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Galway 21: Implementing the Principles and Practices of Sustainable Development in Galway City Council

STRIVE
Environmental Protection Agency Programme
2007-2013

SSTI
Strategy for Science, Technology and Innovation

Comhshaol, Oidhreacht agus Rialtas Áitiúil
Environment, Heritage and Local Government

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Executive Summary

Difficulties associated with giving practical effect to the abstract concept of 'sustainable development' have stimulated a good deal of research on the challenging task of assessing progress towards that goal. Despite its increasingly high profile in international, national and local policies, the concept is in danger of moving from a stage of ambiguity to cliché without ever having passed through a stage of meaningfulness or comprehensibility (Kelly et al., 2004). Sustainable development is linked intrinsically with the integration of ecological, economic and social considerations at all geographic scales; people's sense of place and their relationship with nature and the environment are critical in this regard (Cheney et al., 2004).

Core requirements and general tenets of sustainability must be accompanied by context-specific elaborations (Kemp et al., 2005). There is scope for, and indeed a requirement for, locally derived sustainable development options (Fahy and Ó Cinnéide, 2008a). The need for more effective tools to develop and assess sustainable development was a priority theme under the EU's *Sixth Framework for European Environmental Policy to* 2010 (European Commission 2002). The development of practical tools for a local process of sustainable development represents a major challenge and is the main focus of this report.

The development of two distinct sustainability tools, to promote the practical application of the concept of sustainability by Galway City Council, is reported on in this document. These tools are (i) quality of life indicators and (ii) a community map. Three end of project reports are available for download at: http://erc.epa.ie/safer/reports; these provide detailed accounts of each of the research stages and detailed results. The first (Fahy and Ó Cinnéide, 2005) reports on the results of the first phase of the research project, the desktop study. The second, (Fahy and Ó Cinnéide, 2006), presents results generated from a quality of life survey of Galway City. The third report, (Fahy et al., 2007), presents detailed research findings and encompasses a series of quality of life maps for Galway City.

This synthesis report explores the emergence of quality of life considerations in the literature relating to sustainability indicators. Sustainability initiatives that detract from the quality of life of citizens lack credibility. Consequently, quality of life is increasingly regarded as integral to sustainability programmes. There is little consensus, however, in relation to what exactly quality of life means and how it is most appropriately measured. An operational framework for assessing quality of life at the local level is presented. Focus groups were used extensively to obtain the opinions of various strands of community in Galway, regarding issues they considered to be germane to quality of life in the city. Nine themes emerged as particularly significant: (i) transport; (ii) size of the city; (iii) community; (iv) identity; (v) facilities; (vi) planning and development; (vii) environment; (viii) economic and (ix) social considerations. The focus group discussions, together with relevant international literature, informed the design of a questionnaire survey through which new baseline information regarding quality of life in Galway City was assembled.

The survey was initially conducted with 200 participants from five electoral divisions (EDs) across Galway and results reveal significant variations in quality of life by neighbourhood. While the results show high levels of satisfaction with many elements of quality of life in Galway, they also reveal a number of areas of dissatisfaction, and certain issues are shown to vary in significance from one area to another. Some issues are specific to certain locations only. A clear conclusion is that quality of life is unequivocally influenced by location: hence, the research demonstrates the need to appreciate the local context in which quality of life indicators are formulated. This marks a considerable shift away from a more technical approach to indicator development that has prevailed in the past.

The results of this questionnaire survey have been discussed in previous end of project reports (see Fahy and Ó Cinnéide, 2006b; 2007). This document reports on the successful application of the framework and discusses the transferability of this tool when the survey was refined, re-run and expanded in 2007 to incorporate 150 participants living on the urban/rural fringe in Galway county. This survey served to confirm the transferability of this tool to a rural setting.

Community mapping is a relatively new tool with considerable potential in giving practical effect at the local level to sustainable development rhetoric. As a repository of socially constructed knowledge, it has considerable value in democratising information both in terms of what is recorded and public access to it, in a manner that facilitates more meaningful participation of non-experts in planning and advocacy processes. Focusing on a case study of Galway, Ireland, this report explores how the city's municipal authority is employing community mapping – not just to record and promote the city's social, environmental, economic and cultural assets but also as a practical tool to bolster public participation in policy-making and to improve local communities' trust in the municipal authority – in effect, shaping sustainability practices through enhanced governance.

The report concludes with a review of how both tools have been successfully integrated into local authority activities and, in effect, have been mainstreamed. A short Practitioner's Report has been compiled for policy makers and is presented in the Appendix. This brief document emphasises the *practical* links between this research and policy making.

1 Introduction

1.1 Project Background

Difficulties associated with giving practical effect to the abstract concept of sustainable development have generated much debate, and have stimulated a good deal of research on the challenging task of assessing progress towards that goal. Despite its increasingly high profile in international, national and local policies, it is argued that the concept is in danger of moving from a stage of ambiguity to cliché without ever having passed through a stage of meaningfulness or comprehensibility (Kelly et al., 2004). Sustainable development is fundamentally linked with integration of ecological, economic and social considerations at all geographic scales from global to local. To do so, it is apparent that core requirements and general rules must be accompanied by context-specific elaborations (Kemp et al., 2005). This means that there is scope for, and indeed a requirement for, various locally derived sustainable development options (Fahy and Ó Cinnéide, 2008a). The need for more effective tools to both develop and assess sustainable development was one of the major themes identified as a priority under the EU's *Sixth Framework for European Environmental Policy to 2010* (European Commission, 2002). The development of practical tools for the application of a local process of sustainable development represents a major challenge.

This synthesis report documents the findings of a research project which aimed to give practical effect to the concept of sustainable development by developing tools to assess progress toward sustainable development ideals and applying resultant methodologies at the local scale in Ireland. Using the case study of Galway City Council and employing deliberative tools for public participation, such as focus groups and workshops, the project sought to improve the city council's consultation processes by developing new methods of public participation, including the involvement of under-represented groups, for example, young people under the age of 18. An essential part of this project was to inform local authorities in Ireland regarding effective approaches to public involvement in decision-making and in developing and implementing improved environmental policies.

This report focuses on the development and application of two practical tools for progressing sustainability at the local level. Three earlier end of project reports have been published on this research. The first (Fahy and Ó Cinnéide, 2005) reports on the results of the first phase of the research project, the desktop study; the second report (Fahy and Ó Cinnéide, 2006), presents results generated from a quality of life survey of Galway City, while the third, (Fahy et al., 2007) outlines detailed research findings and encompasses a series of quality of life maps for the city of Galway. In addition, a number of international journal articles have been prepared and published from this data in a range of journals, including *Environmental Impact Assessment Review* (Fahy and Ó Cinnéide, 2008a)*, Nature and Culture (*Mahon et al., forthcoming), *Geographical Viewpoint* (Desmond and Fahy, 2006)*, International Journal of Sustainable Development and Planning* (Fahy and Ó Cinnéide, 2008b) and *Area* (Fahy and Ó Cinnéide, forthcoming).

This report begins with an introduction to the national policy context followed by a discussion of Galway City, as the case study location for this research, and the implementation of a local process for sustainability. This introductory section then provides an overall outline of the project design and concludes with a description of the tools of sustainability. The context, development, design and application of a conceptual framework for assessing quality of life at the local level are discussed in the Section 2. This section focuses especially on the development of quality of life indicators and evaluates their application in the case study area of Galway. More detailed results of the quality of life survey conducted as part of this project are presented in a previous report (see Fahy and Ó Cinnéide, 2007).

Section 3 reports on community mapping as a tool for sustainability. The process of developing the map is explored in detail and a critique of the application of this mapping tool is also provided. Finally, Section 4 examines the integration of both tools – the quality of life indicators and the community map, – into local authority structures. Using Galway City Council as the case study, the report considers how each of the tools has been incorporated into the activities and strategies of the city council. The report concludes with policy recommendations and a review of the transferability of the tools developed during the course of the project.

1.2 Process for Sustainability – National Overview

Agenda 21 is the global action plan for sustainable development agreed at the 1992 Earth Summit in Rio de Janeiro; Local Agenda (LA) 21 is the mechanism that emerged to implement this plan (Evans et al., 2005). LA 21 is characterised by two key features: local action plans to achieve sustainability and a bottom-up approach to the resolution of local issues. Many of the problems and solutions outlined in LA 21 are grounded in local activities and consequently two sets of actors – namely, local level government and citizens – play vital roles in making sustainable development happen. As identified in the introduction to the Aalborg Charter (European Conference on Sustainable Cities & Towns in Aalborg, 2004) (one of the many charters on sustainable development that have been developed since the Rio summit) the role of local government is critical as 'local government is close to where environmental problems are perceived and closest to the citizens and shares responsibility with governments at all levels for the well-being of humankind and nature. Therefore, cities and towns are key players in the process of changing lifestyles, production, consumption and spatial patterns' (Aalborg Charter 2004, Part 1 Section 1.1).

In the Irish context, little research has been conducted to date on sustainability assessment. More broadly, the introduction of LA21 in Ireland is still at a very early stage when compared to other European countries. Ireland lags behind almost all of its European counterparts when it comes to adopting LA21 (O'Gara, 2004). As LA21 measures need to relate to a locality's strengths and weaknesses, the national government produced guidelines for local authorities on LA21 which were descriptive rather than prescriptive. These guidelines were intended to give impetus and background assistance rather than impose a unified approach (reviewed in Doyle, 2003). Decisions on the process were left up to the local authorities in consultation with their communities. The publication of *Sustainable Development: A Strategy for Ireland* in 1997 provided for the development of LA21 plans and the appointment of a designated LA21 officer for each local authority. The objective of this strategy was 'to ensure that economy and society in Ireland can develop to their full potential within a well protected environment without compromising the quality of that environment, and with responsibility towards present and future generations and the wider international community' (Government of Ireland, 1997: 25). It is also noted that 'effective environmental policies require the active participation of society, so that lifestyle changes compatible with sustainable living can become established' (Government of Ireland, 1997: 27). This document provided for the development of COMHAR (the National Sustainable Development Partnership) in 1998. However, although requested by national government to have LA21 processes in place by 1998, progress by the country's local authorities on LA21 is very uneven – to date some local authorities have not yet appointed a LA21 officer. For the most part, progress on LA21 has been confined to, and parallels, reform of local government (Mullally, 2001).

City and County Development Boards have been established with the objective of organising local development in a manner that enhances participative democracy (COMHAR, 2002). An evaluation of community participation in City and County Development Boards is currently lacking (EPA, 2004). Published County and City Development Plans do contain appeals to sustainable development and refer specifically to LA21. However, little practical evidence of the implementation of LA21 is visible. With regard to the difficulties involved in giving practical affect to LA21, three primary challenges have

been identified; integration, public participation, and the development of practical tools (each of these is discussed in detail in a previous end of project report – see Fahy and Ó Cinnéide, 2006b).

1.2.1 Integration

Developing a holistic policy goal is difficult given the compartmentalised structures of local authorities. In the Irish context the interpretation of LA21 is often perceived to be part of the environmental agenda. Indeed, some departments within Irish local authorities are not even familiar with the concept of LA21. Indeed, in smaller local authorities the LA21 Officer may have more than one responsibility – for example, also occupying the position of the Environmental Awareness Officer. Improvements are needed to integrate sustainability into all sectors of local authorities' existing and future plans.

1.2.2 Public Participation

Developing greater public participation in local decision-making is highly problematic. In the Irish context, consultation exercises are limited and consultation and consensus-building exercises on environment and development tend to relate to existing models of environmental policy rather than LA21 *per se* (Mullally, 2001). Indeed, commentators such as Mullally (2001) note that one of the most discernible obstacles to LA21 in Ireland is the lack of a systematic approach to increasing community participation. The high level of conflict associated with many development projects is attributable at least in part to inadequacies associated with the degree of public participation at the planning stage.

1.2.3 Development of Practical Tools

The need for more effective tools to promote and assess sustainability has been identified by the Environmental Protection Agency (EPA) as a priority for Irish environmental policy-making (EPA, 2004). At national level, the EPA has produced *Key Environmental Indicators for Ireland* (EPA, 2002). At local government level, some research has been conducted on sustainability indicators and other sustainability assessment tools. One example is Ryan's (2004) research on rural ecological foot-printing in the village of Doon in Co. Limerick. Previous research (funded by the European Union's LIFE programme) has also investigated environmental quality indicators in Galway City and some western seaboard countries for the purposes of developing an area-based mark of environmental quality (Ó Cinnéide, 1999). However, in general (and as reviewed in a previous report see Fahy and Ó Cinnéide, 2006b) there is a dearth of know-how relating to the implementation of the sustainability concept within local government in Ireland. This is not to imply that no sustainable activity has been undertaken in Irish local authorities but there is an apparent hesitation in the application of the LA21 label to activities currently being undertaken within Irish local authorities – primarily for reasons associated with a lack of familiarity with the practical operation of the concept.

Addressing these three challenges represents key tenets of the research project reported on in this document.

