, many researchers comment that surveying the local community's preferences of landscape and the visual amenity is subjective in that lay people may not have had any design or visual training (Meetham, 1993; & Canter, 1996). Landscape preference research attempts to understand which factors influence a person's preference for one landscape over another. Ortolano states that if landscape attributes that positively or negatively influence an individual's preference could be identified, visual impact assessment could be made more objective (Ortolano, 1997).

Another method called the Visual Management System was developed by the U.S. Forest Service to actively manage its visual resources in response to increasing environmental concerns (U.S. Forest Service, 1974). The first step is to inventory the Existing Visual Conditions (EVC) into six landscape classifications in terms of their deviation from a natural appearance. Then two main elements are measured, the quality of the natural and cultural features (Table 3.3) and public's concern for the scenic quality (Table 3.4).

Table 3.3 Variety Classes (in term of quality) of natural and cultural landscapes.

	DISTINCTIVE QUALITY	COMMON QUALITY	MINIMAL QUALITY
Landform			
Rockform			
Vegetation			
Streams			
Lakes			
Cultural Features			

Table 3.4 Concern for the scenic quality is measured using sensitivity levels.

NUMBERS AND TYPES OF VIEWERS	FOREGROUND Up to ¼ mile	MIDDLEGROUND Between ¼ and 3 to 5 miles	BACKGROUND > 3 to 5 miles
HIGH	Most Sensitive		
MODERATE			
LOW			Least Sensitive

Then the physical components of the landscape in their variety classes are combined with the sensitivity levels to create Visual Quality Objectives (VQO) for the visual management system (Table 3.5).

Table 3.5 Five levels of Visual Quality Objectives (VQO) established for the Visual Management System.

Visual Quality Objective	Definition
Preservation	Allows only ecological changes to the landscape in wilderness, primitive and other special areas - recreation facilities with very low visual impact.
Retention	Management activities may not be visually evident – contrasts in form, line, colour and texture must be reduced during or immediately after activity.
Partial Retention	Management activities must remain visually subordinate to the characteristic landscape - contrasts in form, line, colour and texture must be reduced as soon after project completion as possible, but within the first year.
Modification	Management activities may visually dominate the characteristic landscape – landform and vegetative alterations must borrow from naturally established form, line, colour or texture so as to blend in with the surrounding landscape character to be met within one year of project completion.
Maximum Modification	Management activities including vegetative and landform alterations may dominate the characteristic landscape. However when viewed as a background they must visually appear as natural occurrences within the surrounding landscapes or character type. Reduction of contrast should be accomplished within five years.

A Visual Absorption Capacity (VAC) system is used to estimate the relative ability of the landscape to accept modification without significantly affecting its visual character. The VAC is a measurement (from high to low) of the relative capacity of the landscape to absorb visual change based on the variety class, slope & aspect and the distance zone to estimate the degree of difficulty and cost to maintain visual quality objectives under various resource activities. High VAC ratings indicate a high inherent capacity to absorb alterations to the landscape with minimal visual effects and recovery with relatively low cost. Intermediate VAC ratings indicate an ability to absorb a moderate amount of alteration to the landscape resulting in minimal to slight changes in the visual amenity. Low VAC ratings portray a low ability to absorb alterations to the landscape. The visual effects to areas with this rating are easily evident so there are associated high costs to mitigate these effects. This VAC technique is important because even though a landscape might be considered sensitive it may also have a high capacity to absorb visual impacts.

The inventory phase also includes the identification of any existing visual policies in operation in the vicinity of the development site. Some visual policies may be implemented nationally by government departments or government agencies such as the best practice guidelines for forestry (Forest Service, 2000) so it would be necessary to consult departments and agencies who are involved with or regulate activities affecting the visual amenity in the vicinity of the development site. Any visual policies adopted by the local authority such as designated views and prospects should be described within the local CDP as well as any planning constraints arising from them which might apply to development proposals in their vicinity. Producing a list or a graphic of the visual policies in force in the area are the two techniques used to inventory existing visual policies.

3.2.2 Visualisation Techniques to Simulate Visual Impacts

The impact of a proposed development on the visual amenity can be quantified using a range of techniques which provide visualisations of the proposed development, such as artistic drawings, engineering drawings, photographic evidence, photomontages, physical models, and computer simulations. These techniques are very useful when presenting the results of a visual impact assessment, because they provide a realistic visualisation of the nature and the magnitude of the predicted likely impact (IL & IEA, 1995).

The magnitude of a visual impact is dependent on the degree of visual obstruction or intrusion caused. This is dependent on the height and scale of the proposed development,

the proximity of the viewer/viewpoint, and the presence and location of any screening which might reduce the magnitude of the impact (Meetham, 1993). The scale, size of the proposed development and its proximity to the viewpoint will dictate its' degree of dominance within the scene being viewed. Consequently, in order to quantify the magnitude of the visual impact dimensions are needed for:

- The height and scale of the proposed development;
- The distance between the viewer and the proposed development;
- The location and height of objects screening the view of the proposed development.

Whereas the height and scale of the proposed development should be available from the architect's plans, the distance from the viewpoint to the proposed development should be available from the ZVI. First impressions of the magnitude of the proposed development will be apparent once these two factors are determined. A structure, which is closer to the viewer, will be more dominant than a similar structure, which is further away (Figure 3.6).

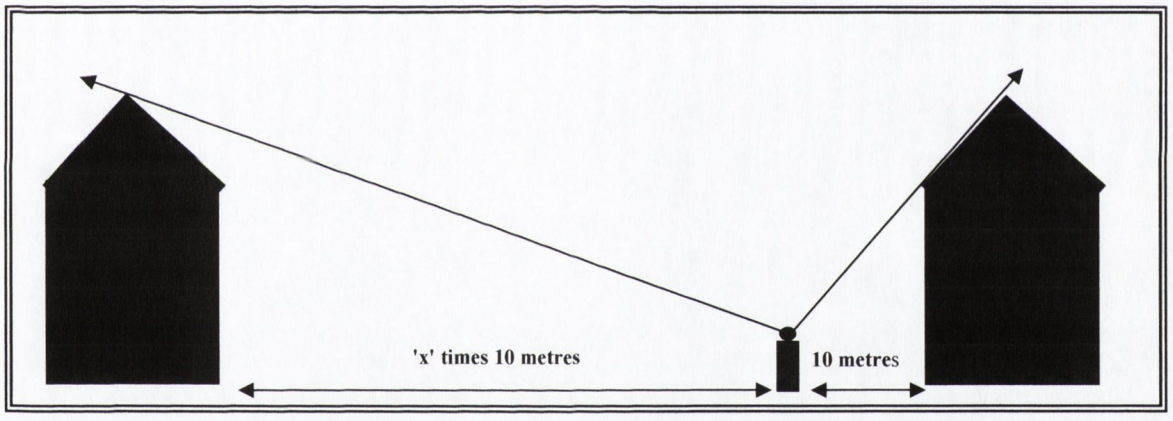


Figure 3.6 Magnitude of the visual impact is dependent on the proximity of the proposed development.

The magnitude of a visual impact can be reduced by existing buildings and vegetation which screen the view of a proposed development. In order to quantify their capacity to screen the proposed development the location, height and size of the screening objects is required. Smaller objects closer to the viewpoint can provide the same screening effect as larger objects closer to the proposed development (Figure 3.7).

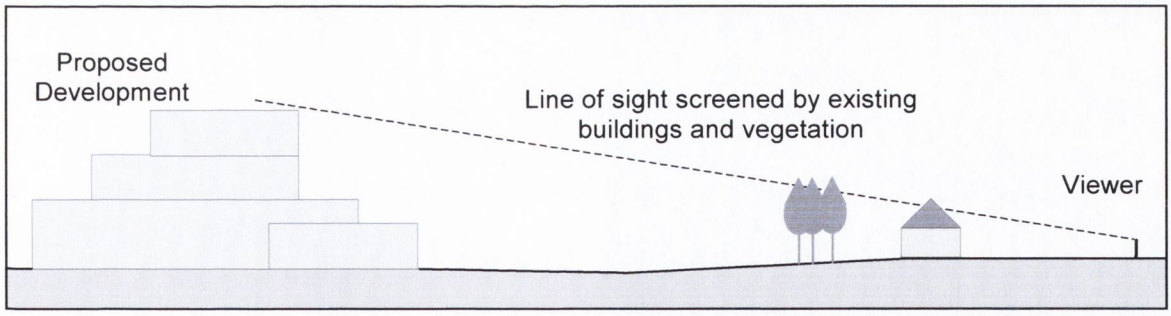


Figure 3.7 The magnitude of a visual impact can be reduced by existing buildings and vegetation which screen the view of the proposed development.

The techniques used to quantify the nature and magnitude of visual impacts should be able to address these three issues, and their ability to do so will indicate their suitability to carry out visual impact assessment satisfactorily.

- **Artistic Drawing Techniques**

There are two types of artistic visualisations suitable for presenting visual impact assessment results: perspective drawings and artist's impressions. Perspective drawings or sketches are normally completed in pencil or charcoal and the accuracy of the final sketch is mostly dependent on the skill of the artist (Canter, 1996). Artist's impressions are normally completed in watercolour and may show a 'before' and 'after' impression of the site. It is important that the perspective positions are not chosen specifically to view the proposed development from it's' most flattering position for advertising material. The perspective positions should be the principal viewpoints selected during the inventory phase.

Both of these techniques lack the clarity and realism of photographic images and are subject to the competence and motives of the artist (Meetham 1993). The integrity of the artist is necessary to ensure that no biases are introduced in choice of viewpoints, or orientation of view which fail to indicate an adjacent eyesore. It is also necessary to present an accurate representation of scale. Exaggerations of the vertical scale may be beneficial in cross and longitudinal-sections to emphasise some detail but vertical exaggeration should not be permitted when using artistic techniques. The use of correct scale and perspective by the artist will increase the validity of the drawing and the artist should strive for as much realism as possible. However, there is a limit to what can be achieved with artistic drawings and impressions, but they do provide a cheap means of simulating views of the proposed development.

- **Architectural and Engineering Drawing Techniques**

Architects and engineers traditionally use sections and elevations to indicate specific 3D features about their proposed development concepts. Cross-sections and longitudinal-sections are used to indicate change of height across or along a site. The choice of the line of section is important and is normally chosen to indicate a specific feature important to the proposed design or layout. Linear sites such as road or rail routes would normally have a longitudinal-section to indicate gradients along the length of the linear feature and cross-sections at set intervals along the linear feature to indicate a height profile of the feature along its length. The vertical scale is normally exaggerated in these sections to highlight changes in elevation more clearly, but this affects the realism of the drawing. A section from a viewpoint to the development site would indicate the visibility of the proposed development, and might also indicate the location and height of landscape elements screening the view. However, a section would not quantify either the nature or the magnitude of a visual impact.

Front, side and rear elevations are commonly used to portray 3D visualisations of the proposed development after construction. However, the perspective locations chosen for these elevation drawings are normally perpendicular to the line of the building facade and at a distance to allow the elevation to fit on a page. These elevations are orthogonal drawings, whereas perspective drawings allow for slight variations in distance from the viewer to different parts of the building. Consequently, elevation drawings are not as suitable as other techniques since they do not use the principal viewpoints identified in the ZVI, and as a result cannot quantify the nature and magnitude of visual impacts from those principal viewpoints.

- **Photographic Techniques**

Photography is a cheap and effective technique where visual evidence of the existing visual amenity is captured on film or video. Photographs of the existing views are taken from the principal viewpoints selected within the ZVIs in the direction of the proposed developments. In its' simplest form photographs can be taken of specific views or features which are then used as evidence of the existing visual amenity. Panoramas are particularly useful to give the extent of a view from a principal viewpoint and it places the site for the proposed development in its' wider landscape context. Annotating a photograph can be very useful to highlight particular landscape elements and give greater depth and meaning to the view (Meetham, 1993).

A photomontage is defined as a combination of photographic and drawn illustrations to quickly present a realistic impression of the envisioned arrangement, and of variations in the arrangement (Cruise, 1973). It is in this architectural context that photomontages might be appropriate for use in visual impact assessments. Modern photomontages are images normally created by superimposing a depiction of the proposed development onto a photograph of the proposed site. They are normally produced digitally due to the availability of digital imagery and software tools to create a fully rendered perspective view of the proposed development.

The advantages of using photographs are:

a) They are a fast, and easy method of capturing evidence of the existing visual amenity;
b) They are cheap when compared with alternatives techniques;
c) Cameras can capture a view as it is at the time the exposure is taken and the images do not lie if they are not subsequently manipulated or altered;
d) High quality photographic images are a highly effective method of communication when presenting the findings of the visual impact assessment to planners and the general public.

Additional advantages of photomontages are that they are now very easy to produce using digital methods and "before and after" visualisations are common to identify the nature and magnitude of the visual impact by comparison.

- **Physical Modelling Techniques**

An architectural model is one of the most effective tools a designer has to clearly present three-dimensional ideas to a client. It is viewed and understood more easily than sketches or drawings, and is more striking and effective in design presentations because it simply comes closer to the final concept in mind. If well made, the model can look as real as the projected outcome (Ching, 1995).

Architectural maquettes use combinations of shaping, separate part construction, and finishing and painting for building models of proposed developments. Good model making may be more important in architecture than in other areas of industrial design, since the final product will be universally visible for a long time (Trudeau, 1995). He also states that

a better appreciation of the proposed work is possible with an architectural maquette than with drawings, computer renditions, or written specifications (Figure 3.8).

The advantages of architectural models are:

a) Models are more striking and effective during presentations because they more closely portray the final product;
b) Models can be viewed and understood more easily than sketches or drawings by designers, planners and the public;
c) The act of model making can help identify design faults and correct them;
d) Architectural models are likely to be available for viewing for a long time, thus permitting comparison of the initial design with the building actually constructed;
e) Photographs of models taken from particular perspectives can be used to produce highly realistic and effective photomontages.

Figure 3.8 Example of a physical model of a proposed development (on display in the foyer of Dublin City Council in July 2001).

Disadvantages of architectural models are:

a) Realistic models take a long time to produce and can be expensive;
b) They rarely include the environmental setting for the proposed structure;
c) They are delicate, so they are not suitable to excessive movement or handling;

d) It only provides one opportunity to produce a physical image of the proposed structure, so is not suitable for producing multiple iterations for design optimisation.

- **Virtual Models**

Computer Aided Design (CAD) software allowing proposed developments to be modelled virtually in 3D has been available for a number of decades, and software tools now provide very advanced simulations for surface rendering, lighting and atmospheric conditions in a quest for more realism in visualisations. It is now a fairly simple operation using this new technology to prepare designs in three dimensions that surpass previous standards of communication of design ideas. Traditional drawings in two dimensions can also be derived semi-automatically from the three-dimensional virtual models to satisfy the builder's needs in being able to correctly read understand and built the structure according to the architectural drawing.

One of the main advantages of this virtual modelling technique is the high standard of realism possible. External and internal walls can be rendered in such a way to match real life textures and colours. Detailing such as internal features (doors, windows, internal fixtures) and furniture is now possible which provides very realistic visualisations of design concepts. The degree of realism can include a virtual sun to shine through windows and cast shadows correct for location and time of day. The ability to model design concepts to this level before a sod is turned provides the designer with an important facility to identify and correct design mistakes before construction and to optimise designs and maximise their benefit to the quality of life of future residents.

Another major advantage of using these methods is to check the "environmental fit" of a design within a site and the surrounding area. This is the important aspect from a visual impact assessment point of view to ensure that the new structure strikes a balance with the receiving environment via its shape, size, colour, orientation and detailing. This identifies a difficulty in that most mapping products are currently two-dimensional thus permitting only a digital analysis of a 3D virtual model against a 2D model of the surrounding environment. Consequently, this type of analysis is not commonplace yet due to a lack of suitable spatial data.

There is a "building boom" at present in constructing virtual cities, digital cities, or cyber cities as user interfaces to a range of information services. Many are "flat" 2D virtual cities

created mainly for retail advertising and tourism, but there is also much activity worldwide building 3D cyber cities to varying degrees of accuracy and realism mainly for radio frequency planning for mobile and broadband telephony and for visual impact assessment in the planning process. The Bath city model is a notable example of a virtual city being developed for planning applications by the Centre for Advanced Spatial Analysis (CASA) in University College London. The model covers several square miles of the historic town centre of Bath, and is accurate to sub-metre level according to (Bourdakis & Day, 1997). They also state that virtual cities were constructed to assist in making the planning and development control process more flexible by providing a means by which planning proposals could be visualised and alternative schemes for a site compared, thus allowing non experts to comprehend the implications of proposed changes.

The validity of visualisations supplied as evidence is very important. Ortolano states that issues of 'truth in simulation' include:

a) Deliberate misrepresentations of proposed projects such as omitting billboards and traffic congestion or including blue skies and top of the range motorcars.
b) Illustrator's training causing aesthetically pleasing renderings rather than realistic renderings such as weather and lighting conditions not normal for the area.
c) Viewpoints selected to show the development proposal to best advantage and minimise impact on the environment rather than using the principal viewpoints chosen to assess visual impact.

3.2.3 Evaluating Significance of Visual Impacts

Significance of landscape and visual impacts should be based on commonsense and reasoned judgement, supported with substantiated evidence (LI & IEA, 1995). Conclusions should be based on a combination of factors, including:

a) The sensitivity of the visual resources relative to the development context, character, importance, condition and tolerance of change;
b) Magnitude of impact relates to the size and duration of the impact;
c) Whether the impacts are beneficial of adverse to the overall visual amenity, and their specific impact on various sensitive receptors;
d) Professional judgement on the degree of damage and visual intrusion that a development may bring;
e) Views expressed during consultations which may highlight visual features of the special local interest.

The significance of the visual impacts can then be evaluated with reference to the significance thresholds determined from different combinations of sensitivity and magnitude of visual impacts (Table 3.6). The significance of impacts is determined by a combination of (objective) scientific criteria and (subjective) social concerns (CAAS, 2003). Subjective concerns are where an environmental topic can acquire significance where a society, a community or a large number of individuals are concerned (Table 3.7). The objective criteria include:

a) Magnitude and intensity (of impacts) - which can cause effects over a wide area to a large number of receptors or which are of an intensity which is significantly in excess of normal;
b) Integrity – the degree to which the character or attributes of the baseline environmental topic is continued, enhanced or reduced;
c) Duration – long term impacts (more than one generation) or permanent changes;
d) Probability – where the magnitude, intensity, duration or consequences of any change cannot be anticipated with any reasonable level of certainty.

Table 3.6 Criteria to assess the significance of Visual Impacts (IL & IEA, 1995).

SENSITIVITY OF RECEPTOR	MAGNITUDE OF VISUAL IMPACT		
	HIGH	MEDIUM	LOW
HIGH	Significant	Significant / Moderate	Moderate
MEDIUM	Significant / Moderate	Moderate	Insignificant
LOW	Moderate	Insignificant	Negligible

Table 3.7 Criteria to assess the significance of environmental Impacts (CAAS, 2002).

DESCRIPTION					EVALUATION		
Environmental Factor	Impact No.	Character	Magnitude	Duration	Consequences	Significance	Certainty
Flora	1	Loss of vegetation	10% of site 0.5 Ha.	Permanent	unknown	Slight	High
Fauna							
...							
Landscape	5	Loss of solitude	See map A	Long term	Loss of hill walker's amenity	Significant	unknown
Visual	6	Open up view of lake	See map A	Long term	Enhance hill walker's amenity	Significant	High

This matrix technique of examining all the environmental impacts examined is more comprehensive in that the evaluation of significance lists the evidence giving rise to the evaluation. Secondly it makes it possible to examine any cumulative impacts by listing all the environmental impacts examined together. This evaluation of significance is the culmination of the assessment process so there is a need to be as specific as possible to ensure all impacts have been examined and that evidence has been supplied to back up the evaluation.

3.3 METHODOLOGIES FOR LANDSCAPE IMPACT ASSESSMENT AND VISUAL IMPACT ASSESSMENT

Visual impact assessment is an aesthetic evaluation conducted during an evaluation of landscape character (Bradley *et al.,* 1991). This aesthetic evaluation consists of three main elements - scale, association and harmony, and they suggest that the essential component of visual impact is contrast in each of these three elements. Contrasts of scale occur when the size of a proposed development changes the sense of scale within a view of a landscape. Contrasts of association are differences between what we experience and what we are conditioned to expect i.e. a development out of character with our experience to date. Contrasts of harmony are the most obvious impacts where the focus, form, shape, and colour of the proposed development might upset the balance within the receiving landscape. These three elements combine to indicate whether a proposed development fits in its environment. Bradley states that once a problem has been isolated and identified it should be possible to find a specific design solution. The evaluation of each of these three elements is subjective, and the assessment would most likely take the form of a written description supported with photographic evidence.

Bishop and Hull state that the following five basic functions are important in visual impact assessment:

a) Clear identification of the various types of impacts;
b) Organisation of spatially and temporally dispersed inventory data;
c) Prediction of impacts based upon potential land use decisions;
d) A usable interface between these functions and the planner/manager;
e) Effective communication of potential impacts to the public and decision makers.

These functions list the requirements of a visual resource management system, which might be of benefit to local authorities. It focuses on the prediction of impacts based on

potential land use decisions instead of visual impact assessment for a specific development proposal. The importance of access to visual information and the effective communication of visual impacts are noted to try to ensure the planning process is inclusive by providing wide access to information thereby facilitating involvement of the public (Bishop & Hull, 1991).

Fels states that visual impact assessment of a proposed development should address three types of issues: spatial, quantitative and qualitative. Spatial issues include where the development is visible from, or more specifically, what or whom it is visible to. Quantitative issues include how much of the development is visible, how much of the surrounding area is affected, and to what degree. Qualitative issues include the visual character of the development, and its compatibility with its surroundings. This categorisation of the different requirements involved is simple, logical and easy to understand (Fels, 1992).

A five stage methodology for assessing visual impacts is proposed by Meetham (1993) which includes:

a) Screening, scoping and consultation procedures;
b) Landscape assessment;
c) Zone of Visual Influence;
d) Visualisation techniques;
e) Design and mitigation measures.

Likely visual impacts are identified for the assessment process during screening, scoping and consultation procedures. Landscape assessment is used to establish the baseline conditions, which exist before project commencement. The zone of visual influence (ZVI) should illustrate the locations from which the proposed development would be visible. This technique can predict the extent of visibility of the proposed development and can clearly communicate one of the public's main concerns - whether the proposed development can be seen from a local beauty spot, their house, or village. He also proposes the use of visualisation techniques, especially photomontages to enable the visual intrusion of the proposed development upon the landscape to be visualised. Finally, mitigation measures are proposed to reduce potential adverse visual impacts (Meetham, 1993).

A five-stage methodology is also recommended by the Landscape Institute and the Institute of Environmental Assessment in the UK (IL & IEA, 1995) which includes:

1) Description of the proposed development - three elements are important:
    a) Form of structure - shape, bulk, pattern, edges, orientation, complexity and symmetry;
    b) Materials used - texture, colour, shade, reflectivity and opacity;
    c) Design of structure - layout, scale, style and distinctiveness.
2) Baseline Study reviews the existing visual amenity to provide a basis against which the magnitude and significance of predicted changes can be assessed. The techniques proposed are:
    a) Desk study - to identify the likely zone of visual influence, the principal viewpoints, the visual receptors, and identify the areas and information necessary to collect during the field survey;
    b) Field survey - to confirm the ZVI, the principal viewpoints, and the visual receptors, and record the types of viewers, estimates of numbers, duration of viewing for the visual receptors, and the potential seasonal and screening effects of existing vegetation;
    c) Visual analysis - should be able to evaluate the sensitivity by identifying the extent to which the visual amenity and visual receptors would tolerate change, and advise in visual terms the preferred siting, layout and design of the proposed development.
3) Impact assessment should:
    a) Identify all potential visual impacts by using a tabular matrix;
    b) Estimate magnitude of visual impacts as accurately as possible by indicating:
        i) The extent of the potential or theoretical visibility;
        ii) The views and viewers affected;
        iii) The degree of visual intrusion or obstruction that is likely to occur. The selection of viewpoints is critical, so prior agreement with the planning authority is urged;
        iv) The distance of view;
        v) The resultant impacts upon the character and quality of views.
    c) Assess the significance of impacts with reference to their magnitude, whether the impacts are positive or negative, the sensitivity of the visual amenity and the visual receptors to change, the judgement of professionals, and the views expressed during consultations.

4) Impact Mitigation A number of measures are proposed which should not just mask an unacceptable design, but should attempt to enhance the visual amenity.
   a) An alternative location for the proposed development may provide the greatest opportunity for effective mitigation;
   b) Modifying siting, layout and site levels of the proposed development may reduce the magnitude and the extent of visual impacts;
   c) Modifying the form of the design and the materials used can minimise clash of the built environment versus the natural environment;
   d) Use of ground modelling and planting can provide effective screening of significant adverse visual impacts. Planting can also provide significant enhancement of the visual amenity, but is subject to seasonal effects, and takes time to mature in order to maximise its benefits. Choice of species should contribute to local or regional character.
5) Presentation of Findings An assessment of visual impacts should be presented visually to fully appreciate the conclusions drawn. Consequently, the VIA report should contain illustrations, photographs, charts and tables which should compliment the text. Two strategies are recommended to achieve this aim:
   a) Visibility mapping techniques, such as a ZVI should be used to show the extent of the visual impact;
   b) Visualisation techniques should show the nature and magnitude of the visual impacts by using computer simulations, photomontages, map overlays, perspective sketches, physical models, photographs of similar developments, and artist's impressions.

This methodology is a very detailed and comprehensive procedure, which might not suit all types of development project. It might suit a development proposal where the visual impacts are expected to be highly significant and the receiving environment and visual receptors are especially sensitive. However, for many proposed developments warranting a more general visual impact assessment due to a low probability of visual impact, a less detailed procedure might be sufficient.

Canter proposes a six step conceptual approach for visual impact prediction and assessment (Canter, 1996):

1) Identification of types of potential visual impacts from proposed project or activity (from readily available information i.e. site visits to similar project categories, literature searches, discussions with relevant professionals).

2) Preparation of a description of existing visual resources of the study area (should include the boundaries of the project area and the view-sheds and view-scapes in the vicinity. Two techniques are recommended:

   a) A simple view-scoring technique and subsequent sorting into 5 categories (Beer, 1990). Firstly, views with potential for enhancement and views which detract from the scene and should be screened are identified and recorded early in the site-planning process to inform the design phase. Secondly, the first view is given a score of 10, irrespective of its quality, and then rest of the views are ranked relative to the first view (Table 3.8). Finally the relative scores are ranked into five categories (Table 3.9).

Table 3.8 Simple scoring technique used to evaluate the relativity of view quality.

Views	Location Grid Ref or point on map	Orientation Magnetic Bearing	Height Above ground level	Score Relative to 1
1				10
2				
3				
4				
5				

Table 3.9 Ranking of relative scores for view quality into five categories.

Views	Very Good Should be kept open	Good Ought to be kept open	Moderately Good Could be used to advantage	Poor Ought to be screened	Very Poor Must be screened
1					
2					
3					
4					
5					

   b) Smardon proposed a three-stage checklist approach to provide evidence to support the determination of significance (Smardon *et al.,* 1986) consisting of:

i) Conduct an inventory of visual resources to establish/clarify community values, policies, and priorities relating to existing visual resources before projects of controversy arise (Appendix A – A2);

ii) Establish practical visual criteria to guide decisions related to proposed projects so that the visual character and quality of an environmental setting are protected (Appendix A – A3);

iii) Use a questionnaire checklist form to focus on the project's potential visual impacts (Appendix A – A4-A7)

3) Procurement of relevant laws, regulations, or criteria related to visual impacts and or conditions.

4) Prediction of impacts of the proposed project/activity on existing visual resources. A wide range of approaches are available. Examples are:

a) Descriptive report supported by photographic evidence;

b) Use of scale models combined with a descriptive report;

c) A descriptive report combined with two sets of photographs showing:

i) The seasonal variation of the existing environment;

ii) The seasonal variation of the existing environment with an image of the proposed project superimposed.

d) A descriptive report combined with two sets of photomontages showing

i) The seasonal variation of the existing environment;

ii) The seasonal variation of the existing environment with an image of the proposed project superimposed.

e) A descriptive report combined with computer modelling techniques indicating the baseline conditions and a simulation of the project;

f) Use of a quantitative index method.

5) Assessment of the significance of the predicted impacts – careful professional judgement required due to absence of quantitative standards.

6) Identification and incorporation of mitigation measures including use of scale, shape, colour & tone, selection of building materials & architectural designs, use of underground services (electricity, water, sewer & gas), use of vegetative screening and provision of greenbelts, restoration procedures and siting of the proposed development.

This again is a very comprehensive methodology, which may not suit all types of development project, but some important techniques are mentioned. The view scoring

technique, proposed in stage 2 (Beer, 1990) is a simple technique for providing a general description of the existing visual resources. Architects would normally perform this task during site visits to identify views which might be advantageous for their designs. This view scoring technique might be slightly more rigorous in that it ensures the description is comprehensive and performed in a replicable manner. However, it should be noted that the judgements on relative quality of each view are subjective.

Stage 2 also proposes the optional use of checklist techniques for describing the existing visual resources. However, in Ireland the description of the existing visual resources should be available within the existing CDP although it is likely to be a general description, and a more detailed description may be necessary of the environs of the development site. An overall visual policy for the area might also be included within the CDP, which may provide initial indications of the likely success or otherwise of a development proposal for the site in question.

Stage 4 lists a range of approaches for predicting visual impacts. The difference between approaches c) and d) is confusing, since a photograph with an image of the proposed project superimposed might be construed as a photomontage. Approach f) suggests the availability of a quantitative index method, but this is not considered to be a viable approach yet, since much research is still required to define the physical elements and their relative importance contributing to visual amenity and define the perceptual factors which relate to the appreciation of the visual amenity.

3.4. NEW THEORETICAL FRAMEWORK FOR VISUAL IMPACT ASSESSMENTS

Canter lists a number of difficulties affecting visual impact assessment. He identifies the lack of agreement on the criteria that define visual quality as a major problem, and that this lack of agreement is causing further difficulties in achieving effective visual, verbal and written communications between professionals, project proponents, planners and the public (Canter, 1996). These difficulties in achieving effective communication of results is exacerbated by the multitude of methodologies available for visual impact assessment ranging from relatively simple assessments to very detailed and comprehensive assessments. Similarly, some of the techniques described provide for variations such as the DTM used in ZVI production which could yield a different set of results based on the accuracy of the DTM. Consequently VIA results may not be as robust as they could be.

The wide range of methodologies may be due to the fact that project proponents must pay the cost of conducting an environmental impact assessment and it would be normal to expect that assessments would be confined to essential items in order to minimise costs. Development costs can vary quite significantly depending on project type with an intensive pig rearing facility costing in the region of €0.25M and a new cement factory costing in the region of €100M. Consequently the resources available to conduct an EIA for each development type could vary quite significantly. These resources might affect the choice of methodology used and thereby impact on the comprehensiveness and quality of the VIA produced.

Few methodologies have been proposed for VIA as an individual separate assessment from LIA, mainly because of the considerable overlap of information needs of both assessments. However, is VIA less robust than it might be by combining both processes into one? Is it possible to develop a more comprehensive understanding of VIA by doing so without reference to LIA? Figure 3.9 outlines a theoretical six-stage process that could be developed specifically for VIA and Figure 3.10 describes the information flows within each of the stages.

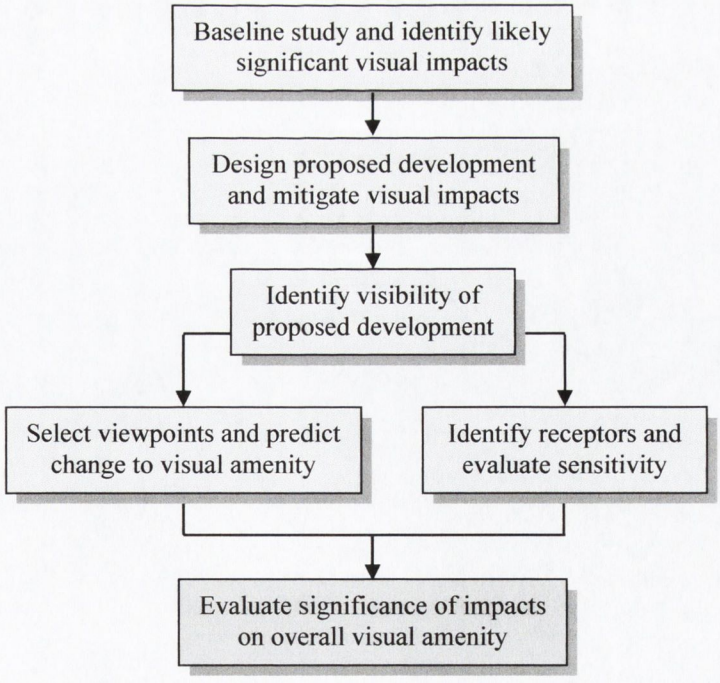


Figure 3.9 Six stage process developed as a new Theoretical Framework for Visual Impact Assessment.

Stage one captures photographic evidence of the existing visual amenity in the vicinity of the development site for the baseline study of visual resources and then uses the EPA Advice Notes (CAAS, 1995b & 2003) and a scoping consultation with local authority planners to identify the significant visual impacts likely to arise from a particular type of development on an identified site and any visual constraints for the development area.

Stage two equates to an architectural design loop process where alternative designs (form, scale, colour, texture, and site layout) are used iteratively to optimise the development proposal. The design process for projects requiring EIA also includes an examination of mitigation measures to deal with likely visual impacts identified in stage one, and design professionals should also try to predict visual impacts quantified in stage four which may need mitigation. There are two important aspects to note from an Irish context:

a) The scoping consultation should precede and inform the main design phase rather than having it '*post hoc*' as is the norm currently;
b) The concept of assessing alternative sites at the design phase is foreign to current practice in Ireland. Development sites are normally identified and purchased by developers before any formal consultation with planning authorities takes place to identify development constraints or any design concept are examined for the proposed development idea. Developers considering projects requiring EIA would be advised to maintain a record of their assessment of alternative sites for inclusion later in EIS.

Stage three involves identifying how visible the proposed development will be by determining its' visual envelope. Stage four and five are each sub-divided for clarity and are performed concurrently. Stage four firstly identifies a list of possible viewpoints from which a sample of principle viewpoints are selected bearing in mind the sensitivity of the landscape and visual receptors. Stage four then collects information on the existing visual amenity and predicts the magnitude and nature of visual impacts from the locations selected as the principal viewpoints. Stage five identifies the landscape and visual receptors and then evaluates their sensitivity to changes in the visual amenity.

Finally stage six evaluates the significance of changes to the overall visual amenity using a comparison of the existing visual amenity with predicted visual impacts and using the sensitivity of landscape and visual receptors.

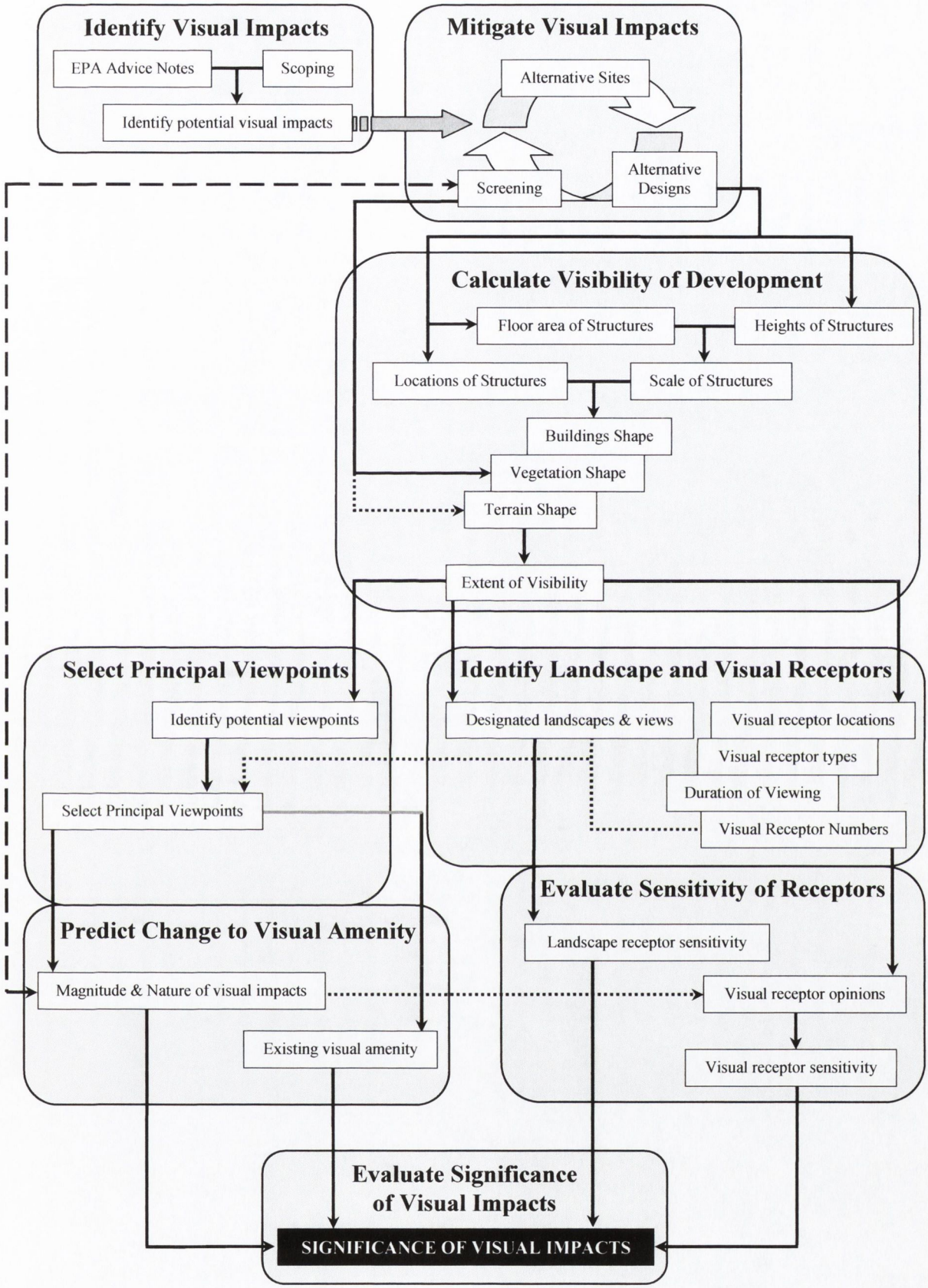


Figure 3.10 Proposed Theoretical Framework outlining the information needs and flows for Visual Impact Assessment.

3.5. CONCLUSIONS

This chapter has explored the theoretical foundations for conducting VIA and presents a proposed theoretical framework developed specifically for conducting VIA as a separate assessment from LIA. Although there is a considerable overlap in the information needs of LIA and VIA the separation of these two assessments ensures that neither is subservient to the other and both assessment can be comprehensive standalone assessments in their own right. By focusing on the information needs and flows for VIA a more in depth understanding of the critical issues is possible. All of these issues should be included in VIA for both large and small projects to ensure the assessment procedure and results withstand scrutiny, even though the larger projects might go into more depth and include extra issues not included in the proposed theoretical framework.

Conducting LIA and VIA separately may lead to a better understanding of the visual amenity which heretofore concentrated mainly on the identification and protection of special landscapes. Canter identified the lack of agreement on the criteria that define visual quality as a major problem (Canter, 1996). The inclusion of ordinary landscapes within the concept of the visual amenity may initiate a research effort to identify what elements enhance or degrade the visual quality of landscapes.

Having set the scene and described the current techniques and methodologies available the next Chapter will describe the methodology chosen for each of the two surveys performed as part of this research.

CHAPTER FOUR

METHODOLOGY

4 METHODOLOGY

4.1 INTRODUCTION

Chapter Two identified the value of landscapes to the quality-of-life of citizens and communities as well as the importance of landscape management to protect habitats and promote biodiversity. The Irish planning and development system has traditionally operated in a manner that was biased towards economic development and growth at the expense of social and environmental issues. During the 1970s and 1980s EU and national policies encouraged over-production and expansion especially in rural areas with little reference to the protection of the natural and cultural heritage resulting in a perceived degradation of landscape quality and the visual amenity. The 1990s have seen a gradual revolution for the protection of natural habitats and cultural heritage from inappropriate developments, and the widespread adoption of the concept of sustainable development, both globally and nationally.