1.3 Local Process for Sustainable Development – Case Study: Galway City Council

This section discusses Galway City as the case study focus of the research and its involvement and progress in a local process for sustainability. Galway City, situated on the west coast of Ireland, was the geographical setting for the research project documented in this report. The third largest urban centre in Ireland with a population of over 66,000 (Central Statistics Office, 2005), the city has grown rapidly in recent years, such that it is now extended significantly beyond its administrative boundaries. As a result, the population is considerably greater than officially enumerated. Galway is a multi-cultural city and in recent years new neighbourhoods, which vary considerably in socio-economic terms, have been created. Though renowned nationally for its high quality of life, the general growth of Galway has brought with it a multitude of problems including, insensitive building development, soaring house prices and traffic problems. For example, the average cost of a new dwelling in Galway City in 2000 was €163,824, however, by 2005 this had risen to €274,905

(Department of the Environment, 2006). Nonetheless, the notion that living along the western seaboard of Ireland can improve one's quality of life is a major factor in sustaining economic development in the Galway region and is used extensively to promote the city and its hinterlands. The Western Development Commission (a statutory body promoting social and economic development of the west of Ireland) for example, undertook a recent national advertising campaign with the objective of attracting workers and industries towards Galway and the west of Ireland. A perceived higher quality of life in the west of Ireland provides the fulcrum of their campaign. Press releases from their 'Look West' campaign include: 'Living in the West can give you 16 extra hours a week to enjoy' and 'Much shorter commuting and 50% cheaper housing make compelling case to Look West'.

Galway City Council has been formally involved in a local process of sustainable development since the establishment of the Galway City Development Board (CBD) in 2000. In the preparation of the CBD's *Strategy for Economic, Social and Cultural Development 2002–2012,* a Galway City Atlas was produced and a range of indicators was developed to achieve the economic, social and cultural goals outlined in the plan. For example, four indicators were developed to measure progress towards the CBD's objective for 'a city which provides a range of high quality accessible, adaptable housing and accommodation in an attractive environment at affordable levels'. These indicators are (i) number of registered landlords; (ii) number of active residents' associations; (iii) number waiting on a housing list; and (iv) housing supply adequate to demand at affordable prices in an acceptable environment. A local action plan for sustainable development has been developed since 2003, but to date there has been no council decision to formally adopt this action plan. Prior to the commencement of the project the implementation of the local action plan was supported solely by time allocation from regular staff in the city council .

As part of this research project, in July 2005 Galway City Council undertook an evaluation of their progress towards sustainable development. The evaluation, entitled 'Local Evaluation 21' (full results of which are published in a

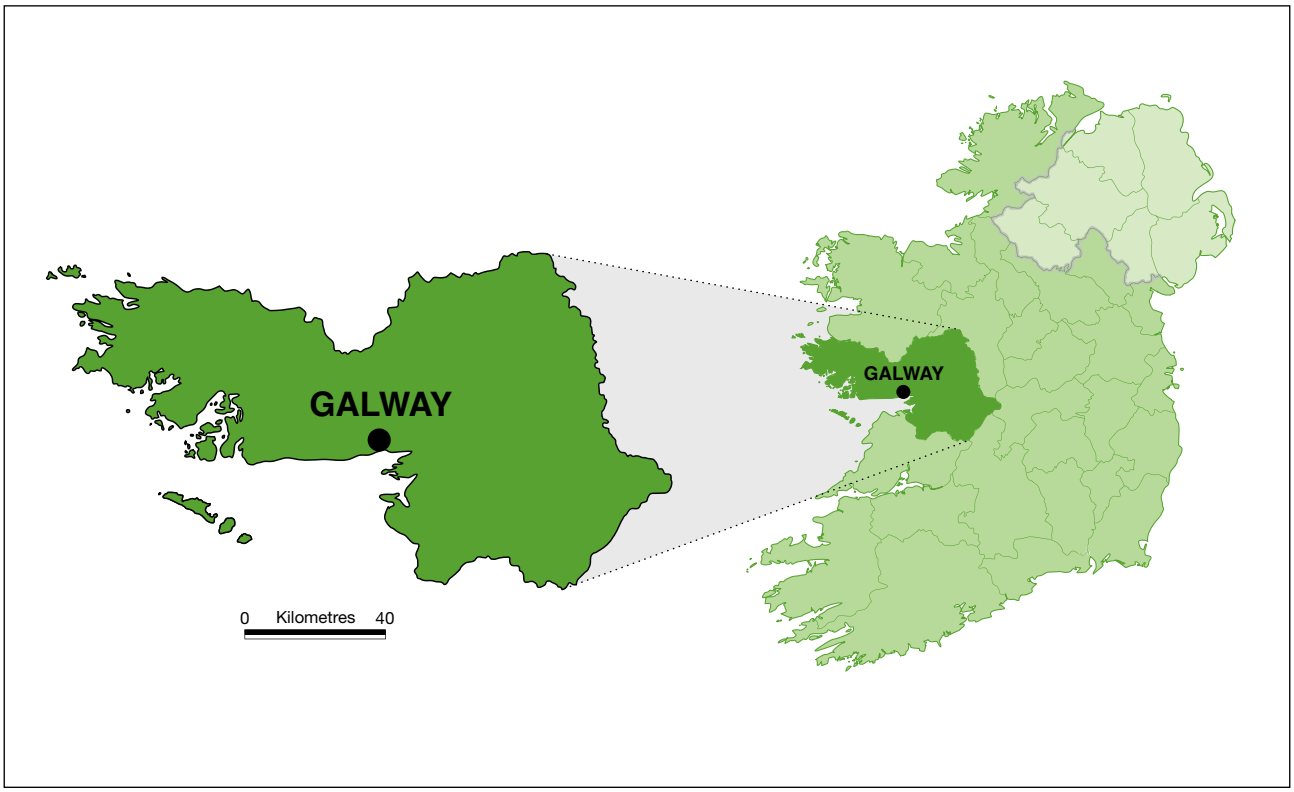


Figure 1.1 Galway City and county

previous report – see Fahy and Ó Cinnéide, 2006b) indicates some of Galway City Council's strengths and weaknesses with regard to LA21 and identifies opportunities to progressing LA21 processes in the local authority. In particular, the evaluation provides feedback on the following 11 variables (each discussed in detail in a previous report – see Fahy and Ó Cinnéide, 2006b): (i) local relevance; (ii) political commitment; (iii) resources; (iv) the Local Action Plan for Sustainable Development; (v) implementation management; (vi) participation; (vii) partnership; (viii) awareness raising and training; (ix) stability; (x) integrated approach; and (xi) progress.

In undertaking the evaluation, several areas that require improvement within the city council's LA21 process were highlighted. For example, Galway City Council currently does not have a strategy for communicating sustainable development issues or providing training on sustainable development issues to its staff. In addition, there is no detailed assessment of local priority concerns in the city council's local process for sustainable development. Nor are there any specific mechanisms in place to feedback results of the local process for sustainable development to stakeholder groups or the general public. Specific recommendations to improve the city council's local process for sustainable development, outlined in the evaluation, include (i) introduction of an evaluation scheme to examine the long-term effects of the local process (ii) a need to include targets and measures 'in order to successfully steer progress towards local sustainable development' (Fahy and Ó Cinneide, 2005: 6) and (iii) increased 'participation across sectors in order to integrate different perspectives into [Galway City Council's] local process for sustainable development' (Fahy and Ó Cinneide, 2005: 7).

The current project sought to address the aforementioned difficulties by (a) seeking to integrate sustainable development into all sectors; (b) promoting public participation including the involvement of underrepresented groups; and (c) developing practical tools for use by local authorities i.e. sustainability indicators and a community map for Galway. The objective of the project was to work with existing bodies (e.g. the Community Forum or the City Development Board) to integrate sustainability into all sectors of the local authority's existing and future plans. The project, by utilising deliberative tools for public participation (such as focus groups and workshops) aimed to improve and develop new methods of public participation, including the involvement of underrepresented groups for example, youth. An essential part of this project involved communicating methods and techniques about working with the public to other local authorities with the objective of developing improved environmental policies.

1.4 Project Design

Overall, the project had three major elements: (i) a desktop survey of relevant literature; (ii) development and testing of quality of life indicators for the city of Galway; and (iii) the development of a community-derived Green Map for Galway City (see Figure 1.2).

Figure 1.2 Project design

1.4.1 Desktop Study

The objective of Phase 1, the desktop study, was to review the concept of sustainability and the issues involved in the practical application of this concept at the local level. The study also aimed to review Local Agenda 21 (LA21) implementation in various local urban settings around the world and to identify case studies of best practice. Finally, as discussed above, the desktop study sought to examine the current implementation of LA21 by Galway City and to identify opportunities to progress the process in the city.

1.4.2 Quality of Life Indicators

Building on the results of the desktop survey, the field-based research relating to the second element of the study was focused on the development of practical tools for measuring sustainability. Stemming from the experience of other cities, Phase 2 of the project involved developing and testing community derived quality of life indicators for Galway City (see Practitioner's Guide attached as the Appendix). These indicators allow citizens to express the aspects of the city that they regard as important and to promote policies relating to these issues. The indicators may be monitored in Galway City on an ongoing basis into the future as a means of assessing changes to quality of life in the city.

1.4.3 Community Map of Galway City

Drawing on experiences of other European and US cities, the third element of the project aimed to produce a community map for Galway City. A community map essentially involves representations in cartographic form of the features of the city that are held in particular esteem by the populace. It was anticipated that the community map of Galway will help citizens and communities develop a sense of ownership of their localities and encourage businesses to become more environmentally aware. It was envisaged as a practical tool, which may be used by Galway City Council to examine issues of sustainable development.

1.5 Introducing Tools for Sustainability

The development of practical tools for the application of a local process of sustainability represents a major challenge. As highlighted above, the need for more effective tools to both develop and assess sustainability was one of the major themes identified as a priority under the EU's *Sixth Framework for European Environmental Policy to 2010* (European Commission 2002). In recent literature on sustainable development, the focus has increasingly centred on Green Accounting and Environmental Auditing (see for example Evans et al., 2005; Lewis, 2000). However, some new tools have been developed specifically for sustainable development (Devuyst et al., 2001; Wheeler, 2004) and examples of these tools include: Ecological Footprinting (see for examples Rees, 1991; Ryan, 2004; Wackernagel and Rees, 2004); Visioning; Environmental Impact Assessment; Best Practices and Sustainability Indicators (see Wheeler, 2004). Geographical Information Systems (GIS) have been utilised increasingly to map and analyse many different phenomena across a region – for example, topology, census data, soils etc. (Wheeler, 2004). Such information is vital for supporting sustainability planning. Indeed, literature on sustainability indicators has increasingly focused on the technological dimensions and the development of GIS-based indicators (see Carmichael et al., 2005; Ghose and Huxhold, 2005). As the aim of this research is to report on practical tools for sustainability the following sections review the use of two emerging, yet crucial, sustainable planning tools: quality of life indicators and mapping.

2 Deriving Community-Derived Quality of Life Indicators for the City of Galway

2.1 Sustainability Indicators: A Review

Chapter 40 of the Agenda 21 document calls for the development of indicators for sustainable development. Since then, indicators have become one of the key tools for assessing sustainability (Bell and Morse, 1999; Gahin et al., 2003; Wheeler, 2004; Hoernig and Seasons, 2005). The use of indicators is considered by many to be the central element in operationalising sustainability (Syers et al., 1995; Bell and Morse, 1999).

A sustainability indicator 'captures and measures a particular aspect of sustainability policy in an easily communicable form, allowing monitoring and subsequent "'steering" of policy, whether by internal management or external political pressure' (Rydin et al., 2003:583). A review of the large body of literature on sustainability indicators reveals the many benefits that may be achieved through the use of this tool. By measuring specific phenomena in a community – for instance, crime rates, recycling rates, car ownership, green land area, indicators provide vital information about trends in key environmental parameters and assist in tracking progress towards stated goals. Indicators are also a method of engaging the community in working towards shared aims and objectives. In addition, researchers such as Gahin et al. (2003) perceive indicators as a means of generating community consensus. Hoernig and Seasons (2005) summarise the many ways in which indicators can be used as (a) a planning tool, (b) a learning tool (c) a communication tool and as (d) a collaborative tool.

2.1.1 Categorising Sustainability Indicators

A wide variety of sustainability indicators and a variety of frameworks to categorise these indicators are to be found in the literature. For example, MacLren (2004) identifies five different types: (i) domain based, including categories such as environment, economy and society; (ii) sectoral, including housing, welfare, recreation, and transportation; (iii) goal based, involving measures of basic human needs, carrying capacity, social well-being, economic prosperity, and participation in government; (iv) issue based, such as urban sprawl, waste management, crime, industrial pollution and job creation; and (v) causal indicators including categories of conditions, stresses, and responses. Hoernig and Seasons (2005) identify eight indicators: (i) economic; (ii) social; (iii) environmental; (iv) sustainability; (v) healthy cities; (vi) quality of life; (vii) performance measurement and (viii) benchmarks. The United Nations' working list of sustainable development indicators has four categories: (i) social, (ii) economic, (iii) environmental and (iv) institutional (Agenda 21 Document, 1992).

Indicators are unlikely to be accepted and used if they have been developed without consultation with their target audiences and users (Rydin et al., 2003). As a result, it is often seen as necessary that the process of developing indicators is *participatory* – one that fosters community ownership, builds group credibility, and educates participants. However, the extent to which full engagement and dialogue with citizens occurs is contested (Cartwright, 2000; Eckerberg and Mineur, 2003). Research conducted by McAlpine and Birnie (2005) on the development of indicators for the Island of Guernsey reveals that although best-practice literature advises that communities should be involved prior to the development of the indicators, this is not always possible. For example, local communities are not always willing and ready to contribute to the development of sustainability indicators (McAlpine and Birnie, 2005).