However, sustainability in Ireland has had an awkward birth, and its implementation has been fraught with difficulty. The designation of landscapes to protect natural habitats, and cultural artefacts was met with an outcry from landowners about restricting their land-use rights, which was eventually solved by paying compensation for loss of value. The customary chronic shortage of professional planners within planning authorities was exacerbated with the phenomenal growth of the 'Celtic Tiger' economy during the late 1990s, such that shortage of planners in 2005 is now worse than it was a decade ago. Developments traditionally listed as exempted and therefore outside the planning and development system, urgently need to be reviewed and brought under the system to assess if their siting, design or function is sustainable. The Planning and Development Act (Oireachtas, 2000a) was a missed opportunity to radically reform the planning and development system, such that serious delays are now being experienced in processing major development proposals through the system. These delays have prompted the Department of the Marine and Natural Resources to attempt to bypass the system by implementing a parallel fast-track system for infra-structural developments such as afforestation, energy transmission, and aquaculture, and the Department of Transport to propose a similar strategy for major infra-structural projects such as motorway construction projects. However the successes of the last decade with the initial development and implementation of sustainable policies could now be put in jeopardy if

the parallel system is operated by administrators rather than professional planners, without the normal controls of public participation. Ireland needs a planning and development system, which is responsive to the needs of developers, society and the environment and which can make good decisions quickly based on quality information and participation by communities. Only then can the impacts of development on landscapes be fully appreciated and designs modified before construction.

This research project attempted to assess how Ireland's visual amenity is managed by local authorities by conducting two separate but related studies. The first study examined current practice in conducting VIAs carried out within the EIA process in Ireland. The second study investigated the local authority policies implemented within CDPs used to protect, enhance and manage the visual amenity.

4.2 METHODOLOGY FOR SURVEY OF VISUAL PRACTICE

Several research methodologies could have been adopted for evaluating VIAs. One option would have been to select a sample of professional firms involved in conducting EIAs and to carry out a questionnaire-based analysis seeking to find out their current practice preparing VIA. A second option would have been to interview the planners who use VIAs within EISs in their planning decisions. A third option would have been to identify and analyse recently prepared VIAs using a questionnaire format. A central repository of all EISs submitted in Ireland exists in the ENFO (Ireland's public information service on environmental matters) offices in central Dublin thus providing an ideal easily accessible primary data source. After considering the potential biases that might have been introduced in all three options, the third option was selected as it was felt that this examination would be based on actual practice, rather than theoretical aspirations.

4.2.1 Aims

The aims of this visual practice study were to:

a) Determine if the environmental regulations were being complied with
b) Determine if the Environmental Protection Agency's guidelines and advice notes were being used;
c) Identify the techniques and methodologies favoured to conduct VIA in Ireland;
d) Compare current VIA practice in Ireland with international good practice.

4.2.2 Design of Draft Questionnaire

The EPA guidelines (CAAS, 1995a) recommend a basic structure for EIS which could be used as the basis of the LIA study:

a) Description of the proposed development;
b) Description of the existing environment;
c) The impacts of the proposed development;
d) The measures to mitigate adverse impacts;
e) A non-technical summary.

The Landscape Institute and the Institute of Environmental Assessment recommends a very detailed and comprehensive five-stage methodology for LIA and VIA (IL & IEA, 1995) which is broadly similar in concept to that proposed by the EPA, and uses the same format of describing the proposed development, the existing environment, investigating the likely impacts, and presenting the findings graphically to ensure clarity of communication. Consequently the draft questionnaire (Appendix B) was designed using ideas from these two sources.

4.2.3 Piloting the Questionnaire

The survey of visual practice was carried out in two phases. The first qualitative phase was conducted on a random sample of 20 EISs using the draft questionnaire (Appendix B) to ensure that a) the questionnaire was comprehensive, b) it was easy to conduct, and c) the data collected were in a suitable format for subsequent analysis. The second quantitative phase was to examine the sample selected for the main survey using the final revised version of the questionnaire.

Between July 1988 (when EIA first came into effect) and the summer of 1999 approximately 940 EISs were submitted to local authorities in Ireland. It was assumed that EIA and VIA standards were low during the initial few years when professionals were undergoing a steep learning curve of the concepts, methodologies and techniques necessary. The Irish Environmental Protection Agency (EPA) published guidelines (CAAS, 1995a) and advice notes (CAAS, 1995b) in 1995 for practitioners preparing EISs on the format and content expected. The sample selected for the main survey was chosen from the latter portion of this total population to ensure the EIAs examined post dated the publication of the EPA guidelines, and also post dated the learning curve of professionals

producing the EISs. 103 and 111 EISs were submitted in 1996 and 1997 respectively, so a sample of 10 EISs (slightly less than 10%) were chosen from each year to pilot the draft questionnaire. Random digits from Elementary Statistical Tables (Neave, 1983) were used to select a random sample from each year (Table 4.1). The random digits were grouped into threes, since all the EIS numbers contained three figures for the years in question, and the first 10 EIS numbers to appear were chosen. This process was repeated at the bottom of the page of random digits to select the EISs from the 1997 list.

Table 4.1 Environmental Impact Statements selected to Pilot the draft Questionnaire.

1996	1997
546, 558, 559, 561, 571, 579, 590, 607, 621, 663	588, 636, 641, 643, 671, 676, 689, 692, 695, 696

The pilot survey was conducted in the spring of 1998 in the ENFO library by taking down each EIS from the shelves and extracting VIA information and checking tick boxes on the questionnaire if information relevant to VIA was included.

4.2.4 Results of the Pilot Survey

Analysis of the pilot data highlighted some important issues that contributed to revising both the questionnaire and the selection of the sample for the main survey. Firstly, the pilot results were not good with a mean overall score of 30%, with 65% of EISs not reaching 40%. The results also displayed a wide variety in the standard achieved across the various development categories (Table 4.2).

Table 4.2 Results achieved from the pilot survey of LIA & VIA Practice.

	Overall Score
Max	67 %
Min	4 %
Mean	30 %
St. Dev.	18 %

The wide variety in the standard of results indicated that the VIA standard varied with respect to development category, and a general correspondence between project categories and VIA quality was also observed when for example the piggery development category

was compared with the construction of new roads development category (Table 4.3). Since the analysis of the main survey may wish to compare the results achieved in different development categories, it was decided to stratify the sample in order to focus on particular development categories. These development categories were chosen on the basis of the numbers of EISs submitted in each category, rather than on the basis of their likelihood of conducting high quality visual impact assessments.

It was also decided to replace EISs submitted during 1996 with EISs submitted during 1998 in order to ensure the results were as current as possible. On examination of the full list of EISs submitted during 1997 and 1998 (Appendix C), the three development categories (piggeries, quarries, and urban developments) for which the most EISs had been submitted were chosen, and EISs for 1999 were also included to ensure that the sample size in each development category was greater than 30. The sample finally selected for the main survey included 164 EISs (Table 4.4).

Finally, the proposed theoretical framework developed specifically for VIA was used as the basis for revising the draft questionnaire into the final questionnaires used for the main survey.

Table 4.3 Results achieved by the different development categories for LIA & VIA in the Pilot Survey.

	Scores achieved for Different EISs					
Infrastructure – Urban Development	16%	33%	40%			
Infrastructure – Industrial Estate	44%					
Infrastructure – Flood Relief	33%					
Infrastructure – Waste Disposal	42%					
Infrastructure – Bridge	24%					
Infrastructure – New Road	49%	60%				
Extractive Industry - Stone	19%					
Extractive Industry - Minerals	67%					
Agriculture – Intensive Farming - Piggery	16%	9%	11%	7%	4%	24%
Agriculture – Reclamation from the Sea	49%					
Processing of Metals	11%					
Chemicals - Pharmaceuticals	38%					

Table 4.4 Sample of EISs selected for the Main Survey.

	1997	1998	1999	Total
Piggeries	15	15	5	35
Quarries	15	18	9	42
Urban Development	32	45	10	87

4.2.5 Design of Final Questionnaire

The new six stage process outlining the information requirements and the information flows within the VIA process (Figures 3.9 and 3.10) was used as the basis for modifying the draft questionnaire to focus exclusively on VIA for the main survey under the headings:

a) Identifying potential visual impacts;
b) Identifying mitigation measures used to ameliorate predicted adverse visual impacts;
c) Calculating the visibility of the proposed development, and selecting principal viewpoints;
d) Identifying landscape and visual receptors and evaluating their sensitivity to the mitigated visual impacts;
e) Visualisation techniques used to predict the nature and magnitude of visual impacts;
f) Evaluating significance of mitigated visual impacts on the overall visual amenity.

Three versions of the questionnaire were produced which listed the potential visual impacts specifically listed for each development category in the EPA Advice Notes (Appendices F, G and H).

4.2.6 Main Survey of Visual Impact Assessments

The main survey was conducted between July and December 2000 (Table 4.5), and examined 164 EISs of which one EIS (Number 616) related to an undersea dredging operation on the Arklow Bank, 5kms offshore from the Wicklow coastline, so was unsuitable for inclusion in the results since VIA was not relevant to this project.

Table 4.5 Timescale of main survey of visual practice conducted in 2000.

	June 2000	July 2000	August 2000	September 2000	October 2000	November 2000	December 2000
Piggery Developments	—						
Quarry Developments		—					
Urban Developments			—	—	—	—	—

Delays of up to 24 months were discovered between the time an EIS is submitted to a local authority and the time a copy is placed in the ENFO library. Consequently, many of the EISs for 1999 were unavailable to be included in the survey during summer and autumn 2000, so the sample was selected from a subset of only 23% of EISs submitted during 1999.

4.2.7 Problems and Reliability

Many EISs examined during the pilot survey used the 'direct EIS format' which did not have a separate section on landscape, so the LIA and VIA information was scattered throughout the document, and was more difficult to locate and extract than originally anticipated by having to read most of the EIS. It was observed during the main survey that the preference for the 'direct EIS format' identified during the pilot survey gradually changed to the 'grouped EIS format' such that it became the dominant EIS structure used towards the end of the review period. Although this meant that a specific section on landscape was provided in which one would expect to find the VIA data, this did not turn out to be the case in practice. The section dealing with VIA was generally short and in many cases did not present any evidence to support the findings, so much of the EIS had to be scanned to find the information required for VIA.

A reliability survey was conducted during September 2001 using 8 EISs (5% of main survey) randomly chosen using random digits from Elementary Statistical Tables (Neave, 1983). When the overall scores from the main survey were compared with the overall scores from the reliability survey a mean correlation of 3.1% with a standard deviation of

3.7% was achieved, indicating that the accuracy of original overall scores were within 7% to a 95% confidence level (Table 4.6).

Table 4.6 Difference in scores achieved between the main and reliability surveys.

	DEVELOPMENT CATEGORIES											
	Piggery				Quarry		Urban		Max	Min	Mean	St. Dev.
EIS Numbers	680	706	813	999	796	868	788	931				
Main Survey Scores	10	33	8	20	25	43	9	13				
Reliability Survey Scores	14	37	14	26	30	42	5	18				
Difference in Scores	4	4	6	6	6	-2	-4	5	**5.9**	**-3.6**	**3.1**	**3.7**

4.3 METHODOLOGY FOR SURVEY OF VISUAL POLICIES

The methodology chosen for the survey of local authority policies used to manage the visual amenity was to arrange interviews with a selected sample of senior planners. They were first contacted by letter, informing them of the study, and enclosing a short questionnaire. Then they were contacted by phone to arrange a structured interview at which it was intended to collect the completed questionnaires.

4.3.1 Aims

The aims of this survey of visual policies were to:

a) Identify the procedures planning authorities use to evaluate the adequacy of EIA and VIA information submitted within EISs;

b) Determine the importance of EIA and VIA information to planners relative to other information used within the development control process;

c) Identify policies for protecting and enhancing the visual amenity contained within City and County Development Plans and how they are reviewed;

d) Identify local authority strategies for protecting and enhancing the visual environment;

e) Identify the major pressures on the visual amenity as perceived by planners.

4.3.2 Selection of Respondents

Although the initial intention was to only include senior planners, it was subsequently decided to include the other stakeholders of the planning and development system;

associations of professionals creating the designs for the development proposals, environmental groups participating in the development control process to protect the visual amenity, and the environmental spokespersons of the main political parties who are responsible for formulating and proposing environmental policies for the parties (Figure 4.1).

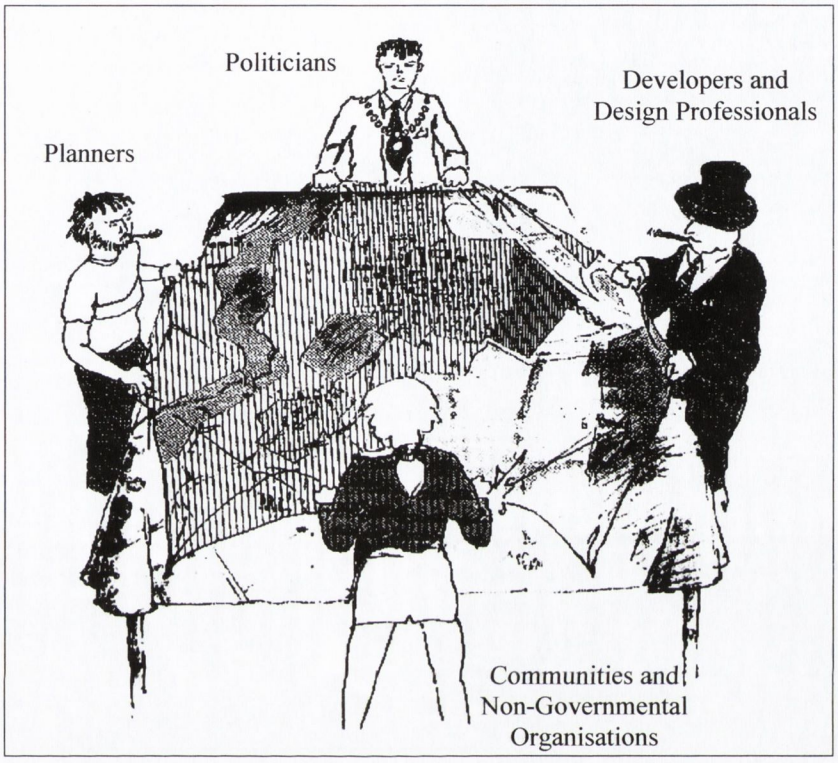


Figure 4.1 Stakeholders of the planning and development system (Enemark, 2002).

- **Planners**

Of all the local authorities in Ireland the City and County Councils include major planning departments, whereas the Borough and Town councils do not. However there are 34 planning departments at City and County level, so a sample was selected to reduce the numbers to be interviewed. The methodology used to select the sample used statistics from the Central Statistics Office (CSO), Ordnance Survey Ireland (OSi), and Bord Fáilte (the Irish Tourist Board) to identify the five highest and lowest local authority areas by population density and tourism density. This would allow the results to be analysed subsequently to ascertain if population or tourism density affected the importance placed in the visual environment.

Population statistics from the 1996 census of Ireland were received from the CSO, which were segregated for the new County Councils in County Dublin (Fingal, Dublin South and

Dun Laoghaire Rathdown) and the five City Councils. The areas of the Counties were sourced from OSi and the CSO. However there were some gaps in the OSi data and the CSO data seemed to be more robust (see area for Cork City Council), so the area data from the CSO was used when calculating the population density (Appendix D). Thereafter the counties were ranked for population density and on this basis the five highest and five lowest ranked counties were selected for the study (Figure 4.2).

Tourism statistics for the year 2000 were sourced from Bord Fáilte Ireland, which were not segregated for the new County Councils in County Dublin (Fingal, Dublin South and Dun Laoghaire Rathdown) or for the five City Councils. The areas of the Counties were sourced from the CSO and the number of tourists per kilometre was calculated (Appendix E). Thereafter the counties were ranked with respect to the tourism density and on this basis the five highest and five lowest ranked counties were selected for the study (Figure 4.3).

There was some overlap between the two different selection methods, which resulted in 18 planning authorities being selected for the study, as outlined in Table 4.7 and in Figure 4.4. The Planning Authorities in Fingal, Dun Laoghaire Rathdown and South Dublin County Councils were also included because the old County of Dublin, which included these local authority areas, was selected as the highest tourist destination. It was hoped that the interviews could be arranged with the senior planners who were expected to have better insights into visual aspects of the planning and development system.

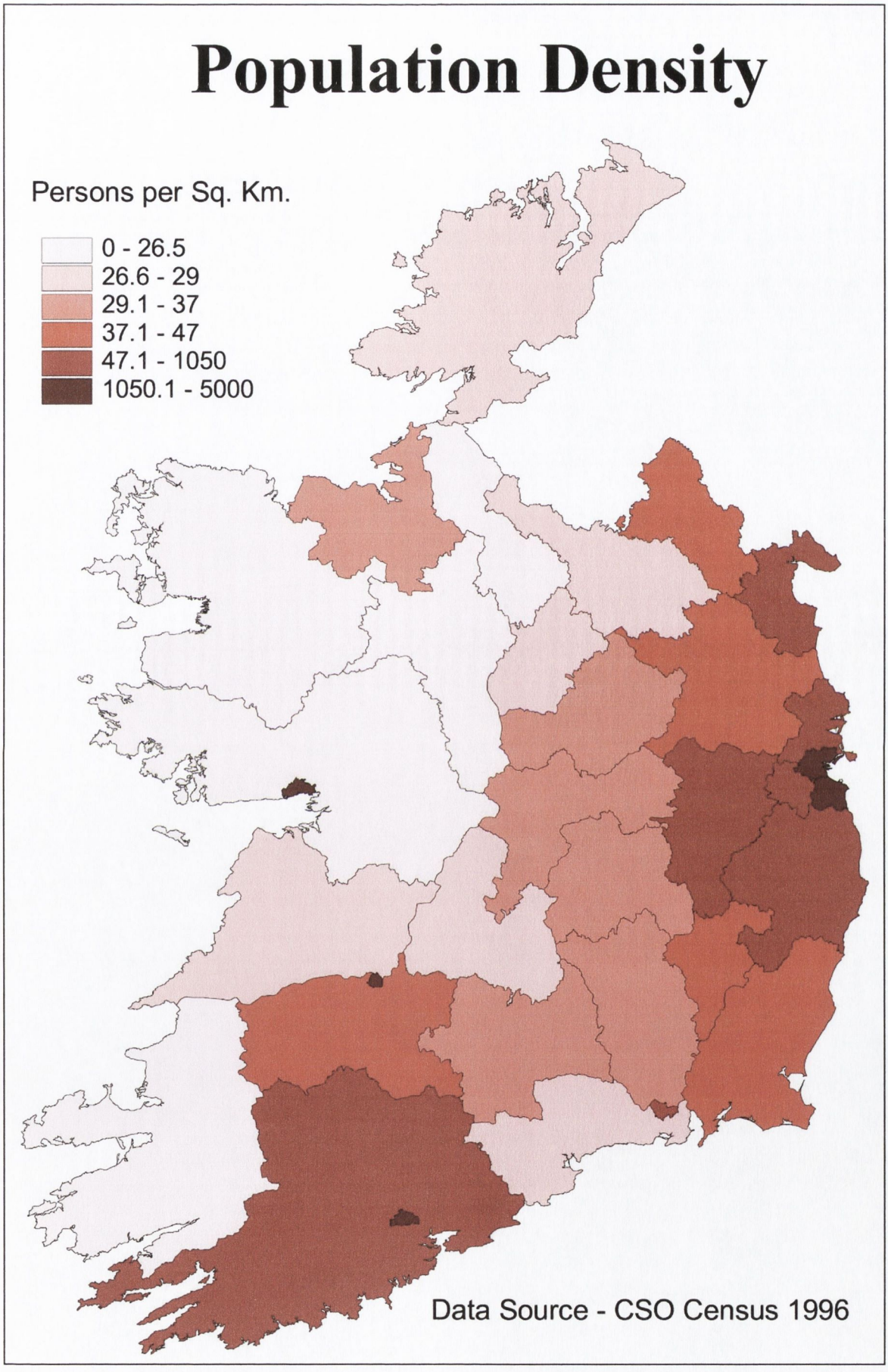


Figure 4.2 **City and County local authority areas ranked by population density.**

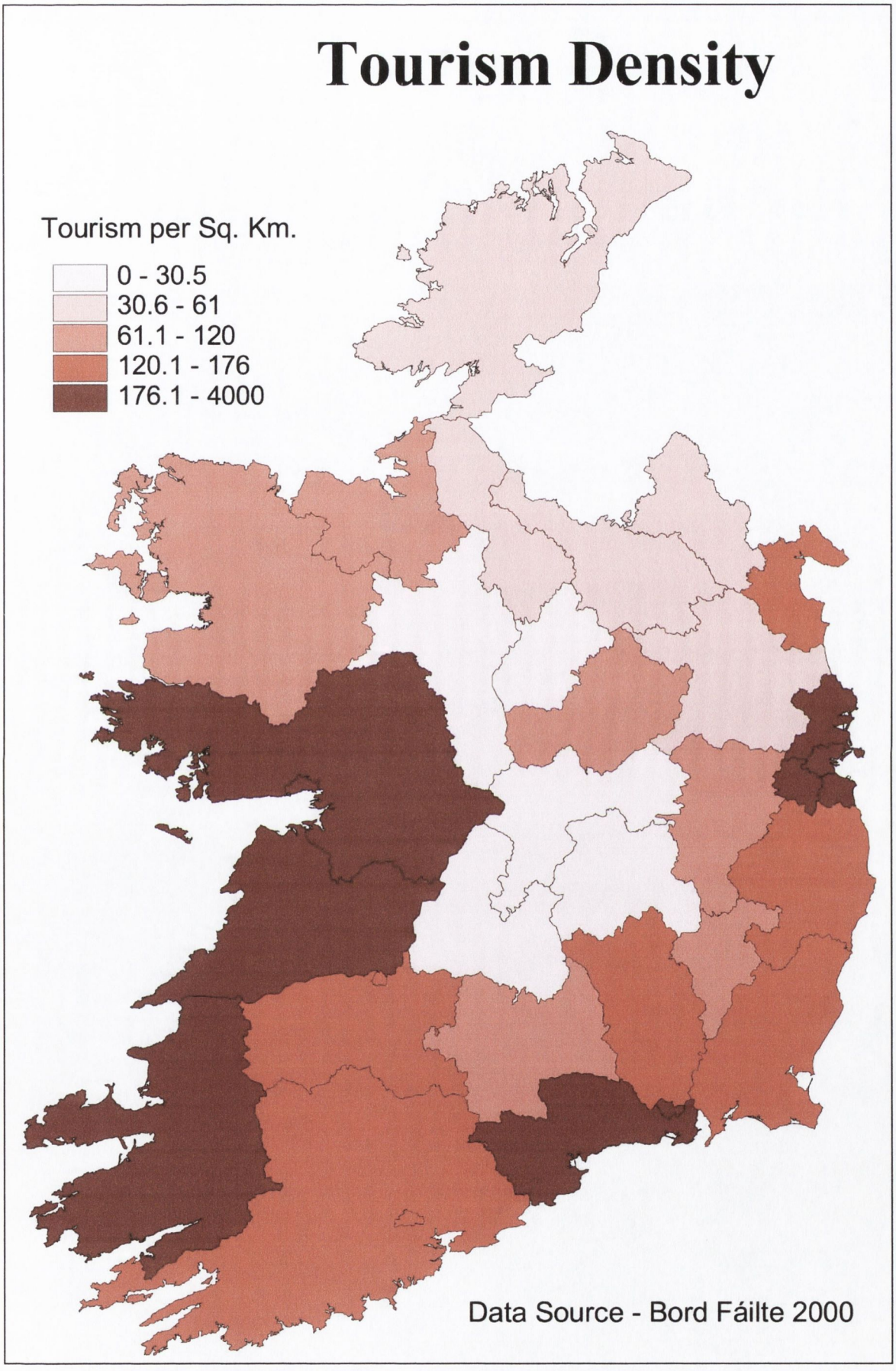


Figure 4.3 **County local authority areas ranked by tourism density.**

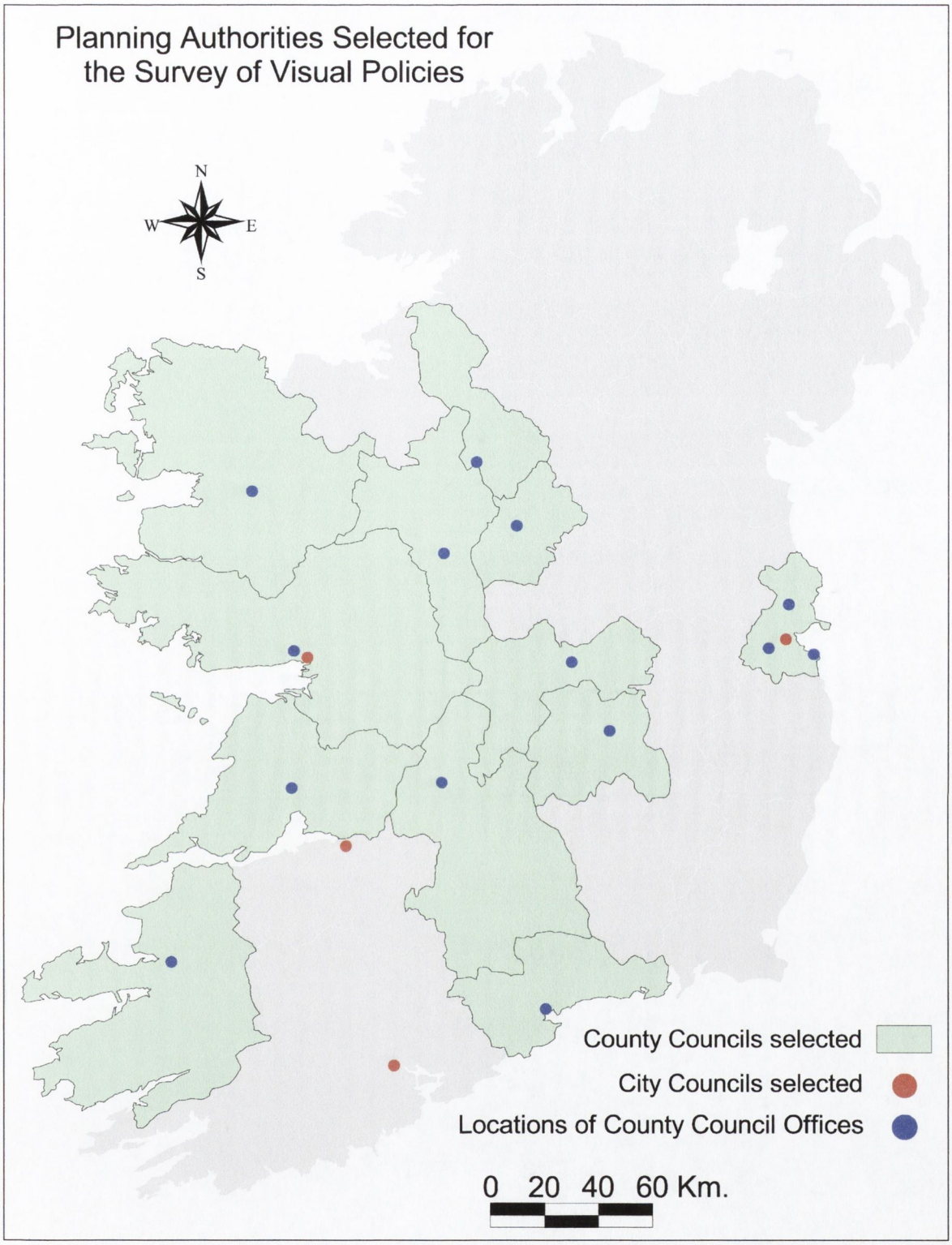


Figure 4.4 **Locations of City and County Council offices selected for the survey of visual policies.**

Table 4.7 Planning Authorities selected for the survey of Visual Policies.

PLANNING AUTHORITIES SELECTED	
City Councils	**County Councils**
Cork City Council	Clare
Dublin City Council	Dun Laoghaire Rathdown
Galway City Council	Fingal
Limerick City Council	Galway
	Kerry
	Laois
	Leitrim
	Longford
	Mayo
	Offaly
	Roscommon
	South Dublin
	Tipperary North Riding
	Waterford

- **Environmental Groups interested in the Visual Amenity**

The names of 86 environmental groups were selected from an ENFO (Ireland's government environmental information office) list of 247 Irish NGOs (Non-Government Organisations) that were assumed to have had an interest in the visual environment and who supplied an email address on the list. Emails were sent to each group describing the scope of the study and inviting them to participate by nominating a representative to be interviewed. Twelve groups responded and participated in the study (Table 4.8).

Table 4.8 Environmental Groups selected for the Survey of Visual Policies.

ENVIRONMENTAL AND COMMUNITY GROUPS SELECTED	
An Taisce	Coastwatch
Dúchas – Wildlife and Parks	Dúchas - Archaeology
Friends of the Irish Environment	Irish Wildlife Trust
Keep Ireland Open	Mountaineering Council of Ireland
SEMPA	The Heritage Council
The Tree Council	The Forest service

- **Environmental Spokespersons of the Political Parties**

The websites of each of the main political parties was consulted to identify their environmental spokesperson (Table 4.9). Letters were then sent describing the scope of the study and inviting them to participate. Within a week of posting the letter they were contacted again by phone to arrange an interview. The Progressive Democrats did not have an environmental spokesperson in the lower house, but had one in the upper house, so they nominated him for the interview.

Table 4.9 Environmental Spokespersons of the Political Parties selected for the Survey of Visual Policies.

ENVIRONMENTAL SPOKESPERSONS OF POLITICAL PARTIES	
Fianna Fáil	Minister Martin Cullen T.D.
Labour	Mr William Penrose T.D.
Fine Gael	Mr Bernard Allen T.D.
Progressive Democrats	Senator John Dardis
Green Party	Mr Ciarán Cuffe T.D.
Sinn Féin	Mr Arthur Morgan T.D.

- **Associations of Design Professionals**

The names of 11 associations of design professionals including engineers, architects and landscape architects were also selected from the ENFO list of Irish NGOs (Non-Government Organisations). Letters were posted describing the scope of the study and inviting them to participate by nominating a representative to be interviewed, which was followed up with phone calls as with the previous groups. Many stated that they were too busy and that they did not wish to participate, so eventually representatives from only 5 associations were interviewed including the Royal Institute of Architects of Ireland, the Royal Town Planning Institute, the Irish Planning Institute, Landscape Alliance and the Gardens and Landscape Designers Association.

4.3.3 Questionnaire Design

The questionnaire for planners was designed to cover three specific areas; a) County Development Plans, b) visual environment policies, and c) EIA with a specific VIA focus. The original concept was to post a questionnaire to the planner and to collect the completed questionnaire at the interview. A modified version of the questionnaire was

used to structure the interview, in order to get answers in more depth than those expected from the questionnaire. In practice only a number of the completed questionnaires were returned. However, the questionnaire provided prior warning of the areas to be covered and the likely questions to be asked, so it had the beneficial effect of priming the interviewees.

For each of the other three groups a modified version of the questionnaire prepared for planners covering the same three issues of County Development Plans, visual environment policies, and EIA with a specific VIA focus was developed and used to structure the interviews (Appendix J). This was not a questionnaire per say, but a list of ideas to structure and stimulate the discussion, and the interviewee was informed prior to the event of the three main areas that would be covered in the interview.

4.3.4 Main Survey

The intention to interview senior planners was a success in that 14 senior planners or their deputies (or both) were interviewed from the 18 planning authorities involved. Clearly, planners had an interest in the project. There was also an interest from the political parties since all but one agreed to be interviewed, but the main party in government (Fianna Fáil) nominated an official from the Department of the Environment and Local Government instead. This interview supplied an administrative perspective rather than the political insight sought. The response from the environmental and community groups was also quite successful in that most of the main national groups were consulted. However, the associations of design professionals showed a distinct lack of interest in the project. They either stated that they were too busy, requested that someone else be contacted in a run-around fashion, or failed to reply having made numerous contacts. The full list of respondents who participated in the survey is supplied in Table. 4.10.

Table 4.10 List of all the Respondents who participated in the Survey of Visual Policies.

ORGANISATION	RESPONDENT (S)
Cork City Council	Mr R McDowell & Ms A Bogan
Dublin City Council	Mr J Martin & Mr P McDonnell
Galway City Council	Ms C Phelan
Limerick City Council	Mr R Tobin
Clare County Council	Mr B McGrath & Ms J O'Donoghue
Dun Laoghaire Rathdown County Council	Mr R Cremins
Fingal County Council	Mr S Ó Faircheallaigh
Galway County Council	Ms H Coleman
Kerry County Council	Mr D Daly
Laois County Council	Mr L Wilbenboer
Leitrim County Council	Mr P Keenaghan & Ms B Guest
Longford County Council	Mr D mac an Beatha
Mayo County Council	Mrs K O'Malley-Harlow
Offaly County Council	Mr T McCague & Mr A O'Gorman
Roscommon County Council	Mr P Dolan
South Dublin County Council	Mr J Bird & Mr N O'Byrne
Tipperary North Riding County Council	Mr F O'Halloran, Mr F Wright & Ms T Quinn
Waterford County Council	Ms L Liversage
Landscape Alliance Ireland	Mr T O'Regan
Garden & Landscape Designers Association	Mr J Ketch
Irish Landscape Institute	Mrs K Foley
Royal Town Planning Institute	Mr C Norton
Royal Institute of Architects of Ireland	Mr J Graby
An Taisce	Mr I Lumley
Dúchas – Wildlife & Parks	Dr P Warner
Dúchas – Archaeology	Ms P Gleeson & Ms D O'Riordáin
Friends of the Irish Environment	Mr T Lowes
Keep Ireland Open	Mr R Garland
SEMPA	Ms M A Harris
The Tree Council	Mr J Brosnahan
Coastwatch	Mrs K Dubsky
Irish Wildlife Trust	Ms L Dufficey
Mountaineering Council of Ireland	Mr M Kane
The Heritage Council	Mr P Mattews
The Forest Service	Mr G Cody & Mr D Allen
Fianna Fáil	Mr J Laffan
Fine Gael	Mr B. Allen T.D.
Labour	Mr W. Penrose T.D.
The Green Party	Mr C Cuffe T.D.
Progressive Democrats	Senator J Dardis
Sinn Féin	Mr D Morgan T.D.

The survey was conducted over two summers due to the full time work commitment on the part of the interviewer (Table 4.11). Firstly, transcripts were produced for all the interviews of planners and more than half of the interviews for the other three groups. Summaries were then prepared which were returned to the respondents for their comments to ensure that there were no misinterpretations of the data collected. The amended summarised data was then used as the basis for the analysis.

Table 4.11 Survey of Visual Policies conducted during the summers of 2001 and 2002.

	June 2001	July 2001	August 2001	September 2001	Fulltime Teaching Commitment	June 2002	July 2002	August 2002	September 2002	October 2002
Planning Authorities	—	—	—			—	—			
Environmental & Community Groups						—	—	—		
Political Party Environmental Spokespersons									—	—
Associations of Design Professionals									—	

4.3.5 Problems and Reliability

The interviews went fairly smoothly once a contact was made within the organisation in question. However, a number of difficulties were experienced whilst conducting the interviews of planners. One respondent refused to be taped which then necessitated taking notes during the interview resulting in the interview becoming more disjointed than intended. The pause button was pushed in error while starting the recorder at the beginning of another interview which was discovered directly after the interview on returning to the car. This necessitated sitting down immediately and writing a summary of the interview from memory and forwarding this partial summary to the respondent for their comments within a few days of the interview so that it would have been fresh in his mind. On another occasion the interview taped over a previous interview, but luckily the previous interview had already been transcribed.

The environmental spokesperson for Fianna Fáil was the Minister for the Environment and Local Government, Mr M Cullen T.D. Neither the Minister nor his Ministers of State were available for interview, so although of the officials in the Department was interviewed instead this interview did not provide the political perspective sought.

The venues used for the interviews were mainly at the respondents place of work or in a public place nearby. More difficulties were experienced when interviews were held in open-plan offices where conversations, telephones, and equipment provided a range of background noises which were picked up on the tapes. Since the interviewer could not control where the interview was held, in hindsight it may have helped if the taping equipment had individual microphones for each of the speakers.

The time allowed to transcribe the tapes was significantly underestimated, due to the tapes recording background noises at the interview venues and to a personal hearing difficulty, which exacerbated the problem of deciphering the data on the tapes. Consequently, the time taken to complete all the transcripts was excessive, and although it may have been more expedient to summarise the information directly from the tapes in order to speed up the project, this course of action was not taken to ensure nothing was missed and the data was complete.

Most respondents attempted to provide information, which corresponded with the official positions or views of the organisation they represented, but in some cases personal views were recorded. The return of summaries to respondents for amendment allowed them the opportunity to extract or modify personal views, which were not consistent with organisation policy. In this way it was hoped that the amended summaries recorded official policy for each of the different groups involved.

4.4 CONCLUSIONS

The Chapter described the methodologies chosen for each of the surveys being conducted and examined the difficulties associated with reliability and validity of research. The first survey by it nature of being a quantitative survey should allow the reliability to be measured and the second qualitative survey should be valid by providing for summaries to be returned to respondents to ensure that interpretations of the interviews were correct. The combination of both of these datasets coming from different perspectives to the visual amenity should assist each other in ensuring that the research is both reliable and valid.

CHAPTER FIVE

SURVEY OF VISUAL IMPACT ASSESSMENT PRACTICE

5 SURVEY OF VISUAL IMPACT ASSESSMENT PRACTICE

5.1 INTRODUCTION

Environmental Impact Assessment (EIA) is a process used to predict the potential effects on the environment caused by a proposed development, and where these effects are considered undesirable, they can be then be avoided or reduced during the design process (CAAS, 2002). Therefore, the primary function of VIA within the EIA process is to predict the visual impacts of a development on the visual amenity before construction, in order to modify designs of proposed structures to eliminate or minimise these impacts (Section 3.1). This survey examined VIA practice within 164[1] EISs in the ENFO library (Ireland's public information service on environmental matters) in Dublin during July and December 2000.

Three categories of development (piggeries, quarries and urban developments) were selected for the survey on the basis that these were the only development categories that provided samples of sufficient size to be representative for the years in question (1997, 1998 & 1999). Development categories that might be more likely to conduct VIA (wind-farms, afforestation, etc) were not selected because insufficient numbers of planning applications were submitted for these categories during the time period being sampled. Consequently the results of the survey of VIA practice should be more representative of the general quality of VIA practice in Ireland.

5.2 SURVEY FINDINGS

The survey findings are presented according to the steps outlined in the proposed theoretical framework for VIA presented in Section 3.4:

a) Identifying likely significant visual impacts;
b) Mitigation measures used to eliminate or minimise any adverse visual impacts;
c) Identify the visual envelope of the proposed development and select principal viewpoints

[1] One EIS (Number 616) which related to an undersea dredging operation on the Arklow Bank, five kilometres offshore from the Wicklow coastline was excluded from the results because it was considered unsuitable since VIA was not relevant for this project.

d) Predicting the nature and magnitude of visual impacts

e) Evaluating sensitivity of landscape and visual receptors

f) Evaluating significance of predicted visual impacts on the overall visual amenity

5.2.1 Identifying Potential Visual Impacts

The EPA Advice Notes (CAAS, 1995b) list potential impacts likely to be significant for each of the environmental factors examined during the EIA process for each of the development categories where EIA is mandatory or required. A range of potential impacts is listed under landscape which contains two visual impacts for piggery developments, four visual impacts for quarry developments and three visual impacts for urban developments. The second edition of the EPA advice notes (CAAS, 2003) was not used because the survey predated their publication, and nonetheless the impacts listed for the three development categories selected for the survey are unchanged in the revised edition. Firstly, the survey examined whether these cited visual impacts had been identified for assessment. The incidence of identification (Table 5.1) in quarry developments (43%) and urban developments (45%) was more than twice the identification of visual impacts in piggery developments (17%).

Table 5.1 Incidence of identification of visual impacts within VIA (Listed in EPA Advice Notes on Current Practice – CAAS 1995b).

Development category	VISUAL IMPACTS IDENTIFIED (Listed in the EPA Advice Notes)	1997	1998	1999	Total
Piggery	Visibility of Structures	27 %	47 %	20 %	**34 %**
Developments	Visual impact due to water body eutrophication	0 %	0 %	0 %	**0 %**
Total		**13 %**	**23 %**	**10 %**	**17 %**
Quarry	Visibility of surface workings	64 %	100 %	89 %	**85 %**
Developments	Visibility of surface plant	29 %	56 %	67 %	**49 %**
	Visibility of dust adjacent to site and transport roads	7 %	11 %	22 %	**12 %**
	Visibility of change of character (intensity & nature)	21 %	28 %	22 %	**24 %**
Total		**30 %**	**49 %**	**50 %**	**43 %**
Urban	Visual impacts due to the erection of new structures	81 %	82 %	90 %	**83 %**
Developments	Visual impacts along access roads	28 %	47 %	30 %	**38 %**
	Visual impacts due to telecomm & power lines	19 %	13 %	0 %	**14 %**
Total		**43 %**	**47 %**	**40 %**	**45 %**

One visual impact cited in the advice notes for piggery developments; '*visual impact due to water body eutrophication*' was not identified in any of the EIS examined for the piggery development category. The results indicate that only 37% of all EISs examined assessed the visual impacts listed in the EPA advice notes (CAAS, 1995b).