2.1.2 Using Sustainability Indicators

Sustainability indicators can be used at a variety of spatial scales (e.g. local, regional or national) and in a variety of situations. The UK Environment Agency uses indicators

for the purpose of communicating with local communities about their actions and the quality of their environment (Rydin et. al., 2003). Sommer (2000) discusses how indicators are used in initiatives by local authorities with local groups and communities at the neighbourhood level to raise awareness of sustainable development and to encourage behavioural change. Because they provide information, indicators can 'inspire action' and lead to better decision-making. They can also be viewed as educational tools that can be used to raise awareness. Hence, they can be seen as a tool to empower both citizens and decision-makers. However, some indicators are easier to identify and maintain than others (Wheeler, 2004). Indeed, some indicators are already collected on a regular basis by government agencies and local authorities – for instance, those on housing, welfare and crime figures.

Wheeler (2004) notes that over 25 large cities in the United States (including Portland, San Francisco and San José) have developed indicators to track progress towards sustainable development. In Europe, the use of sustainability indicators is widespread (McAlpine and Birnie, 2005). The European Commission launched a comprehensive benchmarking in 2003 entitled *European Common Indicators: Towards a Local Sustainability Profile* (European Commission, 2003). A comprehensive list of European sustainability projects utilising indicators is detailed in the first report of this project produced for the Galway City Council in September 2005 (Fahy and Ó Cinnéide, 2005).

One of the primary criticisms levelled at the use of sustainability indicators is that they try to encapsulate diverse and complicated processes in a small number of measures (Bell and Morse, 1999). Indeed, the perception that policy-makers, scientists and others are consumed with quantification is not new (MacRae et al., 1989). Bell and Morse (1999:31) point out the inherent contradiction regarding sustainability indicators (SI): 'for all their attempt at holism and a desire to incorporate the richness of humankind's complex interrelationships with nature, [sustainability indicators] are still a classic reductionist set of tools based on quantification'. This raises the issue of whether simple sustainability indicators can be usefully used to gauge the complex concept that is sustainability (Bell and Morse, 1999). Although attention was focused initially on the relatively technical task of the development and design of indicators, more recently questions are raised about the effectiveness of indicators (Bell and Morse, 1999). It appears that there is a dearth of research examining the outcomes of indicator use (Maclaren, 2004; Innes and Booher, 1999). One notable exception is Gahin et al.'s (2003) research into the primary outcomes of five case-study sustainability indicator programmes across the United States (see Table 2.1). Very few concrete or measurable outcomes were reported from this research and the researchers noted that 'actual change as measured by the indicators was not found in any of the case studies' (Gahin et al., 2003: 663). However, if one considers that indicators produce intangible outcomes and that the intangible outcomes provide the future for change then, it is claimed indicators and their intangible outcomes can steer communities in a desired direction (Gahin et al., 2003).

Table 2.1 Main outcomes of sustainability indicator programmes

Intangible	Concrete	Measurable
• Provide forum for discussion. • Brings people together/ facilitate conversations. • New working relationships formed. • Increased awareness. • Value shifts.	• New agenda, programmes. • Influence decisions. • Incorporated into planning. • Changed individual behaviour. • Resource allocations.	• Change. Progress toward sustainability, etc. as measured by the indicators.

Source: adapted from Gahin et al., 2003: 663

Overall, it appears that research into indicators has often found it difficult to 'discern clear links between the development of an indicator programme and actual changes in decision-making and policy outcomes' (Rydin et al., 2003). Hence, the sustainability indicator research agenda has shifted from design and development towards investigating the links between indicator development and

policy action. This new research agenda also highlights the necessity of understanding the local context in which the indicators are being developed (this is a marked shift away from the technical approach). A bottom-up approach, involving a wide variety of local actors, is advocated as opposed to a top-down approach where local authority officials devise and use indicators. Similarly, from this new research perspective, the relations between lay person and expert become very important (see Rydin et al. 2003; Eckerberg and Mineur, 2003). Indicators need to be socially constructed as discussed in Astleithner and Hamedinger (2003) and Journel et al. (2003). Consequently, letting the community identify the important issues is vital (Cartwright, 2000).

While sustainability indicators are no substitute for action, they clearly create social knowledge and connections that are needed for 'meaningful action' (Gahin et al., 2003:666). In addition, it is crucial that indicators are coupled with ongoing actions to bring about change (Gahin et al., 2003). It is also clear from the literature that indicators, in many cases, do not reach a wide audience and hence their impact is limited. Finally, since one cannot technically assess when a community becomes truly 'sustainable' indicators cannot outline how far communities have to go; rather they serve to inform assessment of movement toward or away from sustainability (Devuyst et al., 2001).

2.2 Quality of Life Indicators

Quality of life considerations have only recently emerged in the literature on indicators. It is stressed that sustainability is primarily about people and therefore there may be 'little point achieving a sustainable system that reduces the quality of life of the people in that system' (Bell and Morse, 1999:15).

Quality of life indicators were first pioneered by the local government in Jacksonville, Florida in 1986 (Wheeler, 2004). A more recent project reported by Devuyst (2001) is the Pierce County Quality of Life Benchmark Project. The aim of the project is to make generalised statements about whether life in the county is getting worse, better or remaining the same. By measuring trends and current conditions, the objective is to shape future plans and policies. Eighty indicators were developed and related data were gathered from 1986–1996; 1990 was identified as the 'benchmark year' against which all other years are measured. Trends in the data reveal that 46 of the 80 indicators have improved while 26 have deteriorated and 8 remain the same (Devuyst, 2001).

2.2.1 Developing Quality of Life Indicators

The usual approach to developing quality of life indicators is to conduct surveys where people are asked for their subjective ratings (Wheeler, 2004). Quality of life concerns are a reflection of people's beliefs, perceptions and opinions and as such indicators need to be developed that can be measured through surveys, interviews, focus groups and other qualitative methods (Kline, 2001). The Boston Indicators project recognised that many organisations collect qualitative and quantitative data and that it makes sense to draw these people/groups into the process at an early stage of devising indicators in order to collect existing data and garner support for adjusting their collection instruments (Kline, 2001).

As research on quality of life indicators has not been comprehensively developed in Ireland, the following section reviews a project currently ongoing in the UK.. The UK's sustainability strategy is entitled *A Better Quality of Life.* It identifies 15 headline indicators of sustainable development collectively entitled the 'Quality of Life Barometer'. These are: (i) economic output; (ii) investment; (iii) employment; (iv) poverty and social exclusion; (v) education; (vi) health; (vii) housing conditions; (viii) crime; (ix) climate change; (x) air quality; (xi) road traffic; (xii) river water quality; (xiii) wildlife; (xiv) land use and (xv) waste (DEFRA, 2007). At the local level in the UK, Bristol City Council has very successfully developed quality of life indicators for the city in recent years. LA 21 Strategy for Bristol provides "a frame-work and set of principles by which the city can move into a more sustainable future" (Bristol City Council, 2003). In 2000, Bristol published its LA 21 Strategy based on 12 sustainability topics. The topic groups, in developing a strategy for sustainable development in consultation with the wider community,

chose indicators for each topic. In 2000 also, Bristol (Bristol City Council, 2003), along with 85 other municipalities in the EU, signed up to measure 10 integrated European Common Indicators for local sustainability:

1 Satisfaction with the neighbourhood.
2 Carbon dioxide emissions.
3 Passenger transport.
4 Access to open space and services.
5 Air quality.
6 Travel to school.
7 Organisations with environmental and social management systems.
8 Noise nuisance.
9 Sustainable land use.
10 Sustainable products.

In 2001, a new duty was placed on local authorities in the UK by the Department of Environment, Food and Rural Affairs (DEFRA) to produce a community strategy to promote social, economic and environmental well-being in its areas. Bristol City Council proffered that indicators of quality of life should provide a useful starting point for monitoring progress on the community strategy. The city council developed a detailed questionnaire survey which is available to the public on the web. The city council publishes the results of this survey as annual quality of life report to monitor movement towards or away from sustainability objectives.

2.2.2 Categorising Quality of Life Indicators

The inclusion of such indicators gives rise to difficult questions relating to what should be incorporated as quality of life. One reason is that there are a large number of diverse definitions for quality of life. For example, Cutter (1985) defines it as 'an individual's happiness or satisfaction with life and environment, including needs and desires and other tangible and intangible factors which determine overall well being'. For Kline (2001) quality of life, at a minimum, needs to measure the ability of citizens to get adequate health care, housing, child care, public safety and education. Increasingly, quality of life is being broadly accepted as an essential element of sustainability; however, there is not much consensus on what exactly it is or how it should be included (Bell and Morse, 1999). As noted above, some indicators are easier to identify and maintain than others. Many indicators of quality of life are qualitative in nature and, according to Wheeler (2004), may be more difficult to measure. The relative difficulties involved in attaining what is classified as 'objective' indicators (tangible facts that can be readily observed) and 'subjective' indicators (personal judgements of objective conditions) is considered by Moller (2001). The very many difficulties involved in integrating quality of life indicators with general sustainable indicators appear to have restricted their practical deployment and point to the need for further research into their identification, maintenance and use. Limited research has been conducted on quality of life indicators as a result. The research conducted for this project attempted to establish an operational framework for assessing quality of life. A full and comprehensive review of the application of the conceptual framework in examining quality of life in one particular urban setting, Galway City, is published in *Environmental Impact Review*, August 2008 (Fahy and Ó Cinnéide, 2008b). The following section presents an overview of the phases and steps involved in the process.

2.3 An Operational Framework for Assessing Quality of Life: An Overview

The operational framework for assessing quality of life is organised into a series of phases and steps (Table 2.2). Phase 1 (and Step 1) consists of defining the scope and broad parameters of the study (aims, objectives, study area, participatory assessment process, stakeholders, sample size etc.). The complexity and ambiguity of the concept of quality of life is addressed and indicators are identified in Phase 2 (Steps 2–5). An operational definition of quality of life is agreed in Step 2. Step 3 entails the identification of quality of life indicators. The ranking and grouping of these indicators comprise Step 4 of the process. Establishing data availability and identifying data gaps comprise Step 5. In Phase 3 (Steps 6–7) quality of life is assessed. Step 6 involves data collection to fill

Table 2.2 An operational framework for assessing quality of life

Phase	Step	Task
1: Preparatory Stage	1	Establish the participatory assessment process, define the goal of the quality of life assessment and discuss the application of results.
2: Operationalising the concept and identifying the indicators	2	Tackle the complexity of the quality of life concept.
	3	Identify indicators.
	4	Categorise indicators.
	5	Assess data requirements against existing data.
3: Assessment	6	Fill previously identified data gaps, and compiling all relevant data sets.
	7	Analysing data and establishing a baseline measurement of quality of life, examine derived indicators against fundamental principles of sustainable development.
4: Linking to policy response	8	Link results to appropriate policy action.

Source: after Kobus, 2005

previously identified gaps in knowledge, and compilation of other relevant data sets. Step 7 involves analysing the data, and the establishment of baseline measurement of quality of life. The final Phase (Step 8) links the findings, both positive trends and negative, unsustainable developments to related policy measures, including successes or failures.

2.3.1 Phase 1 – Step 1: The Preparatory Stage

The main aims of Phase 1 are to establish the participatory assessment process, define the goal of the quality of life assessment, and to consider the application of results. A major criticism levelled at quality of life projects is that they typically reflect expert opinion about what constitutes quality of life i.e. traditionally these projects do not incorporate how citizens perceive the communities and cities in which they live (Moller, 2001). As noted in the introduction to this section the process of developing indicators needs to be viewed as a participatory one that fosters community ownership, builds group credibility, and educates participants. Indicators are unlikely to be acceptable and relevant data may not be readily available in useable form if the consultation with their target audiences and end-users is insufficient (Rydin et al., 2003). The Boston Indicators project, for example, recognised that many organisations collect qualitative and quantitative data and that it makes sense to draw these bodies into the process at an early stage of devising indicators, in order to collect existing data and garner support for adjusting their collection instruments (Kline, 2001). Similarly, our current research was situated in the contemporary movement of critical social science, which aims to examine issues of quality of life and sustainability from the perspective of the community – the 'non-expert voices' (Hobson, 2003). Consequently, the first step in the assessment process was to involve and inform stakeholders of the process. Open public workshops need to be established and invitations sent to established groups to encourage their participation in the process. In this manner and with expert facilitation the participants identify and select the most meaningful quality of life indicators to them.

Other key considerations in the preparatory stage (Kobus, 2005) relate to:

- The geographical coverage – i.e. national, regional or local level?
- Whether it is to be a holistic assessment of quality of life, or focused on certain key issues?
- Temporal coverage of the assessment – whether the study looks at trends over time or a snapshot of quality of life at a particular time?
- Policy relevance and communication of results i.e. are the results targeted at politicians, policy-makers, researchers, or the public?

The research sought to examine quality of life in a holistic manner and monitor trends in quality of life over time. The overarching objective of the process was to draw substantiated generalised conclusions about quality of life in Galway and to document whether it is getting better or worse and the major contributory factors to the observed trends. Primary emphasis was on developing a community-derived set of quality of life indicators that enabled individuals to express what is important to them in their city and to allow citizens and policy-makers to make decisions based on the results obtained (Fahy and Ó Cinnéide, 2008a). The project made particular provision for the involvement of traditionally under-represented groups, especially young people as Galway, with two major third-level educational institutions, is a youthful city. Overall, however, the project explicitly sought to engage citizens rather than interest groups or sector representatives.

It was hoped that the assessment would provide a benchmark for quality of life in the city, and in addition, would inform and enhance decision-making by linking quality of life considerations to policy actions. The results of the assessment were expected to be of interest to the public, to researchers, to politicians as well as to policy-makers, both nationally and locally. Indeed, Galway City Council appears anxious to assess and promote quality of life, not just to improve the well-being of its citizens but also to enhance the city's appeal to creative workers and to help attract modern clean industrial projects.

2.3.2 Phase 2 – Steps 2–5: Operationalising the Concept and Identifying the Indicators

The main issue to be tackled in Phase 2 is the complexity and the ambiguity inherent in quality of life as a concept. Defining what is meant by quality of life and identifying appropriate indicators is a challenging part of the entire process and involves much deliberation and debate. The traditional approach to developing quality of life indicators is to conduct surveys where people are asked for their subjective ratings of pre-selected variables (Wheeler, 2004). However, as Kline (2001) notes, quality of life concerns are a reflection of people's beliefs, perceptions and opinions and, as such, indicators need to be developed that can be measured through interviews, focus groups and other qualitative methods. Focus groups, or group interviews, are increasingly being adopted and developed as a powerful technique in policy-making and academic research (Davies, 1999). Krueger (1994) notes that this tool differs from other research methods in that it facilitates group interaction and a deeper insight into the reasoning behind opinions.

For the purposes of the Galway case study nine focus groups were conducted to discuss the topic of quality of life in Galway City (Step 2). They included groups representing schoolchildren, third-level students, the chamber of commerce, retired citizens, and a variety of residents' and community organisations. In particular, the focus group methodology facilitated the inclusion of young people's perspectives on quality of life in Galway. A schedule of questions was formulated prior to the focus group sessions outlining key topics for discussion, including perceptions of what factors make up quality of life in Galway and opinions on current quality of life in the city. Sessions varied in length and lasted approximately between one and two hours. The focus group discussions were recorded and subsequently transcribed.

The main aims of Steps 3–5 are to identify indicators, rank and group indicators and to assess data requirements against existing data. The results of the focus group discussions (summarised in Table 2.2) reveal a range of quality of life themes and indicators as identified by the public (Step 3). Nine key themes are apparent: (i) transport; (ii) city size; (iii) community; (iv) identity; (v) facilities; (vi) planning and development; (vii) environment; (viii) economic and (ix) social considerations. The themes as grouped (Step 4) are highly subjective. They are not definitive or exclusive and it is apparent that some factors or indicators could be included in one or more of the categories identified. In discussing the determinants of quality of life in Galway City the respondents identified positive and negative features of the themes listed in Table 2.3:

Table 2.3 Quality of life themes identified in the focus groups and features of related data

Critical quality of life themes and examples	Examples of qualitative and quantitative indicators*	Status**
Transport E.g.: issues with bus service, cycling facilities in the city, traffic, pedestrian crossings	Qnt – bus route service Qual – perception of cycle lanes Qual – perception/accessibility of bus service	Available Not Available Not Available
Size /compactness E.g.: population size, distance to walk within the city	Qnt – population data Qual – perceptions of compactness of the city	Available Not Available
Community E.g.: sense of community, cohesion and integration, older people/children	Qnt – no. of community groups registered with local authority Qual – sense of belonging in a neighbourhood	Available Not Available
Identity E.g.: character of the city, buildings, traditions associated with the city	Qnt – no. of traditionally based businesses in the city Qual – perceptions of the character of a city	Available Not Available
Facilities E.g.: availability and access of facilities, facilities for older people, for children	Qnt – no. of leisure and health centres in the city Qual – perceptions of accessibility and quality of facilities	Available Not Available
Planning and development E.g.: building development, neglected plots of land	Qnt – no. of recent completions Qual – perception of building development	Available Not Available
Environment E.g.: availability/accessibility of green areas, litter, recycling	Qnt – no. of parks Qual – usage of parks, quality of green areas	Available Not Available
Economy E.g.: cost of living, employment opportunities	Qnt – unemployment figures Qnt – national GDP Qual – perception of cost of living within the city	Available Available Not Available
Social considerations E.g.: homelessness, non-national integration	Qnt – figures for residents in homeless shelters Qual – perceptions of integration	Available Not Available

* Qnt = Quantitative ; Qual = Qualitative
** Available = pre existing data available from Municipal Authority/ Not Available = no data exists prior to questionnaire results

- Under the theme of 'Transport', participants spoke at length about a range of problematic issues, including traffic problems and inadequate cycling facilities in the city. These negative aspects contrast with positive expressions relating to satisfaction with the accessibility and availability of the bus services in various city neighbourhoods.
- A small number of factors were discussed under this theme of 'Size' or 'Compactness' of the city, including perceptions of distance in the city and the advantages and disadvantages of living in a city with a relatively small population.
- The theme 'Community' encompassed a range of factors, including a sense of belonging to one's neighbourhood, sense of community, trust in one's neighbours and involvement in local community groups.
- Under the theme 'Identity' respondents discussed the character of the city, the traditions associated with life in Galway and some respondents were very vocal about the closure of traditional family businesses and their replacement with trans-national high street stores.
- With regard to 'Facilities' participants discussed accessibility and availability of a range of services including parks, schools, facilities for the elderly, and facilities for people with special needs.
- The theme 'Planning and Development' mostly encompassed participants' perceptions (both positive and negative) of building development in the city and opinions on vacant plots of land and derelict sites.
- 'Environment' was another critical theme that participants identified as influencing quality of life in the city. Discussions relating to this theme encompassed

dissatisfaction with litter and the poor appearance of some city streetscapes. A satisfaction with recycling facilities operating within the city was expressed strongly. Availability and accessibility of public open spaces was a recurring issue which surfaced in the focus group discussions.

- Participants' perceptions of their ability to acquire housing at an affordable cost, perceptions of employment opportunities and perceptions of cost of living are classified under the theme 'Economy'.
- Finally, the theme 'Social Considerations' included participants' perceptions of social integration in their neighbourhood and throughout the city, as well as a range of other issues such as anti-social behaviour.

Step 5 of the operational framework involved the sourcing of relevant databases already in existence and the identification of data gaps. When the themes derived from the focus groups are considered in the light of existing data and indicators previously available from the municipal authority, it is interesting to note the discrepancy between what Moller (2001) terms as 'objective' and 'subjective' indicators (objective indicators are tangible facts that can be readily observed and subjective indicators are personal judgements of objective conditions) and in particular the dearth of data relating to subjective indicators in Galway. It is evident from the focus group results that additional indicators are required to represent a holistic view of quality of life in the city of Galway (Column 3, Table 2.2).

2.3.3 Phase 3 – Steps 6 and 7: Assessment

Phase 3 involves filling previously identified data gaps (Step 6), analysing all relevant data, establishing a baseline measurement of quality of life and assessing the extent to which the indicators as derived are consistent with fundamental principles of sustainable development (Step 7). Building on the information from the focus group research, a questionnaire survey was undertaken to obtain data not previously available. The survey established new baseline data regarding quality of life in Galway City. The topics examined in the questionnaire survey included issues identified through the focus groups and topics derived from other quality of life studies, such as Bristol City's Annual Quality of Life Reports (see Bristol City Council 2003).

Using the city's electoral register, a nested random sample of 200 domestic addresses was drawn from 5 of the 22 Electoral Districts (EDs) in Galway City. These divisions were pre-selected on the basis that they included the diverse range of socio-economic neighbourhoods found within the city. This sampling procedure was undertaken in recognition of the paramount importance of local context in the assessment of quality of life. Kemp et al. (2005:15) note that 'what is most needed, appropriate and workable always depends heavily on the context'. One of the key criticisms directed towards quality of life indicators is the notion of encapsulating essentially qualitative information in one measurable indicator. Indeed lack of attention to cultural variation is a major weakness with quality of life studies (Barth, 1999). Cultural differences do not allow for the universal application of indicators as the importance attached to them may vary significantly from one cultural group to another (Barth, 1999).

Prior to the questionnaire survey, advertisements were placed in the local press to highlight the research and inform the public about the process. Administering each questionnaire took approximately 10–20 minutes to complete. Fieldwork and data analysis were conducted between January and April 2006. The face-to-face administration of the questionnaire survey and use of visual aids meant that individuals traditionally marginalised from conventional written questionnaire surveys, such as persons who are functionally illiterate, were not excluded. In addition to questions relating to quality of life, the final section of the questionnaire survey covered demographic and household characteristics of the sample population.

Step 7 in the conceptual framework entails analysing the results and establishing a baseline measurement of quality of life for Galway City. Furthermore, the indicators that emerged from the study are evaluated from a sustainability perspective. These additional indicators were identified and tested through the use of the questionnaire survey. The results of the analysis reveal

that, by and large, high levels of satisfaction exist with regard to many parameters of quality of life in the city. However, the results also identified a number of areas of dissatisfaction and demonstrate how certain issues vary significantly from one electoral division to another and that some are confined to specific locations. Detailed results have been published in previous end of project reports (also see Fahy and Ó Cinnéide, 2006a; 2006b; 2007; 2008a; 2008b and forthcoming). A collection of 25 GIS maps have been produced highlighting the differences in perceptions of many aspects of quality of life across the city of Galway (Fahy and Ó Cinnéide, 2007).

The extent to which derived indicators point towards sustainability were assessed through the application of the following checklist (Hart 1996):

1 Do the indicators address the carrying capacity of the community's natural capital?

2 Do the indicators address the carrying capacity of the community's social capital?

3 Do the indicators address the carrying capacity of the community's built capital?

4 Are the indicators understandable?

5 Do the indicators provide a long term view of the community?

6 Do the indicators link the different areas of the community?

7 Do the indicators preserve global sustainability?

The indicators produced for the city of Galway compare favourably when evaluated against the checklist. Collectively, the indicators address all of the aforementioned questions. A community's 'natural capital' is captured in several indicators – for example, green space in the city and an unpolluted physical environment. A community's 'social capital' relates to people in a society and is often divided into a number of parts: health, education and the natural abilities of people and connections between people in a community (Hart, 1996). The indicators formulated and tested in Galway encompass a range of such issues, including satisfaction with health, education, family life, social life etc. in addition to involvement in local community groups, sense of belonging in one's neighbourhood and social integration. 'Built capital' refers to items created by humans including buildings, and economic resources of a community and associated indicators relating, for example, to standard of living, affordable housing and employment opportunities are included in the set developed for Galway City. All the indicators are clear and understandable and they can provide a long-term view of the community. Finally, the indicators developed for the city of Galway by and large, are not achieved at the expense of global sustainability.

2.3.4 Phase 4 – Step 8: Linking Results to Appropriate Policy Action

As noted earlier, indicators are not a substitute for action but they do create social knowledge and connections that are needed for meaningful action and it is crucial that they are linked with ongoing activity to bring about change (Gahin et al., 2003). It is clear from the literature that indicators, in many cases, do not reach a wide audience and this limits their impact. In order to disseminate the results to a wide audience, a number of public meetings were held and several articles were published in the local press. Technical reports were written for national and local policy-makers and an atlas of quality of life identifying significant variations by neighbourhood was produced (see, e.g. Fahy et al., 2007 and Figures 2.1 to 2.4 below). These measures also served to inform the modification of the development of policy instruments.

The research results of the study may be used by the municipal authority to establish a neighbourhood index of locational access to facilities, community services and amenities. Areas where facilities are inadequate as well as areas with negative environmental features are readily identifiable. These indicators capture grassroots perspectives of citizens' ratings of the liveability of Galway City and its neighbourhoods. In addition, the process of developing these indicators raises awareness about a wide range of quality of life issues. Indeed, central to this project is the engagement of the municipal authority in dialogue with citizens and communities, in order to gather relevant information and shape sustainable development practices.