Although a number of impacts listed under landscape in the EPA Advice Notes for urban developments were not explicitly specified as visual impacts, they impact on the visual amenity (Table 5.2). The incidence of identifying visual impacts due to lighting (30%) and litter (2%) was significantly less than the incidence of identifying visual impacts due to the removal of existing vegetation (49%), and landscaping proposals (76%). Although litter is a major contributor towards adverse visual impact it was only identified as a potential visual impact in two EISs (Nos. 767 & 961) in the urban development category.

Table 5.2 Incidence of identification of impacts within VIA (Listed as non-visual impacts within EPA Advice Notes on Current Practice – CAAS 1995b).

Development category	IMPACTS IDENTIFIED (Listed in the EPA Advice Notes as non visual)	1997	1998	1999	Total
Urban	Lighting	32 %	31 %	20 %	**30 %**
Developments	Litter	0 %	4 %	0 %	**2 %**
	Impact of removal of site vegetation	48 %	51 %	50 %	**49 %**
	Impact of landscaping proposals	74 %	76 %	90 %	**76 %**

A number of visual impacts not listed in the EPA advice notes were identified in EIS for quarry developments and urban developments (Table 5.3). Although, the incidence of their identification was low (< 2%) these visual impacts could be useful when considering revisions to the current list of visual impact in the EPA advice notes. Surprisingly, visual impact due to signage was not considered in any urban development project.

Table 5.3 Identification of visual impacts within VIA (Not listed in EPA Advice Notes on Current Practice – CAAS, 1995b).

DEVELOPMENT CATEGORY	VISUAL IMPACTS IDENTIFIED (Not listed in EPA Advice Notes on Current Practice)
Quarry Developments	• Alteration of visual amenity due to removal of site vegetation • Visibility of new fencing • Alterations to ground levels • Loss of Amenity • Landscape restoration • Changes in Land use • Light Pollution • Form & movement of vehicles off-site
Urban Developments	• Visibility of temporary construction activity • Visibility of construction traffic • Visibility of existing power lines • Visibility of car parking • Visibility of retaining walls • Alteration of visual amenity due to culverting of river or stream • Visibility of earthen banks • Alteration of visual amenity due to demolition of existing structure • Loss of views across open space • Exposed to more shade

5.2.2 Mitigation Measures Proposed to Ameliorate Adverse Visual Impacts

Potential visual impacts can have a positive or a negative effect on the visual amenity. Those with an adverse effect on the visual amenity require action by the developer. Developers have three main alternative means of mitigation measures to ameliorate these adverse impacts:

a) Choosing an alternative location where the visual impact would either be less or eliminated altogether

b) Optimising designs of the proposed development,

c) Screening views of the proposed development.

Choosing an alternative location in an Irish planning context is not very realistic since prospective developers normally own the site before detailed planning begins and EIA is conducted. Nonetheless, alternative locations were discussed in 23% of VIA (Table 5.4). Modifying design elements (form, colour, texture, siting and layout) of a proposed development can significantly reduce adverse visual impacts, but design can also be used to transform adverse visual impacts into positive visual impacts, thereby enhancing the visual amenity rather than degrading it. Modifying the site layout was used in 70% of

cases, compared to site levels (33%), form and texture (32%), and colour (33%). Overall, design alternatives were used only in 42% of projects to mitigate potential visual impacts.

Screening using ground-modelling techniques (44%) by creating earthen banks to alter the shape of the terrain was used significantly less than planting new vegetation features (85%) to reduce or eliminate views of the proposed development. It is striking that screening techniques (64%) to hide proposed developments were used significantly more than either alternative locations (23%) or alternative designs (42%) (Table 5.4).

The primary aim of EIA "*to predict environmental impacts before construction in order to permit designs to be modified to eliminate or minimise impacts*" (European Council, 1985) suggests that optimising design alternatives should take precedence over screening. However, the results indicate the opposite, with screening techniques being used more frequently (68%) than design optimisation techniques (42%).

Table 5.4 Incidence of measures proposed to mitigate visual impacts.

	Piggery	Quarry	Urban	Mean	
Alternative Location	23 %	54 %	9 %	23 %	
Total	**23 %**	**54 %**	**9 %**	**23 %**	**23 %**
Alternative Designs – site layout	74 %	37 %	84 %	70 %	
Alternative Designs – site levels	3 %	56 %	35 %	33 %	
Alternative Designs – form or texture	20 %	5 %	49 %	32 %	
Alternative Designs – colours	57 %	10 %	35 %	33 %	
Total	**39 %**	**27 %**	**51 %**	**42 %**	**42 %**
Screening – ground modelling	31 %	88 %	29 %	44 %	
Screening – planting	74 %	81 %	91 %	85 %	
Total	**53 %**	**84 %**	**60 %**	**68 %**	**64 %**

The retention and use of existing vegetation as features to positively enhance the visual amenity and as screening to reduce visual impacts seems to be under-valued by developers. Statements such as those quoted below are representative of the general attitude towards existing vegetation found within many EIS examined. Similarly, developers do not seem to appreciate the time it takes for trees to mature. There seems to a widespread belief that planting will provide effective screening within a 4 to 5 year period. Further research is necessary to confirm or refute this belief, and to develop a set of performance criteria for

mitigation measures to ensure quantifiable results are predictable and achieved. The results of this survey of visual practice suggest that developers consider that the value of existing vegetation as positively contributing towards the visual amenity and providing existing screening are less important than any restrictions the location of the vegetation might place upon the layout of a scheme. Tree Protection Orders and the designation of important stands of trees within CDPs, can be effective by applying conditions to planning decisions to protect existing vegetation.

> *"A single large sycamore occurs in the centre of the field adjacent to site number 8. This is approximately 22m high with a girth of 2.3m, and it is in good condition. This will be removed" EIS 817*
>
> *"The removal of the substantial and prominent stand of deciduous trees south of the existing buildings will have a significant and negative short term impact. However, when replacement planting becomes established within a 4 to 5 years period, the longer term impact will become slight and neutral" EIS 887*

Occasionally, landscape features were removed entirely without any justification supplied within the EIS. Developers proposed to bury streams in culverts in 7% of EIS for urban developments, with no reasons being supplied to support this course of action. Developers may have considered the water safety of residents, the health of residents by the possibility of attracting vermin, or that these streams may have obstructed the layout of the development proposal, but no reasons were provided to justify their removal. Streams can be positive landscape features, which significantly contribute to the environment and the visual amenity, yet their loss was not considered as negative visual impacts in any of the EISs in question. VIA should also attempt to identify positive landscape features, such as cultural, vegetation and water features, and propose opening up views to them to enhance the visual amenity and counteract any adverse visual impacts. All such enhancements should contribute towards the final evaluation of significance of all impacts identified on the overall visual amenity.

5.2.3 Calculating the visibility of the proposed development to select principal viewpoints

Heights of proposed structures (Figure 5.1) were supplied in a substantial number of EIS for piggery developments (74%), but were supplied in a significantly lower number of EIS

for quarry developments (32%) and urban developments (14%) even though heigh is the primary factor influencing the visibility of a development (Section 3.2).

Sizes of proposed structures (Figure 5.1) were supplied in most EIS for quarry (98%) and urban developments (91%), but were supplied in a significantly lower number of EIS for piggery developments (17%). Since the dimensions of proposed developments are normally available from architectural drawings for the development proposal these results suggest that consultants conducting VIA do not consider this issue as important.

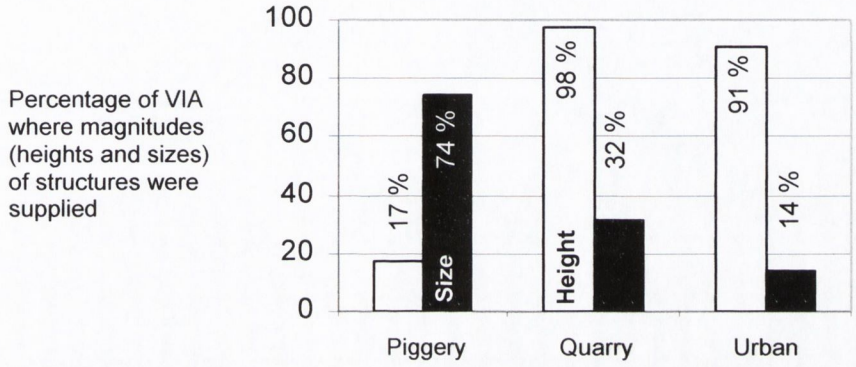


Figure 5.1 Incidence of supply of heights and sizes of proposed developments for VIA.

Data on the landform, existing buildings and vegetation are necessary when calculating the 'zone of visual influence' (ZVI) to or from the proposed development (Section 3.2). ZVIs were determined in a disappointingly low number of VIA for all three development categories with quarry developments scoring highest at 15%, and a mean score of 9% achieved (Figure 5.2). There seems to be some reason or obstacle why ZVIs were determined in such a small number of cases.

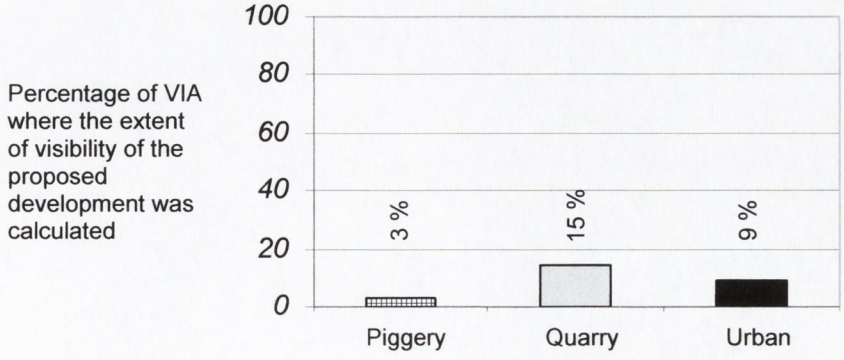


Figure 5.2 Incidence of calculation of the extent of visibility of proposed developments.

Once the extent of visibility of the proposed development is determined, a number of possible viewing locations are identified within the ZVI area. The criteria for selecting viewpoints should consider (LI & IEA, 1995):

a) Locations affording best views;
b) Proximity of viewpoints to the development;
c) Sensitivity of the viewing location, i.e. areas designated within the County Development Plan, which lie within the ZVI (Table 5.7);
d) Sensitivity of viewers likely to view the development;
e) Both public (Table 5.5) and private (Table 5.6) locations.

A set of principal viewpoints (Table 5.8) are then chosen from the complete list of viewpoints selected, from which visualisation techniques are used to predict the nature and magnitude of visual impacts. Although viewpoints were chosen in many VIAs, the criteria used for selecting them were rarely, if ever, supplied.

Table 5.5 Public viewpoints identified.

	1997	1998	1999	Mean
Piggery	7 %	33 %	20 %	**20 %**
Quarry	36 %	44 %	89 %	**51 %**
Urban	72 %	64 %	80 %	**69 %**

Table 5.6 Private viewpoints identified.

	1997	1998	1999	Mean
Piggery	0 %	13 %	0 %	**6 %**
Quarry	7 %	56 %	78 %	**44 %**
Urban	59 %	44 %	50 %	**51 %**

Table 5.7 Viewpoints within designated areas identified.

	1997	1998	1999	Mean
Piggery	13 %	27 %	20 %	**20 %**
Quarry	36 %	22 %	44 %	**32 %**
Urban	19 %	20 %	20 %	**20 %**

Table 5.8 Principal viewpoints identified.

	1997	1998	1999	Mean
Piggery	0 %	0 %	0 %	**0 %**
Quarry	14 %	0 %	0 %	**5 %**
Urban	3 %	24 %	50 %	**20 %**

The selection of public viewpoints for piggery developments was twice to three times less than for quarry and urban developments, possibly signifying that visual impacts from piggery developments are considered less likely. However, the selection of private viewpoints for piggery developments was 8 to 10 times less than for quarry and urban developments when adjacent dwellings of agricultural neighbours might have been expected to have been included. The identification of sensitive views and prospects designated with County Development Plans was poor for all three development categories and most VIAs did not select a final set of principal viewpoints from which visual impacts would be best predicted.

5.2.4 Visualisation techniques used to portray visual impacts

A range of visualisation techniques which increase in complexity and realism is available to present the nature and magnitude of predicted visual impacts (Section 3.2.2). Cross-sections and longitudinal-sections do not present views from principal viewpoints as required by VIA, but present orthogonal views perpendicular from the line of section. These sectional views give an appreciation of the height of proposed development within its environmental setting and they may also indicate the location and height of other landscape elements in the vicinity, which might screen the view (Figure 5.3). Using colour and including people making use of the development after construction (Figure 5.4) can improve realism, but care must be taken not to introduce biases in the representation.

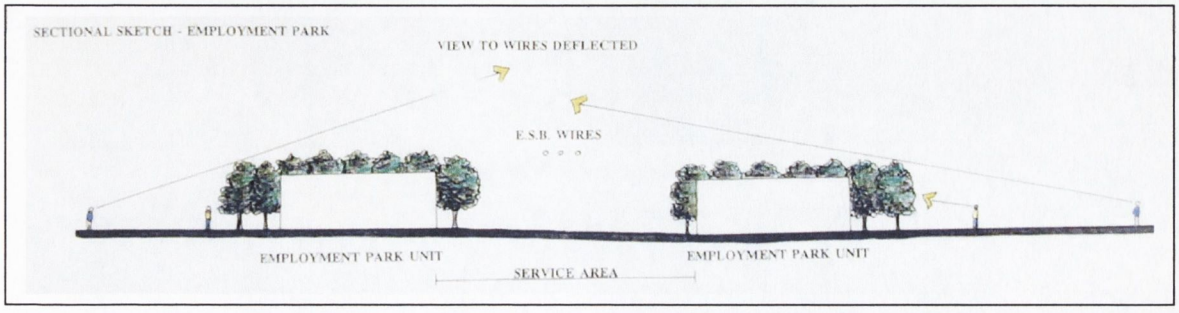


Figure 5.3 Sight lines on a cross-section of a development in Little Island, Cork (EIS No. 754).

Cross-sections were used as a visualisation technique in 33% of EISs examined (Table 5.9 and Figure 5.6).

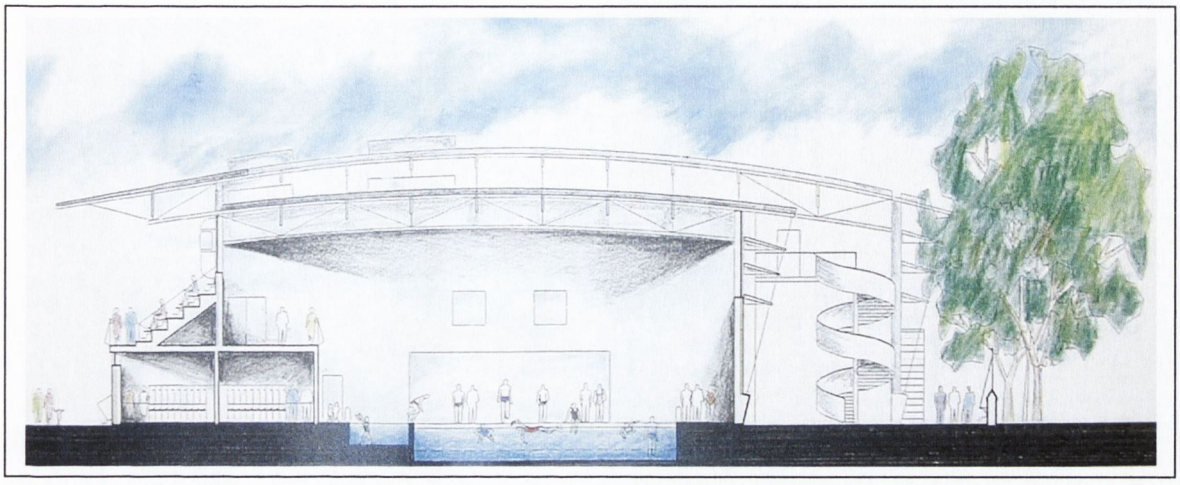


Figure 5.4 Cross-section of the National University of Ireland Cork's sports complex (EIS No. 876).

Table 5.9 Incidence of use of visualisation techniques within VIA.

	Piggery	Quarry	Urban	Total
Cross and longitudinal-sections	6 %	68 %	28 %	**33 %**
Artist's impressions / elevations	0 %	0 %	40 %	**22 %**
Photographs of views	11 %	59 %	63 %	**51 %**
Photomontages	3 %	22 %	21 %	**17 %**
Physical models	0 %	0 %	3 %	**2 %**
Virtual models	0 %	0 %	3 %	**2 %**
	3 %	25 %	26 %	**21 %**

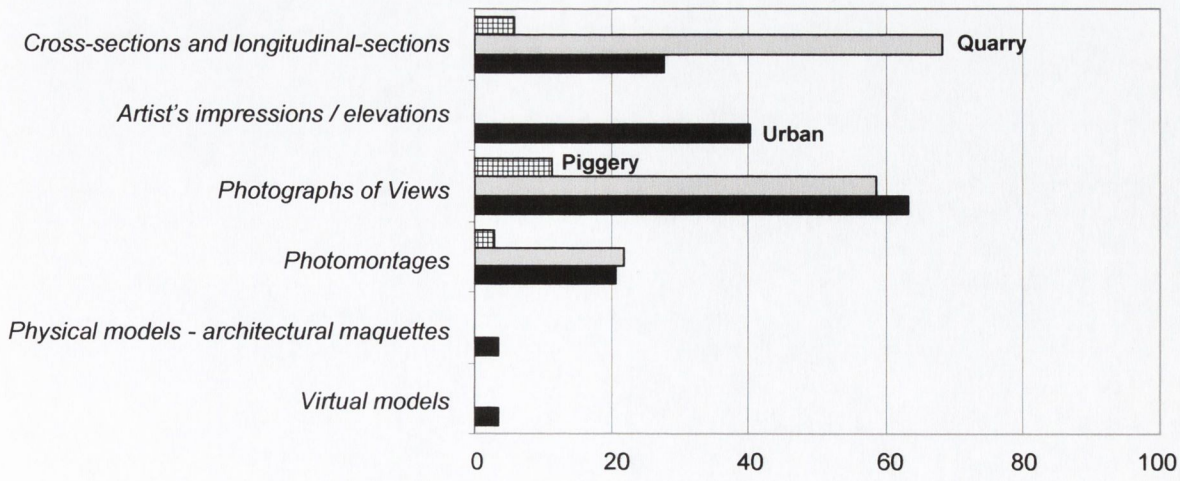


Figure 5.5 Incidence of use of visualisation techniques within VIA.

Front, rear and side elevations of a proposed development are the more familiar visualisations normally used with planning applications for housing schemes to portray a 3D impression of the completed structure. Elevation drawings are not very suitable since they do not use the principal viewpoints identified in the ZVI, and as a result cannot quantify the nature and magnitude of visual impacts from those principal viewpoints (Section 3.2.2). The elevations can be quite bland (Figure 5.6) or can be quite detailed (Figure 5.7).

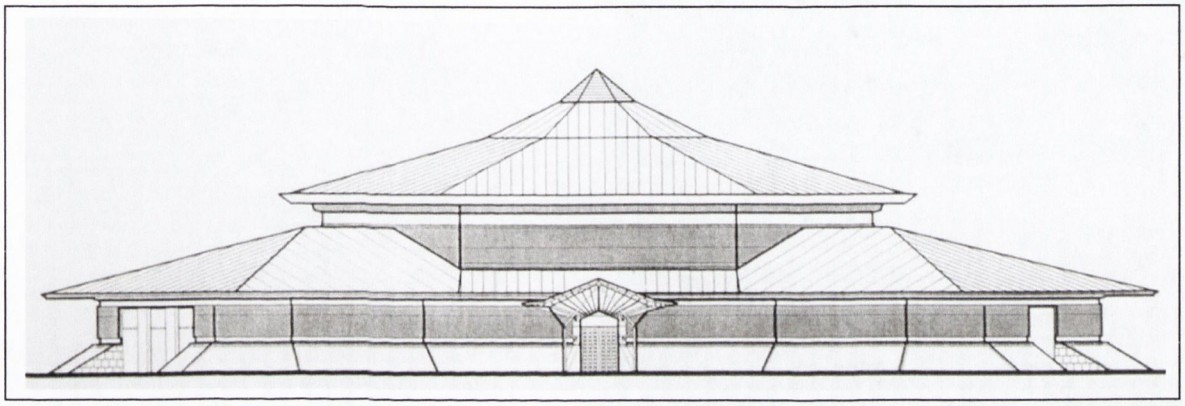


Figure 5.6 **Engineering elevation of proposed pumping station in Sutton (EIS No. 685).**

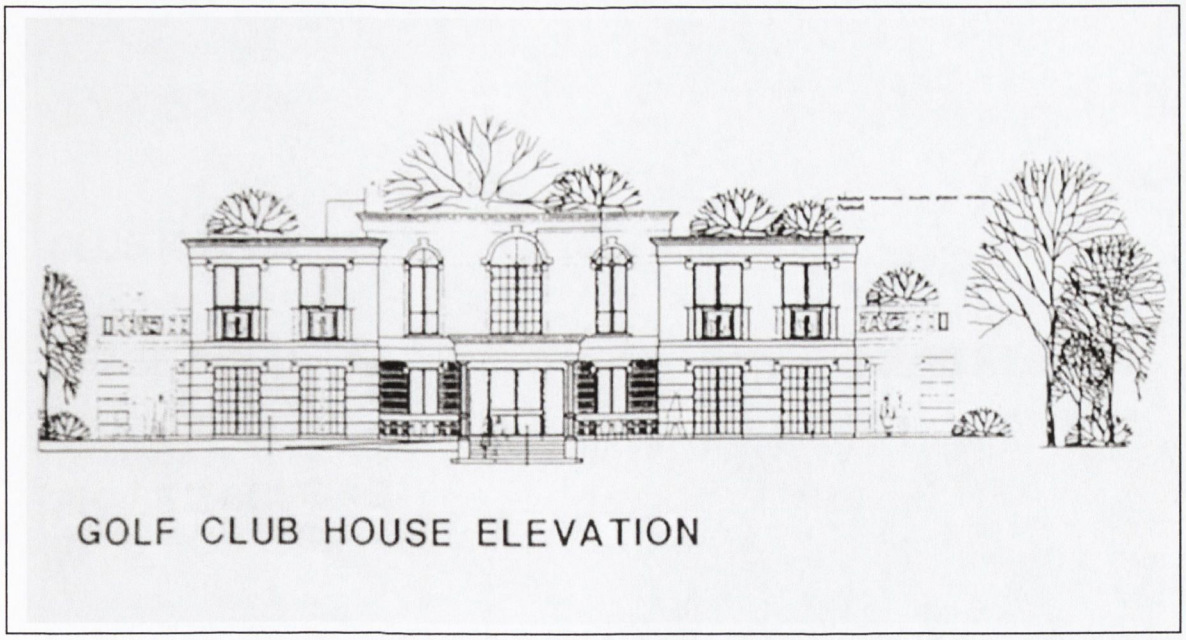


Figure 5.7 **Front elevation of the proposed renovation of a Golf Club (EIS No. 780).**

Artist's impressions can be either perspective sketches completed in pencil or charcoal, or drawings finished in watercolour which may provide a 'before' and 'after' image of the development site. This technique was only used in 40% of EISs within the urban development category, many of which used an aerial viewpoint rather than one of the principal viewpoints for the presentation (Figure 5.8).

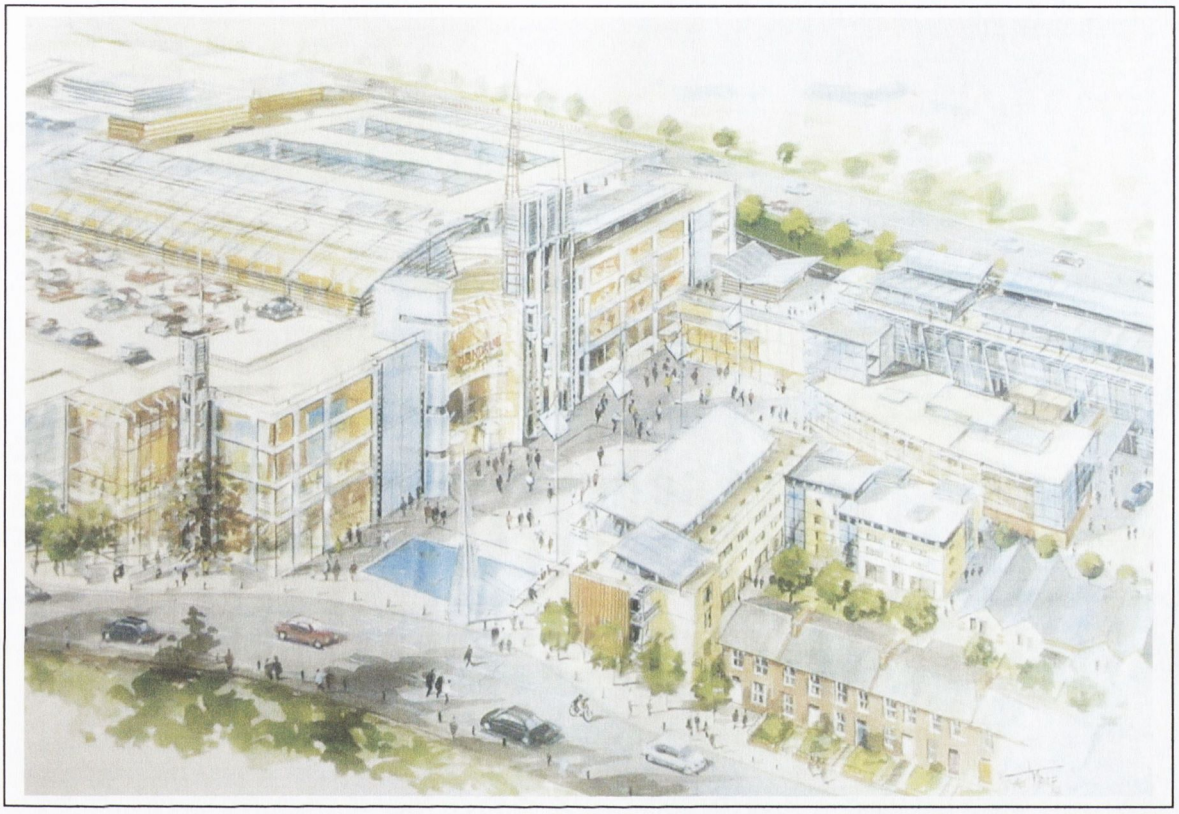


Figure 5.8 Artist's impression of Dundrum Town Centre from an aerial viewpoint (EIS No. 762).

Annotating a photograph is essential to highlight particular landscape elements within the view or prospect (Figure 5.9). Although photographs do not present predictions of the nature or magnitude of visual impacts, they are very useful to record the baseline situation before any development occurs. Even though photography is a cheap and simple technique it was only used in 51% of EISs overall, with piggery developments lagging far behind the other two development categories at 11% of EISs (Table 5.9 and Figure 5.6).

Figure 5.9 Photograph of proposed new workings at a Quarry (EIS No. 1014).

Figure 5.10 Photomontage of the Luas Bridge in Ranelagh, Dublin (EIS No. 648).

Photomontages (Figures 5.10 & 5.11) have additional advantages over photographs in that they are now easy to produce using digital techniques, and "before and after" visualisations are now commonly used to identify the nature and magnitude of the visual impact. Disappointingly however, photomontages were only used as a visualisation technique in 17% of all EISs examined (Table 5.9 and Figure 5.6), with quarry and urban developments substantially more (22% and 21% respectively) than piggery developments (3%).

Figure 5.11 Photomontage of the Landsdown Cement Factory in Kinegad (EIS No. 794).

Since EIA is conducted for major development projects it was disappointing to note that physical models were only produced in 2% of EISs examined (Table 5.9 and Figure 5.6). Photographs of models (Figure 5.12) can be used to produce highly realistic and effective photomontages especially when combined with a photographic image of the site (Figure 5.13).

Figure 5.12 Physical model of the UCC Sports complex in Cork (EIS No. 876).

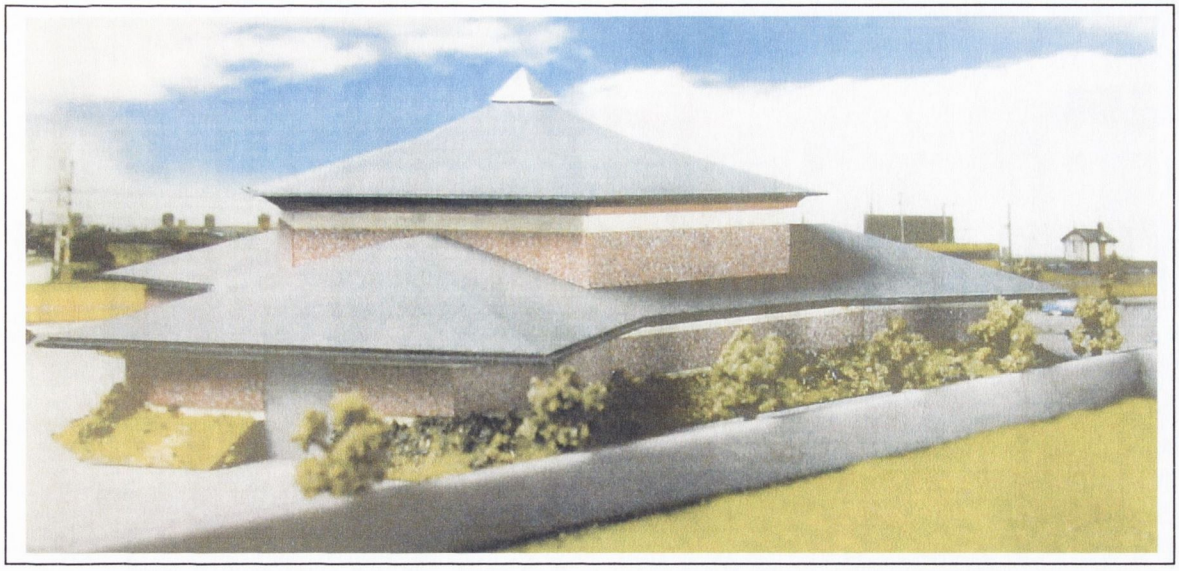


Figure 5.13 Physical model of pumping station at Sutton combined with a background photograph (EIS No. 685).

Different degrees of realism with virtual models are dependent on the effort put into building the virtual model and the ability of the software package to render surfaces realistically, amply portrayed by the basic realism in Figure 5.14 compared to the advanced realism depicted by Figure 5.15.

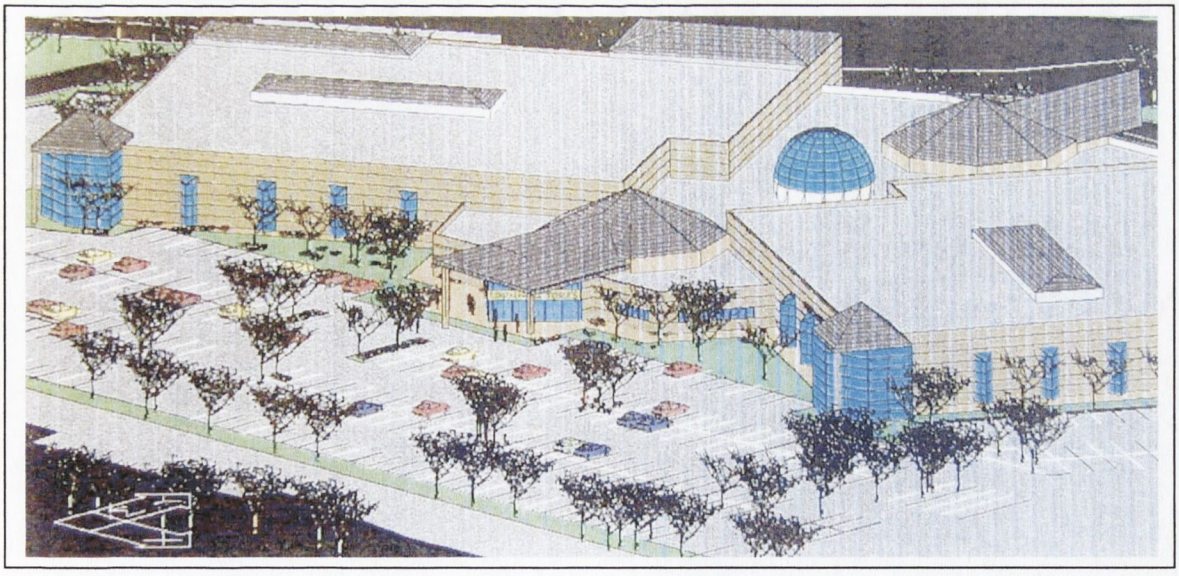


Figure 5.14 Virtual model of retail centre using CAD software (EIS No. 784).

Overall, piggery developments recorded the least use of visualisation techniques (3%), whilst quarry developments and urban developments recorded slightly higher usages, 25% and 26% respectively (Table 5.9).

Figure 5.15 Virtual model of Bray Civic Centre using architectural software (EIS No. 952).

The overall use of visualisation techniques (21%) within the visual impact assessment process was disappointing. Traditional techniques were employed more frequently than modern ones with photomontages being used less (17%) than the more traditional techniques of artist's impressions, and elevations (22%). Physical and virtual modelling techniques are expensive and might normally only be performed for projects involving major investments, but since EIA is only prepared for major developments, the use of modelling techniques was lower than anticipated, and all of the physical and virtual models were only created for the urban development category.

5.2.5 Evaluating Receptor Sensitivity

The sensitivity of proposed developments relative to their surroundings is evaluated using proximity of designated landscapes and designated views and prospects to the development site, the nature and magnitude of the predicted visual impacts and the value placed by potential viewers (visual receptors) on the predicted change in the visual amenity.

Table 5.10 Sensitivity of visual receptors

	Piggery	Quarry	Urban	Mean
Designated landscapes and views identified	37 %	54 %	31 %	**38 %**
Viewers identified	31 %	56 %	45 %	**45 %**
Viewer types identified	51 %	0 %	45 %	**35 %**
Viewer numbers identified	0 %	2 %	2 %	**2 %**
Duration of viewing estimated	6 %	0 %	1 %	**2 %**
Viewers surveyed for their opinions	0 %	0 %	1 %	**1 %**
	21 %	19 %	21 %	**20 %**

Designated landscapes include those designated nationally such as Special Areas of Conservation (SACs), Special Protection Areas (SPAs), National Heritage Areas (NHAs), and nature reserves, and those designated by Local Authorities within CDPs such as views and prospects, conservation areas, architectural and archaeological areas, green belts and areas and vegetation protected by Special Amenity Area Orders and Tree protection Orders. Landscapes and views designated for protection were mentioned in only 38% of EISs examined (Table 5.10).

Visual receptors were identified in 45% of VIA, but their opinions were only collected in one EIS (876) of the 164 examined (< 1%). Other factors that contribute to sensitivity evaluation are viewer types and numbers, and their duration of viewing. Sensitivity provides a weighting factor to allow the significance of visual impacts to be evaluated more accurately. Consequently, these sensitivity results do not auger well for the evaluation of significance of visual impacts.

5.2.6 Evaluating the Significance of Visual Impacts on the Overall Visual Amenity

Finally, the significance of each visual impact is then evaluated using the magnitude and nature of the proposed development after mitigation has been applied, and the sensitivity of the landscape and viewers to the predicted visual impact on the existing visual amenity.

Even though the measure of magnitude of visual impacts was satisfactory (54%), the low incidence of predicting the nature of visual impacts (21%), the identification of sensitive landscapes (38%), and the opinions of visual receptors were only collected in one VIA (< 1%). Therefore, it was unlikely that any real evaluation of significance could have taken place. This is borne out by the results, which reveal a 48% evaluation of significance for

urban developments, but only a 24% and an 11% evaluation of significance for quarry developments and piggery developments respectively. This provides an overall evaluation of significance of 34% (Figure 5.16).

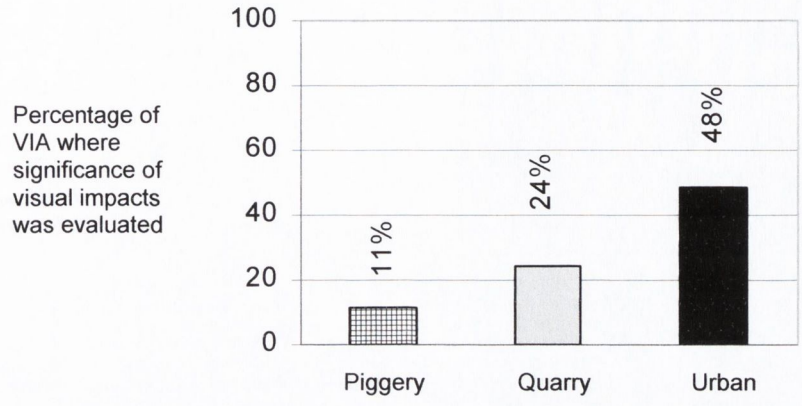


Figure 5.16 Incidence of evaluation of significance of visual impacts.

These evaluations of significance were based on incomplete data in many cases, and unsubstantiated statements were noted in 8% of VIA for urban developments. It is extraordinary when a County Development Plan contains listed views in the vicinity of a proposed development that unsubstantiated statements such as this can be made.

> *"Given the small scale and nature of the development, no adverse impact would arise" EIS 719*
>
> *"Between Greystones and Wicklow, prospects and views inland from the railway are listed in the Wicklow County Development Plan 1989. However, the Wicklow Mountains would be the dominant feature of the view, and glimpsed views of the site would not be significant" EIS 780*

5.3 CONCLUSIONS

The acceptable standard of VIA in Ireland is defined within the EPA "Draft Guidelines on the Information to be contained in Environmental Impact Statements" (CAAS, 1995a) and "Advice Notes on Current Practice in the preparation of Environmental Impact Statements"(CAAS, 1995b). Since only 37% of EISs examined identified visual impacts listed in this standard, this suggests that new initiatives are necessary to improve compliance with the guidelines.

A number of potential visual impacts not included in the EPA Advice Notes (CAAS, 1995b & 2003) but used by consultants conducting visual impact assessments for urban developments include visual impacts resulting from *lighting, litter, removal of site vegetation, and landscaping proposals*. One potential visual impact listed in the EPA advice notes for piggery developments "*water body eutrophication*" was not assessed in any of the 35 EISs for piggery developments examined. The EPA should consider including or excluding these visual impacts during the next revision of the advice notes.

The primary aim of visual impact assessment is to predict visual impacts before construction in order to permit designs to be modified to eliminate or minimise the impacts identified. The results indicate that modifying existing designs was only used in 42% of all EISs examined, and a 68% incidence of using screening techniques. These results suggest that existing designs are being hidden behind landscaping screens and that the primary aim of VIA "modifying designs" is not being achieved.

The felling of mature trees and the culverting of streams on development sites prior to construction indicates a lack of understanding and appreciation by developers of the value of these landscape features which positively contribute to the visual amenity. This finding suggests that attitudes towards these features needs to change and existing controls to protect these landscape features are not effective enough.

The assessment of visibility of proposed developments was disappointingly poor for an objective portion of VIA. Firstly, although the heights and floor areas (sizes) of proposed structures are likely to have been already available within architectural drawings they were supplied in only 54% of EISs. Secondly, the computation of the extent of visibility of proposed developments was low (9%). Finally, although a set of viewpoints were chosen in many VIAs, the criteria used for selecting them were rarely, if ever, supplied.

Although one of the main functions of VIA is to present predictions of any potential visual impacts, the overall use of visualisation techniques within VIA was remarkably low (21%). One of the most striking findings was that photography which is an easy to use and cheap technique ideally suited to recording baseline information of the existing visual amenity was only used in 51% of all the EISs examined. Traditional techniques were favoured with photomontages being used less (17%) than the more traditional techniques of artist's

impressions, and elevations (22%). The use of physical and virtual modelling techniques was much lower than anticipated at 2% each.

Sensitive landscapes and views designated for protection were identified in only 38% of EISs examined. Although information on designated landscapes and views is readily available within CDPs and from Dúchas, this lack of identification suggests there may be a difficulty accessing this information. Similarly, although visual receptors were identified in 45% of VIA, their opinions were only collected in one EIS (876) of the 164 examined (< 1%). The reason for this may lie with Ireland's planning system which has traditionally shunned participation by keeping development plans secret until submitted for planning permission. Consequently, the notion of collecting the views of visual receptors to a development proposal before it has been submitted is contrary to current practice.

The evaluation of significance is the culmination of the VIA process for which all information collected allows a final judgement to be made. Consequently, the overall finding of 34% for the evaluation of significance was poor in this context. However, 8% of the statements of significance within the urban development category were unsubstantiated, which reduces this overall result from 34% to 30%. These findings would fail on an academic scoring classification, so the VIA process is considered to be sub-standard.