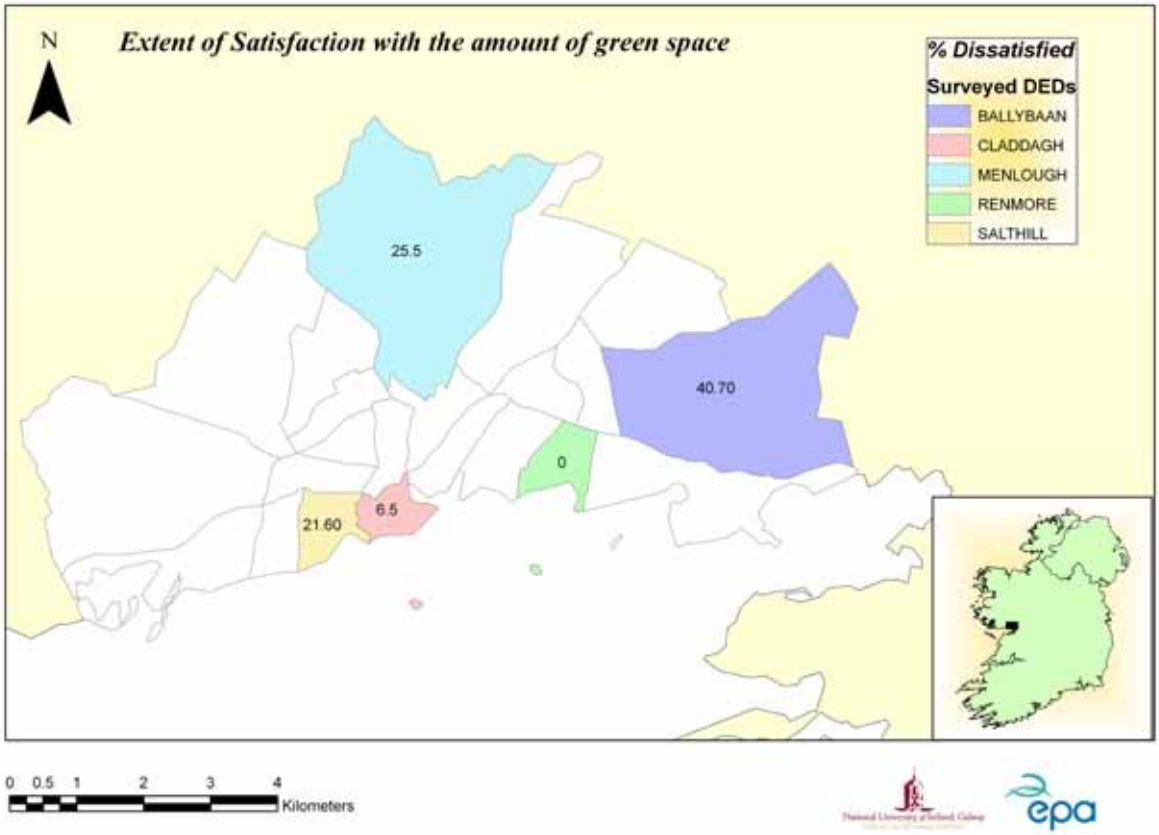


Figure 2.1 Satisfaction with green space (Fahy et al., 2007)

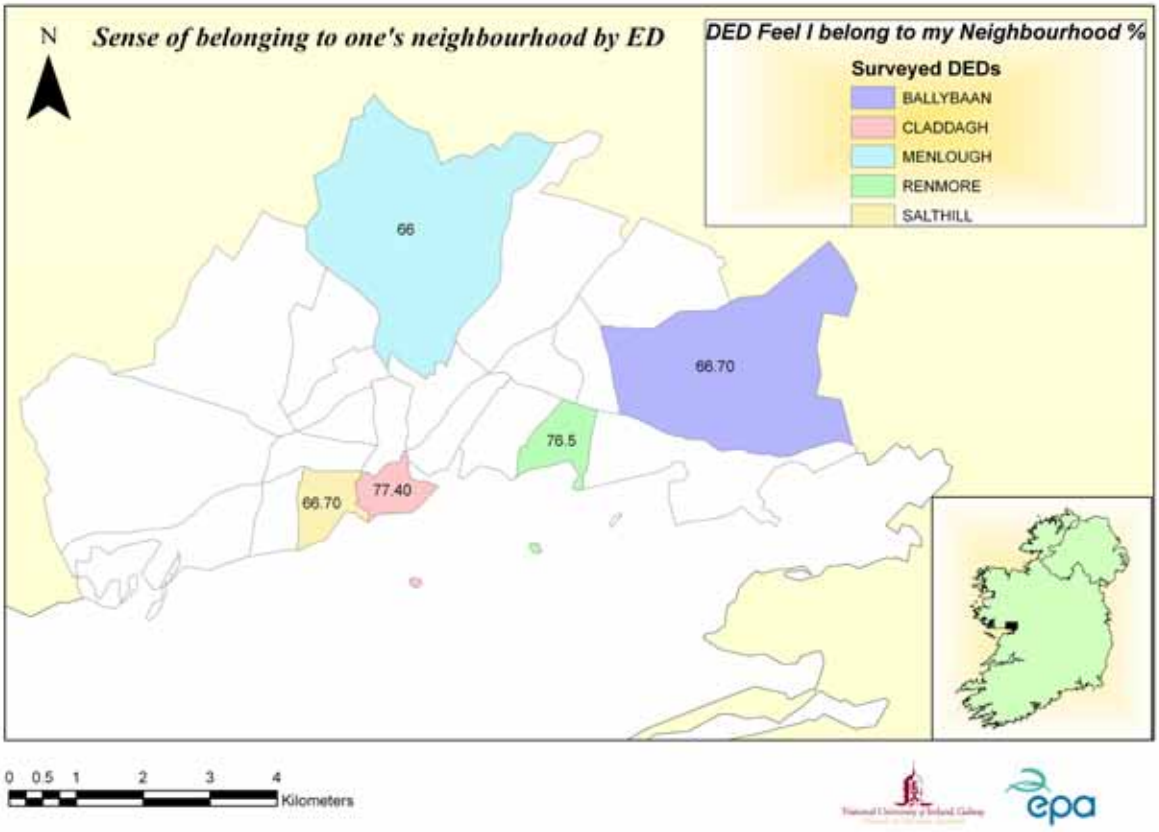


Figure 2.2 A sense of belonging to one's neighbourhood (Fahy et al., 2007)

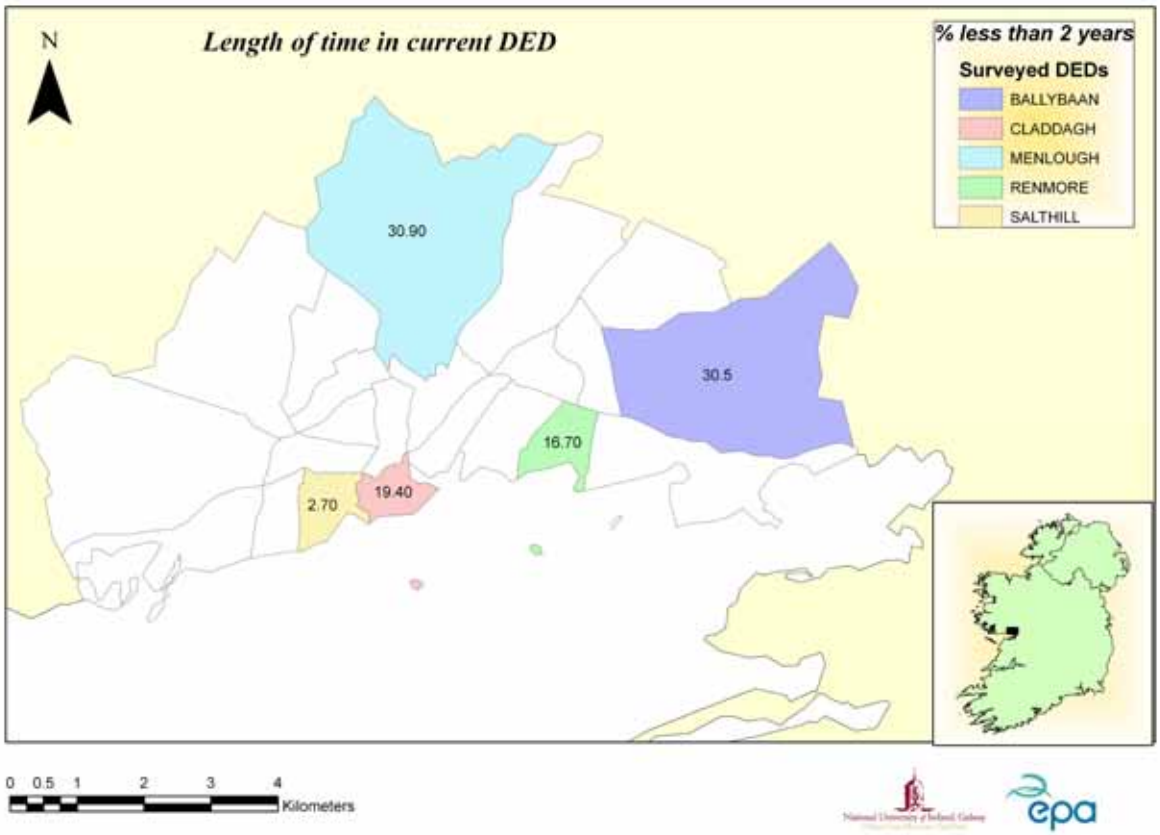


Figure 2.3 Length of time in DED (Fahy et al., 2007)

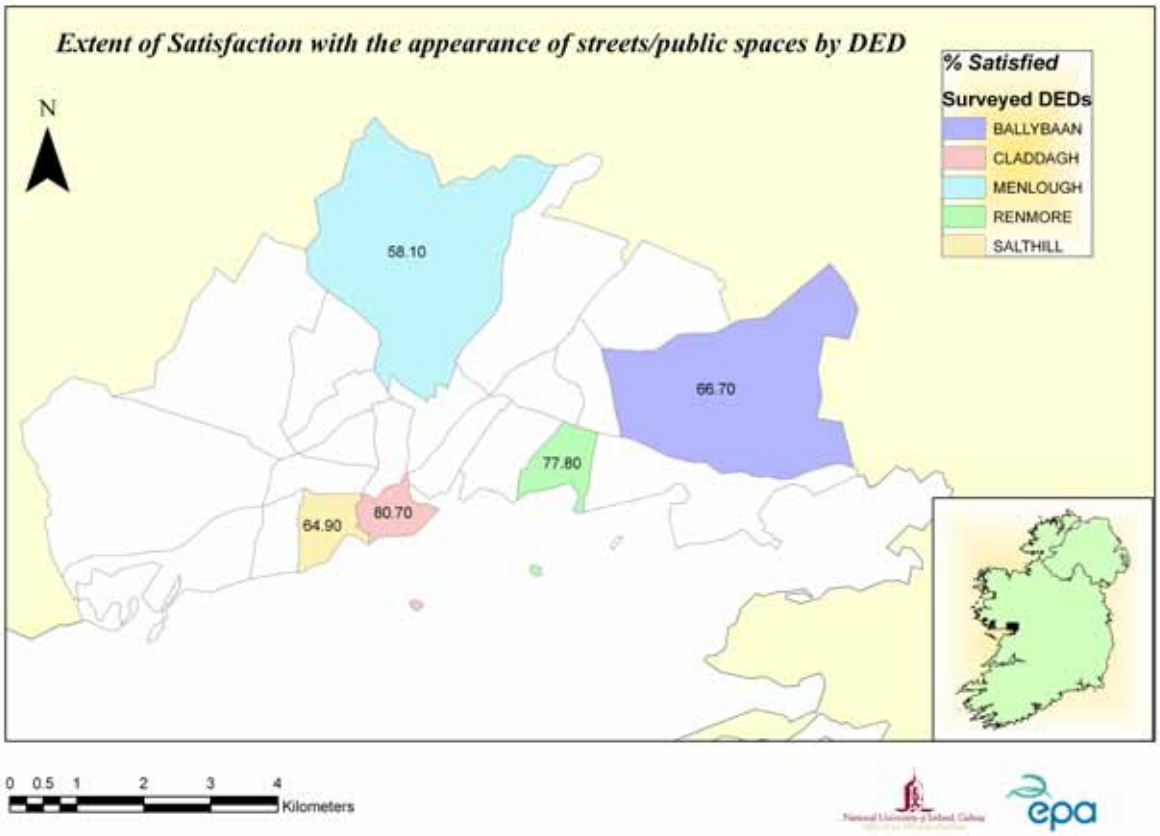


Figure 2.4 Satisfaction with appearance of streets (Fahy et al., 2007)

3 Community Mapping

This section explores the use of community mapping as a tool for community learning and planning, and discusses the development and the application of community mapping as a tool to progress sustainable development in Galway City Council.

3.1 The Power of Maps

Maps have always been central to geographical research. Traditionally, they have been regarded as abstractions of reality that display data about the world around us in an objective manner. More recently, they are increasingly being viewed as products of culture reflecting the worldviews of the map-makers (Soini, 2001). Map-making is regarded as a creative response to 'the environmental perception and the geographical imagination of humans' (Soini, 2001: 225). As a method of representation maps serve as texts that may be analysed in exploring human perceptions of the landscape. Mapping has the ability to reveal and link knowledge, learning and power (Lydon, 2003). Maps are no longer the preserve of an elite discourse – they have escaped from the grasp of cartographers. The advancement of technology and indeed the opening up of many new mapping spaces, for example GoogleEarth or WorldMapper, has brought maps to the masses. With the advent of GIS, mapping applications are now a base requirement when undertaking many environmental and indeed any land-use planning exercises.

3.2 The Essence of Community Mapping

Community maps are locally produced visual depictions of an area that record, promote and connect social, environmental and cultural resources. In addition to highlighting green areas, cycle paths, green businesses and organic markets etc., these maps may locate museums, art galleries, religious centres and other cultural sites that make an area unique. Community maps are the collective representations of geography and landscape and community mapping is the process to create such representations (Lydon, 2003). Community mapping enables a community to reflect on what they have in their communities. The maps place emphasis on what people value and on what they vision for the future. The mapping is not so much *of* the community, but *by* the community in a manner that reflects their assets, values and visions for the future (Lydon, 2003:136).