CHAPTER SIX

SURVEY OF LOCAL AUTHORITY POLICIES TO MANAGE THE VISUAL AMENITY

6 SURVEY OF LOCAL AUTHORITY MANAGEMENT POLICIES FOR THE VISUAL AMENITY

6.1 INTRODUCTION

The second survey investigated the local government policies used to manage the visual amenity, which are mainly documented with the City and County Development Plans. A small part of this survey examined the use of VIA information specifically and EIS information generally within the development control process to provide a context for the results from the first survey. This second survey did not relate to the proposed theoretical framework for VIA presented in Figure 3.10.

A full list of the respondents who participated in the survey is supplied in Table 4.10. However, in order to get agreement to participate a commitment was required to be given that the results would be anonymous. Consequently, all comments attributed to particular respondents contained within chapters six and seven are referred to the summaries of the interviews supplied in Volume 2 (Appendices K, L, M and N) such as 'PA5' for Planning Authority 5, or 'EG12' for Environmental Group 12. However, the author alone holds the key correlating individual respondents to the individual summaries and all references to people and places within the summaries have been removed to maintain that anonymity.

The protection and enhancement of the visual amenity is mainly the responsibility of the local authority planning departments in Ireland (Sections 2.2 and 2.3). This survey attempted to evaluate how these planning departments were discharging their responsibilities in this regard; firstly by identifying which development types were having a major affect on the visual amenity. It then examined existing policies within CDPs used to protect the visual amenity and subsequently examined other development policies within CDPs that were having a direct or an indirect impact on the visual amenity followed by an examination of methods employed for enhancing the visual amenity. Finally, it examined the success of the EIA process in supplying information necessary for the development control process.

The planning authorities who participated in the survey were selected on the basis of the five highest and lowest authorities with regard to population density and tourism density. This was done to select a sample which was manageable, but also to examine the results on

the basis of this classification. The results indicate that differences between these groups of planning authorities were quite small and subtle. There was one obvious difference between the high and low population density authorities, essentially between rural and urban authorities where the development pressures were quite different and the protection policies contained within CDPs were predominantly focussed at the rural areas. After the interviews were completed there was a sense that the high tourism authorities had a greater appreciation of the visual amenity because of its importance for tourism. However, once the CDPs were also examined this distinction was less apparent, because most CDPs contained similar policies. Whereas policies included in the CDPs tended to be aspirational in nature, this was quite distinct from policy implementation on the ground. It was noted that there was a regular movement of planners between authorities, which assisted with the cross-fertilisation of ideas.

6.2 ISSUES HAVING MOST SIGNIFICANT IMPACT ON THE VISUAL AMENITY

Table 6.1 presents the results of what each planner interviewed considered was having the most significant impact on the visual amenity in their local authority area. Development pressures were identified by three of the four groups as the issue having the most effect, and one-off housing in the rural area was identified as the issue creating the largest adverse impact on the visual amenity, easily beating forestry and wind-farms into second place.

Table 6.1 Issues identified as having the most significant impact on the Visual Amenity.

	Most important Issue	**Second most important issue**	**Third most important issue**
High Population	Design Issues	Positive Action	
Low Population	Development Pressures	Education & Research	Planning Issues
High Tourism	Development Pressures	Design Issues	Planning Issues, Education & Research, and Positive Action
Low Tourism	Development Pressures	Planning Issues, and Positive Action	

6.2.1 Development Pressures

- **One-off Housing and Rural Settlement Strategy**

One-off housing in the rural area was identified by three of the four groups of planners (low population, high tourism and low tourism) as having the most significant influence on the visual amenity. They stated that this was a huge issue nationally, with 33% of all applications for houses in the rural area, and that the processing of these applications used a significant portion of the available resources in development control. One grant of permission is not the problem for the visual amenity. It is the cumulative effect of multiple grants of permission over an extended period, which leads towards the loss of rural character of the countryside. Policies are already available within the CDPs to control one-off houses by various means, but they are not being implemented sufficiently because it is very difficult to say no on a case-by-case basis within Ireland's particular system of planning.

> *"The biggest negative visual impact in the rural area is the cumulative effect of one-off residential developments" PA10*
>
> *"The increase in the numbers of one-off houses is leading to the loss of rural character of the countryside" PA17*
>
> *"Policies to control one-off houses are already in the CDP, but are not being implemented sufficiently" PA18*

There was one opposing view that housing in rural Ireland has been a feature of the landscape for well over a hundred years by citing a copy of the 1896 edition of a 6 inches to 1 mile Ordnance Survey map showing dwellings scattered throughout the landscape. However, it is Ordnance Survey mapping practice to show all buildings including unoccupied ones on these large scale maps, so it is possible that many of these dwellings related to the pre-famine in the 1840s when Ireland's population exceeded 8 million.

Rural local authorities have of late been developing settlement strategies to limit the phenomenon of one-off houses in the rural area. Many authorities are defining village boundaries within CDPs where previously there were none. People are being enticed to build their houses within villages by lowering the conditions applied to grants of planning permission if they do so. There is an ongoing debate where most local authority planners and the current administration support the idea of settlement clusters. They argue that one-

off houses in the rural area are not-sustainable by requiring higher costs for wider distribution of services (water, waste collection, electrical, telecommunications, and post) and that many inhabitants of rural dwellings would be travelling by car rather than public transport to their employment, likely to be situated in a nearby town.

> *"People should live in towns and villages where possible, but not all the people. Not everybody wants to live in a village" PA8*
>
> *"Houses in towns are too expensive and services are not available to encourage people to develop in serviced centres" PA17*
>
> *"Two side to the problem – degradation of the countryside and lost opportunities in the villages" PA14*

However, not everyone wants to live in a village and a sizeable proportion of the general public, the farming community and local politicians support the opposing "O'Cuiv's" view (Sunday Business Post, 2001) that there should be one-off houses in the countryside or else the countryside will be depopulated. They state that houses in towns are too expensive and that basic services are not available to encourage people to build there. This debate is far from over, and the answer might possibly be a little of both, but in a far more controlled manner than heretofore. Many planners interviewed considered that granting permissions for one-off rural houses is significantly contributing to the degradation of the countryside, so decisive action is needed to halt this type of development in its current form.

- **Forestry**

Forestry was identified as the second most important development pressure adversely impacting on the visual amenity. Forestry has created a massive impact on the visual amenity, significantly bigger than expected because it completely changes the contours and colour of the landscape. It transforms landscape character and mistakes have been made in the past with the wrong types of trees (monocultures rather than a mix of conifers and broadleaves) in the wrong places.

"Created a massive impact significantly bigger than expected with the wrong type of trees in the wrong places" PA13

"Forestry completely changes the contours and colour of the landscape" PA8

"Size requiring planning permission was 70 hectares now reduced to 50 hectares, but still a huge area" PA13

The scale of forestry developments is also a major factor if planted in close proximity to road boundaries where landscape views are restricted for significant lengths of time. In the past forest boundaries also tended to be straight linear scars on upland areas rather than following the boundaries of previous field patterns. It was also suggested that when the peat runs out on the Bord na Móna bogs during the next 20 years there is going to be a lot of forests in low lying areas.

- **Wind-farms**

Wind turbines were identified as the third most important development pressure adversely impacting on the visual amenity. Applications for wind-farms in the past have tended to be in high-amenity upland areas where their visual impact can be quite severe because the turbines are so tall (60m) and they are visible breaking the skyline for many miles.

"Applications for wind-farms in the past have tended to be in high-amenity areas" PA6

"Have seen one wind-farm where the visual impact was quite severe, right across the hill and broke the skyline very clearly" PA17

"Until government policy changes we cannot get them off the hills" PA8

Although councillors are generally pre-disposed towards wind-farms, and the country has an obligation under the Kyoto agreement to adopt sustainable energy sources, current policies for protecting high amenity areas are restricting planning permissions in favour of these developments. If permissions were granted on undulating countryside rather than on elevated sites, the turbines should blend reasonably well into the landscape. However economic forces (higher wind speeds on elevated sites) and government policy (low market price for selling power into the electricity grid) is forcing applications onto elevated

sites. It is hoped that the landscape assessments will identify preferred locations for turbines, which will not compete with areas of high visual amenity.

6.2.2 Design Issues

Design issues were identified as having the most significant influence on the visual amenity by the remaining group of planners (high population) and were also identified as the second most important factor impacting on the visual amenity by the high tourism group. The replies from both groups were slightly different in that the high population group focussed more on urban design issues, and the high tourism group focussed more on inappropriate designs in rural area.

> *"Better understanding of quality in design by developers and architects is needed" PA3*
>
> *"Stronger emphasis on urban design at local plan level and for village and urban renewal schemes" PA4*
>
> *"All major infra-structural works would benefit from some input from architects and planners at design stage rather than later" PA2*

The planners for the urban areas considered that there was a need to improve the quality of design of individual structures, a need for stronger emphasis on urban design for streetscapes and urban centres and the need for input at an earlier stage into visual design to infra-structural projects managed by engineering departments within local authorities.

The planners for the high tourism area (included county and city areas of Galway and Dublin) considered that more training was required to improve design standards, that there was a need to improve architectural design in rural villages and that there was a need to control the use of inappropriate designs in appropriate locations in the rural area. There was a general appreciation not to ban all developments in the rural area, but to promote good developments sensitively located.

"More training is required for architectural technicians to improve design standards of one-off houses" PA14

"Should really be contributing to making nice villages with good architecture" PA14

"Loss of visual amenity by reason of individual rural houses being badly sited, or inappropriate designs to suit their location" PA17

6.2.3 Difficulties within the Planning Process

Local authority planning departments have been chronically under-resourced since they were established in the 1960s, so much so that all staff were generally assigned to fight the daily crisis of dealing with planning applications in development control. Forward planning was dealt with on an *ad hoc* basis and lip service was paid to enforcement. The huge increase in planning applications during the late 1990s put this already stretched service under increased tension, such that extra staff had to be provided to ensure statutory deadlines were met. The new Planning and Development Act (DoELG, 2000a) put further pressure on staff shortages by introducing statutory requirements for forward planning to produce CDPs every six years, conduct landscape assessments and prepare LAPs for urban areas to name a few. Significant further increases in technical staff are required to permit planning authorities perform these extra duties and to provide an effective enforcement service as well development control and forward planning.

"Much understaffing in planning department, so development control focus and minimal forward planning" PA10

"Planning departments are under pressure due to increase in activity and staff shortages" PA11

"Fewer planning staff previously assigned to forward planning in Ireland, but new structures starting to correct this imbalance" PA9

There is also a need for consistency in planning decisions. Differences in development policy between adjacent planning authorities or differences in the interpretation and implementation of policies by different planners within the same planning authority causes major difficulties for local councillors. Citizens put pressure on councillors to get involved in planning applications because they cannot see the rationale behind the policy or the

decision in their case is inconsistent with other decisions in the locality. Consistency of decisions is also needed at national level where different results are possible from different members of An Bord Pleanala.

> *"Major difficulty from a councillors' point of view – they won't let me build that there, but they let him build that down the road" PP5*
>
> *"Consistency of planning decisions needed at national level – can get two different results from two different Bord members" PA1*

Many planning authorities also felt that Justice Quirke's decision in the Meath Kildare case had caused a major difficulty with respect to strategic planning guidelines (Oireachtas, 1994). The judge ruled that the local authorities did consider that strategic planning guidelines when they adopted the new CDP and that the wording "have regard to" did not require compliance with. One planner stated that this finding caused particular difficulties when attempting to persuade local councillors to accept the need for new policies within CDPs and a number of environmental groups were of the opinion that there is no point in producing strategic guidelines for urban areas if they are not going to be applied.

> *"Justice Quirke's decision with respect to "have regard to" renders the strategic planning guidelines meaningless" PP3*
>
> *"What chance have we in arguing the need for policies when Counties Meath, Kildare and Wicklow are breeching the strategic guidelines" PA6*

Many planners felt it was not possible to reverse the "sins of the past" and that their focus was on areas being newly developed. One planner cited a case where there were no powers or resources available to him to upgrade existing sub-standard industrial units to provide basic environmental and visual standards. Measures for positive intervention introduced recently under the new Planning and Development Act (Oireachtas, 2000) are limited to landscape and architectural conservation areas, and the element of compensation is still present so the lack of financial resources may preclude any action being taken.

"Cannot do much with areas spoilt in the past, so our focus is to put all our resources into protecting areas that are still pristine" PA6

"Strip of industrial units allowed to develop over the years - hardcore surface on road and parking area and front of site wide open to the road" PA12

"Local authority having the resources and power to pay compensation for positive action is important" PA3

Many planners spoke of the need to heighten public awareness and convert people to the concept of sustainable development in order to get broad support for planning measures being applied. However, very few suggested that this requirement should be addressed by Local Agenda 21 initiatives. A number of planners also referred to the increased use of plastics instead of natural materials in modern housing in the rural area.

"Building materials used are not sustainable – plastic used a lot instead of natural materials" PA1

"Need to educate people to improve sustainability by retaining old features, applying good design and enhancing landscape" PA8

There was a wide acceptance by all the groups interviewed of a lack of participation by the public in the planning process in Ireland. However, addressing the issue is faced with many difficulties. From the local authority's perspective traditionally there was little or no participation so policies and processes need to be changed. The word consultation rather than participation is predominantly used in the regulations, because participation scares planners and politicians by taking away their power of decision making, so attitudes need changing also. Participation is also very resource intensive and due to the habitual understaffing of planning authorities few staff are available when many are required. From the public's perspective it was appreciated that there was a major educational issue to inform the public how to participate, and also on the need to participate in a process from which they were previously excluded.

There was a feeling by many interviewed that the preparation of local area plans would significantly help public participation by involving local communities in plans of their areas. One respondent suggested that currently most of the public did not participate and

that we should consider the opposite of participation where a minority are left to comment on way too much.

> *"Pressure from Europe to move towards a more participative approach - historically no participation - learning curve for local authorities - very resource intensive – many authorities short of planners" PP1*
>
> *"Formulation of LAPs expected to improve public participation - restricted by time constraint of statutory 6 to 8 weeks for consultation - therefore little participation" PA18*
>
> *"Consultation is wrong word, because participation scares them" DP3*
>
> *"Need to consider opposite of participation – most of the public don't participate, so few left to comment on way too much" EG2*

Ireland's planning and development system operates on the principle of protecting the public interest and taking decisions for the common good. One respondent stated that the individual common good and the collective common good can be quite different, and that the collective common good should take precedence. However, he also stated that Irish people operate the system the other way round where the common good for one or a few individuals holds sway over the collective common good.

> *"Whole planning and development process is based on protecting the public interest" PA12*
>
> *"Irish view common good in an individual way - if development is not wanted by an individual them the rest can hump off - individual and collective common good can be quite different, but the collective common good should take precedence" DP4*

Part of this problem is the traditional political involvement in the development control process in Ireland. It is generally accepted by everybody that politicians should not get involved in individual cases. However, everyone comes running to their politicians for favours when it is their piece of land. One politician interviewed admitted that there was nothing more important than representing his constituents' interests in the planning process. He did not seem to consider that he might be subverting the collective common good in doing so.

"Everybody wants councillors not to get involved in individual cases until eventually it is their piece of land, and they request input for a rezoning, a higher density, or a planning application" PP5

"Nothing more important than representing constituent's interests in the planning process - constitutes about 50% of the workload" PP6

"Democracy in Ireland died a long time ago – every initiative taken is stacked with politicians to control it – time for society to question whether Ireland can afford the party political system since it has become so self serving that it is doing serious damage to the country" DP3

6.2.4 Education and Research

Many respondents identified a need to educate the public and politicians on the concept of and need for sustainable development. A number went further by stating that there was a need to change people's attitudes and ideas on the theory of a house and of landscape, by retaining old features, applying good design and enhancing landscape. Many planners also identified the sustainability of one-off housing in rural area as a major educational issue. Respondents from all groups identified the need for education on the planning and development system, how they can participate in the process, and why their participation matters by being an essential component of sustainable development.

"Need to educate people to improve sustainability by retaining old features, applying good design and enhancing landscape" PA8

"Educate people about planning - how they can participate, and how their participation matters" PA1

"Need for capacity building phase at start of process to educate how to participate and what trying to achieve" PA18

The need for more research to inform the process was also identified by a number of respondents. The two main areas identified as requiring further research were identifying the elements that contribute towards landscape quality and research into the decline of rural towns and villages and rural areas generally. One respondent cited difficulties contracting a particular university to conduct research due to their demand for full ownership rights and patents to the research data considered by him to be unacceptable and a reason for not funding research projects.

"Many people recognise that our villages are in decline (no schools or vets, etc.) but no in depth examination as to what is causing it".PA6

"Research needed to identify what constitutes landscape quality" DP3

"Difficulties contracting a particular university to conduct surveys due to their insistence at university level in demanding full ownership rights and patents to research data" PA11

- **Concluding Comments**

The issues identified as having the most significant impact on the visual amenity were design issues including structural design and urban design in urban areas and in rural areas were:

a) One-off housing in the rural area;
b) Forestry
c) Wind-farms

Planning authorities have been chronically under-resourced over an extended period which becomes an issue if the priority of other issues is greater than the priority for the visual amenity. The traditional lack of public participation is a problem because it is now necessary to ensure that developments are sustainable. This problem is partly due to the roles of local politicians as interfaces between their constituents and planning authorities. The need to educate the public on the requirements of sustainable development was identified to change current attitudes and two areas of further research were identified:

a) An investigation to identify what constitutes landscape quality;
b) An investigation into the reasons behind the decline of rural towns.

What range of protections does the planning and development system have against these development pressures?

6.3. POLICIES PROTECTING THE VISUAL AMENITY

There was a general consensus by all planning authorities interviewed that policies contained within CDPs have a definite bias towards protection rather than enhancement. These protection policies use a methodology of rating landscapes on a scale from bad to good and then focus on protecting the 'good'. A minority of planning authorities took

action to protect the visual amenity via land-use zoning as opposed to specific visual policies.

6.3.1 Protection of Views, Prospects and Visually Sensitive Areas

Most of the planning authorities interviewed stated that the views and prospects designated within their CDPs were based on the original views and prospects identified by An Foras Forbartha in the 1970s. Many also stated that their views and prospects had not been revised, and the few who had resurveyed them, had based the review around tourist routes identified in a non-scientific way using local knowledge, and sometimes in conjunction with Bord Fáilte. A small minority of local authorities relied on amenity zonings rather than the views and prospects contained in previous CDPs to apply conditions or restrictions to development proposals. However, there was a general acceptance by all that conducting a landscape assessment would review the views and prospects using a defined methodology.

No planning authority interviewed conducted any formal assessment of the success or failure of their policies to protect views and prospects and even though one planner had noticed that a designated view had been obscured by a major development he was reluctant to make a conclusion that the view was adversely affected by the development.

> *"Original views and prospects were based on the Foras Forbartha Inventory of Outstanding Landscapes in 1977" PA6*
>
> *"No criteria defined to identify views for designation - evolved over time by recognising their visual potential using local knowledge" PA16*
>
> *"Views and prospects to be resurveyed during landscape assessment" PA10*

View and prospects are designated to preserve prominent landscapes, areas of special amenity value and areas of special interest. In the past these areas concentrated on outstanding natural landscapes, which had a special scientific or environmental importance, and the views designated tended to be from point locations or scenic routes. Since the 1990s designations of views and prospects has seen a move away from point locations, using multiple classifications for designating scenic routes and more recently the designation of visually vulnerable or sensitive areas.

"Trend of moving away from point views and linear views because it focussed on the exceptional landscapes and forgot about the ordinary landscapes" EG7

"Views in both directions are now protected - not only view from the scenic route to the lake, but also view from the lake back up the hill" PA12

"It is possibly natural to save the 'honey pot' landscapes because people appreciate their value as tourist attractions, but the ordinary landscapes that most of us live in weren't valued to the same degree" EG7

Scenic routes are predominantly roadways, but walks and ridgelines are also included for designation by some planning authorities. Some scenic routes are classified into two categories of higher (top priority) and lesser importance (intermittent views) where less stringent conditions are applied to development proposals.

More recently, areas have been designated (as distinct from point or linear designations) where visually vulnerable or visually sensitive areas have been defined, mainly though not exclusively around coastal areas and inland water features. Whereas previously the view from the scenic route was designated, it is now more common to have views on both sides of the route designated (if warranted) and sometimes to have the view to and from the area designated. Previously, it was difficult to acquire planning permission within a designated view on the side of the road towards the water, whereas it was much easier to acquire permission on the opposite side of the road. Nowadays, the view from the water can also be protected, so it can now difficult to acquire permission on the opposite side of the road. Planners are beginning to appreciate that many people value their ordinary landscapes over which visual control was never previously exercised.

Policies to protect views and prospects generally set out to preserve those views by prohibiting development, which would interfere with or be obtrusive in designated views. A minority of planning authorities seek to prevent inappropriate development in scenic areas and along scenic routes by requiring that developments, where permitted, should not seriously hinder or obstruct views and should be designed and located to minimise their impact.

Normally an onus is placed on the applicant to demonstrate that there will be no obstruction or degradation of views, or significant alterations to the appearance or character of the sensitive area. Similarly, the evaluation of planning applications within designated views should be more rigorous, since the planning authority should take more cognisance of the impact of the development proposal to ensure that the view is not compromised.

> *"Onus on planning authority to take more cognisance of the impact of the development proposal to ensure that the view is not compromised, therefore the assessment is more rigorous" PA5*
>
> *"Currently refusing up to 20 developments on visual grounds because of their impact on the skyline or important views" PA2*
>
> *"When applying conditions to planning decisions - 'it doesn't look well there' should not be a reason for refusal" PP4*

There has been a perceptible increase in refusing planning permissions on visual grounds during the last decade because impacts on views are non-compensatory. However, there has been a strong reaction by landowners to proposed designations of views because of the potential restrictions resulting from such designations. This reaction to proposed designations means that the methodology used to identify views is all the more important if there is any likelihood that designations might be contested.

> *"Impacts on views are non-compensatory if permission is refused" PA2*
>
> *"Strong reaction to proposed views, because of the potential restrictions to landowners resulting from the views and prospects" PA1*

No planning authority interviewed had designated any urban views. One authority had proposed designating an urban view in their current plan but it was eventually not included in the CDP, and a number of planning authorities had included views of the rural landscape from urban areas. The reason why urban views had not been designated to date seems to have originated in the 1970s definition as a view being of a natural landscape, or a rural landscape. However, this seems set to change since the European Landscape Convention to which Ireland is a signatory encompasses urban landscapes, so urban views may become a feature of CDPs in the future.

"CDP included landscape views from locations within the city towards the countryside, but no urban views were contained" PA11

"Urban views and prospects could be one of the key elements in new Development Plan - way of looking at city, setting of listed buildings, and urban vistas" PA3

"High Buildings Study attempting to identify areas of city which have potential for higher buildings and includes a visual appraisal, might be useful to identify important views to be included in new CDP" PA2

6.3.2 Protection of Important Heritage Structures and Features

A register of protected structures is maintained by planning authorities that records structures and features, which positively contribute to the overall visual amenity. CDPs include a list of this register of important heritage structures of architectural, artistic or historic interest and features of archaeological, geological or historical interest for protection. Normally the structures and features are classified into two lists: a more important one where the object is to secure preservation, and a less important one where preservation is considered in the event of an application for planning permission to alter, demolish or extend the structure or feature. Planning authorities also operate a general policy to retain older buildings by encouraging the rehabilitation, renovation and re-use in preference to demolition and re-development by relaxing development control measures where appropriate.

"Database of listed buildings originally set up in the 1960's and revised since then sporadically by planners" PA2

"Dúchas doing national inventory - 4 categories of structures for protection - international, national, regional & local importance" PA17

"Over 200 extra buildings already identified to be added to register" PA11

These registers of protected structures have been sporadically revised since the 1960s using non-rigorous methods by planning authorities and contain certain gaps reflecting the preferences of those involved in the past. Dúchas is currently completing a national inventory of architectural heritage for Ireland's obligations under the Florence Convention

(Council of Europe, 2000) and planning authorities are using the information from this inventory to update their register of protected structures. The inventory is identifying a significant number of extra buildings for protection, so CDPs will include more extensive lists of structures and features for protection than heretofore.

> *"DP for Kinsale has no list of protected structures – significant number of councillors are auctioneers, estate agents, & publicans who have a vested interest in property in the town who should leave the room when this is being discussed" EG1*

Planning authorities lacked sufficient resources to survey and maintain these registers of protected structures in the past; however, extra staff appointments of heritage officers and conservation officers will ensure that these registers are maintained in a more comprehensive manner in the future.

Owners of protected structures have an obligation to ensure the structure is maintained, and these obligations can be very expensive, so small grants are available to assist owners with required renovations. The intent of planning authorities by operating these lists is both visual and economic and the general policy towards older structures is to retain the fabric of the structures within a modern usage that is economically viable in order to secure their future. Although the setting of listed buildings can sometimes be as important as the building itself, the setting might comprise of multiple properties so restrictions under development control may not be feasible.

> *"Retain Fabric of Buildings - within any viable usage" PA7*
>
> *"The setting of the listed building is nearly as important as the building itself" PA3*

6.3.3 Protection of Trees significant to the Visual Amenity

Trees not only positively contribute to the visual amenity, they perform an important urban design function, and they are also of vital importance to the visual absorption capacity of a landscape to accommodate development. Planning authorities seek to preserve trees that form a significant feature in the landscape or are important in setting the character of an area and two methods are used for their protection: Tree Protection Orders (TPOs) and listing trees in the CDP for protection.

"There is a prevailing view that if a tree is mature it can be felled – they are only considered as furniture" PP5

"Policy to encourage the preservation of trees, which are healthy and do not interfere with reasonable development" PA11

"Felling licences are responsibility of Dept of Marine & Natural Resources - problem that local planning dept do not have a function in this respect" PA10

Developers can sometimes take an economic stance where a site is levelled and existing trees are removed before development begins for ease of managing the project. There is a widespread belief that trees can be felled once they are mature, or to be lopped or felled as required. The existence of a TPO not only signifies recognition of value, but also confers certain powers under the preservation order, whereas these extra powers are not available if the trees are only listed in the CDP for protection. Trees listed in the CDP would have to be taken into account in event of a planning application, but local authorities have no power to prevent someone chopping the trees down unless there is a TPO as the legal backing behind the trees listed in the CDP.

"Existence of TPO signifies recognition of value and confers certain powers under the preservation order" PA2

"Recently lost a significant stand of 50 beech trees that did not have a protection order - An Bord Pleanála overturned our decision" PA2

Notwithstanding this fact, TPOs are very seldom used because of the lack of planning resources to process the orders, the low importance placed on trees, and the threat compensation if a developer is refused permission to remove a tree. Consequently many planning authorities consider TPOs as unsatisfactory and are constantly looking for other means to protect trees of special value than TPOs.

"Most recent TPO made in 1983 leads to the assumption that survey of important trees not conducted in last 16 years" PA18

"Only know of 1 or 2 TPOs used to protect individual trees" EG12

TPOs are mainly used for protecting significant stands of trees and all the planning authorities interviewed stated that they had no incidence of a TPO on any individual tree. The tree council of Ireland is currently compiling a register of biggest and tallest individual trees per species in Ireland, which would be a useful framework for TPOs in this respect. Similarly, all the planning authorities visited had no criteria defined for identifying which trees were significant and in many cases surveys of significant trees had not been conducted in decades. The requirement within the new planning and development Act (DoELG, 2000) to prepare LAPs for towns and villages will assist in this respect by providing an opportunity to identify the environmental or historical value of stands of significant local trees.

6.3.4 Protection of Natural Habitats

Planning authorities are required to evaluate the impact of proposed developments on designated areas (SACs, SPAs, NHAs, and Nature Reserves and Refuges) when assessing planning applications. The statutory preservation of these designated areas contributes significantly to the visual amenity by ensuring their natural and environmental state is maintained.

Compensation is paid to farmers for the land-use limitations imposed as a result of SAC designations for current loss of value, but not for any potential loss of value. Although compensation is not paid for any visual designations the designation of land, which ultimately restricts planning options for landowners is becoming a big issue.

There is unanimous agreement between planning authorities and local councillors for appropriate restrictive criteria within or adjacent to high amenity or sensitive areas. These restrictive criteria are necessary to prevent these areas being spoilt by unsuitable, poorly designed, and badly located developments. These restrictive criteria include measures that require proposed developments to demonstrate a high standard of site selection, siting layout, design selection of materials and finishes, and to restrict height levels along boundaries of sensitive areas.

6.3.5 Protection of Conservation Areas

The new Planning and Development Act (Oireachtas, 2000) now permits local authorities designate architectural and landscape areas for conservation. Although this power to

designate conservation areas is discretionary on planning authorities they require more resources to conduct the surveys necessary to identify these areas. To support this initiative the Heritage Council jointly funds the appointment of heritage officers and hope to have one in each local authority by end of 2004. An important consideration in the designation of these areas is that the designation gives power to take positive action, previously unavailable to local authorities. This means that enhancement measures may also be used in conjunction with protection measures currently employed under development control.

"2000 PDA introduces landscape and architectural conservation areas, which have visual implications for the future" PA3

"Designating Landscape or Architectural Conservation Areas are discretionary, but local authorities do not have the staff or the resources to designate them" EG1

"Designating a conservation area gives powers to upgrade area" PA5

Architectural quality, architectural rarity, the quality of streetscapes and archaeological sites or zones will be used as the basis to identify architectural conservation areas both within urban and rural areas. It will now be possible to designate demesnes in rural areas, previously unprotected and targeted by developers because of their landscape quality and high profile. Similarly conservation areas may be useful to prohibit demolition of buildings, which are not listed, but visually on their own are not considered very important, but as part of a street facade might be collectively significant.

"Conservation Areas to include significant streetscapes and architectural areas" PA1

"Conservation areas will also include designated archaeological zone corresponding to the old medieval city" PA2

"Demesnes have no adequate protection and are being targeted for development" EG1

"Need to examine 600 listed structures to identify streetscapes with potential for protection by creating conservation areas" PA7

The consensus as to what might be included as landscape conservation areas is not as clear as architectural conservation areas, which may be derived from a perception that landscapes and nature are not valued enough by Irish people. Planning authorities of urban areas think that the designation of landscape conservation areas will stimulate an analysis of urban areas at a micro level and that an area's visual character and visual potential will be a main component of the identification process. Planning authorities for rural areas think that the designation of landscape conservation areas will focus on high amenity areas currently protected via zoning such as elevated areas, land adjacent to designated sensitive areas, and areas which have future potential for amenity and recreation.

> *"Landscapes and nature are not important for Irish people" EG2*
>
> *"Landscape conservation areas likely to be based on views - will generate an analysis of urban scene at a micro level" PA3*
>
> *"Try to bring out heritage and visual together" PA7*

- **Concluding Comments**

Although some successes have been recorded in the application of local authority protection policies much more could be achieved. Protection is currently provided for the following features:

a) Views and Prospects - only protected in rural areas to date;
b) Cultural Heritage – Registers of Protected Structures were compiled in an '*ad hoc*' manner in the past with some notable structures not included, but the use of the National Inventory of Architectural Heritage should improve this situation in the future;
c) Trees – TPOs provide a legal protection and listing trees in CDPs provides a lesser form of protection;
d) Natural Habitats – Increasing level of designations by Europe of of SACs and SPAs and nationally of NHAs and Refuges and Wildlife sanctuaries causing concern among landowners about restrictions of rights;
e) Conservation Areas – only introduced in 2000 to protect landscape and architectural features so unsure yet on how successful it might be

6.4. OTHER ISSUES IMPACTING ON THE VISUAL AMENITY

CDPs contain many other development policies such as for wind-farms, and other development policies are not contained in CDPs such as for mari-culture and forestry, which can have significant impacts on the visual amenity. This next section examines these other policies and their effects on the visual amenity. Urban and rural areas have been dealt with separately because they each have a distinctly different set of policies affecting the visual amenity. Most rural authorities appreciated that these other developments were leading towards the loss of rural character or were having an indirect effect on the visual amenity, but having the resources and the power to deal with the problem was identified as the main difficulty.

6.4.1 Rural Settlement Strategy

The development of a coherent settlement strategy for the rural area is beset by two major difficulties: the political problem of finding a practical solution for service provision and the social problem of trying to retain rural communities on the land.

The political problem of the current rural housing problem is that the policy debate on the issue is quite polarised and far from having reached a consensus. The government view put forward by the National Spatial Strategy (NSS) and supported by the planning authorities is that ribbon developments and scattered housing in the rural area are unsustainable and that residential developments should be clustered into towns, villages and small family or community clusters of 4 to 6 houses where they can be better serviced. However, the other side of the debate argues the "O'Cuiv" view, put forward by a government minister in 2001 (Sunday Business Post, 2001), and largely supported by local councillors that restricting dwellings to towns and villages will accelerate the depopulation of the rural countryside and assist the erosion of rural services, such as rural post offices and banks. The fact that a government minister was so outspoken against the government's position speaks volumes about the importance of this issue for rural communities. This difficulty is viewed as being very contentious, the current administration versus rural communities, people living in urban areas versus people living in rural areas. The answer lies in the need to bring balance to building houses in the rural area, and to replace past planning practice of getting permission for anything anywhere.

"One-off housing in rural area is not acceptable under NSS which is opposed to O'Cuiv's view" PP1

"Would support O'Cuiv's view to allow homes in rural areas for people with work or background connection" PP4

"Cannot have every house in villages, so have to populate countryside to some degree" PP6

"Trying to bring balance between no building in countryside and getting planning permission for anything anywhere" PP6

The second aspect of this issue is the underlying social problems. Rural people have a reasonable expectation of a house in the countryside, and a site is often the only thing parents can give their children towards setting up a home. The unrestricted availability of rural sites on the market has contributed significantly to this problem, because many farms especially in the west are unviable smallholdings where the main occupation in the past 30 years has been growing sites rather than livestock to support a family.

"Big demand to own house in countryside - viewed as a reasonable expectation by local people" PA10

"A site is very often the only thing a parent can give towards a child setting up a home" PP4

"Farms are mainly small holdings where main occupation is growing sites not bullocks" PA15

"No great desire to live in towns and villages, because the sewerage and water facilities are not there" PA8

There is also no great desire to live in small rural towns and villages because the facilities are not available, and the cost of houses in these towns and villages has risen so dramatically in the recent past that people believe they can build a bigger and better house in the countryside more cheaply. There is an urgent need to make towns and villages more attractive places for people to live, but the chronic neglect of rural towns and villages is now so large due to the inaction of successive administrations, that only a sustained project of substantial funding will alleviate the situation. Currently there is a large backlog to provide sewerage services for large towns, and no provision for smaller towns and villages.

Planning authorities have included a range of criteria in CDPs to limit housing in rural areas, such as having been brought up in the area, or being employed in the area. Restricting permissions to people with a work or background connection is the most favoured and most applicants are also required to submit a statement of sustainability. Some authorities will grant only one planning permission at a time to dissuade developers and the Irish Farmers Association proposed a novel suggestion that trees on a site should count as brownie points towards getting permission due to their screening effect.

> *"Dowager clause – permissions available for locals and relatives" EG1*
>
> *"Applicants for permission for residential development in non-designated areas shall be required to submit a statement of sustainability" PA12*
>
> *"IFA suggested trees on a site should count as brownie points towards getting permission due to their screening effect" EG12*

However, applying these restrictive criteria can cause difficulties for local politicians, especially if they are not consistent across counties. If one county operates a less restrictive policy it can be used to force down restrictions in an adjoining county and thereby cause the problems outlined in Section 6.1.1.

6.4.2 Design issues of Rural Housing

Once permission is granted for a house in the rural area, the next major problem for the visual amenity is the use of inappropriate designs and materials. Restricting the use of inappropriate designs such as Spanish arches, balconies, Grecian fluted columns, and Tudor brick houses and inappropriate materials such as plastics instead of wood however is not easy.

People's attitude to planning restrictions is one of the most difficult things to change, possibly influenced by the unrestricted planning practice of the last 30 years. They own the site, they have the planning permission and they have the money, so why should the planning authority restrict what they want to build. It is their house, they are paying for it, and so what right has the planning authority to tell them what to do?

"Urban people escaping to countryside but unconsciously bringing urban designs with them" EG4

"Difficult to change people's attitudes from wanting large houses using inappropriate sub-urban designs (arches, columns, etc) which do not fit the local rural landscape" PA10

"Materials used in modern housing in the rural area are not sustainable - plastic used a lot instead of natural materials" PA1

Improving the quality of designs was identified as one of the most important issues by many of those interviewed. They considered that there was still liberal use of books of designs, which were inappropriate to the rural area, or that the people preparing designs in Ireland did not need to be qualified as architects. One respondent questioned whether Ireland could afford to continue this practice any longer, and a minority felt that that limiting the preparation of building designs to architects would assist the improvement of design quality. However, many disagreed. It was felt that planning authorities could not of their own accord request designs to be prepared only by qualified persons, and that this would have to be decided at national level. A proposal to the Minister to include such a request within the new planning and development Act (Oireachtas, 2000a) had not been accepted. It is interesting that to submit a planting plan or a landscape plan for a development application one must now be a member of the Irish Landscape Institute, yet to prepare the building design no qualification is required.

"Too mush use of Bungalow Bliss designs still – should be replaced with design guidelines which ensure local distinctiveness is retained and complimented" EG6

"People preparing designs not qualified architects (done as a sideline) so quality of designs submitted is not good" PA10

"Preparation of building designs is unregulated – would prefer architect to sign off on building regulations" DP2

Another important design issue, which adversely impacts on the visual amenity, is the choice of site. The site initially chosen by the landowner is nearly always the worst from the planning perspective, on top of the hill, with a view of the lake, which will stick out like a sore thumb and be seen for miles (Figure 6.1). Buyers normally want a site with a

view, which invariably is the most visually sensitive site. People these days have no problem building on top of a windswept hill overlooking 5 counties. They choose the site on a summer's day and do not realise they will get blown off it in winter. The practice alluded to earlier in paragraph 6.3.1 of the unrestricted availability of rural sites has contributed significantly to this problem and one politician believed that "appearance" or "effect on the visual amenity" should not be a reason for refusing planning permission.

> *"Site initially picked by landowner is nearly always the worst from planning perspective" PA12*
>
> *"It doesn't look well there' should not be a reason for refusing planning permission" PP4*

Figure 6.1 Inappropriate siting from the perspective of the visual amenity of a residence on a hilltop adjacent to the national primary road in Dunderry Co. Mayo.

Many planning authorities are publishing design guidelines to indicate what is acceptable and what is unacceptable in respect of the design issues of siting, layout, levels, form, colour, materials, and landscaping. Compliance with the guidelines can be enforced within the development control process, but changing attitudes towards the use appropriate

designs and deciding how best to improve design quality may need further discussion and consideration.

6.4.3 Agriculture

Farmers have been the traditional guardians of the countryside, and the rural landscape is a product of farming practice throughout the centuries. The rural landscape changes as farming practice changes, but normally the pace of this change is so slow that people do not recognise it, unless after long absences. Ireland's rural landscape is generally regarded as green and pristine and there is an obligation to maintain it in some sort of reasonable vernacular tradition, but it is not realistic to expect farmers to hold the rural landscape in freeze frame. Farming practices have changed dramatically since Ireland joined the European Union in the 1970s and successive EU common agricultural policies have substantially increased investments for farm developments and also restricted farmers in how they farm their land. Some of these changes adversely affect the visual amenity and others have a positive impact.

> *"Restrictions are a curtailment of rights – the un-stated right to farm where you want" PP4*

The Rural Environmental Protection Scheme (REPS) has made a significant positive impact on the visual amenity of the rural landscape by making farmers more aware of their environmental responsibilities. However, it has also resulted in a few adverse impacts. Farmers are required to ensure their farms are stock-proof by repairing and erecting fences along their boundaries and they are also required to erect fences along watercourses to create a buffer zone to protect water quality. Since there are no grants for fencing, these requirements have resulted in the erection of many barbed wire fences, which are causing concern from the access and the visual perspective. There is a perception by the farming community of things being imposed from Brussels, which haven't been thought through clearly, and the EU is now becoming concerned about all the new fencing in Ireland.

"REPS is changing attitudes and making far more producers more aware of their environmental responsibilities as part of a modern society" PP5

"Many new fences being erected due to REPS requirement to stock-proof farms and to minimise water pollution"EG9

"EU is now concerned about all the new fencing in Ireland" EG9

Farmers are increasingly appreciating the environmental function of hedgerows by providing routes for plants to disperse and wildlife to travel on. The practice of clearing hedgerows to convert smaller fields into larger fields to accommodate larger farm machinery considered economically and socially desirable in the past is now taboo. Hedges need to be managed if they are going to function as stock proof barriers and as wildlife shelters, but maintenance is time consuming and some of the old skills need to be re-learnt. Whereas, most local authorities operate roadside hedge cutting programmes to improve sightlines for road safety some local authorities also conduct roadside hedge cutting to improve views in areas of high visual amenity.