Community mapping is a growing area of academic research. To date, it has been utilised primarily to develop and expand GIS programmes in schools across North America (Knapp, 2003; Tate, 2005). Indeed, community mapping is becoming a majority contributor to the growing area of Public Participation Geographical Information Systems (Tulloch, 2004; Wood, 2005). Other mapping projects are initiated with the objective of attracting tourism (Grasseni, 2004). However, community mapping may also be developed as an engaging tool for community learning and planning. As such this tool has the potential to enable a community to identify and map what it values and allows citizens and communities to develop a sense of ownership of their localities. The majority of community mapping projects have been undertaken as voluntary activities by community/local groups throughout the world (Knapp, 2003). Schools and children's groups have been responsible for producing a large number of maps (Tulloch, 2004; Tate, 2005). To date, very few municipal authorities have initiated community mapping projects or embraced this technique as a practical tool to assist in formulating cultural policies in urban areas, despite its very real potential in this regard.

3.2.1 Bio Mapping

Bio Mapping is a recent example of a community-mapping project which began in 2004. Participants in this research are wired up with an innovative device which records the wearer's galvanic skin response (GSR), which is a

simple indicator of the emotional arousal in conjunction with their geographical location. Participants are asked to re-explore their local neighbourhoods by walking around the area with the device attached and when they return a map is created which visualises points of high and low arousal. By analysing these data, group emotion maps are constructed that comprised of personal observations and that highlight the areas that people feel strongly about (http://www.biomapping.net/).

3.2.2 Green Mapping

Green Mapping is a global example of community mapping. The Green Mapping movement is a fairly recent phenomenon in Europe. A 'Green Map' is a locally produced chart of an area, which identifies, promotes and links environmental, social, and cultural resources. The Green Map System is a not-for-profit organisation that provides a locally flexible, but globally shared, framework for environmental map-making (Green Map Organisation 2006). Developed in the United States of America, the first green map was produced for New York in 1992, Green Mapping has since spread to countries throughout the world. In the UK, for example, the Bridge House Trust funded-London 21 Sustainability Network promotes and supports community-based action towards LA21 in the Greater London region. The network offers training and consultancy to community and voluntary sectors and has initiated projects such as London Sustainability Weeks and the London Green Map. Green mapping initiatives have been undertaken in Ireland. One voluntary group in Cork city has recently signed up to the Green Map system and Sustainable Ireland (a group based in Dublin) has produced a map for the capital city. Members of the Green Map System have access to a collaboratively designed set of icons representing green sites or cultural areas. The icons have been developed by voluntary groups and members of the public throughout the world. However 'mapmakers' (the name given to the public involved in these projects), are producing and developing new icons all the time that are particularly relevant to their locality and these icons are continually updated (Green Map Organisation 2006).

Overall, although embryonic in use, community mapping in general has considerable latent potential to progress sustainable development considerations in municipal authorities. The final community map represents a holistic picture of a community and of the places and things that people value in the community. This map can be used by policy-makers interested in progressing sustainable development policies, as a reflection of communities' perceptions of existing environmental, economic, social and cultural assets in a city. It can be used to identify particular needs within both communities and the wider municipal authority jurisdiction. Furthermore, the community map can be used as a benchmark for both local communities and municipal authorities to identify sustainable development targets and progress towards those targets. In addition, the process of developing a community map offers opportunities for high levels of public participation. This highly visual tool can be used to engage a diverse range of people in discussions about culture in their areas. Hence, community mapping offers an inclusive and more engaging participatory tool when compared to other research tools such as scientific reports or questionnaires.

3.3 Creating a Community Map for Galway

Drawing on experiences of other European and US cities, a community map was developed for Galway City. Workshops were the principle methodologies used for gathering data; 12 workshops were conducted across the city from winter 2006 until summer 2007. (It should be noted that the research is ongoing and the map has outlived the research project and is constantly evolving.) In keeping with the goals of local sustainability and sustainable development principles, the project involves high levels of public participation at the local level including under-represented groups such as youth. Involving youth has been identified by community map-makers across the world as a critical factor in compiling these tools. The average attendance at each workshop was 10 people. These workshops were organised independently of one another in a broad range of socio-economic contexts, including school groups, retired people's groups,

mother and toddler groups, ladies' groups and groups of professional workers. This purposeful approach to sampling was designed to ensure that the voices of various disparate groups were heard. No effort at gender balance was made nor can the sample as chosen be regarded as statistically representative of the population as a whole. Initially Galway Community Forum identified potential groups who may be interested in participating – however, as word of the mapping spread, the number of groups who wanted to be involved increased.

The researchers provided physical resources for the workshops such as base maps, stickers, and flip charts. Throughout the workshops citizens gathered around a table and located the places they spoke about on a large A1 size map of the city. They marked these places with 'post-it' notes and stickers. The researcher attempted to ensure that the mapping sessions were conducted in a relaxed and comfortable, friendly, atmosphere, one which encouraged participants to express themselves in a natural way. The discussions during the workshops were tape-recorded and the transcripts were used as the basis for discourse analysis.

In keeping with a citizen-led approach, no attempt was made to confine neighbourhoods or the researched areas within the city only to those officially recognised by the local government. For example, citizens in their conversations paid no heed to the borders of the Electoral Division. In fact, the idea of Electoral Division appears to have little impact on participants' ideas of neighbourhood.

What is interesting to note was that during the course of the initial presentations to a number of small community groups across Galway City, news of the project grew, and the researchers encountered increasing volunteerism; local community groups attracted by the idea of enhancing a sense of ownerships over their localities approached the researchers looking for more information. Soon the process became increasingly adopted by the local groups themselves; as the map's potential became apparent, the development of a community map rose to the top of the agenda of a number of local groups meetings. The researchers' role became that of facilitators organising workshops in tandem with local community groups and standing by as they chose the themes they wished to explore on their map.

3.4 Findings from the Mapping Workshops

An extract of the community map of Galway City is depicted in Figure 3.1. The map has outlived the research project and is constantly evolving with new updates being added every two months. When people began to discuss what they would like to see on their map a number of themes emerged. These themes have been discussed in more detail elsewhere (see Fahy and Ó Cinnéide, 2008b). From the example depicted in Table 3.1, it is clear that participants mapped a wide range of themes from everyday walking and cycling routes, bottle banks for recycling, through to organic markets and sites of religious worship.

Table 3.1 Examples of the themes which emerged from Workshop 2

Themes	Examples
Religion	Location of the local mosque, Roman Catholic church, Indian prayer group and time when these congregations meet, location of old mass rock.
Literary references	Location of book clubs, poetry readings as well as references to their local area in well known texts (e.g. local cemetery is mentioned in James Joyce's short story 'The Dead').
Language	Areas where the Irish language is spoken in the locality.
Education	Location and opening hours of local library, multi-denominational schools in the area.
Environment	Location of parks, walking routes, dog friendly area, bottle banks for recycling.
Social facilities	Location of playgrounds, skate parks, tennis courts, location and time of bridge game in local community centre.
Visual landscape	Nice views of the city, good spots to watch the sunset, quiet places to sit.

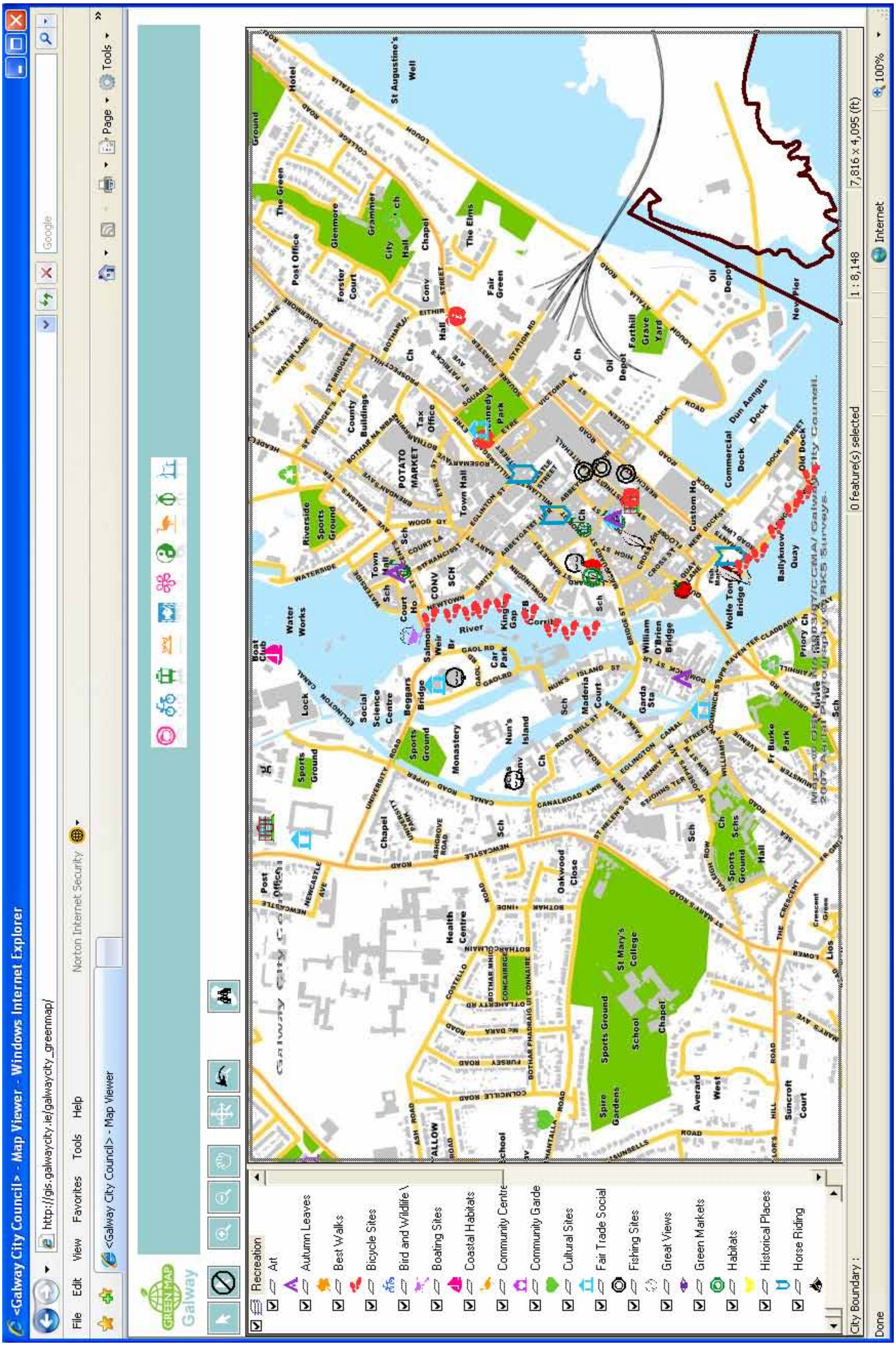
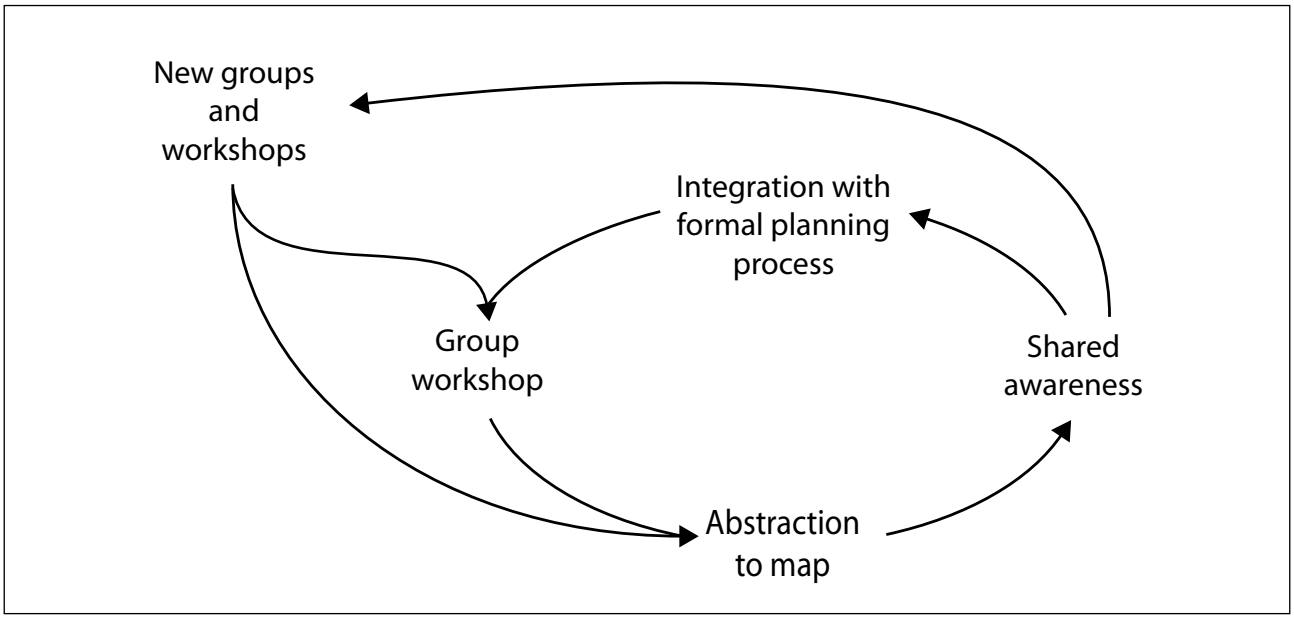


Figure 3.1 Extract from the community map of Galway (OSI Licence No. 2003/07/CCMA/Galway City Council - 2007 Aerial Photography, BKS Surveys)



Source: adapted from Fahy and Ó Cinnéide, 2009

Figure 3.2 Organic evolution of the community mapping project in Galway, Ireland

Some themes were also noticeable by their absence especially when comparing one community with another – for example, a lack of cycle lanes or cycle routes to work. It is also interesting to note a clear difference in themes identified by younger participants i.e. schoolchildren. Their view of their local areas incorporated a range of places including sports grounds, walking routes to school, good places to swim, and places to see wildlife in the city. However, some interesting social awareness themes also surfaced. For example, in an all-boys school in the west of the city, a number of students raised the issues of access for elderly people to pathways and services in the city and identified the location of areas that were more accessible than others.