"Hedgerows are being removed as field sizes are enlarging to accommodate larger farm machinery" EG8

"Barbed wire preferred by farming community to hedging or stonewalls – no grants for fencing, so cheapest option" EG9

"Local authorities, the public and the Tourist Board saying that hedges along road edges are spoiling the view" EG8

The division of commonages is a new farming practice driven by the EU common agricultural policy. Some farmers, who traditionally grazed their sheep on the local upland commonage, divided the commonage between the landowners concerned in order to increase the number of sheep and thereby maximise their headage payments. This resulted in the erection of many barbed wire fences on upland areas (Figure 6.2), the construction of many roads into the uplands as access to these new properties, and the overgrazing of the land due to over-stocking in some serious cases. The roads and fences caused un-natural linear scars and the overgrazing in certain cases affected plant populations such that the colour and character of the upland area was seriously degraded. Since all of these occurred on upland areas and were quite visible for many miles they had a detrimental effect of the visual amenity. Although planning permission is required to erect fences in

hitherto open areas, the planning authorities, Teagasc and the Department of Agriculture and Food have all ignored this requirement.

> *"Division of commonages and erecting fences to segregate sheep in order to maximise head-age payments leading to overgrazing of uplands" EG10*
>
> *"Mountain roads to divided commonage should serve long-term function, and route of least visual impact should be used" EG10*
>
> *"Erection of fences in commonages, construction of upland roads, and overgrazing of uplands all have a visual dimension" EG10*

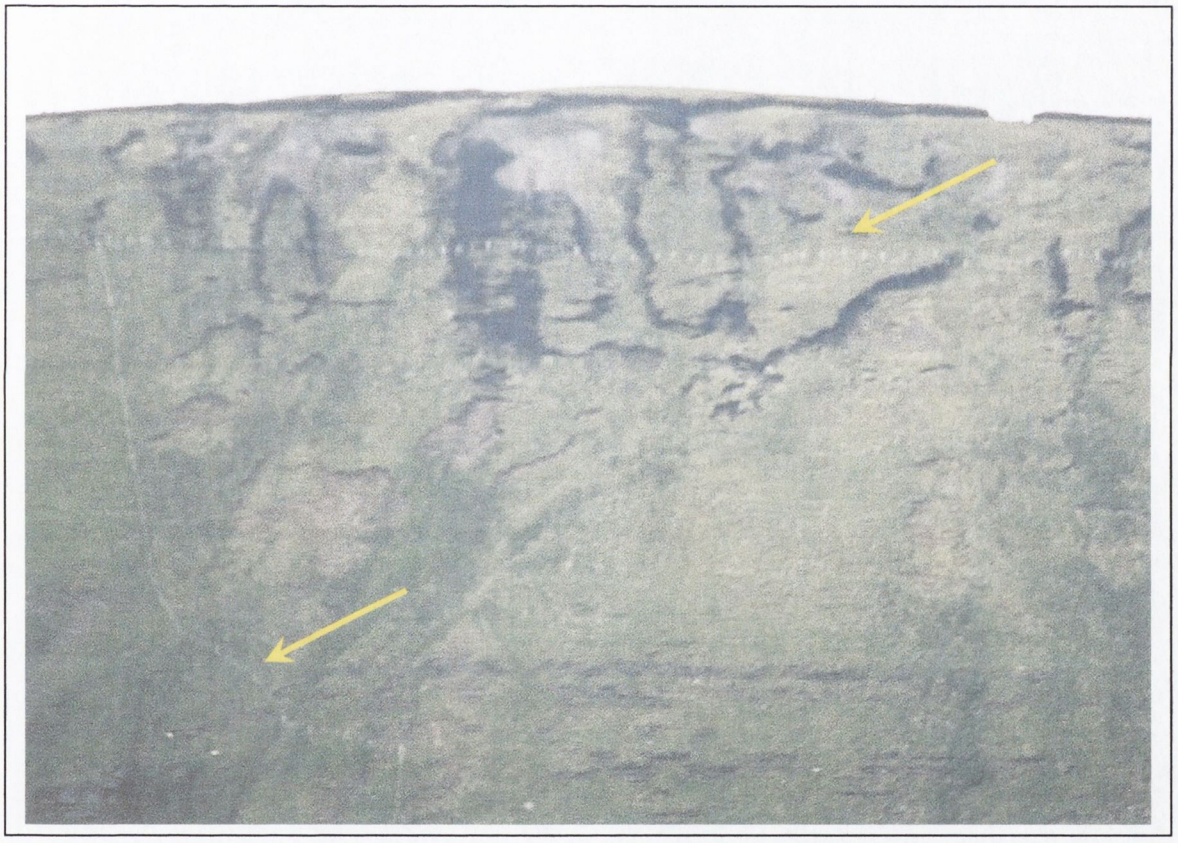


Figure 6.2 Barbed wire fences in upland areas (Photo - T. O'Loinsigh).

6.4.4 Wind Energy

Visual impacts from wind-farms, forestry and aquaculture can be quite severe, so evaluations of planning applications for these three development types should include a detailed examination of their effects on the visual amenity.

Wind-farms need a constant flow of wind, the higher the velocity the better, in order to maximise the return on the investment. Consequently, proposals for wind-farm developments in Ireland normally seek planning permission in upland locations along the western seaboard, which predominantly coincide with areas of high amenity or high visual amenity. A consensus is slowly developing that wind-farms should be restricted to upland sites in inland areas that do not have a primary scenic value, and where they will not have an undue visual or environmental impact. However, as the landslide at Derrybrien Co. Galway has shown, consideration for the existing environment during construction needs much improvement.

"Visual impacts from wind-farms, forestry and aquaculture can be huge" EG1

"Wind-farms in Ireland mostly break the skyline, which from a visual point of view is unacceptable" EG10

"Lessen visual impact by requiring that the power lines between the turbines and the sub-stations should be underground" PA1

Figure 6.3 Wind turbines in Co. Sligo breaking the skyline with a high colour contrast with the sky (Photo - T. O'Loinsigh).

Methods used to lessen the visual impact of wind-farms include the requirement that power lines should be underground and that particular colours should be used for the turbines. The turbines tend to break the skyline mainly due to their height of 60m, so they are visible for many miles. They are normally painted white, so in an Irish context where the sky is usually cloudy, one might assume that the colour contrast would be low to help minimise their visibility. However, due to the changeability of Irish weather, white turbines are quite visible for extended periods of time if they break the skyline (Figure 6.3).

6.4.5 Forestry

Forestry practice in Ireland during the past 30 years, which advocated planting conifer mono-cultures has completely changed the contours and colour of the landscape and the EU consider forestry to be Ireland's largest land-use change. This past practice of planting monocultures (Figure 6.4) on the tops of upland areas right up to the road edge, and using straight lines as forest boundaries rather than existing field patterns have all contributed to a negative public perception for forestry in Ireland. Unfortunately there is a long lead-in to change the problems of the past and will take about 30 years to change the situation with the next crop rotation.

Figure 6.4 Impact of monoculture forestry on visual amenity in West Cork.

Ireland adopted a national policy (DoAFF, 1996) for increased forestry (17% target by 2030) mainly on the basis that the country was under forested (8%) compared to the average in other European Union Member States (31%). Although increased forestry provides economic, social and environmental benefits a drawback is that one of the attractions for tourists are Ireland's uninterrupted vistas in the West.

> *"EU considers forestry Ireland's largest land-use change" EG6*
>
> *"Public perception of forestry quite negative because of past practice with mono-cultures" EG5*
>
> *"Uninterrupted vistas are Ireland's main tourist attraction so need to be more careful with forestry" PP5*

The Forest Service recently published a set of guidelines for forestry and landscape and a Code of Best Forest Practice (Forest Service, 2000a & b) to reverse the bad practice of the past that sets out a range of standards, which have an impact on the visual environment. These standards include policies for colour (30% mixed species rather than a dominant mono-colour), ridgelines (free of planting), buffering (along roads and rivers) and shape (to match previous underlying field pattern), which contribute significantly to visual amenity. It is important that Coillte as the largest forestry landowner with nearly 6% of land in the country adopts these guidelines, but since it has a strong commercial mandate there is some concern that they may be reluctant to wholeheartedly adopt good practice when it clashes with profit.

> *"Forestry and the Landscape Guidelines set out a range of standards which have an impact on the visual environment" EG5*
>
> *"Coillte still applying 1996 forestry policy of 10% broadleaves, even though EU recommends 30%" EG6*
>
> *"Indicative Forest Strategies are being prepared for County Councils to identify where forestry might best be situated in each county" EG5*

In parallel with this, the Forest Service began conducting Indicative Forest Strategies (IFS) in 2002 to identify where forestry might be best situated in each local authority area. County areas are classified into areas preferred for forestry, areas with potential for forestry or areas sensitive to forestry. Although areas identified as sensitive include

designated areas such as SACs, SPAs, NHAs, National Parks and prime scenic areas identified in CDPs or listed in the Inventory of Outstanding Landscapes, there is some concern that areas identified with potential for forestry include acid sensitive areas, areas sensitive for fisheries, catchment areas of local authority water schemes, REPS areas, archaeological sites and monuments, and high amenity areas.

The Forest Service took over the responsibility for the planning process for all forestry developments from the local authority planning departments in 2002, so the planning authorities have no function any longer in the development type causing Ireland's largest land-use change. Some of the planners interviewed thought this change would result in tighter planning control for forestry, although some environmentalists considered it to be a retrograde step by fragmenting the planning process. Two interviewees were concerned that the Forest Service were not treating submissions from prescribed authorities as statutory submissions, and one stated that the Forest Service had no idea about consultation.

> *"Planning control for forestry moved from Planning Authorities to the Forest Service" PA5*
>
> *"Forest Service were not treating submissions from An Taisce, Dúchas or the Fisheries Board as statutory submissions" EG6*

6.4.6 Mari-culture

Fish-farm developments can have a huge impact on the visual amenity and the Department of the Marine and Natural Resources is responsible for the planning process for developments in the foreshore area. Fish-farms need a licence to operate the farm, and a lease for the area of seabed they cover, both supplied by the Department of the Marine and Natural Resources.

> *"Primary concern of aquaculture is water quality for marine life, but visual impact can be quite significant" EG1*
>
> *"Magnitude of visual impact huge – big industrial development in an area with designated views and prospects" EG6*
>
> *"Dept. not following guidelines by applying restrictions to aquaculture developments on behalf of other foreshore users" EG1*

Figure 6.5 **Effect of lighting conditions between midday and dusk on visibility of fish cages in Kilmackanogue Bay, Co. Cork in an area designated as an SAC and with designated views and prospects (Photo - T. Lowes).**

The primary concern of the Department during the planning process is water quality for marine life, and visual aspects are treated with less importance, even in areas with views and prospects designated within CDPs. This disregard for the visual amenity is highlighted by the Department's attitude to giving out trial licences for new developments, saying that visual assessments can be conducted later. Alternative sites are also required during the fouling period, so the numbers of cages have doubled without any reference to other users of the foreshore so the numbers of fish cages in a small bay can be huge (Figure 6.5).

6.4.7 Building Design and Urban Design in Urban Areas

Urban planning authorities do not designate any views, prospects or visually sensitive areas (Section 6.2) due to the traditional interpretation of landscape as a rural landscape and because the visual amenity in urban areas includes more cultural than natural landscapes. Urban areas are much more dynamic that are constantly changing with high rates of development and are far more mobile with constantly moving traffic. Urban areas have been compared to a donut in shape with an historic architectural core surrounded by bland suburban areas. Consequently, the development pressures impacting on the visual amenity in urban areas are somewhat different from those for rural areas consisting of the need to improve the design quality, the need to improve urban design and the need to change attitudes to the environmental and design function of urban trees and water features. Analogous to the situation with rural planning authorities, the major difficulty for urban planning authorities was also not having the power or the resources to implement change within Ireland passive planning system.

The need to improve design quality identified within the rural area as impacting on the visual amenity was also identified for urban areas but the reasons why it was identified were slightly different. The use of inappropriate designs and inappropriate materials in the rural area is not as controversial in urban areas because the larger variety of existing house designs in urban areas is more accommodating for proposed structures. The choice of sites in inappropriate locations in the rural area does not apply to the same degree in urban areas because people are normally buying an existing house, old or new, rather than a site. Similarly the planning conditions in the urban area are less restrictive to encourage development close to services. However the practice of not having to engage architects for design is common to both and was discussed at some length by planners of both areas.

There was a general consensus both in the urban and rural areas that design quality needed to be improved. The people preparing designs in the main are not qualified architects, so the quality of designs submitted for planning is not good. However, most planning authorities did not agree with the notion that regulating the design function to qualified architects would assist the improvement in design quality. Urban areas are far more complex settings than rural areas where there is a need not only for design quality of structures, but there is also a need for urban design to ensure that multiple different designs in close proximity work together (figure 6.6). Many of the smaller municipal authorities do not have planners on their staff so the town engineers mostly carry out the planning function. These engineers are required to deal with far more complex design issues within these urban areas without the necessary training (Figure 6.7).

"People preparing designs not qualified architects (done as a sideline) so quality of designs submitted is not good" PA11

"Town Engineer deals with planning for these towns and County Council gives architectural advice" PA13

"Planners wish to improve quality of urban design" PA5

"Increasingly becoming aware of importance of urban design, particularly at local plan and integrated area plan level" PA4

The migration of people from rural to urban areas is continuing apace in Ireland and these 55 urban areas with municipal authorities now contain 10% of the country's population (CSO, 1996). There is an urgent need for resources to perform an urban design function and permit planning to be more proactive in these municipalities to identify and retain key plots for landmark buildings and to use these landmark buildings and key views to them within the urban design process. There is also a need to identify and document local distinctive features and character in these municipalities such as the Heritage Councils village design statements to ensure that re-developments or extensions contribute positively to that distinctive character.

Figure 6.6 **Stark visual contrast in design style and colour in Dublin's Temple Bar.**

Figure 6.7 **Stark contrast of building scale, colour and texture of an industrial facility on the edge of a residential area in Carlow town.**

"Need to identify keynote plots and refuse planning or purchase plots until buildings of substance are proposed" DP3

"Need to use of landmark buildings and key views to improve urban design" DP5

"Village Design Statements can identify what's distinctive and characteristic about the village" EG7

Ireland's planning system is a passive system that reacts to development proposals rather than setting out the layout of the street grid and of green spaces for urban extensions. Local planning authorities have traditionally been seriously under resourced to consider undertaking planning in a proactive manner and local authorities have very little discretionary funding to invest in the necessary urban infrastructure. Developments should realistically wait until the infrastructure is constructed before building, but the political imperative to build over 50,000 new houses a year has been seen as greater than the need to wait for the infrastructure. Consequently, this chronic under-resourcing of planning authorities has resulted in a system where the street layouts of large urban extensions are not designed either by the planning authority or under contract for them. Developers are allowed to carry out this important function where economic benefit is the primary concern rather than the provision of urban designs to improve the quality of life. It is no wonder that people want to build in the countryside when the urban fabric is treated in such a cavalier manner.

"If developers were only allowed to build houses into the expression of green space, and a street grid for urban area extensions set out in the CDP, these two measures would transform urban aesthetics and landscape quality" DP3

"Local authorities have very little discretionary funding since rates were abolished" EG1

"We should wait until the infrastructure is there before building but must carry on because of the imperative to provide 60,000 houses a year" PP5

Traditional major superstores located in keynote buildings in the urban centres provide a major contribution to the architectural core of a city, yet modern shopping malls located along the urban fringes make no contribution and in some cases detract from the visual

amenity. There is an economic conflict between the traditional streetscape model preferred by planners and the internal mall model preferred by developers because it does not attract the same rental income. Would it not be preferable to build modern shopping centres as a landmark building facing the road with a plaza in front and the car park at the rear according to the vernacular tradition rather than putting them in the middle of large car parks? The appearance of the building would be more impressive and it would contribute more effectively to the architectural and landscape quality.

> *"A keynote building with a decent façade facing the public road with a plaza in front and the car park at rear or underneath would be a more impressive building, which would contribute to architectural and landscape quality as opposed to shopping centres in the middle of large car parks" DP3*
>
> *"Conflict between the streetscape model and the internal mall model because it does not attract the same rental income" PA4*

6.4.8 Trees and Hedgerows

Ireland's patchwork quilt of fields (Figure 6.8) has been identified as one of the main attractions in surveys of tourists to Ireland (Tourism Policy Review Group, 2003). However, Ireland's hedgerows have been under threat from agriculture since the 1960s to make fields sizes more suitable for modern farm machinery and from rural housing replacing hedgerows with walls. There is a growing realisation of the importance of hedgerows by providing habitats for nature, providing a network for the mobility of flora and fauna species and because so little of the country is wooded. The Irish Wildlife Trust is currently conducting a research project to put an economic value of a length of hedge in terms of its ecological value and its value as a carbon sink. Hedgerows are also very important to the visual amenity by increasing the visual absorption capacity of the landscape thereby permitting the integration into the landscape of new physical developments.

> *"Clearing hedgerows during the 60s and 70s to convert 5 acre fields into 40 acre fields was considered economically and socially desirable – wouldn't dream of doing it now" PP5*
>
> *"Would like to put an economic value of a length of hedge in terms of its ecological value and its value as a carbon sink" EG8*

The Forest Service has started a new initiative recently called the neighbour wood scheme to plant new forests adjacent to urban areas for amenity and recreation in collaboration with local authorities and local community groups. One of the cities has already planted 15,000 trees in the first two years of this scheme and is very upbeat about this ambitious project.

A proposal that planning authorities should set a target tree canopy per land use type as a simple formula to assist planners and developers to plant more trees was made by DP3. He suggests a target canopy per hectare of 50 mature trees or 500 young trees in urban areas to establish a canopy cover to help save mature trees from indiscriminate felling by developers. This measure puts the onus on developers to count mature trees on site and protect them to minimise outlay in putting in new young trees to meet the quota. It would also contribute significantly towards Local Agenda 21 by combining tree populations in different land-use types to give a target tree population for the county and for the country as a whole. The proposal could be further improved by requiring a mix of young, adult and mature trees to ensure that the canopy is more sustainable in the longer term.

Figure 6.8 View towards the Dublin Mountains from the M50 of the patchwork pattern of fields in Ireland portrayed by the hedgerows.

"New neighbour wood scheme aimed at local authorities and local interest groups to plant urban forests for amenity and recreation" EG5

"15,000 trees planted in the city during last two years" PA7

"Set a target canopy per hectare of 50 mature trees or 500 young trees in urban areas to establish a canopy cover" DP3

Individual trees may be important locally even though they may not be significant nationally, so it necessary to have a record of the tree resources already available especially in urban areas. A number of planning authorities have previously conducted tree surveys on a sporadic basis but only one database of trees was maintained for one rural town of all the authorities interviewed. Establishing and maintaining databases of trees in urban areas which records the species, location, age and condition of individual trees would be of enormous benefit to quantify their carbon sink role for Local Agenda 21, but more importantly to establish baseline information for local authorities to manage tree resources and for planning authorities to operate the target tree population idea.

Figure 6.9 Unnecessary felling of mature trees during development in Johnstown, Co Kildare.

"Survey carried out of trees in the city - specimens may not be significant nationally, but important locally" PA7

"A database of urban trees recording species, location, age, condition, etc, would be very useful to raise the importance of trees to the visual amenity, to calculate the size of carbon sinks for local agenda 21 and as a management tool" EG12

Urban trees play a number of very important environmental roles such as cleaning the air, acting as a carbon sink, providing a habitat for birds and insects, but it is their design role that is important for the visual amenity. Their screening capabilities make a significant contribution to the visual absorption capacity of landscape generally, but this is much more important in urban areas because of the close proximity of dwellings and the need for privacy (Figures 6.10 & 6.11). Another important design role is that their varied shapes, sizes, textures and colours are useful in softening the hard geometric shapes and colours of the built environment. However, the value of these roles is not always appreciated as much as they could or should be. Economic aspects often govern developer's attitude towards trees. Existing vegetation is removed, streams are culverted and sites are levelled prior to development for ease of construction and to maximise profits. Ireland is very under-regulated with respect to trees and privately owned trees are regularly butchered or felled without any reference to the planning authority.

"Found a grove of 300 year old yew trees in the middle of a site where the architect's design proposed replacing them with buildings - whole scheme had to be re-designed three times - obvious to put green space where yew grove was" DP3

"If a tree is within 20 or 30ft of a dwelling if can be taken down for safety reasons without the need for permission – Ireland is very under regulated with respect to trees" EG12

Figure 6.10 **Sameness and placelessness of design and the lack of urban trees to improve the landscape visual absorption capacity in Clondalkin from the M50.**

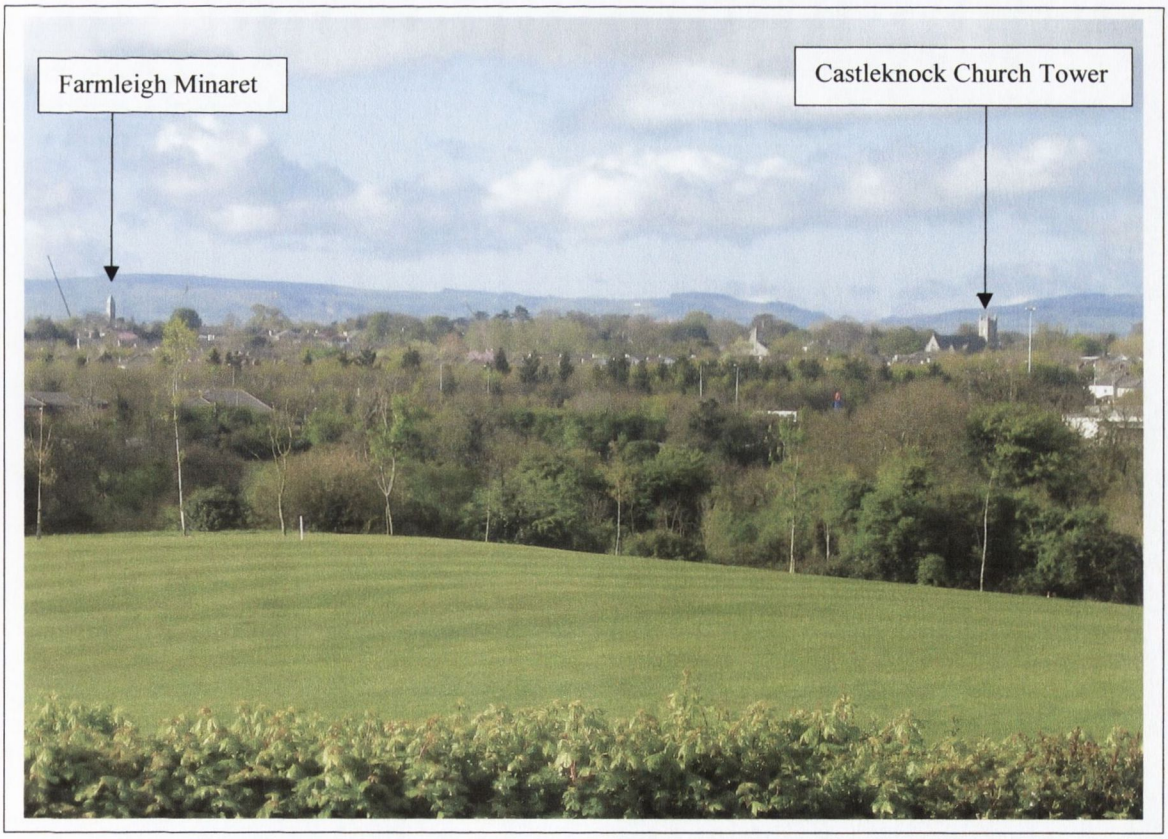


Figure 6.11 **View south towards Castleknock from Elmgreen Golf Club displaying the visual absorption capacity of this suburban area due to urban trees.**

Since there are limited green resources left in many urban areas, planning authorities normally apply a development control condition of planting more trees when granting permission for proposed developments. Although the need for maintenance of tree plantings in mentioned within these development control conditions, it is normally not elaborated on, and the absence of any creditable enforcement process means that many developers do not take planning conditions very seriously. Rarely, if ever, are TPOs used for individual trees and although surveys of urban trees are carried out on a sporadic basis by local authorities, all but one of the local authorities interviewed did not maintain a database of urban trees, so there are no baseline data available to inform our knowledge of existing urban tree resources.

> *"Need for maintenance of tree plantings mentioned in planning conditions, though not elaborated on" PA2*
>
> *"Man with a shovel and 100 oak trees can transform a landscape for 100 years, but equally a man with a chainsaw can do the same" DP3*
>
> *"Survey carried out of trees in the city - specimens may not be significant nationally, but important locally" PA7*

6.4.9 Litter

Although local authorities recognise that litter (Figure 6.12) is a major environmental problem that significantly detracts from visual quality of urban and rural areas, their response to the problem is fragmented and of low priority. There is a division of responsibility between the environmental departments who have the responsibility for the collection and management of waste rubbish and litter, and the planning departments who have responsibility for the visual amenity.

> *"Council recognises that litter is a major environmental problem which significantly detracts from visual quality of urban and rural areas" PA16*
>
> *"Removing litter or derelict cars are the responsibility of environmental services department" PA5*
>
> *"County councils need to impose fines and implement strategies to clear up litter and illegal dumping" EG10*

Figure 6.12 Rubbish discarded on the roadside close to Dublin.

Whereas waste management has appreciably improved in the last few years mainly as a result of EU environmental concerns, major difficulties are still present in both waste management and litter reduction. Although a number of local authorities have initiated integrated anti litter programmes such as the appointment of new litter wardens, the running of anti litter campaigns and educational programmes for schools, too few resources are allocated to make a significant impression. One environmental group suggests that a get-tough policy on illegal dumping and litter is necessary to begin to address the problem.

- **Concluding Comments**

A range of issues were identified which impact on the visual amenity. Some initiatives have already been taken such as the publication of best practice guidelines for forestry and the impact of REPS on the environment in rural areas. However, much more needs to be done and there is a need to educate and change current attitudes to resolve many of these issues. Others need new approaches to effect significant change such as the requirement to use qualified architects to improve design quality and the introduction of EIA to consider the affect of mari-culture. A coordinated approach may be needed to consider the cumulative impacts of all of these developments on landscape and the visual amenity.

6.5. METHODS AVAILABLE TO ENHANCE THE VISUAL AMENITY

CDPs contain a range of policies for protecting the visual amenity, which are implemented by planning authorities during the development control process. However, there was general agreement between the planning authorities interviewed that:

a) Enhancement policies are far less coherent that protection policies within CDPs
b) The responsibilities for enhancement strategies are distributed between multiple local authority departments such as engineering, environment, and planning.

The distributed nature of the enhancement strategies employed by local authority departments indicates that inter-departmental communication needs to be improved. Communication is less of an issue in smaller authorities housed in single buildings where staff can meet daily for coffee or lunch, but the problem is exacerbated with larger staff numbers because departmental staff tends to stick together especially if departments are housed in different buildings. This communication issue brings the co-ordinating role of planning authorities into sharp focus.

> *"Development Control have a good handle on protection of visual environment, but enhancement scattered among many departments and although much achieved, not towards any planned objective" PA11*
>
> *"Very few enhancement policies or functions within CDP - less coherent than protection policies and functions" PA18*
>
> *"Improve communication between departments might help here – new heritage and conservation officers have a function in raising in-house awareness" PA4*

Enhancement measures are driven mainly by the tourism sector, which has identified Ireland's landscape as one the main attraction for tourists (Tourism Policy Review Group, 2003). However, many of the planning authorities visited stated that areas with enhancement potential were not identified in their current CDPs and that there were no rigorous means currently being used for identifying these areas. These eyesores, contributing negatively to the visual amenity were traditionally left to local authorities to resolve, but little funding was available, and the local authorities did not have the power of positive intervention for enhancement purposes. This power of intervention was eventually introduced under the new planning and development regulations (DoELG, 2000), but it

was limited to conservation areas only. It remains to be seen whether planning authorities will have the resources to implement this measure fully and whether enhancement powers would be desirable outside designated conservation areas. Planning authorities can also implement certain enhancements during development control under agreement with developers by applying generous conditions when granting planning permissions. A range of tax-deductible schemes is also available to businesses to improve their local areas, but the schemes are sporadic, and the lack of knowledge of them limits their uptake.

> *"Tourism is an important driver for enhancement - positives are stimulated by formal tourist interests including Bord Fáilte & local Tourism Board" PA3*
>
> *"No scientific (systematic) means of identifying areas for enhancement" PA8*
>
> *"Positive intervention for enhancement by Local Authorities limited to landscape and architectural conservation areas" PA3*

Local authority enhancement projects can quite often provide results that are both ecologically and visually wrong. A lack of knowledge and the absence of a requirement for public-participation for enhancement projects can produce negative results, even though the intention was the opposite.

> *"When people spend money to beautify their property they quite often do stupid things – replace a hedgerow with a wall – a mistake ecologically and visually" EG2*

6.5.1 Improving Design Quality

The three main factors that adversely affect building design in Ireland are (DP1):

a) The planning system allows the design function to be carried out by unqualified people
b) The main focus of building design is on acceptance for planning permission, rather than designing something to improve quality of life
c) The planning system operates a concept of having to conceal structures behind screens of vegetation.

There was unanimous agreement between all the groups interviewed on the need to improve design quality. However there was also a widespread view between all the groups that it would not be possible to restrict the design function to a group of professionals (qualified architects) with the required skills. These two opposing views do not seem to make sense.

> *"Need to encourage improved building and urban design" PP3*
>
> *"Building quality would probably be better if designed by an architect, and better still if designed by a good architect" DP4*
>
> *"Proposal to improve design quality by ensuring that people submitting applications were qualified architects not accepted by Department" PA7*

The main focus of building design in Ireland is on acceptance for planning permission, rather than designing a structure to improve quality of life. If non-qualified people are preparing the designs the tendency is to create a design that meets the planning acceptance criteria and then re-use that same design to minimise delays in the planning process on future projects. This leads to normalisation of designs, a convergence to sameness, and a slowdown in the development and use of new ideas to improve structures for living.

> *"Focus is on acceptance for planning rather than designing something good for living" DP1*
>
> *"Irish Planning system uses concept of having to conceal or hide structures with vegetation screens - change is bad so we hide developments all the time (inherent conservatism) – whereas structures themselves can enhance a view by virtue of their design quality" DP2*
>
> *"A good building should stand on its own terms without the necessity of landscaping to enhance it" PP3*

There is also a pervading attitude in Ireland that landscape change due to physical development is bad, so the planning system operates a concept of concealing structures behind screens of vegetation. This creates a predisposition towards putting minimal effort into building design since it is going to be hidden anyway. A good building should stand on its own terms without the necessity of landscaping to enhance it, but the effect of these

three factors is to stifle the need or the inclination for any energy being expended on improving design quality.

Many rural planning authorities have recently published design guidelines for rural housing to set out criteria on what is acceptable. The Heritage Council has produced a number of Village Design Statements for planning authorities to identify aspects of the local built environment, which are distinctive to the local area. These guidelines try to maintain a sense of place by listing items of local distinctiveness and requiring proposed developments to link in with these local trends. The intention of the guidelines is not to produce sameness in design, but to identify traditional patterns and stimulate their continued use in modern developments. Little difficulty has been experienced to date in complying with the guidelines because people are so anxious to get planning permissions without any delays.

> *"Try to develop and maintain a sense of place and local distinctiveness in established and newly developing areas" PA12*
>
> *"Not trying to get sameness, but see a pattern to designs"PA12*
>
> *"People so anxious to get permission they should be prepared to toe the line of the design guidelines" PA12*

6.5.2 Integrating structures into the Landscape

Developments in the rural area should seek to integrate proposed structures into the landscape using landscape features such as field boundaries existing vegetation and terrain shape so that the proposed development is not visible from principal roads, designated views and navigable waters in the vicinity. The objective of landscape integration is to reduce the visibility of rural developments so that there is far more habitation present in the landscape than can actually be seen. Therefore, sites in prominent locations such as skylines, waterlines, and ridgelines to which the eye is immediately drawn should be avoided.

"Should be integrated into existing landscape features, field boundaries, trees and landform as viewed from principal roads, viewing points and navigable waters" PA17

"Should be much more habitation present than can be seen because it is integrated into folds in the landscape" DP1

"Landscape integration is possible by not breaking skylines or waterlines, using slopes and existing trees as backdrops or screens, avoiding steep open slopes, hilltops, or prominent locations, and co-locating on derelict habitation sites" PA17

Traditionally people built into folds in landscape (Figure 6.13), put in a wind block of trees to southwest in the direction of the prevailing wind so that they were physically and visually integrated into landscape. There were no obvious landscape scars because roads had hedgerows on either side allowing them to blend in with the field pattern as outlined by their hedgerows.

Figure 6.13 Example of traditional landscape integration such that the line of the hill is not broken by the dwelling and with trees to provide shelter.

However, landscape integration is an economic issue for developers by limiting what sites are suitable and where the proposed structure should be located on the site to maximise

integration. It is far easier and more profitable for developers to build on any site and at any location on the site and just hide the structures behind a screen of vegetation. One planning authority has initiated a very successful preplanning practice whereby the planner walks the land with the farmer to identify a site of least visual impact. This planning authority has found that it is very important to involve the local councillor since it was not possible to outline the practice in the CDP. There is an overhead in time for the planners, but the results are worth the effort in achieving landscape integration, and helping to make local councillors more aware of the importance this siting issue.

> *"Landscape integration is an economic issue for developers – is much easier to hide structures behind landscaping" DP1*
>
> *"Have a practice where planners go out and identify a site to cause least visual impact – very important to have local councillor involved" PA12*

6.5.3 Urban Renewal

Derelict sites are sites mainly located in towns and villages that are structurally unsafe or in a visually unsatisfactory condition. Although most planning authorities maintain registers of derelict sites and include a list in the CDP there has been mixed success to date using the Act (Oireachtas, 1990). Planning authorities considered the old legislation weak and would try to encourage owners to redevelop sites by advising them of the inclusion of their site in the register, and chasing owners by applying levies for non-development. Sites are principally derelict because of their ownership situation, and identifying owners can be a major problem. However, the new Act (Oireachtas, 1990) has improved the situation by providing powers of compulsory purchase and many planning authorities have applied it differently once the site was purchased, including:

a) Sell site back to original owners once the title has been cleared;
b) Use competitions to come up with good development proposals and sell site to developers to implement scheme;
c) Build council houses on them.

One planning authority considered the application of levies or the acquiring of sites under compulsory purchase can be very confrontational in a rural community and considered much more success has been achieved by negotiating a solution with the owner and the local councillor. Notwithstanding the difficulties experienced in operating the legislation a

lot of the dereliction and obsolescence in urban areas has been dealt with during the last decade.

> *"Derelict sites register operated by Planning Dept but mixed success rate to date using the Derelict Sites Act" PA2*
>
> *"Acquire sites under compulsory acquisition to secure redevelopment" PA2 and "sell back to original owners with title cleared"PA2 or "builds council houses on them" PA13*
>
> *"Can achieve more by dealing with the local councillor and the local landowner, rather than going the official route" PA12*

Figure 6.14 Stark external treatment of industrial building in an area of urban decay in Cork.

Urban renewal schemes have been used successfully during the last two decades in upgrading many streetscapes in rural towns and villages and also in major urban areas (Figure 6.15). They have contributed significantly in upgrading the appearance of urban areas by putting in paving for pedestrian zones, upgrading the underlying cultural heritage, putting the urban wirescape underground, erecting lamp standards and bollards and generally assisting in increasing business activity. Local community groups initially

viewed renewal as rebuild rather than refurbish, so part of the process was education to retain and enhance cultural artefacts. Even though only limited funding was available for most of these schemes, and the need was both widespread and deep significant progress has been made to date. Other tax incentive schemes which stimulated private investment have completely re-generated obsolete urban areas such as the HARP development in Smithfield, or the docklands developments in Limerick, Dublin, Galway, and Cork.

> *"Urban renewal schemes used extensively to upgrade underlying character of heritage and put in pedestrian zones" PA2*
>
> *"Power and money come together in urban renewal schemes where a combination of a Local Area Plan and Public Private Partnerships have transformed areas" PA3*
>
> *"Renewal Schemes are currently run by a small section in Engineering with no involvement from Planning and operates outside the CDP" PA17*

Figure 6.15 Granite paving and street furniture in a re-developed pedestrian street in Waterford city.

Local authority area engineers previously managed these urban renewal schemes and planning departments were generally not involved. However, this is currently changing with planning authorities playing either an advisory or a facilitation role in these community development projects. Although local community groups (local Tidy Towns committee or development association) are normally involved, the public participation element is not formalised and in one instance a planning authority was only given four weeks to prepare a five-year renewal strategy so no community participation was possible in that case.

Another difficulty experienced was the choice of materials. There was a general move towards the use of high quality paving and street furniture, but the choice of similar materials from major suppliers by many urban areas added to the loss of local distinctiveness. Local foundries and local quarries were not in a position to provide the materials required so the purchase of these materials outside the area meant a loss of local characteristics.

6.5.4 Landscaping

In the past developers were granted planning permission on condition that a landscape plan would be used, but due to the lack of planning resources for enforcement what was implemented was another matter. This led to much poor landscaping practice where maintenance was minimal or non-existent, and projections for the maturing of trees were mostly overstated at 5 years when it was more likely to have been 20 years before they were fully mature. This past bad practice and the more recent move to higher density residential developments in urban areas has led to a requirement by some planning authorities for landscape plans to be submitted with planning applications. They feel that a high standard of landscaping is integral to the success of higher density developments, and that the visual amenity cannot be left untill afterwards, so landscaping is now regarded as an integral part of the planning process. Evaluations of landscaping proposals will now form an integral part of the assessment of the quality of the development scheme during development control, and one planning authority recently introduced a variation of the CDP that landscape plans must be prepared by qualified persons to improve the quality of plans submitted. Therefore landscaping plans evaluated within the development control process provide the public an opportunity to make suggestions not only on the development proposal, but also on the landscaping proposal.

Although planning authorities evaluate landscaping associated with proposed developments, the responsibility for landscaping carried out by local authorities mainly lies within the local authority parks department or environmental department. Landscaping completed by these departments is not required to be evaluated within the development control process, so the public are not afforded an opportunity to comment on these landscaping plans.

> *"Landscaping has a very positive effect in the rural area - as visual screening, as a shelter belt and it improves the composition of buildings and vegetation associated together" PP3*
>
> *"The overall visual amenity cannot be left till afterwards, so the CDP now requires landscape plans to be submitted with planning applications" PA5*
>
> *"Current variation of the CDP requires that landscape plans have to be prepared by qualified persons" PA5*

Some landscaping can have a very positive effect on the visual amenity by introducing colour (Figures 6.16 and 6.17). However, care should be taken around heritage sites that modern bedding plants do not detract from the ambiance of the cultural setting, and many planning authorities also encourage the use of native as opposed to non-native species.

> *"Landscaping using native species and mounding in exposed locations is encouraged to minimise the visual impact of the development" PA8*

Some landscaping by local authorities has been disastrous. In one example, soil was imported onto the causeway to bull-island in which to plant flowers in try to improve the view of the mudflats at low tide. Although the local authority thought they were doing the right thing, the importation of soil and seed to a designated island habitat is against all biodiversity principles. Another disastrous example both ecologically and visually by Wicklow local authority was the construction of a tarmac pathway and viewing area for wheelchairs in Brittas Bay. The pathway had boulders, earth banks and shrubs on either side totally out of character with the sand dune habitat. If landscaping by local authorities were required to be evaluated within the development control process then these unsuccessful enhancements may not have occurred if the public were afforded an opportunity to comment on proposals.

Figure 6.16 Daffodils along the centre margin of the N5 to Galway.

Figure 6.17 Flowerbed on the approach to Lucan on the N5 to Galway.

"Dublin City Council thought that the vista of the mudflats from the causeway out to Bull Island needed enhancing, so they imported soil and planted flowers to improve the view" EG2

"Tarmac pathway and a roundabout as a viewing area right in the centre of the dunes – they put big boulders and earth banks with shrubs on either side of the path totally out of character with the dune habitat - *pathetic ecologically and visually" EG2*

Competitions have been used very successfully in enhancing the visual amenity. The Tidy Towns competition run annually by the Department of the Environment, Heritage and Local Government is a national competition to find the tidiest town in Ireland. Rural towns and villages compete and it encourages local communities to maintain and present their town's heritage in a visually attractive manner. Other competitions such as the tidy districts competition, pride of place competition, tidy streets competition and the city neighbourhood competition are oriented towards urban areas and suburbs where local community groups and local authorities work together to clean up visually negative areas. A relatively new competition is the Golden Mile Competition for rural community groups to preserve a mile of rural road boundary by retaining local heritage and what is natural. All of these competitions provide great incentives to form community groups and to enhance the visual environment by identifying and cleaning up eyesores, and develops a sense of ownership of one's area by the community and a community attitude towards participation to improve one's own place.

"Tidy Towns competition provides a great incentive to form community groups and identify eyesores and enhance the visual environment" PA17

"Tidy Districts Competition is oriented towards the suburbs where local communities and Parks Department work together to improve street cleaning and tidy up odd corners" PA3

6.5.5 Open Spaces and Parks

There is a need to move beyond the old development control requirement of having developers setting aside 10% of the site area for green space because the quality of green space provided in the past was substandard. The role of green space as a recreational space needs to be reviewed to optimise its value to the community to provide a playground for children, areas for sport, and areas for walking and sitting and appreciating nature. This

focus on function should encourage developers to integrate existing vegetation, streams and heritage resources to minimise their outlay and maximise the outcome in providing the green space. These spaces should contain areas for the elderly, areas for young mothers with children, and areas for teenagers. Their development should not obstruct natural walkways but facilitate them and trees should not be planted beside walkways as a temptation for vandalism, but should be planted on contoured mounds that do not obstruct play areas. The design of the green space should be preferably visually and functionally accessible to the maximum number of dwellings in the development rather than open spaces overlooked by windows as a passive policing measure to counteract anti-social behaviour.

> *"Need to move beyond setting 10% aside for green space - very often of poor quality - need to consider their function as children's playground, walking areas, sitting areas, and play areas" PP3*
>
> *"Provide open space in the vicinity of existing vegetation and heritage resources to protect it's visual setting" PA5*
>
> *"Green spaces are now associated with anti-social behaviour such that planners now require open spaces to be overlooked by windows as a passive policing measure" DP3*

6.5.6 Dealing with Negative Visual Impacts

Camouflage is a very clever solution if applied correctly, but it should only be used if all other design aspects have been exhausted. Camouflage uses the concept of leaving the development in the open for viewing, but reducing its visibility by using patterns and colours to minimise contrast with the background. It has been used very successfully to reduce the visual impact of mobile phone masts which have been camouflaged as trees (Figures 6.18) or onto the façade of a building (Figure 6.19) and it was also used by Merck, Sharpe & Dome in Clonmel where the external cladding used a range of military colours rather than the traditional greys, whites and greens such that some bits of the factory are visible and other disappear into the background as lighting or weather conditions change (Figure 6.20).

"Used military colours for the external cladding of factory, so now as the weather or lighting conditions change you can see some bits and other bits disappear into the background" DP1

"Camouflage used to reduce visual impact such as with mobile phone masts camouflaged as trees" DP2

Figure 6.18 Three mobile phone masts camouflaged as coniferous trees adjacent to the M50 near Marley Park in Dublin.

Figure 6.19 **Camouflaged mobile phone antennae in Dublin which do not break the roofine, and with enhanced camouflage using colour on left.**

Figure 6.20 **Merck Sharpe and Dome extension using painting pattern to break up the building form and camouflage colours to minimise background contrast (Photo - M. de Róiste).**

Figure 6.21 Mobile phone mast concealed in Shell sign at Mullhuddart petrol station.

There is a distinct difference between camouflage and concealment. Whereas camouflage leaves the development in plain view but reduces its visibility, concealment totally hides the development from view. There are certain design ethics issues when using concealment because people can be much more opposed to concealed developments when they become aware of them especially in the case of mobile phone masts, which may have a possible health risk in their vicinity (Figure 6.21).

> *"People can be much more opposed when they become aware of an object hidden from view within familiar structures" DP2*

Enhancement measures can also be used to transform large developments, which by virtue of their size stick out like sore thumbs. When originally built the waste incinerator plant at Spittelau in Vienna was a blot on the visual amenity so the local authority contracted Hundertwasser, the architect to improve its public appeal. He did so by transforming the original building into a place of architectural delight such that the incinerator and its chimney is now a focal point for tourists from around the world, with an eye for art and architecture (Figure 6.22).

"Can use enhancement measures to transform certain things, especially things that are big and ugly that will definitely stick out like sore thumbs" EG2

"Using art decoration of waste incinerator in Vienna such that it is now a tourist attraction and structure is a landmark for locals" DP2

Figure 6.22 Waste incinerator plant at Spittelau in Vienna transformed into a tourist attraction by Hundertwasser. (www.elmhurst.edu/~chm/vchembook/198fernwarme.html)

- **Concluding Comments**

Many landscapes and townscapes have been successfully enhanced all over the country during the last decade or more by utilising methods such as urban renewal schemes, the provision of open space in new developments, enhancement competitions especially where tourism is concerned and improved landscaping designs and schemes. A loss of local distinctiveness has been observed due to the urban renewal schemes and respondents

agreed that enhancement policies are less well developed than protection policies and that the implementation of enhancement schemes lacks coherence and needs to be coordinated.

A number of measures are outlined to ensure designs do not impact adversely on the visual amenity including making maximum use of design opportunities to improve design quality, integrating developments into the landscape, and when the design options have been exhausted camouflage and transformation techniques can be utilised to minimise negative and enhance positive visual impacts.

6.6. CONCLUSIONS

There was general agreement that enhancement policies are not as well developed as protection policies within CDPs and whereas the implementation of protection policies is managed within the development control process there is a lack of management of the implementation of enhancement policies. Although enhancement policies have largely been successful, it has been noted that urban renewal schemes are contributing to the loss of distinctiveness and 'sense of place' of urban areas.

One-off housing in the rural area, forestry, wind-farms and design quality were all identified as having the most significant adverse impact on the visual amenity. Whereas the first three are predominantly rural phenomena the issue of design quality was identified as a difficulty in both urban and rural areas. Respondents from all groups agreed that there was a need to improve design quality, yet there seems to be a reluctance by many to recommend the requirement to use qualified architects to address this need. A range of design options were presented to improve design quality and the enhancement methods of camouflage and transformation were suggested for when the design alternatives are exhausted.

This Chapter analysed the findings of the survey of visual policies and examined the successes and difficulties of operating the policies in practice. These findings and those of the first survey presented in Chapter Five should provide two distinct perspectives to allow the research question to be answered.

CHAPTER SEVEN

DISCUSSION OF RESULTS

7 DISCUSSION OF RESULTS

The findings for both surveys are used within this Chapter to find answers to the three research question posed.

7.1 RESEARCH QUESTION 1 – WHAT IS THE STANDARD OF VIA PRACTICE IN IRELAND?

7.1.1 Findings of Survey of VIA Practice

The results of the survey of VIA practice suggest that there is scope to considerably improve the standard of VIA in Ireland for the three development categories reviewed. The EPA Guidelines on the information to be contained in Environmental Impact Statements (CAAS, 1995a & 2002) discuss EIA generally including basic methodologies, basic principles, roles of the participants, and EIA issues rather than providing any specific guidelines for impact assessments for the environmental factors (flora, fauna, noise, water, landscape, visual and others). They also supply a recommended format for EIS layout which is again non-specific for visual impacts. However, the EPA Advice Notes on Current Practice in the preparation of Environmental Impact Statements (CAAS, 1995b & 2003) are far more specific. A one and a half page description is supplied on the requirements of a landscape impact assessment (which contains visual) and a list of all the likely significant impacts are supplied for each environmental factor (flora, fauna, noise, water, landscape, visual and others) for all of the 33 development categories which require EIA. The initial finding assessed whether the VIAs examined the likely significant visual impacts listed in the EPA Advice Notes for the three development categories in question. When the likely significant visual impacts are listed so specifically for each development category, one might expect a high level of compliance for examining these impacts and the compliance levels set out in table 7.1 were adopted as normal in a situation such as this. However, since only 37% of the EISs examined assessed the visual impacts listed in the EPA Advice Notes, this is below the minimum standard adopted as the norm which suggests that consultants are not referring to the EPA Guidelines and Advice Notes as much as they ought to be.

Table 7.1 Classes adopted as the norm for compliance with the EPA Guidelines.

Compliance Classes	Value
Minimum	50 – 69%
Acceptable	70 – 89%
Good	> 90%

The Environmental Protection Agency Act (Oireachtas, 1992a) states that those preparing and evaluating EIS shall 'have regard to' the EPA Guidelines on the information to be contained in Environmental Impact Statements (CAAS, 1995a), but no mention is made to the Advice Notes (CAAS, 1995b). Since the Advice Notes (CAAS, 1995b) supply far more specific advice for each type of assessment and for each development category it seems odd that no reference is made to them in the Act or in any regulations. EIA performance might benefit if either the Advice Notes were also specified in the Act, or both publications were combined into one. The cost of the publications (€13 and €25 respectively @ 2003 prices) may also be a barrier to their more widespread use, although it is noted that they are now freely available for download (.pdf) from the EPA website (www.epa.ie).

In a recent Irish High Court case[2] Mr. Justice Quirke ruled that the term 'have regard to' does not require 'compliance with' Strategic Planning Guidelines when adopting CDPs (Quirke, 2002). But what is the use of guidelines if they need not be complied with? Perhaps in the light of this finding it may now be advised to use some other wording other than 'have regard to' in relation to the use of EIA guidelines to stimulate improved compliance.

An overall rate of 21% was recorded for the use of visualization techniques, and many EISs made little use of the range of visualization techniques available, so there is much scope for improvement. Since the objective of VIA is to predict the impact of a proposed development on the visual amenity before construction, by presenting visualizations of that prediction, a rate of 21% for using visualization techniques suggests a substantial underachievement in this regard. The results also indicate that traditional rather than modern visualization techniques are used which suggests there may be obstacles militating

[2] Quirke, J., (2002), Case: McEvoy and Smith v Meath County Council, Irish High Court, Dublin, 2001 / 359 JR, pp 1-31.

against the implementation of ICTs, and the more widespread use of digital techniques by consultants conducting VIA.

One of the subjective measures used during VIA is the determination of sensitivity of the surrounding landscape and of the sensitivity of potential viewers to predicted changes in the visual amenity. Although a rate of 38% was recorded for identifying sensitive landscapes, less than 1% of viewers were contacted for their opinions. This suggests either a lack of understanding of the requirements of VIA or a nonchalance on the part of those performing VIA because its absence was not expected to be challenged by planning authorities. However, the development control process operated in Ireland is adversarial, so the concept of approaching locals for their opinions on visual impacts before an application has been submitted is contrary to current practice. This may also be a problem of perception in that it may be considered more difficult to measure subjective issues associated with the visual amenity than it is to measure quantifiable limits of pollutants, for example. In many respects this perception is compounded by the relatively weak emphasis placed on landscape and VIA from a European perspective (European Environment Agency, 2003).

Finally, the culmination of the VIA process is an evaluation of the significance of predicted impacts on the visual amenity and it was disappointing to observe that many such evaluations were based on incomplete data, and unsubstantiated statements were recorded in 8% of VIA for urban developments. This overall VIA performance was considered to be below the acceptable standard as defined by the new theoretical framework for VIA and leaves much room for improvement.

- **Are the VIA Results symptomatic of general EIA quality?**

A number of evaluations of EIA quality were conducted during the early 1990s (Lee & Dancey, 1993; Lee & Colley, 1993) all of which found that the majority of EISs were not of the required standard (Section 2.2.3). The European Commission performs 5 yearly reviews of EIA quality all of which have found that EIS quality need to be improved (European Commission, 1997b & 2002). An evaluation of data adequacy of visual assessments conducted by a local authority in California (City of Morro Bay, 1999) concluded that insufficient information, inadequate presentation, inadequate KOPs (key observation points), inadequate specification of significance criteria, and inadequate analytical methodology were the five key concerns. These conclusions correlate closely

with the current findings of this study for three of the five issues, presentation techniques used (21%), inadequate viewpoints (12%), and inadequate significance evaluations (34%).

All of these reviews of EIS data quality and the operation of EIA procedures suggest an overall malaise in EIA procedures in Ireland, and correlate with unsatisfactory results and procedures recorded elsewhere. The unsatisfactory findings of the survey of VIA practice are confirmed by all of these evaluations of EIS and VIA quality. However, other jurisdictions are taking measures to correct this failure.

- **Why are sub-standard EISs being accepted?**

The number of planning applications submitted in Ireland increased by 94% between 1993 and 2003 whereas the number of planning professionals for the same period only increased by 57% (Figure 7.1). Planning statistics are only available for the first half of 2004 to date and these indicate another steep rise in planning applications (48,170), so the previous high in 2000 of 85,300 could be surpassed once the 2004 results are fully released. This dramatic increase in planning applications has put unprecedented pressure on Ireland's development control system, and if planners have less time to make decisions it restricts their ability to evaluate the sufficiency and adequacy of VIA information which may be submitted as part of the planning documentation. The initial planning authority evaluation of a planning application operates within a statutory timeframe of eight weeks which also contributes to this lack of time to evaluate the adequacy of information (Section 2.1.3 and Figure 2.2). These constraints of time and personnel conspire to limit the resources available to evaluate EIS quality in a formal or comprehensive way, thus assisting the acceptance of sub-standard documentation.

Specialist advice is available from prescribed authorities consulted during the development control process. These prescribed authorities include government ministers such as the Minister for Arts, Gaeltacht and the Islands, and the Minister for the Marine and Natural Resources, and government agencies such as Bord Fáilte, An Taisce, the Heritage Council, the Arts Council, the Environmental Protection Agency and others (DoELG, 2001a). Comments are received from some of these prescribed authorities in a high percentage of cases referred to them, but others supply their opinions far less frequently due to understaffing and other priorities. Although the Act (Oireachtas, 2000a) states that submissions may be made on (a) the likely effects of the environment by the proposed development and (b) the implications of the proposed development for proper planning and

sustainable development in the area concerned, this does not occur in practice. Pressure has been applied on the prescribed authorities, all of which receive State funding, to restrict their comments to their own areas of responsibility only, and in certain cases some prescribed authorities have not been circulated with documentation (EG1). These practices limit the information available to planners when making their decisions and are contrary to the concept of inclusion or encouraging public participation in planning.

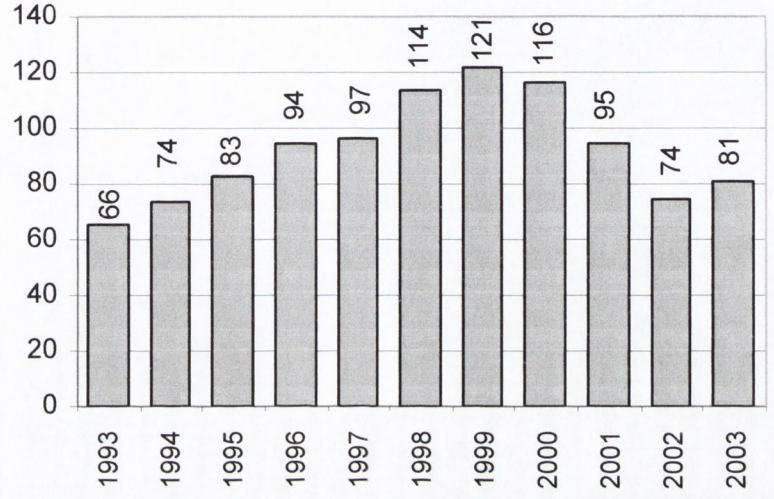


Figure 7.1 **Increase in the number of planning applications received in Ireland per local authority planning professional (DoEHLG, 2003).**

All proposed developments change the visual amenity, some imperceptibly and some significantly. If a planning authority considers that a proposed development may have significant impact on the visual amenity then the planning authority is required to supply the prescribed authorities with planning documents to elicit their opinions. However, these circumstances only occur when a proposed development (a) is adjacent to a special amenity area, (b) obstructs a designated view or prospect, (c) might affect or be adjacent to a feature or other object of archaeological, geological, scientific, ecological or historical interest, or monuments listed in the registers of historic monuments or national monuments, or (d) carrying out works on a protected structure, or on a structure located within an architectural conservation area. Prescribed authorities are not consulted in all other cases and the planners themselves evaluate the impact on the visual amenity. However, curricula for planning qualifications in Ireland do not include any modules in the visual appreciation or aesthetic training, so planners are required to develop this skill with experience. Visual likes or dislikes are such an individual matter that it is vital for a systematic methodology to be used for these evaluations.

7.1.2 Are VIA Methodologies Immature?

- **VIA Methods being used**

Various methodologies were used to conduct VIA in Ireland, but in many cases VIA was relegated to a minor part of landscape impact assessment. The methods used in many cases were neither scientific nor repeatable, which is surprising in that EISs are only produced for major development projects, for which public objections should be expected as the norm. Whereas the function of EIA is to optimise design alternatives to fit the proposed development to its environment, the function of an EIS is to provide evidence for a planning decision, an appeal, and possibly a public hearing. Therefore, the evidence provided in an EIS should be collected using rigorous methods, and should expect to be scrutinized by consultants and developers alike. However, the opposite was the case in many instances with many evaluations of significance based on incomplete data, and many more unsubstantiated statements of significance also recorded. Consultants might be more careful of their professional reputations if the information they supplied was evaluated more closely and challenged more often at appeals and public hearings.

Landscape Impact Assessment (LIA) examines two aspects, impacts on landscape character and impacts on the visual amenity, so visual impacts are often viewed as a subset of landscape impacts (LI & IEMA, 2002). Whereas LIA predominantly uses objective measures of assessment, some subjective measures are required to conduct VIA, for example assessments of sensitivity and evaluations of significance. Consultants tend to shy away from subjective measurements because results obtained can be perceived as not being as watertight as objective results, which cannot be contested as long as robust procedures and methods are used. This tendency to conduct the objective portions of VIA and not to complete the more subjective portions degraded the whole process. Consultants also had a tendency to use suspect value systems where significant adverse impacts were described as moderately negative to reduce any influence they might have on a planning decision.

> "Value systems are sometimes suspect - *moderately negative* can correspond to something being nearly a total disaster" – PP3

This has led to the formulation of well developed and by now mature methodologies for LIA at the expense of VIA. The two assessments of LIA and VIA are combined because similar source information is used for both assessments. This suggests that the quality of

VIA would benefit if it was divorced from LIA and if there was a better understanding of the information needs and information flows required specifically for VIA. The proposed theoretic framework developed specifically for VIA may be useful in this regard.

- **Could better use be made of Visualisation Techniques?**

The results indicate a preference for traditional techniques over modern techniques, which suggest the presence of obstacles to the adoption of new technology for VIA. These obstacles include the availability of suitable spatial data, the high cost of spatial data, the very restrictive nature of current licence contracts for spatial data use, and the availability of sufficient numbers of professionals with spatial analysis skills.

One difficulty is that most existing spatial data were derived from two-dimensional (2D) paper archives, so there is a dearth of three-dimensional (3D) spatial data available. The creation of virtual models and the digital calculation of 'zones of visual influence' require two different types of 3D spatial datasets, which have not been available to date. 3D city or town digital models are required to analyse visual impacts of the virtual models of proposed developments created in the design process to ensure design of the structures are architecturally compatible with their sites and their environs. It would be expensive and time consuming for project proponents to produce 3D models of the receiving environment purely for VIA, but many city authorities worldwide are creating complex 3D city models as planning and development tools (www.casa.ucl.ac.uk/vc/cities.htm). The current absence of complex 3D models for urban areas in Ireland, although MapFlow now supply basic cubic models for the five cities (Figure 7.2), means that 3D virtual models of proposed developments if created can only be analysed against a 2D model (traditional digital map) of the surrounding environment. As a consequence, this type of analysis is still quite rare in Ireland.

Similarly, the calculation of 'zones of visual influence' requires another type of 3D model of the surrounding environment comprising of the shape of the terrain surface and 3D shapes for buildings and vegetation. A medium resolution elevation model has been available since the mid to late 1990s from Ordnance Survey Ireland (OSi) for rural areas comprising a digital elevation model (DEM) using the 10 metre contours from the discovery series maps at 1:50,000 scale. However, 3D shapes for buildings and vegetation have not been available for rural areas to date. This situation is expected to change in 2005 with the availability of the new 3D 1:5000 map series for rural areas. It may then be

possible for OSi to produce and supply a high resolution DEM of the terrain surface and 3D shapes for buildings and vegetation from this 1:5,000 dataset for selected rural areas. This may begin to remove the availability of suitable spatial data as an obstacle to the adoption of modern methods for ZVI computation. One slight difficulty is that the new 1:5,000 map series does not currently cover urban, sub-urban and peri-urban areas, which will continue to be covered by the 2D 1:1,000 and 1:2,500 map scales.

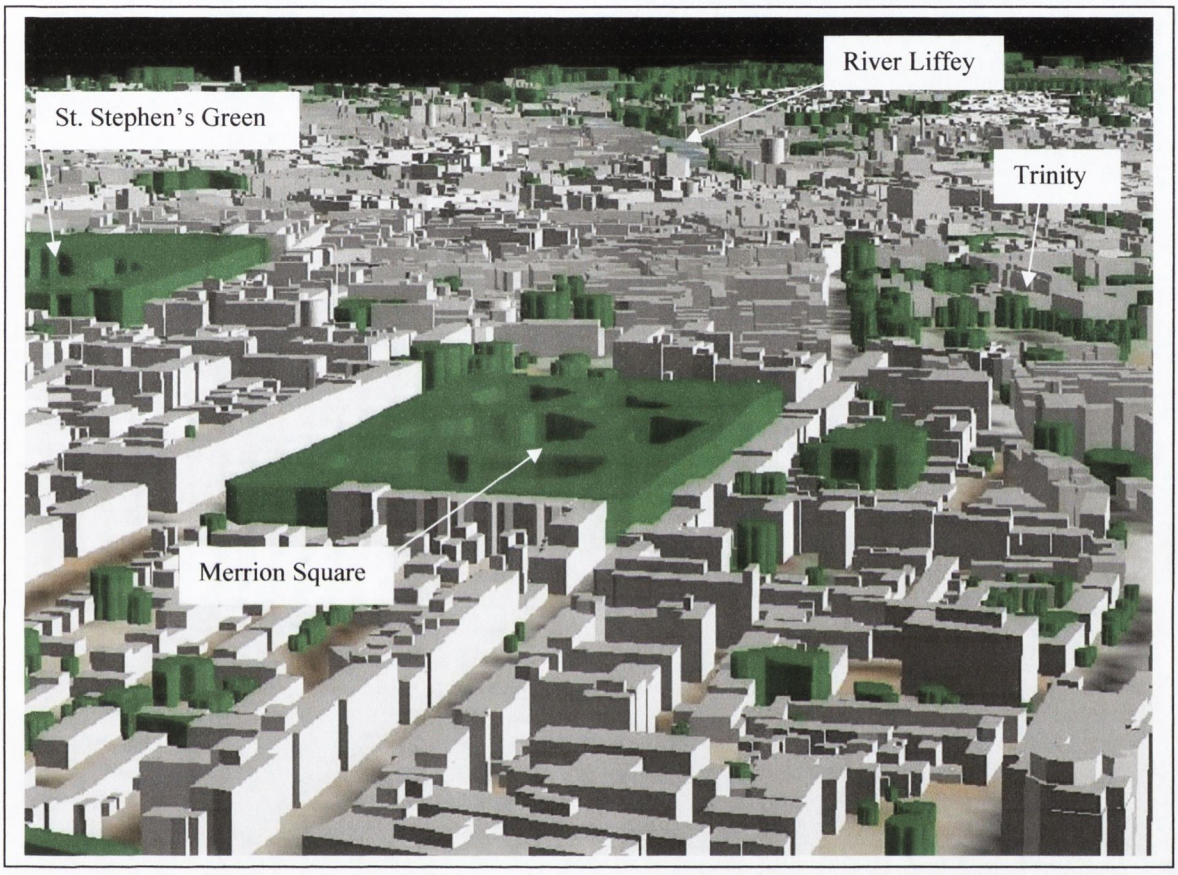


Figure 7.2 **3D city model of Dublin comprising a digital elevation model of the shape of the terrain surface and basic cubic shapes to represent both buildings and vegetation (www.mapflow.com).**

There has been a significant increase in the cost of spatial data during the last two decades where many national mapping agencies (NMA) in Ireland and internationally have adopted cost recovery policies, partially to re-coup the significant cost of implementing digital map production techniques, and partially to re-coup data capture and data maintenance costs to ensure adequate revenue streams into the future. However, the debate on the adoption of this policy has been largely driven by the NMAs themselves in a self serving manner, with little consideration on impacts of users of spatial data or on the obstacle this policy places against the widespread use of spatial data and spatial analysis methods. The cost recovery policy is established by the new Act (Oireachtas, 2001), which was adopted without any

significant debate either politically or within the industry on the impacts of increased cost of spatial data.

Copyright in OSi maps is tightly controlled via licence contracts as one revenue stream in their cost recovery programme. McDonagh states that OSi copyright is inhibiting eDemocracy initiatives in a range of areas. The provision of internet access to OSi maps is essential in promoting public participation in planning but licence contracts restrict the use of OSi maps internally to local authorities and not to disseminate them to the public, thereby limiting widespread development and use of webGIS planning tools. In cases where special arrangements have been made for the publication of OSi maps on websites, those involving detailed urban mapping have been provided in a low-resolution format, which can be difficult to read (McDonagh, 2001).

The high cost of spatial data, restrictions enforced by OSi licensing contracts, and the non-availability of spatial datasets suitable for producing ZVIs or assessing visual impacts within 3D city models in major urban areas seem to be severely curtailing the adoption of modern methods for VIA in Ireland. These restrictions hamper the development of spatial analysis skills among practitioners and professionals, which prolongs the use of traditional methods and curtails service improvements due from modern methods.

However, an Irish Spatial Data Infrastructure (ISDI) is currently being developed as part of the Information Society Action Plan (DoT, 2002) to identify obstacles to spatial data integration and promote more widespread use of spatial data and spatial analysis tools (DoEHLG, 2004a). The ISDI was modelled to be compatible with the EU INSPIRE initiative (www.ec-gis.inspire/org) and proposed six principles as part of its vision, two of which are:

a) It should be possible to combine seamlessly spatial data from different sources, and share such data between many users.
b) Spatial data needed for good governance at all levels should be abundant and available under conditions that place minimal or no restraints on its extensive use.

Having stated that spatial data should be 'shared among many users' and 'available under conditions that place minimal or no restraints on its extensive use' as guiding principles the document correctly goes on to identify that OSi licensing contracts were limiting widespread use of spatial data. One solution proposed categorising spatial data into three

categories: data that should be available free, at marginal cost, or on a full cost recovery basis. Core datasets should therefore be available free or at marginal cost, but the core datasets listed in the document included a comprehensive list of all datasets available rather than identifying specific 'core spatial data' critical for 'maximum sharing' and 'extensive use'. OSi may be reluctant to allow some of its' high revenue datasets be reassigned to be 'free' or 'marginal cost' category.

Warnest suggests that collaborative models should be used for spatial data sharing at all levels (Figure 7.3) and that collaboration should try to include shared responsibilities for updating and upgrading spatial data. He also stated that the integration of the collaborative model into the business model is important and that barter approaches appear to be better than adversarial approaches which focus on revenue (Warnest *et al.,* 2003). The ISDI document seems to uphold the right of current data custodians to continue to provide spatial data products and did not discuss concepts of collaboration or the sharing of responsibilities for spatial data production and maintenance. Warnest also identified central to local government arrangements as particularly challenging.

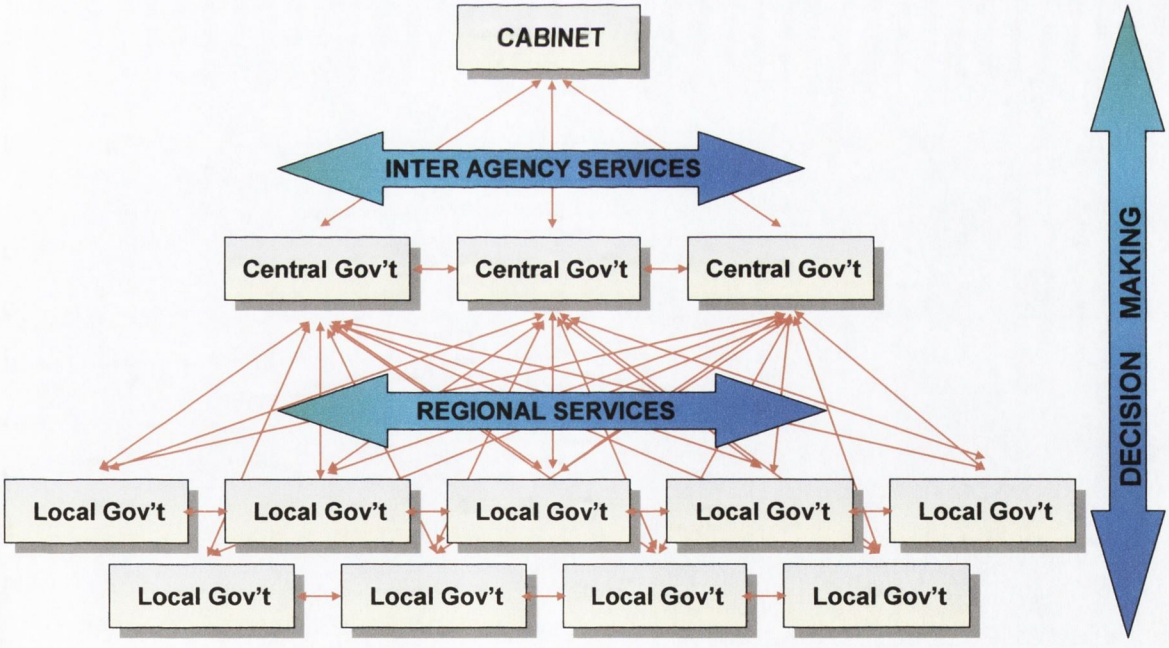


Figure 7.3 Horizontal and vertical nature of data sharing within a Spatial Data Infrastructure (adapted from Ryttersgaard, 2001).

The ISDI document also identified the potential to model a new payment structure on different types of use (viewing, downloading, adding value & reselling products). However, there seemed to be little appreciation of the relative difference in the cost of

provision of spatial data and the benefits accruing from its widespread use. The average cost of running OSi for the last decade has been approximately €10 to €12M annually or roughly €110M over the decade, but the benefits accruing from the widespread use of spatial data is widely estimated at many €50-100M per country annually (McCormack, 2003). These figures suggest that the state should radically re-think the OSi cost recovery policy and consider other revenue streams for OSi other than charging for spatial data and limiting its widespread use via restrictive licensing contracts.

- **The need to improve knowledge of what constitutes VIA**

VIA predicts changes to the visual amenity and then assesses the significance of those changes (Section 3.1). However, in order to predict changes to the visual amenity it is necessary to establish what the current state of the visual amenity is, and then predict how it will be changed due to the proposed development (Section 3.2). This establishes the need to collect baseline information on the current state of the visual amenity in the vicinity of the development site before the project commences.

One might assume that this baseline information would be collected photographically since it is the cheapest and simplest to use and the most effective technique for capturing information on the visual amenity. Since only 51% of all VIA examined utilised this technique this suggests either a lax attitude or a lack of understanding of what VIA entails. These failings might change for the better if planners were more prone to challenge the content of sub-standard EISs. This raises the issue of whether planners have the competence to identify weaknesses in EISs and challenge consultants to ensure information supplied is both adequate and sufficient to allow a decision to be made. Although all courses in Ireland producing professional planners have EIA included as part of their curricula, planners in the system who qualified before the introduction of EIA in 1988 may need Continuous Professional Development (CPD) to provide the skills required.

The incidence of providing heights and floor areas of structures within proposed developments for VIA was unusual even though these dimensions would normally be available from architectural drawings. Whereas height information was supplied in 74% of EISs for piggery developments the corresponding floor area information was only supplied in 17% of EISs (Figure 7.4). Similarly, in EISs for urban developments the opposite occurred, where height information was supplied in only 14% of EISs, but floor area

information was supplied in 91% of EISs. This suggests a profound lack of understanding on the information needs for VIA.

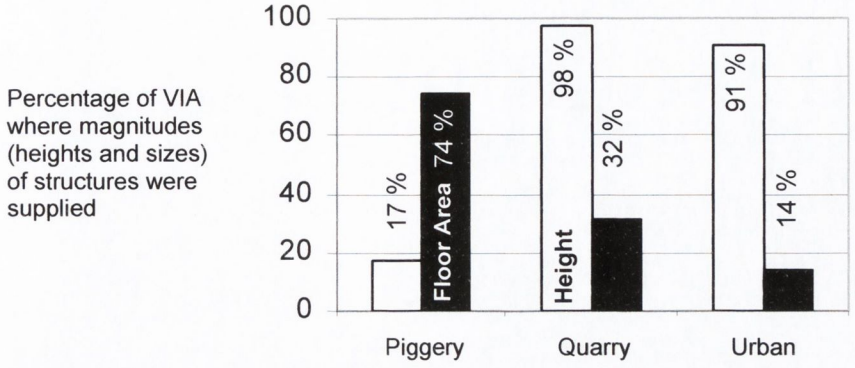


Figure 7.4 Incidence of supply of heights and floor areas of proposed developments for VIA.

The selection of viewpoints from which to evaluate the impact of the proposed development on the visual amenity is very important. They should not be explicitly chosen to supply a flattering view of the development from a marketing perspective, yet this was the case with many of the artists' impressions supplied. The criteria for choosing viewpoints should consider public locations affording best views of the proposed development, proximity of the development site, sensitivity of the viewing location, and views from adjacent landowners' properties. A subset of these viewpoints is then chosen as principal viewpoints from which VIA evaluations are conducted to predict the nature and magnitude of the visual impacts. Consultations with local authority planners and local communities are advised to ensure the principal viewpoints selected are the most relevant for the visual impacts considered most likely. Although viewpoints were chosen in most VIAs, the criteria used to identify them as viewpoints and then to select the principal viewpoints were not supplied in most cases.

An evaluation of the significance of predicted visual impacts on the overall visual amenity is then carried out. The sensitivity of the surrounding landscape and of the people living in and travelling through this landscape to these predicted visual impacts is used as a weighting factor during the evaluation of significance. The sensitivity of the surrounding landscape (landscape receptor) to a proposed development is assessed using the proximity of the development site to natural, cultural and visual areas designated for protection (Section 3.2.3). The sensitivity of people (visual receptors) to the predicted change in the visual amenity is assessed by carrying out consultation sessions or surveys to collect information on the value the public place on the visual amenity. Since landscape receptors

were only identified in 38% of VIA, and the opinions of the visual receptors were only collected in 1% (EIS No. 876) of VIA, the evaluation of significance of visual impacts on the overall visual amenity was below what could be considered a minimum standard. Whereas evaluations of significance were only supplied in 34% of VIA examined many of these evaluations were based on incomplete data. Unsubstantiated statements were observed in 8% of VIA for urban developments. Two examples are:

> *'Given the small scale and nature of the development, no adverse impact would arise.' (EIS 719)*
>
> *'Between Greystones and Wicklow, prospects and views inland from the railway are listed in the Wicklow County Development Plan 1989. However, the Wicklow Mountains would be the dominant feature of the view, and glimpsed views of the site would not be significant.' (EIS 780)*

Considering that the evaluation of significance is the culmination of the whole VIA process, it is extraordinary that an unsubstantiated statement of significance such as this is not challenged especially when the County Development Plan contains listed views in the vicinity of the proposed development.

The new theoretical framework proposed in Chapter Three specifically for VIA to be conducted separately from LIA should help to identify the information needs critical to improve VIA performance. However, the adoption of the new framework by consultants carrying out VIA requires the quality of VIA information in EISs to be evaluated to ensure old ways are changed for the better.

7.1.3 Could the Visualisation Techniques available to VIA help Public Participation in the Planning Process?

There is a growing trend internationally to empower and involve citizens in shaping the landscape around them through the planning process. This presents three specific problems: *modifying* planning procedures to minimise delays and provide an opportunity for real public participation; *physical access* to development proposal information by the citizenry; and the *presentation* of development proposals in formats which facilitate understanding (Shiffer, 2002). Whereas the use of visualisation techniques do not influence the first two problems identified, they could assist public participation by presenting the information in a format which could facilitate its understanding.

Public participation has been a feature of all three processes of Ireland's planning and development system since it was established on a statutory basis in the 1960s (Section 2.2). The enforcement process predominantly relies upon the participation of the public to initiate any enforcement action and the development control process has a well developed element of public participation at both application and appeals levels. In contrast to this the public have been largely excluded from participating in the forward planning process.

- **Modifying Procedures to minimise delays in Planning**

The words 'public participation' are not mentioned in any of the legislation or regulations dealing with Ireland's planning and development system. The words 'public consultation' are used instead. The word 'consultation' permits those managing the process to have a less than enthusiastic support for participation if they desire to do so. Consultation can take the form of hosting a meeting to inform the public of a particular course of action, rather than encouraging public participation in the process of formulating and deciding upon a course of action. Consequently 'consultation' can be abused by public officials to satisfy a statutory duty rather than engage with the public in a spirit of partnership in order to retain control of decisions by minimising public participation. Arnstein viewed consultation as one of the degrees of tokenism (Figure 7.5), so would attitudes to participation improve if 'participation' was used instead of 'consultation'?

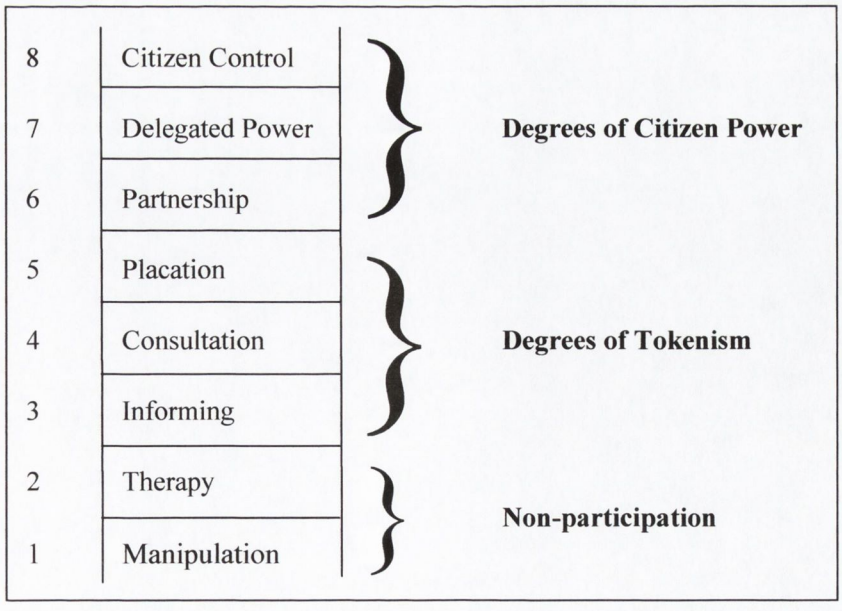


Figure 7.5 **Ladder of Citizen Participation (Arnstein, 1969).**

Participation can be very resource-intensive for planners who need to educate, encourage, facilitate and manage participation projects. Due to the historical understaffing of planning authorities where inadequate resources were traditionally assigned to forward planning (Altener, 2002), the numbers of planners required for participation are still well below what is required even though the staffing situation has significantly improved during the last decade.

Public participation in the planning and development system is somewhat compromised by procedural rules. The recent Planning and Development Act (Oireachtas, 2000a) introduced a fee to participate in the planning processes currently €20 for the initial application, and €150 for an appeal to An Bord Pleanála. Comments on planning applications amount to free consultancy and advice from the public who are only carrying out their civic duty and are likely to contain valuable information only known to locals. The imposition of a fee is in breach of the Environmental Impact Assessment Directive (85/337/EEC) and the EU issued a letter of formal notice to Ireland stating that the fee was contrary to the Directive (Earth Summit Ireland, 2002). Appeals are only accepted if the same person previously submitted a comment at the application stage. All of these rules contrive to limit public participation and some expressly prohibit social inclusion by applying a charge to participate.

- **Improving physical access to development proposal information**

Previously, citizens had to visit the local authority planning office to gain access to the planning application information in order to participate. Due to the chronic understaffing of local authority planning departments opening hours of public counters are generally restricted to between five and six hours on weekdays (Figure 7.6) representing access times of only 15% to 18% (25 to 30 hours in green) of the total time available (24/7 week in yellow). Participation has also not been facilitated in the past by the distances required to travel to visit local planning office to access the information. Distances of 40 to 100 kilometres are normal for most of Ireland's rural local authorities (Figure 7.7), where the time required to visit the planning office could take a full working day if public transport was necessary.

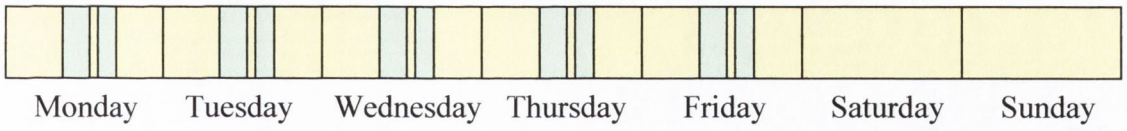


Figure 7.6 Time available for physical access to planning documents at the public counters in planning offices.