On completion of the initial 12 group workshops, salient community features as identified by the groups were abstracted to a community base map. The map was digitised with the assistance of the local university and placed on public display by the municipal authority, developing a sense of shared awareness that facilitated integration of ideas with formal planning processes and that stimulated the participation of new groups and individuals in the entire process (Figure 3.2). This in turn generated new material for abstraction to the map as well as broadening the range of issues considered by the original groups. Over a relatively short space of time the community mapping project has become an ongoing and cascading process that is growing organically and that is envisaged as continuing indefinitely as heretofore. A digitised map represents the main tangible output of the process and this map is maintained and constantly updated by the municipal authority as new data emanates from community groups.

3.5 Communities Making their Own Geography

A key feature of the whole process is the idea of sharing lived experiences and raising awareness and increasing knowledge about local areas. Community maps can reflect our relationship to ourselves, to each other and to the environment and they reflect the geographies of our lives and our communities (Lydon, 2003). All maps represent and reflect how an individual or society names and projects themselves into nature, both literally and symbolically. This project revolves around the notion of making maps to express stories about participants' lives and their local places. Indeed, the mapping of a local

area facilitates citizens' participation in the creation of a new geography. The mapping process can assist with harmonising cultural needs with everyday practical life.

The process of collaborative mapping is intended to be a collaboration not simply between the researcher and the community, but primarily amongst the community members themselves. It aims to promote ownership of the community. The mapping workshops provided opportunities to retell local history and reflect on development in the area. Participants listened to each other discuss the areas they had lived in for years and a number of participants expressed amazement at their lack of awareness of some activities that were taking place right on their doorstep, for instance, as Martina from Workshop 2 noted: 'I've been living here for years and I didn't know that that house functioned as a drop in centre for women'. The idea of networking not only within local communities but the development of networks with other groups involved in the process of developing a map for their city groups is another key element of the project. Through existing community websites and on-line networks such as the Greenmap organisation (www.greenmap.org) communities can share their experiences with groups in other cities, and develop an international mapping network.

3.6 Critique of the Mapping Process

The Galway community map may be presented as a grassroots perspective of the city. Within the rhetoric of participation, however, it is important to note that this perspective is not necessarily representative of all members of the community. The purposeful and non-representative nature of the original sampling introduced certain biases to the process. Additionally, although the production of a digitised map and its online display has conferred many advantages on the community mapping process in Galway, the publication of information exclusively online limits access to certain sections of the population. High levels of exclusion are associated with a range of socio-economic factors, including education, age, employment, language and access to technology (OECD, 2004). This has implications for the participatory nature of the project as it has evolved locally. There is an inherent bias in favour of those on one side of the digital divide, despite the attempts that were made to overcome this through the additional use of more traditional local media. Furthermore, the community map can be perceived as a classic reductionist tool that displays the geographical distribution of selected elements but it excludes the wealth of knowledge shared and generated in the process of collating the data. On the positive side this information has been recorded, transcribed and submitted to the municipal authority as part of the wider project. There is also a risk of community maps being used as commercial advertising tools. To date, this problem has not arisen in Galway although no pro-active steps have been taken to avert this potential problem. These criticisms are not exclusive to the Galway project nor do they detract sufficiently from the process to undermine its value (for a more in-depth critique of the mapping process see Fahy and Ó Cinnéide, forthcoming).

4 Implementing Practical Tools for Sustainable Development in Galway City Council

4.1 Integration of Community Map

This final section considers the transferability of tools discussed so far (quality of life indicators and the community map) and explores how these tools are being mainstreamed into the activities of local authorities. Integration of community-based initiatives into local authority planning activities is fast becoming a 'holy grail' for those involved in planning for sustainable development. To date, Galway City Council has embraced both of these practical tools.

Despite the earlier criticisms of community mapping in Galway City, the ongoing mapping process is contributing significantly to the activities of Galway City Council on a daily basis. The community map provides the city council with a grassroots perception of the city; with details of the aspects of life that the public have identified as important to them in the city of Galway. The map is a practical tool, which is being used by Galway City Council to examine issues of sustainable development. The map can be used as a tool to investigate issues of sustainability and land use planning in the city. For example, it can be utilised to examine the perceived distribution of facilities across urban neighbourhoods and highlight areas within Galway City that may be perceived as being devoid of such facilities.

The map appears on the *Galway Priority Action Plan 2008–2013* (CDB, 2007) and individual sectors within the local authority have recognised the tool's potential. For example the map assists the Information Technology sector in achieving their ambition for an *E-Galway* by 2013. (The overall aim of the E-Galway Group is to make Galway a leading-edge and competitive 'knowledge region' through the adoption, use and best practices by the general public and business in using all facets of the Internet and broadband.) Discussions are under way regarding the adoption of the community map for use in a handheld GPS that can be used as part of a walking tour guide of the city. The potential for this map to feed into other areas is currently being discussed – for example the map is now a visual record of the public's identification of cultural resources and their locations in the city. This information could be used in developing the new cultural policy for the city of Galway.

The city council dedicated staff time to the update and addition of new material to the community map on an ongoing basis. This incremental community mapping process serves to sustain a form of two-way dialogue between local communities and the local authority. The hosting by the city council of the community map on its official website was interpreted by community participants as recognition of the value of their endeavours. A sense of shared awareness of these elements of the cityscape featured on the map represented another important outcome of the ongoing process. Heightened awareness by city planners of these elements of the cityscape is contributing to their enhanced consideration in the course of formal planning processes.

Over a relatively short space of time, short of three years in total, the community mapping project has grown organically and has assumed an internal dynamic (see Figure 3.2) that is sustaining it into the future.

4.2 Integration of Quality of Life Indicators

Regarding the development of a quality of life framework, the importance of linking indicators to policy action has been noted earlier (Section 2.3.4). To date, Galway City Council has incorporated some of the indicators into its strategic development plan and proposes to monitor and map these measures over time. For example, in June 2007 the CDB approved the findings of the End of Project Report on *Quality of Life indicators* (Fahy et al., 2007) and

results from the quality of life survey have been included in the future policy document Economic Profile of Galway City.

The data generated through this project may be used by the municipal authorities and other bodies to assess service provision, and other quality of life indicators and to plan interventions accordingly. In particular this study has highlighted that certain variables are clearly shown to negatively impact quality of life in particular neighbourhoods and this affords an opportunity for targeted interventions by relevant authorities. As a result the data collected during the course of this project can be used by the council to establish a neighbourhood index of locational access to facilities, community services and amenities. Areas where facilities are inadequate as well as areas with negative environmental features are readily identifiable. These indicators provide the local authority with a grassroots perspective of citizens' ratings of the liveability of Galway City and its neighbourhoods. In addition, the process of developing these indicators raised awareness about a wide range of quality of life issues. Indeed, central to the success of this project was the engagement of municipal authority in dialogue with citizens and communities, in order to gather relevant information and shape sustainable development practices. In this project the enthusiastic support of the city council and key city officials for the study and the interest they demonstrated in the results were highly significant in stimulating citizens' and other stakeholders' involvement with the project.

In September 2006 Galway City received World Health Organization (WHO) 'Healthy Cities' status. As part of the ongoing activities and requirements of this status, the Health Service Executive (HSE) and Healthy Cities Task Force for Galway City recognised the need for quality of life assessment. Subsequently, the Task Force adopted the framework developed as part of this project and is continuing the monitoring of quality of life in the city of Galway.

Overall, both of these tools have been adopted by a number of sections within the city council as well as public bodies such as the HSE. Within the city council the departments of GIS, Community and Enterprise, and Environment in particular have embraced these tools not only as a means to progress sustainable development and Local Agenda 21 in Galway City Council but they are continually employing these tools to assist in other areas of policy creation and development.

4.3 Transferability of the Tools

To date, the potential of community mapping as a tool to progress a local process of sustainable development has not been explored to any considerable extent. There is little evidence in the relevant literature of attempts to use community mapping to this end. In this respect the community mapping project in Galway in highly innovative in that the tool is being used explicitly to bolster the city's LA21 activities through a process of enhanced governance arising from an informal partnership arrangement that has stimulated public interest and participation in city affairs. The authors firmly believe that this mapping technique could be applied to a range of other sectors, such as examining in detail the cultural aspects of the city.

Results from the Galway community mapping process to date are strongly encouraging. A process that was instigated through an action-research project funded by a national-level agency and mediated by research staff of a local university has assumed a life of its own, with community groups throughout the city actively collaborating with the municipal authority in a community mapping project that is contributing significantly to the realisation of sustainable development objectives. Local community groups are reflecting on sundry aspects of their urban environment and identifying those elements of the cityscape that are of particular significance to them. The community groups are joined with their municipal authority in compiling a cartographic record of these elements. The publicly accessible map is promoting a new level of awareness amongst citizens and stimulating civic engagement. New knowledge is being generated through a process that is giving voice to communities and this knowledge is informing decision-making in the municipal authority. Shortcomings of the tool in furthering local

sustainability practices doubtlessly will emerge in time. However, the Galway experience of community mapping strongly indicates that it merits application and evaluation in other settings.

In light of the positive experiences of community mapping in its application in other fields and in other countries, decision-makers should consider adopting a similar method as a step towards moving towards a more civic model of participation. The adoption of this method in isolation will not provide a comprehensive assessment of sustainable development within an urban area. However, this method provides a critical insight into communities' conceptions of their cities and associated quality of life and liveability issues.

Regarding the development of quality of life indicators, clearly the development of a universal set of indicators for sustainability is ideal for national planning and international comparisons. However, as we have seen in the case of Galway City (as results from end of project reports indicate), huge differences in geographical, economic and socio-cultural contexts exists, which constrains the development of a universal set of sustainability indicators. Furthermore, as outlined at the start of this report there are a number of difficulties involved in developing quality of life indicators as they are generally qualitative in nature. This research has focused on developing a methodology for formulating and testing quality of life indicators which can be tailored to local contexts and can incorporate qualitative aspects of quality of life and hence is transferable to other municipal authorities, national and international.

Quality of Life in a Rural Setting

To test the transferability of the quality of life assessment a second quality of life survey was conducted incorporating a predominately rural local authority – Galway County Council. The environs of Galway City, situated on the west coast of Ireland, have been the focus of intensive residential development over the past decade or more. Field investigations were undertaken in four rapidly developing satellite villages on the fringes of Galway City. The four satellite villages in question are Barna, Oranmore, Moycullen and Craughwell, each of which has experienced continuous population increase throughout the past decade or more. In addition to 150 surveys which were re-run in Galway City, a nested random sample totalling 150 households was drawn from townlands in the immediate environs of the centre of each village location, and in rough proportion to their population. An international journal article outlining all rural perspective results has been prepared and submitted for publication in *Nature and Culture* (see Mahon et al., forthcoming). The re-running of this survey served to confirm that the methodology can be transferred successfully to other local authorities.

4.4 Future Research

This research project has led to the identification of some future avenues for potential research. For example, following on from the findings presented in previous end of project reports, from a sustainable development perspective, the relationship between quality of life, sustainable consumption and lifestyles appear to warrant detailed consideration. This research focused on quality of life from the local perspective and contained a geographical dimension. There is clearly a lot of merit in merging this research with studies conducted on quality of life from a variety of other perspectives – for example, health promotion, psychology and economics.

The mapping dimension of the project has opened up a number of interesting future research avenues along the lines of the development of further online collaborative tools for environmental protection. In addition, as highlighted above in Section 4.3., there is potential to apply this mapping technique to a range of other spheres, for example culture.

Finally, this report calls attention to the importance and successful outcomes of policy-related research. The author of this report would strongly encourage future research projects in the area of sustainable development to encompass critical collaboration between academics and policy-makers. Indeed, the unique set-up of this research project merits brief reflection. EPA/STRIVE funding enabled the city council to engage university expertise

Table 4.1 Summary of potential advantages and disadvantages associated with various combination of community mapping promoters

Promoter	Advantages	Disadvantages
Communities by themselves	• Community agenda and vision to the fore • Community engagement and empowerment	• May lack professional inputs and link to policy agenda • Volunteer fatigue adversely affecting completion and maintenance • Mainly context display maps produced
Communities with university involvement	• Access to professional expertise • Access to resources including GIS Facilities • Mapping task objective accomplished to a high standard	• Danger of becoming university-led and community involvement being marginalised, adversely impacting process objectives of local capacity building and community ownership
Communities with national and/or local level agency involvement	• Ready access to official data • Secure funding available • Access to professional expertise • Mapping task objective accomplished to a high standard • Project may readily be integrated with formal planning process • Community joined with government in spirit of co-operative endeavour	• Danger of government dominating agenda resulting in a less tangible and less meaningful process • Process objectives may be neglected with opportunities for enhanced governance through participatory processes not being realised

in designing and facilitating the project. By utilising deliberative tools for public participation, such as focus groups and mapping workshops, the research aimed to deploy new methods of public participation that contribute to local communities assuming the lead role in sustaining the project into the future. Many of the advantages associated with collaborative community planning (see Table 4.1) were enabled through the partnership between the national level EPA, local government, the university and the wider public.