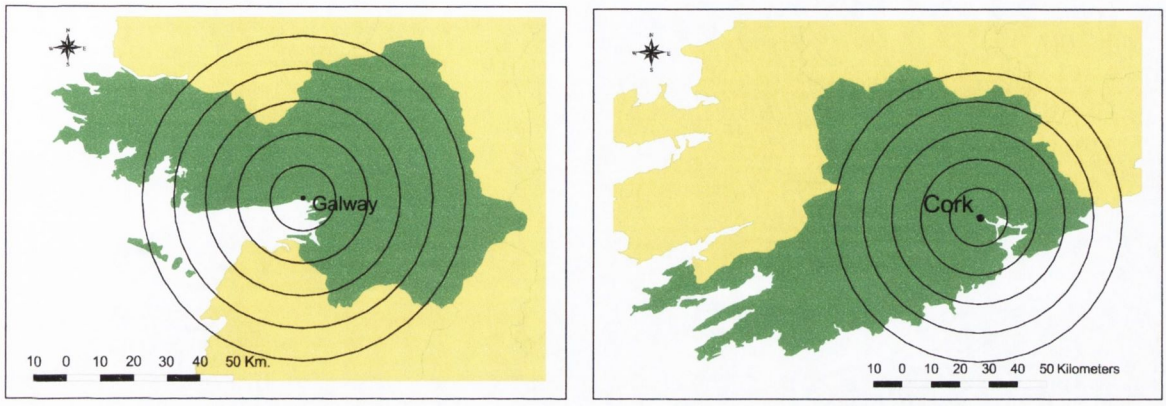


Figure 7.7 Travel distances to local authority planning offices to gain physical access to the planning documents.

Currently, the mechanism for accessing EISs containing VIA information and the requirements for producing these are not conducive to participatory planning. EISs are rarely accompanied by any widely available metadata, they are rarely digital and are only catalogued and available in the national central repository in the ENFO (Ireland's public information service on environmental matters) library in Dublin after decisions have been taken. Furthermore, the statements are not as comprehensive or as effective as they might be in conveying the information they contain to planners and the general public.

The Irish government's plan on the Information Society aims to deliver a range of government services through a single point of contact via a public services broker (www.reach.ie). The new Information Society Plan (DoT, 2002) contains a list of flagship projects, two of which directly relate to the planning and development system. The first project due for release early in 2005 includes an online ePlanning facility providing access to the forward planning process to permit citizen interaction with draft Development Plans, and the development control process by supplying planning application forms on-line and to permit registering of unauthorised developments, commencement notices, and objections to planning applications by citizens on-line. The second project named gPlan (GIS Planning) uses an integrated intranet/internet planning GIS to provide documents and graphics relating to the planning register, Development Plans, and the forward planning and development control processes remotely to users via the internet to view, analyse and

make submissions via the system (www.proteus.ie). These new ePlanning systems are driving the first key component of public participation; the modification of planning procedures to minimise delays in the process and to provide improved opportunities for public participation in planning.

Physical access to information was identified as a right in the Freedom of Information Act (Oireachtas, 1997). The on-line ePlanning facility via the Public Service Broker portal should significantly improve the period of access by providing a 24/7 service, and should also permit access from remote locations over the internet. Many thousands of personal computers (PC) have been installed in public libraries during phase one of the Information Society Action Plan to minimise the digital divide by providing access to the internet to those who do not have home PCs.

Since the forward planning and development control processes both operate within statutory time periods (Sections 2.2.2 and 2.2.3), it is not only necessary to provide access, but access must be permitted within the statutory time period. The development control process allows an eight week period for public participation from the date of submission of a planning application and planning authorities must publish lists of the planning applications received to inform the process. Many local authorities are now publishing these planning lists on-line which makes them available for remote access on a 24/7 basis. The significant delays observed in the submission of EISs to the ENFO library means that this important information resource is only historical and cannot be used within the development control process. Is it too much to ask in today's digital age to improve the speed of delivery of EISs to the ENFO library or that electronic versions of them are available on local authority websites? Physical access to the necessary information within the statutory time schedule for the planning process is essential to facilitate public participation in planning.

- **Improving intellectual access to development proposal information**

Where VIA visualisation techniques might help public participation is with the intellectual access to information on development proposals. The use of ICTs to improve physical access to information would also be an ideal dissemination medium for distributing visualisations more widely and encouraging increased participation.

The development control process requires a diverse range of planners, architects, engineers, project proponents, local politicians and the public to be able to conceptualise development proposals from documents supplied with planning applications. This necessitates reading maps, trying to visualise ideas in 3D from 2D schematic drawings and plans, and also understanding scientific evidence supplied in environmental impact statements (EISs) on impacts on water, fauna, traffic flows, and landscape and other environmental factors. Intellectual access to information then is the third key component for participation, and how the information is presented can either confuse or facilitate its understanding.

Detailed technical and scientific information can be difficult to grasp through text or in tabular form alone. By comparison, the same ideas may be grasped much more quickly if presented graphically. Graphics not only disseminate the basic information but they can also indicate how elements are linked and how processes operate chronologically. The "map" is an excellent example of graphic communication where complex concepts such as terrain shape, relative proximity and importance are portrayed.

Information can be grasped much more quickly if presented graphically. Graphics not only disseminate the basic information but they can also indicate how elements are linked and how processes operate chronologically. Web GIS tools are ideal to supply a graphical interface which most users can relate to or the use of a portable document format allows all types of information, including visual formats to be easily accessed. Changes in the landscape arising from new developments have a direct, immediate and visible effect upon people's surroundings, thereby arousing strong feelings and immediate opinions are stimulated when people are visually confronted with a constructed development. Using visualisation techniques within the development control process is an important way of stimulating the public into vocalising opinions at a stage when the development is not yet built and their opinions can make a difference (Bell, 1999).

Geo-visualisation is a relatively new area of geographic information research that integrates approaches from Visualisation in Scientific Computing (ViSC), cartography, image analysis, information visualisation, Exploratory Data Analysis (EDA) and GIS to provide the theory, methods and tools for visual exploration, analysis, synthesis and presentation of geographic information (MacEachren & Kraak, 2001). The strength of the combination of all these disciplines is the opportunity to look at data differently and

stimulate so-called visual thinking by visual exploration and analysis. Two important functions of geo-visualisation in planning are exploration and collaboration (Figure 7.8). Professionals (planners, architects and engineers) can use geo-visualisation for visual thinking to explore and preview different planning scenarios. Collaboration has to do with presenting development proposals visually between the various groups (planners, architects, engineers, project proponents, local politicians and the public) at different stages of the development control process.

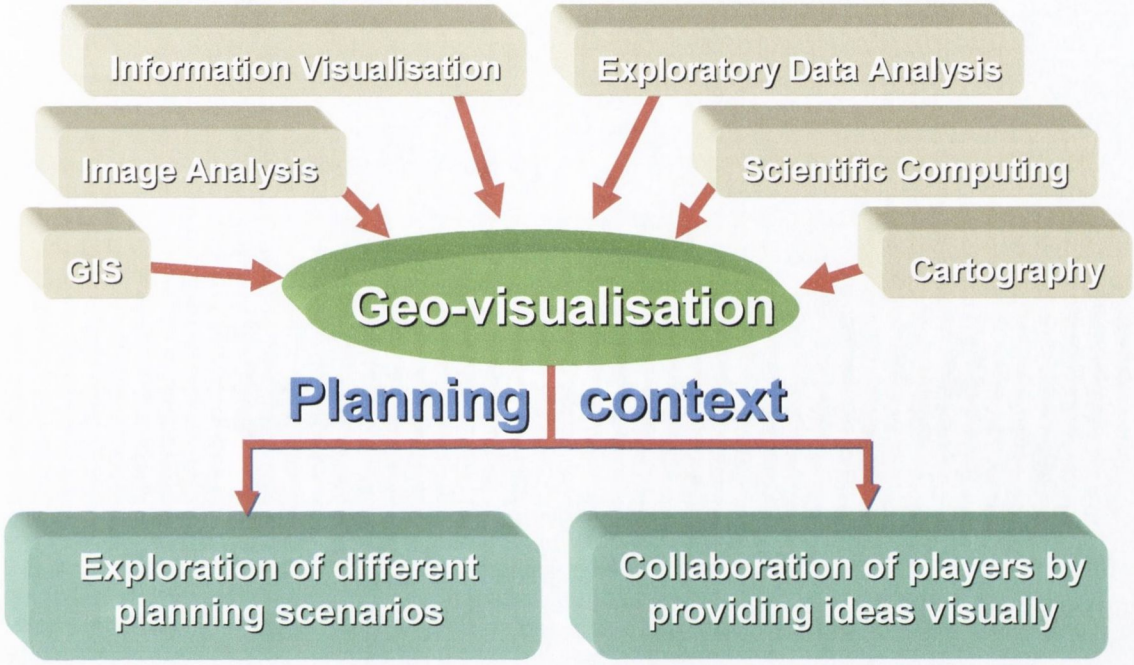


Figure 7.8 Geo-visualisation tools providing for the two important planning functions 'exploration' and 'collaboration' adapted from (MacEachren & Kraak, 2001).

These geo-visualisation techniques can dramatically *improve understanding* of the planning issues, *entice wider public participation* by presenting the issues in a format which is more easily understood, and lead towards *improved planning decisions* and a better environment. Furthermore, with the technical ability of the Internet to handle such geo-visualisations and in some cases to make them interactive, it would seem to be the logical delivery mechanism for collaboration (Jiang *et al.*, 2002).

It is clear that improving public participation will not thrive unless the employment of ICTs in the interaction between government and citizens is at a sophisticated level. The existence of websites merely providing improved access to information about government services does little to change this manner of interaction between government and the

citizen (McDonagh, 2001). The information needs to be re-engineered to suit the public and its' provision in graphical formats using visualisation techniques should assist information understanding. The new ePlanning and gPlan facilities for the forward planning and development control processes are eagerly awaited and should provide the tools necessary to significantly improve citizen interaction in the planning and development system by maximising the use of visualisation techniques.

The results from the policy survey indicate that some local authorities have difficulties engaging the public at times. Much money is spent putting adverts in newspapers, on local radio, and holding meetings in the local area, but local authorities do not get responses until draft Plans are published. The intent of public participation is to get people's views at the start of the process to direct it, rather than when concepts have been solidified in the minds of the gatekeepers.

The implications of the findings that the standard of VIA practice in Ireland is poor are that the development control process is using sub-standard information about the visual amenity to make planning decisions which could degrade the quality of those decisions and impact adversely on the visual amenity. Secondly the low usage of visualisation techniques does not facilitate improved understanding of the development proposal and is not conducive to the encouragement of public participation.

7.1.4 Conclusions

The standard of VIA practice in Ireland for the period under review left much room for improvement. A compliance rate of 37% of examining the likely significant visual impacts listed in the EPA Advice Notes for the three development categories in question is below the minimum standard adopted for compliance. The rate of use of visualisation techniques of 21% to present VIA findings could be significantly improved. This may be due to:

a) Consultants conducting VIA considering that other environmental factors are more important than the visual amenity;
b) An overall malise in EIA generally compounded by an ineffectual system of evaluating the quality of information submitted within EISs.

These VIA results suggest that knowledge of VIA could be significantly improved and might benefit from being separated from LIA as suggested by the theoretical framework for VIA developed and proposed during this research. Since none of the prescribed

authorities are responsible for the visual amenity and have been restricted not to comment on areas outside their responsibility planning courses might be advised to include a module on VIA which includes theories, methodologies and techniques for aesthetic appreciation.

There is a tendency towards the use of traditional rather than modern visualisation techniques. This reluctance to adopt modern techniques may in part be due to the lack of suitable OSi spatial data, the high cost of OSI spatial data, and the restrictive nature of OSi licence agreements. The Irish Spatial Data Infrastructure may be the ideal vehicle to attempt to resolve these difficulties.

Finally three problems have been identified with attempts to empower citizens via public participation in planning. The use of ICTs can help to resolve two of these difficulties and the use of visualisation techniques would be useful to resolve the third. However, current use of visualisation techniques needs to be significantly improved to contribute to the resolution of this difficulty.

7.2 RESEARCH QUESTION 2 – IS EIA ACHIEVING ITS PRIMARY AIM IN IRELAND?

EIA is a process for anticipating the effects on the environment caused by a development (Section 2.2.3), and where effects are identified that are unacceptable, these can then be avoided or reduced during the design process (CAAS, 2002). This implies that alternative design scenarios should be examined before screening is used, but the results of the survey of visual assessment practice found that quite the opposite was happening. The results of the survey of visual assessment practice indicate that screening (68%) is more prevalent than examining design alternatives (42%), suggesting that un-optimised designs are being hidden from view behind vegetation and terrain screens. One respondent in the survey of visual policies stated that "structures behind landscaping will always be more common than landscape integration because it is an economic issue for developers" (DP1), and another stated that "my experience is that landscape architects are brought in at the end of projects to pour the green sauce over the development to try to undo and hide the awful things that are built" (DP3). This suggests that something is amiss with EIA and that the primary aim of EIA (Section 2.2.3) of 'fitting the proposed structure to the environment' is not being achieved. Rather, it may be that the existing environment is being modified to accommodate un-optimised designs.

7.2.1 Quality of Environmental Impact Statements

EIA is an elaboration of what planners are supposed to be doing when evaluating a development proposal – making development consent decisions based on their judgement of the merits of the development proposal and the competing interests of economic growth, social justice, and environmental quality (Comhar, 2002). The EIA process formalises this process by providing scientific measures, and by documenting the process it also provides an opportunity for public participation. However, even though EIA is supposed to be scientifically conducted and EISs are supposed to be objective their quality was consistently found to be less than what is required (Lee & Dancey, 1993; Lee & Colley, 1993; European Commission 1997b) (Section 2.2.3). Fifty six percent of planning authority respondents in the survey of visual policies complained of the poor quality of EISs and 44% of the same respondents stated that EISs were biased in favour of development proposals.

> *"Have to read what is not in them rather than what is in them, because so much is left out" EG7*
>
> *"Issues are regularly overlooked in EISs which one would not expect consultants to overlook" PA6*
>
> *"No I'm not going to give you €100,000 for a full assessment, but I'll give you €20,000" PA12*

An EIS should be a statement of fact rather than a supporting case for a development proposal. However, the reality is somewhat different. Only one of the 40 respondents stated they had ever seen an EIS saying 'no' to a proposed development. On probability grounds alone there should be more EISs against development proposals so this suggests a statistical bias in favour of developments. The survey of visual policies found that 44% of planning authority respondents considered EIS information to be biased in favour of development proposals which supports this anecdotal statistical evidence. Many of the respondents believed that developers who pay for an EIA do not wish to receive an EIS opposing their development proposal. Consequently, consultants conducting EIA do not provide EISs opposing development proposals for fear of not being given any repeat business and in the knowledge that the information they supply will rarely be challenged.

These results suggest that the information being supplied to inform the development control process is biased in favour of development proposals rather that presenting a

scientific evaluation of the suitability of a development proposal for a particular site. The quality of planning decisions is dependent on the quality of information submitted with a planning application to inform the process. If this information is sub-standard in any way it could adversely affect the quality of a planning decision and could influence the attainment of sustainable development (Figure 7.9).

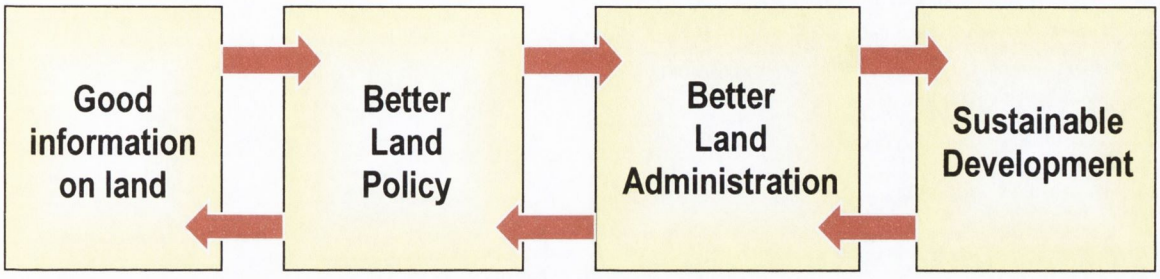


Figure 7.9 The relationship between good quality information on landscape and sustainable development (UN & FIG, 1999).

During scoping some respondents commented that they often get an impression that consultants do not want to complete a full EIA but want to do the bare minimum. This puts planners in a compromising position to ensure that all impacts likely to be significant are identified at an early stage. The Advice Notes (CAAS, 1995b & 2003) would be useful in this regard to identify the likely significant impacts for particular development proposals, but this tendency to minimise the requirement may arise as a result of developers only providing enough funding sufficient to complete a partial assessment.

- **Checking sufficiency and adequacy of EIS Information**

Most planning authorities receive very few EISs (normally 1 to 5 per annum) and the numbers can be quite varied from year to year, so planning authorities find it difficult to develop in-house expertise for dealing with them. Thirty nine percent of planning authority respondents stated they had contracted consultants to evaluate EIS information when of some data might be in doubt, mainly to verify the adequacy of specialist technical information such as traffic or retail information. Another planning authority stated that if there was a situation of unease with the information supplied within an EIS, it was good practice to get a second opinion to be sure of the facts, because many EISs resulted in oral hearings or judicial reviews. Seventeen percent of planning authority respondents stated they have not contracted consultants to evaluate EIS information mainly because of the statutory timescale for the development control process. One planning authority stated they had conducted an independent study in parallel to the EIA carried out by the developer for

a development proposal anticipated to have significant impacts on the environment. The independent study was cross-referenced later to determine the sufficiency and adequacy of EIS information submitted by the developer. Another planning authority suggested that it was now possible to end up with three EISs one produced by the developer, another by the local authority and yet another by a third party objector. Notwithstanding all these different approaches taken to evaluate the adequacy of EIS information supplied, the responsibility for dealing with EISs lies with the planning authorities within local authorities as part of the development control process, and most planning authorities employ a similar methodology in assessing the information contained such as:

a) Planner for the area where site is located and senior executive planner read EIS;
b) Consultation with internal departments such as environment, engineering and roads;
c) Consultation with the prescribed authorities (EPA, Dúchas, An Taisce, and others).

Planning authorities do not have the staff (as outlined in Sections 1.1 and 7.1.1) to check EIS quality, planners do not have the technical expertise in some of the specialised areas, and the statutory time deadline of the planning application limits an in depth analysis of the EIS submitted. Planners mainly have only 2 to 3 days to make a decision, so they mainly just scan through them and focus on the priority areas. In these circumstances the prescribed authorities become very important because they provide specialist knowledge not available in the planning authorities and they often reply with opinions missed by others. Although some prescribed authorities are good in making replies to EISs, others are less so, and planning authorities can experience problems getting replies within the statutory time period in some cases. Some prescribed authorities are chronically under-resourced and are snowed under with EISs coming in from all the planning authorities around the country which can compromise their ability to respond; for example the Heritage Council has one person handling all EISs nationally.

> *"Consultation with external agencies is very important because provide specialist knowledge not available in Planning Department" PA17*

Although planning authorities rely a great deal on the prescribed authorities for specialist technical advice, the prescribed authorities are limited to commenting only on their specialist areas even though they may have a valid comment in another area. No prescribed authority specifically deals with visual impact so planning authorities have to evaluate the VIA themselves. One planning authority suggested that a national body to assess the

sufficiency and adequacy of information supplied in EISs would be useful, and another stated that the dissolution of An Foras Forbartha was a retrograde step.

> *"Had knuckles rapped a few times in the past, so no comments on visual amenity any more – legally not any of our business" EG4*
>
> *"National body required to assess sufficiency and adequacy of information supplied in EISs?" PA10*

7.2.2 Scheduling Environmental Impact Assessments

Most of the criteria triggering EIA in Ireland are quantitative rather than qualitative and many of the planning authorities interviewed consider there is a need to move to qualitative measures for predicting significant impacts on the environment. The European Commission has ruled that Ireland is setting incorrect thresholds and they are also applying pressure to incorporate more qualitative measures (European Commission, 2001). Existing regulations could be amended to bring in qualitative thresholds, where if there is potential for any significant impacts, EIA should be necessary. If a development is sub-threshold but significant impacts are thought likely, then the current system falls down. A small quarry could do enormous damage visually, but a large one could have very little visual impact, so another measure of significance is needed other than area.

> *"There is a need to move from quantitative to qualitative criteria to specify if EIA is required" PA9*
>
> *"The EU is applying pressure to incorporate more qualitative measures for EIA in Ireland" PA10*

Many of the criteria triggering EIA in Ireland are also geared more towards the rural environment rather than urban environments. The original area based threshold of two hectares for mandatory EIA for urban developments was ludicrous. Two hectares is quite small in a rural context but is very large in the context of a city centre. There are many developments under this threshold where significant visual impact is likely, such as the Spire in O'Connell Street, or the high-rise development on George's Quay. The design for the Spire in Dublin was chosen specifically for its huge visual impact but it was not even approaching the threshold value triggering EIA (Figure 7.10). The planning authority eventually had to acquire a court ruling to ensure EIA was carried out for the Spire and

EIA was requested by An Bord Pleanála when the George's Quay development was appealed. Consequently, EIS thresholds for urban developments need to be re-examined.

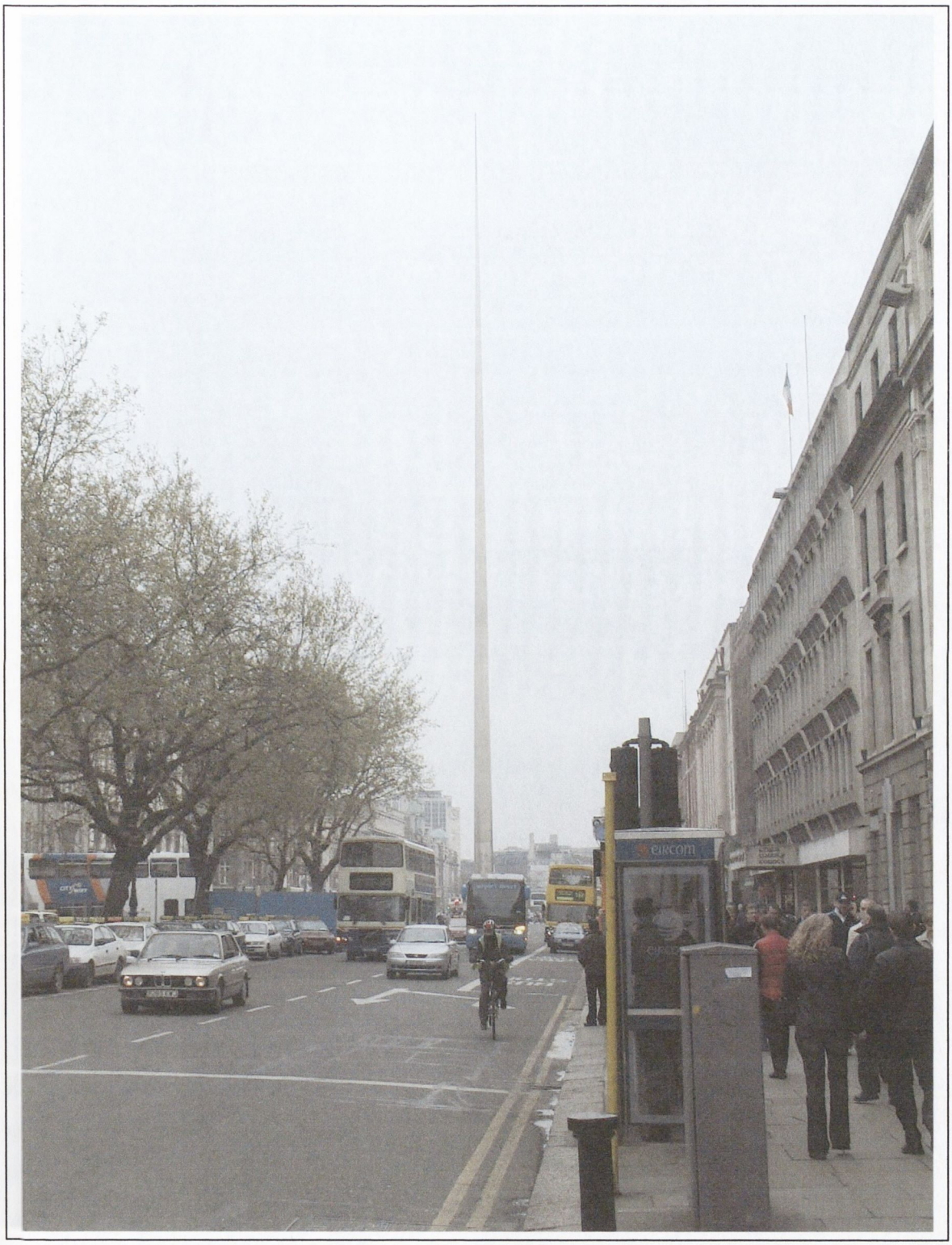


Figure 7.10 The Spire in Dublin's O'Connell Street which has a ground footprint of less than 10 square metres, but the threshold triggering EIA for urban developments is greater than 20,000 square metres.

"Original 2 Hectare threshold for mandatory EIA for urban developments was ludicrous" PA2

"EIS thresholds for developments in urban areas need to be totally re-examined" PA2

There is also a general consensus that 50 hectares is too large an area for triggering EIA for forestry developments even though it was initially 200 hectares, before it was reduced to 70 hectares and then later to 50 hectares. One respondent suggested that developers were subverting the process by breaking up projects to come in under this threshold to ensure EIA would not have to be conducted. One example was given where a farmer decided to plant conifers on 90 hectares in a mountain glen with a lake in Ardgoom, Co. Cork. The farmer had split the project in half to extinguish turbary rights on a 45 hectare portion of the land. The Forest Service gave permission for the initial 45 hectares and then for the remaining 45 hectares after the turbary rights were extinguished, even though it was adjacent to an SAC and the planting was right down to the lake edge contrary to acidification guidelines.

"Many projects are now coming in with 49.9 Ha, so developers are breaking up projects to come in under the threshold" EG6

"Mountain glen with a lake in Ardgoom where a farmer decided to plant conifers on 90 Ha – permission for 45 Ha first and then permission for another 45 Ha after turbary rights extinguished" EG6

Many respondents indicated that EIA was 'post hoc' within the design process (PA3, PA9, PA11) and that EIA consultants are brought in at the end of the design phase to prepare a document required for planning, rather than conducting EIA to inform the design process and ensure the design is made more environmentally sustainable as required by the regulations (Section 2.2.3). If EIA were to be conducted at the outset of a project it would be possible to establish design constraints before the design phase. More importantly it would then be possible to examine the suitability of the development concept for the site in question before any significant investment is made and be in a position to recommend if necessary that the site in question is inappropriate for the type of development being considered. Some methodologies for VIA recommend a description of the proposed development before collecting baseline information on the development site (Il & IEA,

1995), but the proposed theoretical framework for VIA (Section 3.4) identified this as a particular difficulty. Baseline information on the existing site is required to inform the design process in order to allow the designer to modify designs so that will fit the receiving environment. This requirement will not be met if EIA is only scheduled after design completion as a necessity to prepare a document for planning permission.

Many respondents commented on the need to improve the quality of designs of proposed developments (PA5, PA7) in order to improve the environmental fit of new developments. One planning authority (PA7) unsuccessfully proposed that the new planning and development Act (Oireachtas, 2000a) should include a requirement that people submitting applications be qualified architects in order to improve design quality. Another planning authority (PA5) recently introduced a requirement within a variation of their CDP that landscaping plans for development proposals must be prepared by qualified landscape architects, yet drew back from contemplating a similar requirement requiring architects to prepare designs for proposed developments. The environment is too fragile to be left to the unskilled contributions from unqualified people and politicians need to act before untold damage is done to Ireland's landscapes. Just because an architect has a qualification does not mean that they will prepare a better design, but their qualification ensures they have the necessary skills to allow them to make the necessary improvements if required.

7.2.3 Is EIA giving Value for Money?

There was a general consensus between most of the respondents from all of the groups interviewed that the EIA process is not achieving what was originally intended. Ireland is spending a lot of money conducting EIA and producing EISs, but it is not achieving the primary aim of modifying designs of proposed developments to better fit the environment. This begs the question – is Ireland getting value for the money already being spent? Many of those interviewed did not think so.

"Process not achieving what was intended" EG1

"General feeling that EIA is not achieving what it set out to do" EG6

"Spending a lot of money producing EISs, but not achieving primary aim of modifying designs to fit the environment" PA5

"EIA process not achieving what was originally intended - Agenda 21 commitments should be built into it - sustainable development should be the basis for assessing any environmental impact" PA10

A number of planning authorities suggest that the reason why designs of proposed developments are not being modified to better fit the environment is because the EIA process is *post hoc*, and that EIA is not integrated into the design process. Currently architects are first commissioned to prepare designs for the proposed development, and then an EIA consultant is commissioned to prepare an EIS for the chosen design. One planning authority proposed an idea that an EIA consultant should conduct a scoping study of 2 to 3 days first to assess the feasibility of the project before commissioning an architect to draw up detailed designs.

"EIA just producing documents arguing supportive case for original project design – so post hoc" PA11

"EIA seems to be 'post hoc' and does not seem to be integrated into the design process" PA3

Many planning authorities were of the opinion that EISs would continue to be biased towards development proposals if developers continued to commission them. One environmental group suggested that EISs might be more objective if the developer paid for it but the planning authority commissioned it. One planning authority agreed with this idea and proposed the adoption in Ireland of the Swiss system where this concept is already in use. The developer pays a fee to the local authority who then commission one independent EIA. Could Ireland get better value for money and eliminate the biases in EISs by introducing such a system in Ireland? In the Dutch EIA system planning authorities can request the Commission for EIA (independent panel of experts) for an opinion on the quality of the EIS, and most competent authorities now rely heavily on this judgement. The Commission hopes that this approach in reviewing EISs will contribute to an improved

quality of EIS thereby improving the environmental information to ensure better decision making (Scholten, undated).

> *"EISs are supporting cases for development proposals because they are commissioned by developers" PA18*
>
> *"EIA might be more objective if the developer paid for it and the local authority commissioned it" EG7*

Loss of value for money can take two forms, spending too little so that the information generated is insufficient to inform the process correctly, and spending too much where the excess spent did not contribute substantially to the decision taken. Since developers are funding EIA it is likely that good quality EIS will not be submitted to the development control process in an effort to save on costs (DP1). This approach will always lead to this information deficiency unless checks and balances are introduced to ensure EIS quality is assured. It is also possible under the current Irish system to end up with 3 EIAs: the developer's, the local authority's and third party objector's (PA8). This approach is a result of the adversarial nature of the current planning and development system where development proposals are almost considered secret documents until such time as they are submitted for planning. This adversarial nature can lead to different interested groups conducting multiple EIA when development proposals are expected to give rise to significant environmental impacts so that duplication occurs and money is squandered. This approach does not facilitate consultation with planning authorities or with community groups during the design phase which if done could identify and resolve many of the issues which cause unnecessary delays later on in the development control process. Any solutions offered to correct this lack of value for money should attempt to resolve the difficulties inherent in these approaches also.

The implication of the findings that the primary aim of EIA is not being achieved is that the environment is being adversely affected by proposed developments whose design have not been modified to fit the receiving environment thereby putting the achievement of sustainable development at risk.

7.2.4 Conclusions

The primary aim of EIA is to optimise designs of proposed developments to ensure they fit the receiving environment and are sustainable. However the survey of VIA practice found

that mitigation measures were favoured over design alternatives, which suggests that the primary aim is not being achieved. Many of the respondents from all of the groups interviewed during the survey of visual policies stated that EIA was not achieving its primary aim because:

a) It did not inform the design process because it was '*post hoc*';
b) EISs were biased in favour of the development proposals.

Different approaches are taken by planning authorities to conduct checks on EIS information quality, but they are considered insufficient because:

a) Planning authorities have insufficient resources to conduct proper checks:
b) Prescribed authorities have insufficient resources to reply to all EISs submitted nationally and in some cases have been restricted to only comments of their own areas of responsibility.

Consequently sub-standard information is being supplied to the development control process which could adversely affect planning decisions and put the attainment of sustainable development as risk. Since the requirement to conduct EIA is necessary under the EU Directives, Ireland could get better value for money and improve the quality of its planning decisions by attempting to improve EIS quality.

7.3 RESEARCH QUESTION 3 – HOW CAN THE MANAGEMENT OF IRELAND'S VISUAL AMENITY BE IMPROVED?

7.3.1 Current Issues Impacting on the Management of the Visual Amenity

- **Coordination Role in Local Authorities**

There was a general consensus between all respondents that development policies currently contained in CDPs to protect Ireland's landscapes have largely been successful. These policies have evolved initially from focusing mainly on protecting natural heritage in outstanding areas during the 1970s as recommended by the Wildlife Act (Oireachtas, 1976b) and the identification of outstanding areas of natural beauty (An Foras Forbartha, 1977). Then the Heritage Act (Oireachtas, 1995) gave a particular emphasis to the protection of heritage as well as broadening the interpretation of heritage to include landscape (Figure 7.11). This new focus on landscape was re-emphasised with the issue of

the draft guidelines for landscape assessment (DoELG, 2000) took a more holistic perspective by examining all landscapes, although the guidelines specifically excluded urban areas for some unknown reason. The new guidelines for landscape assessment also developed on previous concepts of landscape character assessment by including visual and image units in the characterisation process, which gave a specific emphasis to the visual amenity. Finally, the European landscape Convention (Council of Europe, 2000) which Ireland ratified in 2002 provided a definition of landscape which included urban areas, so there is scope to include urban areas in the final guidelines for landscape assessment and develop development policies to also protect the visual amenity in urban areas in the future.

However, these designations to protect landscape can limit the development rights of landowners and as more and more land was being designated during the 1990s farming organisations became increasingly vociferous about the resulting loss of value of land and the lack of clarity around compensation schemes (www.askaboutireland.ie). A number of EU Member States introduced schemes to pay compensation for any loss of current value of an interest in land as a direct consequence of designation orders and the farming organisations in Ireland finally struck an agreement with government in 2004 (www.macra.ie). This agreement states that compensation will be paid for any costs or losses of income or value which result from restrictions on farming or other existing activities resulting from designations.

There is growing awareness of some deficiencies with the designation approach to landscape management. One problem is that some assets are liable to be left out, such as historic demesnes and gardens. The solution to this dilemma does not lie in ever more designations and concentrating more resources on the outstanding landscapes but rather in working towards the universal application of sustainability principles across all areas of policy. Most of the population lives works and plays elsewhere and it would be a disservice to them if the planning system neglected ordinary landscapes (Faulkner, 1999).

However, there was also widespread agreement that development policies for enhancement contained within CDPs are not as well developed as development policies for protection. This may stem from the pervasive international use within planning of a methodology where the 'good' was identified and designated for protection as opposed to identifying and eliminating the 'bad' (An Foras Forbartha, 1977; McHarg, 1992).

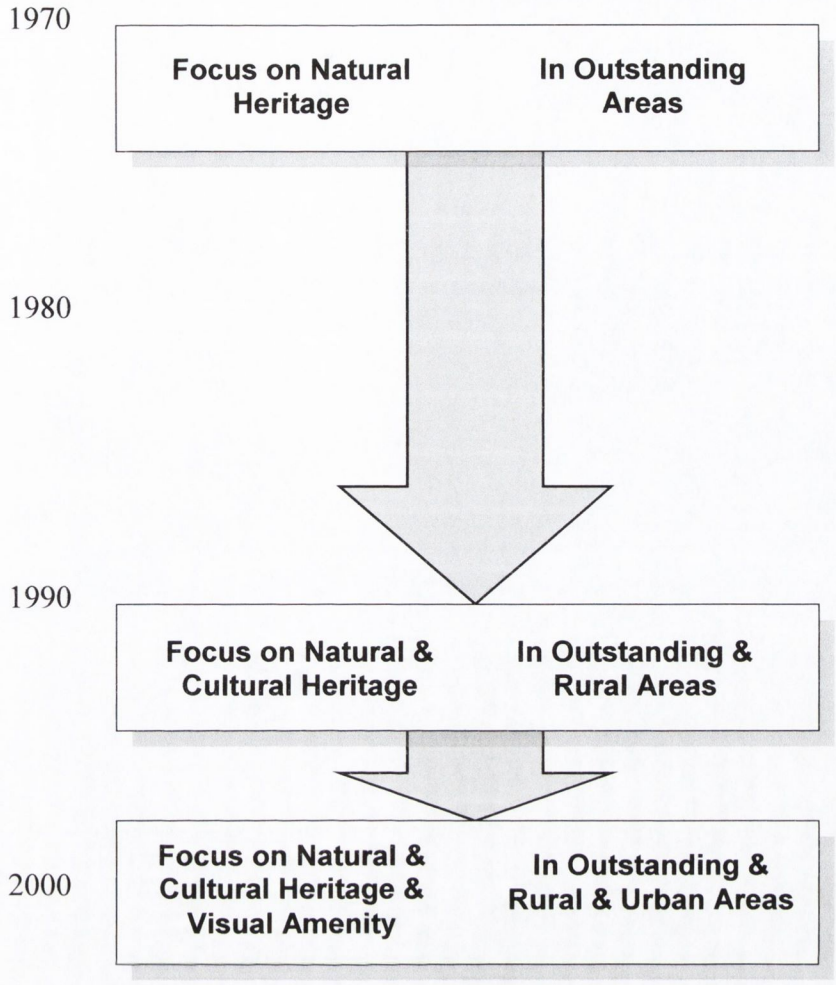


Figure 7.11 Evolution of Perceptual view of Landscape Protection in Ireland.

Although enhancement policies and strategies are not as mature as protection policies and strategies, many enhancement projects are undertaken by all local authorities that impact positively on the visual amenity. The Department of the Environment, Heritage and Local Government fund many enhancement schemes including the rejuvenation of obsolete urban areas such as the docklands areas of the cities, urban renewal and tax incentive schemes for towns and villages all of which have been very successful in stimulating the re-development of many urban centres countrywide. Competitions have also been very successful to encourage community involvement in enhancement schemes in the past. The Tidy Towns competition has been a particular success in rural Ireland, but its urban counterpart the Tidy Districts competition has not had the same impact. These and other competitions actively encourage the formation of community groups to stimulate enhancing the visual amenity and develops a sense of community ownership and community spirit and a positive attitude for participation to improve one's 'sense of place'.

Most respondents accepted that the vast majority of enhancement schemes were successful in transforming and modernising drab urban centres (Section 6.5.3). However, a number of respondents identified two particular difficulties. Many urban renewal schemes included generic lamp-standards, bollards, litter bins, street seating, and paving such that a significant number of urban centres were becoming similar in style and look and are creating a sense of 'placelessness'. The use of generic products due to globalisation and the resulting loss of local industries are contributing to an appreciable loss of local distinctiveness. Local authorities need to be more conscious of this phenomenon and encourage the use of local styles and materials to maintain local uniqueness and a 'sense of place'.

The second difficulty identified was that some enhancement projects can provide results that are both ecologically and visually inappropriate. If these enhancement projects had included a process of community participation, these mistakes might have been prevented, thus highlighting the need for public-participation for all development projects including enhancement projects. All planning authorities interviewed stated they did not conduct surveys to determine the success of enhancement schemes and many saw much merit in doing so possibly by contracting in consultants or academics as a post project evaluation. Surveys of this nature could act as an important feedback loop for the design and implementation of future enhancement schemes in order to retain a 'sense of place'.

Many of the planning authorities interviewed, placed more emphasis on attempting to minimise future damage to the visual amenity by applying conditions to planning permissions than attempting to correct damage to the landscape already done by previous developments. This approach possibly accounts for a distinct lack of any systematic methods used to identify visual amenity 'black spots' which could be targeted to focus enhancement schemes to maximise their value to the visual amenity. With the exception of derelict sites in urban areas and the removal of abandoned cars no rigorous means are currently being used to identify potential areas to enhance the visual amenity. Eyesores contributing negatively to the visual amenity are traditionally left to local authorities to resolve but the power to take positive intervention for enhancement purposes was only recently introduced (Oireachtas, 2000a). However, this power of intervention is limited to conservation areas only, so it remains to be seen whether local authorities will have the resources to implement this measure fully and whether enhancement powers would also be desirable outside designated conservation areas.

There was a widespread acceptance that the responsibility for enhancement of the visual amenity was scattered among many local authority departments such that individual departments can undertake projects without the knowledge or input from others. This highlights a need for greater co-ordination and consistency within local authorities. Enhancement strategies would be more coherent if planning authorities took on this co-ordination role within the development control process through which public participation could be involved to ensure mistakes are minimised and planning decisions are of a high quality.

Finally if local authority planning authorities take on this new co-ordination role the question needs to be raised about the isolation of forestry, mining and aquacultural developments and the continued exclusion of major state and agricultural developments from the planning and development system. Any improvements within the system could be undone by a lack of coordination of these excluded developments.

- **Improved Enforcement Process**

The government agreement with the farming organisations to pay compensation for designations has a number of implications for planning. Firstly, the Minister of the Environment, Heritage and Local Government informed local authorities that designation is not intended to operate as an inflexible constraint on applications for development. Secondly, the Department of the Environment, Heritage and Local Government and the Forest Service have agreed that designations of SACs, SPAs, and NHAs should not operate as an automatic prohibition on afforestation or wind-farms in these areas. This suggests that the preservation of designated areas from development is not sacrosanct any longer and it shifts the protection policy from preservation (prohibition) to conservation (limited appropriate development). This policy shift is in line with IUCN (The World Conservation Union) policy that development in areas designated for protection should take due regard to natural, cultural and social considerations to improve the quality of life of the local population (Zupancic-Vicar, 1999). However, the current ineffective enforcement process (Section 2.2.4), becomes much more important when applying a policy of conservation rather than a policy of preservation, because development is then being carried out in the protected landscapes where previously no development was allowed. Stringent conditions will be applied to these developments to ensure designs are appropriate and to minimise environmental impact, but an enforcement system to monitor and review that these

decisions are implemented then becomes essential. The enforcement system should firstly ensure all conditions are implemented and then seek to evaluate whether the conditions applied had the desired result or should be modified.

More resources will need to be supplied for enforcement and new techniques and methodologies need to be examined to identify unauthorised developments or the non-implementation of development conditions. The operation of the 'retention' regulation for unauthorised developments may need to be scrutinised in this regard to ensure the courts do not frustrate the enforcement process. However one of the essential necessities of an enforcement system is the availability of good quality information on the existing landscape and the development situation. This information will include data such as:

a) An historical database of all planning decisions granting development rights and the conditions applied and refusals of development rights and the reasons given. A number of local authorities have recently commenced pilot schemes to capture the recent (last five years) planning history, and some of these have implemented plans to capture all new planning applications during the development control process (Section 7.2.4). However, a complete planning history back to the introduction of the planning and development system in 1963 is necessary;

b) Three dimensional spatial datasets on terrain shape, buildings and vegetation are required for baseline information for the visual amenity especially for urban areas;

c) Many respondents felt that the requirement to conduct landscape assessments (DoELG, 2000) should radically improve baseline information for landscape and the visual amenity. However, there were some concerns about the lack of consistency between planning authorities because landscape character areas do not necessarily stop at county boundaries and many different approaches had been taken. Consequently, a national exercise to describe landscape character was being considered by the Department of the Environment, Heritage and Local Government where the planning authorities would subsequently complete the values and sensitivity assessments. Despite these difficulties the information resource created from these assessments is expected to be invaluable for the future. It is as yet unclear whether the guidelines will be amended to include urban areas in the light of the European Landscape Convention definition of landscape and whether the landscape assessment process is to be an iterative process where information would be re-viewed occasionally as part of the CDP review process;

d) The production of village design statements is acknowledged as a very important exercise to identify and understand local distinctiveness. Much more research and work is required in this area to inform the design process in the future;

The few professional planners available are normally employed in the crisis management of the development control process such that both the forward planning and enforcement processes have suffered as a result (Section 7.1.1). Consequently conditions applied to planning decisions are rarely implemented in practice because of the lack of a monitoring system to check if they have been carried out and the lack of an efficient enforcement process to take action to ensure the conditions are implemented. There was also a widespread acceptance by all groups interviewed that building regulations are flagrantly disregarded due to the lack of an effective monitoring and enforcement process. The lack of planners and planning authorities in many of the town councils is a disservice to the planning and development system in urban areas where a significant amount of development is taking place.

- **Community Structures for Public Participation**

Many studies both national and international have identified public participation as the key to achieving the goal of sustainable development (Comhar, 2002). Yet the community structures to facilitate participation by the public have traditionally been lacking in Ireland. County Development Boards have been established to improve public participation in the planning and development system by including representation from government agencies in the local area and try to establish links to local communities. Strategic Policy Committees have been established within local authorities to stimulate and manage Local Agenda 21 initiatives with local communities, but progress to date has been disappointing but for a few notable exceptions. Planning authorities have tested a range of approaches to improve public participation in forward planning by contacting and working with local communities in many counties. However some respondents felt that these initiatives across the different local authority departments were uncoordinated and would benefit from working together, sharing experiences and contacts.

- **Changing Attitudes**

The study highlighted three main areas of litter, trees and water features where attitudes need to be changed for the benefit of the visual amenity. Litter and unauthorised dumping are two of the most persistent and visible problems affecting the visual amenity in Ireland

(EPA, 1996). Some improvements have been made via the government's Litter Action Plan but problems persist. One difficulty is the division of responsibility between the planning department responsible for the visual amenity and the environmental department responsible for the collection and management of waste. The monitoring and enforcement of litter laws has marginally improved, but sufficient priority is not been given to resolve the problem in order to change people's ways and attitude to litter once and for all.

Ireland is very un-regulated compared to other European Countries with respect to the planting, maintenance and felling of trees especially in urban areas. There seems to be little appreciation by the public or by local authorities of the very important roles they play (Figure 7.12) developed during this research and incorporating ideas from SOLAGRO (2000), McHarg (1992) and Trowbridge & Bassuk (2004). The proposal (DP3) that planning authorities should set target tree populations per land use type and then through their own efforts and by encouraging developers try to achieve those targets seems very worthy. This measure could save a lot of mature trees currently being felled and bulldozed and contribute to the growth of significant urban canopies. Similarly farmers might be permitted to remove hedgerows if they replaced it with a copse of similar size. There is an urgent need to educate on the roles played by trees in order to change attitudes towards them in order to retain them as much as possible.

Water features have a particular potential to enhance the visual amenity, especially it is running water which creates tranquil sounds to add to the aesthetic appreciation. Again there seems to be little appreciation by the public or by local authorities of the benefits in retaining water features to contribute positively to the visual amenity. If the community structures were present to instil pride in one's place it would not be a difficulty to organise local initiatives for maintaining the banks, stocking them with fish and encouraging ducks and other wildlife to use the facility. The whole community could benefit from projects such as these.

Rural Areas	Urban Areas
▪ Supply of timber, cork, fruit, forage and nectar; ▪ Protect livestock, crops and farm buildings from extremes of weather; ▪ Provide shelter and mobility networks for wildlife; ▪ Contribute to higher biodiversity; ▪ Bind and retain soils; ▪ Provide for better water regulation; ▪ Provide for recycling of nutrients.	▪ Supply of timber and fruit; ▪ Provide habitats for wildlife; ▪ Contribute to higher biodiversity; ▪ Provide carbon sinks for CO_2 emissions; ▪ Increase capacity for new developments by improving the visual absorption capacity; ▪ Provide design elements to soften hard straight lines of built environment; ▪ Increase privacy between neighbours ▪ Provide for recycling of nutrients.

Figure 7.12 List of important roles that trees and hedgerows play in rural and urban areas developed during this research.

- **Changing Local Administration back into Local Government**

Some of the respondents considered the policies listed in CDPs were aspirational in nature in that what a local authority says on paper and what it does in practice can be two quite different things. Many local authorities are disadvantaged in not having the resources necessary to follow through on the policies they adopt. This lack of resources takes two main forms: the lack of professional planners and the lack of autonomous funding.

The elimination of rates from residential properties in the 1970s as an election ploy and their elimination from agricultural properties in the 1980s on foot of a Supreme Court finding robbed local government in Ireland of its one and only autonomous source of funding. This inability to raise local taxes has reduced local governments to being local administrations implementing plans funded and controlled by central government (Grist, 1983). This lack of subsidiarity diminishes the ability of local governments and local communities in taking the lead and resolving issues locally. The control of funds is seen as the major issue to give power back to local communities.

- **Concluding Comments**

There has been a move to consider landscape in a more holistic manner which includes ordinary as well as outstanding landscapes and urban as well as rural landscapes. The concept of landscape has also been broadened to encompass natural landscapes, cultural landscapes, seascapes and the visual amenity. There is a need for greater consistency and coordination for managing landscapes and the visual amenity especially for enhancement policies and new strategies to improve public participation. More priority and resources are

required to change the public's attitudes towards water, trees and litter for the benefit of the visual amenity.

A new emphasis on the enforcement process will be necessary due to the shift from using preservation policies to conservation policies for outstanding landscapes. Good quality baseline data will be required to inform the new enforcement process. Finally, there is a need to empower local communities by providing local authorities with an autonomous source of funding using means of local taxation to change the authorities from local administrations back into local governments.

7.3.2 Could a National Landscape Plan provide the Framework necessary for Policy Co-ordination for the Visual Amenity?

> *"Many people feel that although beauty does matter, it is an 'extra', something we like to have in our surroundings when more basic needs are met. Yet the pervasive role of the aesthetic is suggested by its root meaning of 'feeling' – not just any kind of feeling, but 'shaped' feeling and sensitive perception. And it is suggested even more by the opposite, anaesthetic, 'lack of feeling' – the condition of living death. The more attuned we are to the beauties of the world, the more we come to life and take joy in it."* (Tuan, 1993,1)

Psychology holds that human behaviour is influenced by the motives of survival, social and curiosity (Atkinson *et al.,* 1993) and Tuan suggests that although basic survival needs may take initial precedence, the fulfilment of aesthetic needs leads to a better enjoyment of life. Since one of the primary aims of democratic government is to improve the quality of life of its citizens, Tuan's comment suggests that this aim can in part be achieved by improving the visual amenity for citizens and communities.

Although the Irish landscape has always been changing, modern technologies and machinery is rapidly accelerating the rate of this change. The first (human) impact (on the landscape) was a mere trickle, but the attack has swelled rapidly into today's torrent, which carries away vast areas of the environment and leaves behind fenceless tracts of cereals, sheets of coniferous trees, housing sprawls, drab industrial estates and twisting motorway exchanges (Mitchell, 1997). Therefore there is now an urgent need to be extra careful when effecting change in the landscape. If change is allowed to take place in an unplanned way there is a risk of not only losing the integrity of the existing landscapes but creating new landscapes of poor and depleted quality (O'Regan, 1996). More coherent and consistent policies are now urgently required at national, regional and local levels to provide a

guiding vision to ensure this high level of development does not degrade Irish landscapes with inappropriate developments (Faulkner, 1999).

- **The need for co-ordination of landscape policies**

A National Landscape Policy was first proposed in 1994 to deal with a wide range of problems affecting Irish landscapes in a comprehensive and integrated manner (O'Regan, 1994). The proposal encouraged a commitment to managing all landscapes, urban, rural, upland and coastal and not just the outstanding landscapes previously designated for protection. It recommended a focus on the quality of ordinary landscapes that most citizens live in by suggesting a concentration on what contributes to good quality landscapes in order to inform new developments how to contribute positively rather than risk despoiling landscapes.

The intention of the National Landscape Policy was not to be prescriptive, or to introduce further obstacles for development proposals by recommending a policy of landscape preservation. It would not seek to fossilise landscapes and prevent change. Citizens and communities need viable uses of landscapes to provide for life which inevitably means change and it this dynamic nature of landscapes which has been the only constant throughout time as communities use and adapt landscape resources for life. The intention of the policy was quite the opposite of preservation by giving a commitment for change, and by creating awareness and a positive attitude towards change in landscapes. The challenge is to promote physical developments consistent with environmental quality and to simultaneously utilise and protect the landscape for sustainable development. What is needed is not only a better view of man and nature, but a working method by which all developers can ensure that their work is not more despoliation (McHarg, 1992).

O'Regan suggests there is an urgent need to adopt a National Landscape Policy because of the ever increasing investments for infrastructure projects from the European Union and under successive National Development Plans (2000). If major mistakes in the management of landscapes continue it could cost billions to undo in the future, whereas a well managed landscape policy could generate employment, increase tourism and significantly contribute to quality of life. Irish tourism is a growing economic sector with revenues of €5 billion in 2004 equating to 4.4% of GNP and central to the strong performance of Irish tourism has been the intrinsic attractiveness of the landscape (Figure 7.13). Whereas sunny weather attracts tourists to other destinations, Ireland's weather

could have the opposite effect, thus emphasising the importance of managing Ireland's landscapes and visual amenity for the future.

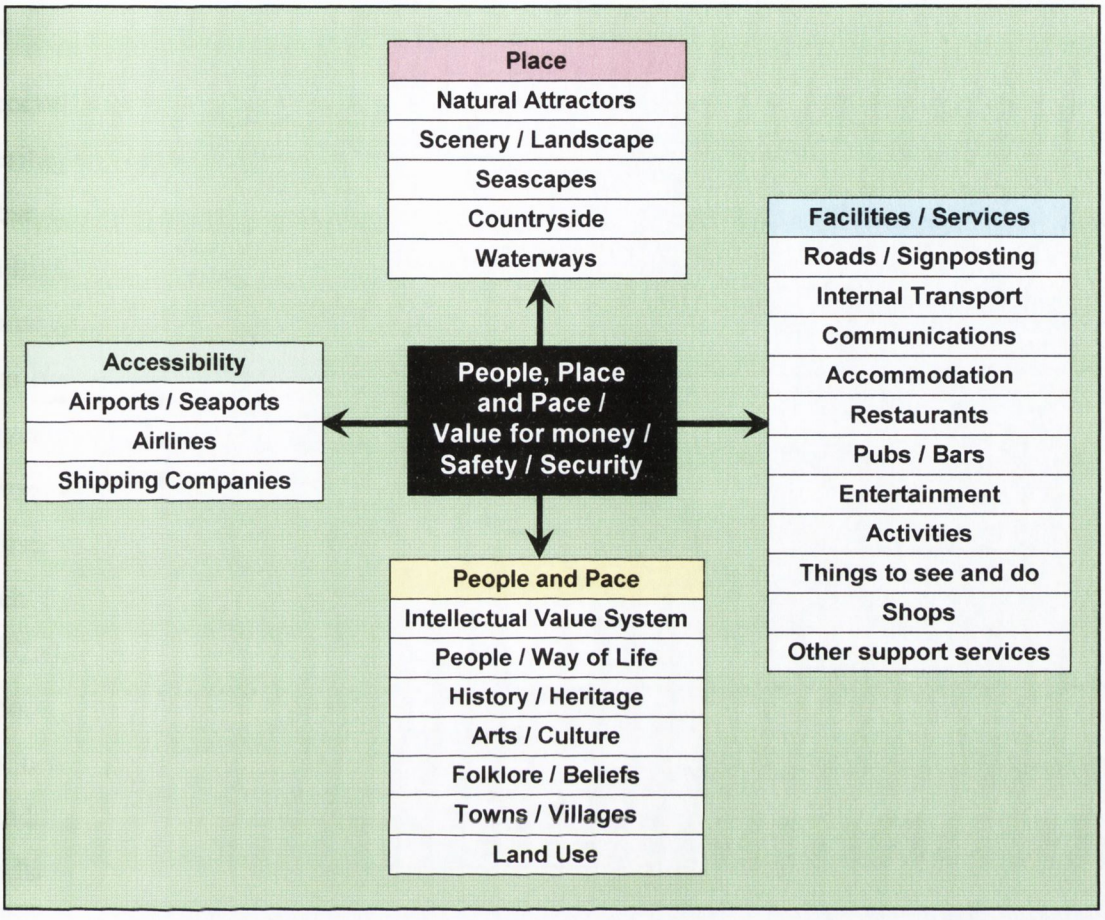


Figure 7.13 Tourism Principal Components (Tourism Policy Review Group, 2003).

A National Landscape Policy should not be considered as a constraint, but as a long term vision for the national territory so that policies which have direct or indirect affects on landscapes can contribute to rather than despoil those landscapes. A number of similar national policies were published during the last few years which provide long term guidance for the future under heritage, bio-diversity and spatial strategy all of which aim to positively contribute to the quality of life.

The National Spatial Strategy (DoELG, 2002b) provides a 20 year plan as a framework to correct the spatial imbalance of Ireland's physical development centred on the Greater Dublin Area to counteract the difficulties of traffic congestion, urban sprawl, and diminishing capacity in the region. It proposes urban gateways as regional centres of economic activity using the polycentric concept in order to entice a greater share of economic investment away from the Greater Dublin Area and aims are to provide:

a) A strong competitive economic position;
b) An environment of the highest quality;
c) A better quality of life for people.

Recently the government also adopted two medium term plans (2002–2006), a National Heritage Plan and a National Biodiversity Plan as frameworks to coordinate activities in these two areas. The complexity of relationships between different heritage aspects and the multiplicity of agencies involved emphasised the need for a plan to provide a single framework for heritage management (DoAHGI, 2002b). The National Biodiversity Plan was designed to ensure Ireland fulfils its obligations under the Convention on Biological Diversity ratified by Ireland in 1992. The objective of the plan is to secure the conservation, enhancement and sustainable use of biological diversity in Ireland by conserving habitat, species and genetic diversity and accepting the uniqueness and value of each form of biological diversity in order to maintain the quality of human life (DoAHGI, 2002a). All of these plans set out a national framework to coordinate the various agencies whose activities impact on these three areas to integrate their policies and ensure that they do not operate in a compartmentalised manner any longer. The proposed National Landscape Policy (O'Regan, 1994) uses the same concept for managing Ireland's landscapes and the visual amenity.

Irish society tends to treat landscape in a compartmentalized manner such that environmental, archaeological, agricultural, forestry and tourism issues regard it as someone else's responsibility to look after it. Lack of harmonization of policies impacting on the landscape has been viewed as a major source of concern not only in Ireland, but on a pan-European scale (The Heritage Council, 2002). Compartmentalised thinking and policy implementation must not be allowed to continue. Government agencies must be prepared to let go of sole ownership of issues and think again about their role. Stimulating action is more important than perpetuating inflexible delivery mechanisms or sustaining bureaucracies (Faulkner, 1999). Real benefits accrue from a fully integrated approach derived from co-operation, partnership, and co-ordination between all who impact on Ireland's landscapes. Such benefits can only be derived through an appreciation and awareness of the importance of landscape to the quality of life of citizens, and that decisions that effect landscape change should be taken from a very informed base (The Heritage Council, 2002).

Ireland's environment is a vital natural resource, which all its citizens and communities depend on. It has its own intrinsic worth; it is central to the quality of life of citizens; it is vital for biodiversity and natural habitats, the retention of its environmental quality is essential for future generations; and it is a key aspect that attracts tourists and investment to Ireland. Consequently the need for a National Landscape Plan to coordinate development activities across a broad range of sectors and to integrate development policies impacting on landscape is crucial to mange Ireland's visual amenity.

The combined initiatives of the proposed National Landscape Policy (O'Regan, 1994), the introduction of landscape assessment by planning authorities (DoELG, 2000), the Heritage Council's Policy Paper on Landscape (The Heritage Council, 2002) have succeeded in highlighting the issue to a degree that Ireland was one of the first countries to ratify the European Landscape Convention (Council of Europe, 2000) in 1992. However, to date the current administration continues to issue development policies which deal with individual issues in an isolated compartmentalised manner such as the draft guidelines for wind energy (DoEHLG, 2004c), guidelines for sustainable rural housing (DoEHLG, 2005).

- **Varied perception of Landscape**

"The proposal for a National Landscape Plan is founded in the belief that our total visual environment is of fundamental importance to our lives and that a National Plan is the appropriate mechanism to deal with the range of problems arising in relation to our landscape in a comprehensive and integrated manner" (O'Regan, 1996). The following description was offered to try to convey the varied perception of landscape by all the different sectors interested in it:

> "*my landscape, our landscape, your landscape, national landscape, European landscape, international landscape, wild landscape, natural landscape, cultural landscape, agricultural landscape, silvicultural landscape, urban landscape, rural landscape, suburban landscape, industrial landscape, recreational landscape, artistic landscape, sculptural landscape, architectural landscape, archaeological landscape, historical landscape, scenic landscape, coastal landscape, estuarine landscape, mountain landscape, riverine landscape, social landscape, inspiring landscape, depressing landscape, evolving landscape, managed landscape, valued landscape.*" (O'Regan, 1996, rear cover)

O'Regan noted the problem of agendas within individual sectors which have varied perceptions of landscape. "Decisions are too often negotiated closed agendas which rarely find sustainable solutions because they rule out consideration of far too many worthwhile

options. What is worse is that these negotiated compromises often go on to set the precedent for future decisions and so the original error is compounded" (1996). There is a need to move away from these negotiated closed agendas to ensure decisions are sustainable from the landscapes' perspective rather than the primary economic perspective. Marsden (1996) states that "it is vital if we are to achieve good landscape management to involve the community at large in so far as it is possible in the development of a landscape management strategy". Gunning (1996) agrees in saying that all landscape is local and in a landscape that is lived in, it is the opinions on the 'in-dwellers' which matters most. However, he also issues a warning that if the opinion of locals continues to be "we will accept landscape-degrading initiatives on the part of multi-nationals or the State in return for the promise of 'development' and 'jobs' then there is little that can be done". Much work is yet to be done on persuading politicians and local communities on the need for a National Landscape Plan.

- **Visual Amenity elements of a National Landscape Plan**

The National Landscape Plan should not be a top down approach dictating from 'on high' what is permitted and what is not. It should be a combination of top-down and bottom-up approaches working in unison. The top-down approach should propose a long-term vision (20 to 50 years) for the future of Ireland's landscapes and the bottom-up approach should inform the process from below via a range of measures such as the landscape fora held by Landscape Alliance Ireland during the late 1990s. The vision might also include guidelines to assist with the consideration of cross sectoral issues although an effort should be made not to be too prescriptive.

Having conducted an in depth examination of the visual amenity during the course of this research project it was felt that it would be appropriate to develop a concept of what a framework for the visual amenity might be. The framework should not be too prescriptive, yet should try to identify the most important areas from the perspective of the visual amenity, so that developments can take cognisance of these issues during the design and not only optimise 'environmental fit', but also attempt to contribute positively to the visual amenity. A set of visual amenity guidelines for the National Landscape Plan were prepared as part of this research project (Figure 7.14). These guidelines were developed from information collected during the survey of visual policies and also included ideas from Smardon *et al* (1986) (Appendix A3), a Position Paper on Integrated and Sustainable

Landscape Management (Cork Environmental Forum, 2004), and a guide for Best Practice for Seascape Assessment (Hill *et al.*, 2001).

One of the difficulties identified with public participation in Ireland is the absence of community structures to facilitate participation. However, a sense of place helps to promote cultural awareness and strong kinship ties, so promoting the identification of local distinctiveness in vernacular structures and their incorporation into new developments should help stimulate the formation of kinship ties in communities. The preparation of Village Design Statements to identify and record 'sense of place' not only for villages in the rural area, but also for the many villages which make up the towns and cities would be useful in this regard.

O'Regan proposes a photographic observatory to collect information on the existing visual amenity (1998). This might best be performed in two stages. Initially photographic competitions might be organised for local communities to identify different perspectives of local distinctiveness in their localities as an educational exercise for the local communities. Stage two could be a research project to document local distinctiveness using data from stage one and publish the results as an information resource for each local community. This photographic record of the visual amenity and local distinctiveness and any Village Design Statements available would both be very useful in informing the preparation of LAPs and the design process for individual development proposals.

The incorporation of local distinctiveness into designs is not an attempt to harmonise designs. In fact it is quite the opposite - a move away from the sameness perpetuated by current design practice (Figure 6.10). What is required is a design practice which improves design quality and thereby improves quality of life. This improvement in design quality should replace sameness with diversity, but that within that diversity, elements of local distinctiveness are included that create and maintain links to locality.

NATIONAL LANDSCAPE PLAN Visual Amenity Guidelines	
Local Distinctiveness	Landscape character assessment for all urban and rural areas to be funded by local authorities
	Preparation of Village Design Statements for rural villages and the urban villages which comprise the larger towns and cities funded by local authorities
	Photographic observatories of localities by local communities and their documentation and publication
	Local Area Plans prepared for rural villages and the urban villages that comprise the larger urban towns and cities using community participatory methodologies
Visibility of Structures	Prominent landscapes (mountain uplands, hilltops, ridgelines, and junctions between land and water (coastal, river and lakeshore)) should be avoided unless for landmark buildings or for specific developments with community support
	Maximise use of visual absorption capacity of landscape (landform and landcover) to minimise visibility of structures from primary roads, navigable waters and scenic views – might also consider camouflage and transformation techniques
	Unnecessary signage, advertising hoardings, wirescape and masts should be minimised where possible
Urban Design	Primary motive for designing urban layout and for the location and functional design of open space should be for the common good
	Adopt target tree canopies for different land-use areas to encourage retention of existing and planting of new trees
Views	Negative landscape features (landfills, dereliction, aquacultures cages, inadequately maintained facilities) should be identified and enhanced
	Views to positive landscape features (water, panoramas, landmark structures) should be opened up and enhanced
Competitions	Maximise opportunities to undertake community or commercially sponsored enhancement schemes

Figure 7.14 Proposed guidelines for the visual amenity within a National Landscape Plan developed during this research project.

The new guidelines for sustainable rural housing (DoEHLG, 2005) recommend the use of planning guidelines which promote sameness rather than recommending the use of qualified architectural professionals who have the necessary design skills to incorporate elements of local distinctiveness into design diversity. "Nothing which we use, from the most sophisticated piece of electromechanical machinery to the smallest disposable consumer unit, has come into existence without the benefit of a design process implemented by professionals" (Ketch, 1996). Why should physical developments on the landscape be any different? If the need to improve design quality is established and accepted by the current administration why is there a reluctance to regulate the design function to qualified design professionals and the lack of insistence in planning regulations that qualified design professionals are necessary for the preparation of development proposals?

Local distinctiveness can take two main forms – design elements which link to a pattern in the locality and the use of local materials. However, the new sustainable rural housing guidelines (DoEHLG, 2005) recommend against an overly prescriptive approach by planning authorities when evaluating planning applications such as an outright ban on particular materials. The effects of globalisation on the choice of materials for the urban renewal schemes (Section 6.5.3) identified a trend towards the use of similar materials by many urban areas across the country which has contributed to the loss of their local distinctiveness. Measures should be taken to avoid similar losses of local distinctiveness in house design by encouraging the use of materials which include local features to contribute to local distinctiveness.

Minimising the visibility of new developments can be achieved through a range of measures. Firstly, prominent landscapes should be avoided such as mountain uplands, hilltops, ridgelines, coastal promontories, and in areas where there is a land /water junctions in coastal, river or lakeshore areas and landmark sites in urban areas. Breaking of skylines should be avoided and existing trees and slopes should be used a backdrop for developments where possible. There are certain occasions however where sites in prominent locations, both urban and rural, might be ideal for landmark buildings where the structural design should maximise the potential offered by the site, and maximum use should be made of competitions to create designs for landmark sites in order to improve public acceptance for selected designs.

Maximum use of should be made of the visual absorption capacity of the landscape to integrate new developments into the landscape. The use of terrain shape (landform) and existing trees and hedgerows (landcover) are both equally important to screen new developments from primary roads, navigable waters and scenic views. It may also be necessary to consider camouflaging and transformation techniques in this respect.

The new sustainable rural housing guidelines encourage designs of the highest standards in relation of site location and architectural quality (DoEHLG, 2005). They recommend the introduction of a practice by planning authorities to advise purchasers in pre-planning enquiries of the appropriateness of site locations and advise against ribbon developments. However, the new guidelines did not deal with one of the root causes of the supply of inappropriate sites – the non-viability of many small farms in Ireland which contributes to this particular problem. The compendium of Irish Agricultural statistics (DoAF, 2004) states that the average farm size in Ireland increased to 32 hectares (79 acres) in 2002 but that 8% of farms were less than 5 hectares (12 acres) and a further 12% were between 5 and 10 hectares (12 to 25 acres). This suggests that 20% if Irish farms are probably below a size to be commercially viable, so there may be insufficient investment into the development and maintenance of landscape features in the areas where these small farms are located. A process of land consolidation should be considered to combine small landholdings into farms of sufficient size to be able to support farm families without the need for off-farm employment and to generate investment into the landscape and significantly improve landscape quality and the visual absorption capacity. Any increased investment might also have a detrimental affect such as removing hedgerows to make larger fields for modern farm machinery, however once increased investment is created for the landscape controlling its affect on the landscape then becomes the important issue.

Unnecessary signage, advertising hoardings, wirescape, and masts should be minimised where possible in both urban and rural areas. Urban renewal schemes for towns and villages should consider the removal of wirescape from streets as part of enhancement schemes.

The primary motive for urban design should be changed from the concern for the economic needs of developers to the needs of the common good. Street layouts and open spaces are public areas so the design of their layouts and locations should maximise functionality for the public and positively contribute towards the visual amenity.

The proposal by O'Regan (1998) for planning authorities to set target tree canopies per square kilometre for each land-use type should be implemented by local authorities. This measure places a value on existing vegetation which developers should survey and consider before commencing site clearance. The survey data could then be used to populate databases of urban tree resources useful to the local authorities for monitoring and managing these resources more effectively. The benefits of this measure are wide ranging (Figure 7.12).

In conjunction with the mainly successful protection policies for the visual amenity currently operated by planning authorities, potential views to positive landscape features including significant expanses of water, or changes of relief (terrain height), panoramas of landscape and urban vistas to landmark buildings should be opened up and enhanced. Similarly views of negative landscape features which portray an image of dereliction or sub-standard maintenance of landscape should be identified and enhanced either directly by dealing with the underlying problem or indirectly by using mitigation measures to screen unsightly views. Enhancement schemes should consider focusing on the triangular geographic area of children's familiar landscapes to improve landscape quality and develop a sense of place.

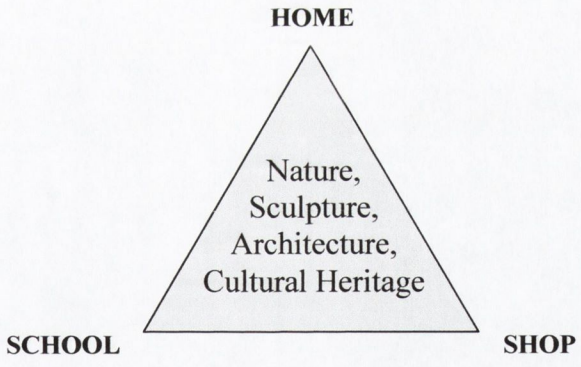


Figure 7.15 Influencing the development of aesthetics and a sense of place in children using their triangle of limited geographic area (DP3).

> *Children live in a very limited geographic area - home, school, shop - their familiar landscape for 90% of the year - what they see in that triangle will probably influence the quality of their life experience and their perception of the aesthetic – so if you have a sculpture, or plenty of nature, or cultural artefacts, or good quality architecture in there children will develop a 'sense of place' and a 'sense of quality' DP3*

Finally, all opportunities for holding competitions to enhance the visual amenity should be taken to encourage community involvement and to develop community spirit and commercial sponsorship should be actively encouraged to fund these schemes. These competitions should also include the design and creation of sculptures for public places to develop a sense of place by celebrating significant historical events in the vicinity or people from the locality who made significant contributions during their lifetimes.

7.3.3 Conclusions

The visual amenity is not as high as it could be on the priority list of planning authorities, developers or the general public. However, quality of life can be appreciably improved by attending to the finer points of the visual amenity and landscape. More importantly it develops a sense of care for the environment and a sense of place for communities.

Policies to protect landscapes have been largely successful to date, but difficulties have been identified in the traditional designation approach taken. Two main trends have been observed in traditional protection approaches:

a) Designating primarily natural landscapes, to an improved priority for cultural landscapes and then to an improved priority for the visual amenity
b) Change from considering only outstanding landscapes for protection to a more holistic approach to include all landscapes urban and rural, ordinary and outstanding.

Enhancement policies within CDPs are not as well development as protection policies and although many enhancement projects have been successful, they lack coordination within local authorities and some difficulties have been identified including:

a) Enhancement projects are contributing to the loss of local distinctiveness and 'sense of place';
b) Enhancement projects to date have only focussed on urban areas;
c) There is a lack of any systematic methods for identifying enhancement 'black spots'.

A number of issues have been identified for attention to benefit the visual amenity including:

a) A role for planners authorities to coordinate all protection and enhancement activities for landscape and the visual amenity within local authorities;

b) An urgent need to appreciably change attitudes of developers, planners and the public towards water, trees and litter;
c) A need for a more effective enforcement process to monitor the implementation of the policy shift from 'preservation' to 'conservation' of outstanding areas.

There is a much varied perception of landscapes by many different groups which in the past have satisfied their own different agendas at the expense of the total landscape. This compartmentalised manner of managing landscapes cannot be sustained any longer. A National Landscape Plan similar to the National Plans for heritage, biodiversity and spatial planning has been proposed as a framework to assist in the coordination and management of landscapes and the visual amenity across sectoral boundaries.

A set of guidelines for the visual amenity developed during the research project are presented as a contribution towards the drafting of the National Landscape Plan. The crux for the visual amenity is to focus attention on communities to identify their local distinctiveness, to involve them in enhancement measures of their localities, and to empower them to prepare Local Area Plans for their areas.

This chapter examined the poor results of VIA practice and found that there was much room for improving VIA in Ireland. It also found that the EIA process is not achieving what was originally intended and suggests there is an urgent need to improve the quality of information supplied to the development control process to ensure planning decisions and of a high quality and assist towards the attainment of sustainability. Finally, a set of guidelines were presented for the visual amenity as a contribution towards the preparation of a National Landscape Plan which would act as a framework to coordinate developments impacting on landscape and the visual amenity. The conclusions from the discussions of each of the research questions are examined in the next chapter.

CHAPTER EIGHT

CONCLUSIONS AND RECOMMENDATIONS

8 CONCLUSIONS AND RECOMMENDATIONS

8.1 SUMMARY OF FINDINGS

8.1.1 Planning and Development System

Ireland has had a chronic shortage of professional planners for decades, and even though their numbers have significantly increased recently, the increase did not keep pace with the increasing workload such that the shortage of planners today is now worse than during the early 1990s. This shortage of planners has resulted in an inadequate forward planning process and a virtually non-existent enforcement process with an over emphasis on development control because the process is statutorily time scheduled.

The effectiveness of the planning and development system is being compromised by:

a) Its fragmentation by separating the planning and development system for forestry developments to the Department of Agriculture and Food and the planning and development system for energy generation and transmission, and aqua-culture developments to the Department of the Marine and Natural Resources. Excluding developments from the main planning and development system in local authorities is leading towards compartmentalisation rather than a holistic system;

b) Too many developments being exempted from the planning process, such as central government department and local authority developments and agricultural developments to name just two. If quality improvement is required to minimise damage to landscapes and the visual amenity, then a small percentage of excluded developments taking advantage of a loophole in legislation and not having to apply the quality criteria will exacerbate the problem into the future.

8.1.2 Visual Impact Assessment

The survey of VIA practice found that only 37% of EISs assessed the likely significant visual impacts listed in the EPA Advice Notes (CAAS 1995b & 2003) for the three development categories is below the minimum standard adopted for compliance within this research. This suggests that new approaches are necessary to increase compliance in order to improve VIA quality.

The primary function of VIA is to predict changes to the visual amenity and present visualisations of these predictions. However, the overall use of visualisation techniques within VIA was remarkably low (21%) and traditional techniques were favoured over modern techniques using ICTs. The finding that photography was only used in 51% of VIAs is remarkable because this technique is both cheap and easy to use.

A tendency against the adoption of modern visualisation techniques was noted in the survey of VIA practice. The lack of suitable spatial data for ZVI computations and for visual amenity planning in urban areas has been identified as an obstacle to the adoption of modern VIA methodologies using ICTs. The high cost of OSi spatial data for Ireland and the restrictive nature of OSi licence agreements for spatial data may also be contributing to this problem. The initiative to develop an Irish Spatial Data Infrastructure may be the ideal vehicle to try to resolve these difficulties.

The new theoretical framework developed for conducting VIA as a separate assessment from LIA in order to identify the main information needs and flows within VIA may be useful in addressing some of the poor performance recorded. Although there is a considerable overlap in the information needs of LIA and VIA the separation of these two assessments ensures that neither is subservient to the other and both can benefit from being individually comprehensive. By focusing on the information needs and flows for VIA a more in depth understanding of the critical issues is possible. Conducting LIA and VIA separately may lead to a better understanding of the visual amenity and may stimulate research to identify what elements enhance or degrade the visual quality of landscapes.

The use of visual information formats has been identified as one of the three key components to facilitating public participation in planning. Firstly, there is a need to improve the use of visualisation techniques, and then to ensure that digital formats are used so that ICTs can facilitate the dissemination of this important information to encourage increased participation. The use of portable document formats (.pdf) or GIS / geo-visualisation techniques to supply the information to the public over the internet provides a range of different benefits, but both solutions would positively contribute to the current situation.

8.1.3 Environmental Impact Assessment

The unsatisfactory VIA results are similar to the general unsatisfactory findings of surveys of EIS quality previously conducted (Lee & Colley, 1991; Lee & Dancey, 1993; European Commission, 1997 & 2002). Many of the respondents interviewed during the survey of policies to manage the visual amenity commented on the bias of EISs in favour of development proposals, so the EIS information being supplied to inform the development control process is sub-standard and could potentially affect the quality of planning decisions thereby putting the attainment of sustainability at risk. Developers are spending substantial amounts of money preparing these sub-standard EISs, but better value for money could be achieved by improving EIS quality and thereby improving the quality of designs for the proposed developments and the quality decisions granting development rights.

The findings indicate that EIA is '*post hoc*'. Yet its primary purpose is to inform the design process to minimise effects on the environment, rather than hide bad designs behind screens of vegetation. The VIA results found that alternate designs were proposed in fewer cases (42%) than using screening techniques (68%) and suggest that existing designs are being hidden behind landscaping screens contrary to the primary aim of EIA. One of the most important design issues is that of location of the development site and the supply of inappropriate sites to the market exacerbates this problem. Many planners, both urban and rural identified improving design quality as the most or second most significant issue for the visual amenity, yet designs submitted for development rights in Ireland can be prepared by people unqualified in architecture or in anything else for that matter. This practice promotes the copying of existing designs previously successful in obtaining development rights, leading to design harmonisation rather than designing to improve quality of life. The visual amenity and Irish landscapes are too fragile to be left to the unskilled contributions from unqualified people, especially now when sustainability is such an urgent and necessary objective.

8.1.4 Managing Landscapes and the Visual Amenity

The meaning of landscape management is changing from just the protection of outstanding landscapes in rural areas within the development control process to the management of all landscapes, outstanding and ordinary in urban and rural areas. There is now a need to

coordinate management activities for landscape and the visual amenity embracing protection, enhancement and monitoring across all local authority departments.

A number of issues were identified which need urgent attention to change attitudes so that current practices which degrade landscapes and despoil the visual amenity can be reversed. A more informed approach to water, trees and litter would contribute significantly to maintaining and improving the visual amenity.

The traditional means of dealing with landscape in a compartmentalised manner is not sustainable any longer and the concept of a National Landscape Plan was discussed as a framework to coordinate all developments affecting landscape and the visual amenity. A set of guidelines for the visual amenity were developed as part of this research and are presented as a contribution towards drafting this National Landscape Plan

The visual amenity contributes to the well-being and quality of life of citizens so the focus of management activities for the visual amenity should be on local communities by documenting local distinctiveness, by actively encouraging the formation of local community groups and by actively facilitating the preparation of Local Area Plans by local communities.

8.2 RECOMMENDATIONS

The Department of the Environment, Heritage and Local Government should:

a) Urgently and significantly increase the numbers of professional planners within the planning and development system. This measure should ensure that each planning authority (town councils) should have at least one planner assigned, that the numbers of planners assigned to the forward planning process should be comparable with those assigned to development control duties, and that an effective enforcement process is put in place;

b) Ensure that all local authority activities affecting landscape and the visual amenity is effectively coordinated and planning authorities should be considered for this role.

c) Consider eliminating loopholes in the planning and development system to ensure that exempted developments and developments controlled by other planning systems do not degrade landscapes and the visual amenity by the lack of any quality criteria;

d) Consider establishing a national EIA evaluation commission similar to the Dutch system and in line with EU recommendations to ensure the quality of information contained within EISs is improved so that sub-standard information is not used to make planning decisions and thus compromise sustainability;

e) Give urgent and realistic consideration to the registration of architects and the requirement to use qualified professionals to ensure design quality is improved and to ensure that EIA is not '*post hoc*';

f) Give urgent consideration to the preparation of a National Landscape Plan to coordinate development all activities across central and local government which impact on the landscape and the visual amenity.

g) Develop a range of measures to significantly change attitudes towards water, trees and litter in the short term.

Consultants conducting LIA and VIA should consider splitting them into two separate assessments which should complement each other. The proposed theoretical framework for VIA might prove useful in this regard to outline the information needs and flows for VIA.

Local authorities should focus their attention on local communities for maximum benefit to the visual amenity, quality of life of communities and the attainment of sustainability.

8.3 RECOMMENDATIONS FOR FURTHER RESEARCH

The Department of the Environment, Heritage and Local Government should consider funding a number of research projects possibly through the auspices of the Heritage Council to:

a) Identify what landscape elements contribute positively toward landscape quality in ordinary landscapes;
b) Investigate the obstacles to the adoption of modern visualisation techniques by consultants performing VIA;
c) Investigate landscape assessment methodologies for urban areas
d) Investigate the range of measures required to ensure the enforcement process is more effective to be capable to deal with the policy shift from 'preservation' to 'conservation' of designated areas.

Without addressing these identified issues the management of Ireland's landscape and the visual amenity might lag behind good practice in the rest of Europe and allow Ireland's landscapes to suffer the irrevocable consequences associated with inappropriate and unsustainable developments.

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