4.5 Conclusion

This project addressed the difficulties highlighted by Local Evaluation 21 (Fahy and Ó Cinnéide, 2005) in the introductory sections of this report, by (a) seeking to integrate sustainable development into all sectors of the city council 's remit, (b) promoting public participation and feedback including the involvement of underrepresented groups, (c) developing practical tools for use by local authorities, specifically the development of sustainability indicators and a community map for Galway. The project worked with existing structures, e.g. Community Forum, City Development Board, to integrate sustainability into all aspects of the local authority's existing and future plans.

Regarding the specific improvements to the LA21 process recommended in the *Local Evaluation* of Galway City Council, the combined implementation of these tools provides a detailed assessment of local priority concerns, an assessment which is currently lacking. As they are being maintained by the Healthy Cities Group, the indicators will serve as a monitoring and assessment tool to evaluate progress in areas of sustainable development with Galway City over time. An analysis of the data generated through these tools identified targets and measures for future work on the LA21 process. Finally, the project involves high levels of participation though relatively new and innovative methods and throughout the duration of the project there were a number of mechanisms in place to feed back results of the research to stakeholder groups and to the general public.

Central to this project was the engagement of the city council in dialogue with its citizens and communities in order to gather relevant information and shape sustainable development practices. In accordance with sustainable development goals, the project assisted the city council in bolstering public participation in policy-making and attempt to improve the levels of trust between local communities and the city council. The sustainable development

discourse places heavy emphasis on the need to develop more democratic mechanisms for decision-making. In this sense, regardless of the final tangible outputs – the development of practical tools in the form of the final set of quality of life indicators and the community map – the actual process of collating the data for these outputs was an end in itself. In conjunction with the development of community-derived quality of life indicators, the community map represents a holistic and integrated environmental assessment of social, economic, and cultural aspects of community life in Galway.

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Acronyms

CBD	county development board
ED	electoral division
GSR	galvanic skin response
HSE	Health Service Executive
LA21	Local Agenda 21
SI	sustainability indicator
WHO	World Health Organization

Appendix: Practitioner’s Guide

Science, Technology, Research & Innovation for the Environment
STRIVE

Deriving Quality of Life Indicators in Urban Areas
A Practitioner's Guide

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In order to promote *practical* applications of the concept of sustainability by Galway City Council, the study developed indicators to capture quality of life considerations as perceived by the citizens of Galway. The study, which forms part of a larger project funded by the EPA (http://erc.epa.ie/safer/reports), focused on integrating sustainability practices into all aspects of the local authority's activities and plans. The development of transferable models of good practice in this domain and their dissemination throughout the local government system in Ireland represent some of the primary goals of the project.

Background

Quality of life considerations have recently emerged in the international literature relating to sustainability indicators. It is argued that sustainability initiatives that detract from the quality of life of citizens lack credibility. Consequently, quality of life is increasingly regarded as an integral part of sustainability programmes. There is little consensus, however, in relation to what exactly 'quality of life' means and how it is most appropriately measured. Much of the literature on the broader subject of sustainability indicators is of relevance to the formulation and practical application of quality of life indicators. This literature stresses the merits of sustainability indicators as informational tools that can be used to engage citizens in working toward shared sustainability goals.

The derivation of quality of life indicators that give expression to the voice of the community at large is central to this project. Focus groups were used extensively to obtain the opinions of various strands of the community in Galway, regarding the issues they considered to be germane to quality of life in the city.

Key Points

Nine major themes emerged as particularly significant: (i) transport; (ii) size of the city; (iii) community; (iv) identity; (v) facilities; (vi) planning and development; (vii) environment; (viii) economic and (ix) social considerations.

The focus group discussions together with relevant international literature informed the design of a questionnaire survey through which new baseline information regarding quality of life in Galway City was assembled. The questionnaire survey was conducted with 200 participants from five electoral divisions (EDs) across Galway: (i) Salthill; (ii) Renmore; (iii) Claddagh; (iv) Menlough and (v) Ballybaan. These areas were selected on the basis that they spanned a diverse range of socio-economic classes. Salient results from the questionnaire survey are summarised below (full report detailing results and related maps are available at: http://erc.epa.ie/safer/reports).

Transport

- Across the city 62.6% agreed with the statement 'I'm satisfied with the public transport'. However, some 25.5% of respondents felt that traffic was a major problem while a further 33% regarded it as a problem, though not a serious one.

Community and Identity

- 92% of respondents were 'fairly satisfied' or 'very satisfied' with their neighbourhood as a place to live and 67% of respondents had a sense of belonging to their neighbourhoods; 83% of respondents trust their neighbours.

- The vast majority of respondents felt that their neighbourhoods were 'very' safe or 'fairly' safe (69.5%) with only 12% of respondents feeling that their neighbourhoods were 'fairly' or 'very' unsafe. Overall, 79.3% 'strongly agree' or 'somewhat agree' with the statement 'I feel safe in the city'.

Facilities

- With regard to facilities in the city of Galway, 42.6% of respondents were satisfied with the active leisure facilities (e.g. swimming pool, gym etc.) in their area, while 39.8% were satisfied with the passive leisure facilities (areas for walking, jogging etc.) in their area. However, only 25.8% of respondents were satisfied with access to facilities in their local area.

- Overall, 52.3% of respondents agreed with the statement 'I am satisfied with the health services in Galway'.

Planning and Development

- Overall, the majority of respondents felt that insensitive building developments and derelict sites were not a problem in their areas. In Salthill insensitive building development represents a considerable problem for almost one-quarter of respondents in this ED. Approximately one-half of respondents from the Claddagh ED considered insensitive building development as a problem in the area.

Environment

- 59.6% of respondents agreed with the statement that 'The city was a clean city'. Air pollution in the city was not perceived as a problem by 81.9% of respondents. In contrast, litter was viewed as a problem by 42% of respondents.

- There was widespread satisfaction with the recycling services provided (85% of respondents were 'fairly' satisfied or 'very' satisfied).

Economic Considerations

- Regarding economic indicators, most respondents to whom the question were applicable reported that employment was easy to find in Galway City.

- Purchasing good housing in Galway City regarded as problematic by 66% of respondents. Many found it particularly challenging to acquire suitable housing at an affordable price.

Social Considerations

- 28% of respondents felt that there was a good deal of tension between different ethnic groups in the city, although 57% of respondents felt that 'non-nationals who live in Galway are well integrated'.

Personal Quality of Life Factors

- Levels of job satisfaction and satisfaction with educational attainment were generally high, except in Ballybaan and Menlough where many people are not particularly satisfied on this count.

- Except for Ballybaan, there was a high degree of satisfaction with standards of current accommodation across the city. This is regarded as particularly interesting in the light of the frequently expressed view that satisfactory accommodation is increasingly inaccessible to many in the city.

- Levels of satisfaction with social life were very high – especially in Salthill and Renmore where many people were actively engaged in social and recreational pursuits.

- People in Galway were generally very satisfied with their state of health with the notable exception of Renmore where only one-half of respondents were 'highly satisfied' with their health, compared to 75% across the city as a whole. This anomalous situation probably relates to the relatively older age profile of Renmore residents.

- 74% expressed themselves as 'highly' satisfied with their standard of living with, however, some striking spatial contrasts – for instance, 97% of Salthill residents were 'highly' satisfied with their living standards but only 53% of Ballybaan residents placed themselves in this category.

In addition to establishing new baseline data, the survey examined perceptions of personal quality of life. The results suggest that, by and large, high levels of satisfaction existed with regard to many elements of quality of life in Galway City. Nonetheless, the results also identified a number of areas of dissatisfaction and indeed they highlighted that certain issues varied in significance from one ED to another and some were specific to certain locations only.

Policy Implications

This report has identified a set of quality of life indicators for the city of Galway, which is being monitored at the city level and for each of the EDs.

The development of a universal set of indicators for sustainability is ideal for national planning and international comparisons. However, as we have seen in the case of Galway City, huge differences in geographical, economic and socio-cultural contexts exists that constrain the development of a universal set of sustainability indicators. Furthermore, there are a number of difficulties involved in developing quality of life indicators as they are generally qualitative in nature. This research has focused on developing a methodology for formulating and testing quality of life indicators which can be tailored to local contexts and can incorporate qualitative aspects of quality of life and hence is transferable to other municipal authorities, national and international. (Further details about the policy implications of this work are available on: http://erc.epa.ie/safer/reports).

Concluding Remarks

Central to this project is the engagement of Galway City Council in dialogue with citizens and communities in order to gather relevant information and shape sustainable development practices. The sustainable development discourse places heavy emphasis on the need to develop more democratic mechanisms for decision making. In this sense, regardless of the final tangible outputs – the final set of quality of life indicators – the actual process of collating the data is an end in itself. Community-derived indicators allow individual citizens and communities to express and measure the most important determinants of quality of life for them. These indicators may be monitored in Galway City on an ongoing basis into the future. The development and deployment of community-derived quality of life indicators represent a significant step towards the goal of sustainability in the city.

For Further Information

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The report, **Galway 21: Implementing the Principles and Practices of Sustainable Development in Galway City Council**, by Frances Fahy is published by the Environmental Protection Agency.
(STRIVE Report 17, also available on http://www.epa.ie/downloads/pubs/research/econ/)

An Ghníomhaireacht um Chaomhnú Comhshaoil

Is í an Gníomhaireacht um Chaomhnú Comhshaoil (EPA) comhlachta reachtúil a chosnaíonn an comhshaol do mhuintir na tíre go léir. Rialaímid agus déanaimid maoirsiú ar ghníomhaíochtaí a d'fhéadfadh truailliú a chruthú murach sin. Cinntímid go bhfuil eolas cruinn ann ar threochtaí comhshaoil ionas go nglactar aon chéim is gá. Is iad na príomh-nithe a bhfuilimid gníomhach leo ná comhshaol na hÉireann a chosaint agus cinntiú go bhfuil forbairt inbhuanaithe.

Is comhlacht poiblí neamhspleách í an Ghníomhaireacht um Chaomhnú Comhshaoil (EPA) a bunaíodh i mí Iúil 1993 faoin Acht fán nGníomhaireacht um Chaomhnú Comhshaoil 1992. Ó thaobh an Rialtais, is í an Roinn Comhshaoil agus Rialtais Áitiúil a dhéanann urraíocht uirthi.

ÁR bhFREAGRACHTAÍ

CEADÚNÚ

Bíonn ceadúnais á n-eisiúint againn i gcomhair na nithe seo a leanas chun a chinntiú nach mbíonn astuithe uathu ag cur sláinte an phobail ná an comhshaol i mbaol:

- áiseanna dramhaíola (m.sh., líonadh talún, loisceoirí, stáisiúin aistrithe dramhaíola);
- gníomhaíochtaí tionsclaíocha ar scála mór (m.sh., déantúsaíocht cógaisíochta, déantúsaíocht stroighne, stáisiúin chumhachta);
- diantalmhaíocht;
- úsáid faoi shrian agus scaoileadh smachtaithe Orgánach Géinathraithe (GMO);
- mór-áiseanna stórais peitreail.

FEIDHMIÚ COMHSHAOIL NÁISIÚNTA

- Stiúradh os cionn 2,000 iniúchadh agus cigireacht de áiseanna a fuair ceadúnas ón nGníomhaireacht gach bliain.
- Maoirsiú freagrachtaí cosanta comhshaoil údarás áitiúla thar sé earnáil - aer, fuaim, dramhaíl, dramhuisce agus caighdeán uisce.
- Obair le húdaráis áitiúla agus leis na Gardaí chun stop a chur le gníomhaíocht mhídhleathach dramhaíola trí comhordú a dhéanamh ar líonra forfheidhmithe náisiúnta, díriú isteach ar chiontóirí, stiúradh fiosrúcháin agus maoirsiú leigheas na bhfadhbanna.
- An dlí a chur orthu siúd a bhriseann dlí comhshaoil agus a dhéanann dochar don chomhshaol mar thoradh ar a ngníomhaíochtaí.

MONATÓIREACHT, ANAILÍS AGUS TUAIRISCIÚ AR AN GCOMHSHAOL

- Monatóireacht ar chaighdeán aeir agus caighdeáin aibhneacha, locha, uiscí taoide agus uiscí talaimh; leibhéil agus sruth aibhneacha a thomhas.
- Tuairisciú neamhspleách chun cabhrú le rialtais náisiúnta agus áitiúla cinntí a dhéanamh.

RIALÚ ASTUITHE GÁIS CEAPTHA TEASA NA HÉIREANN

- Cainníochtú astuithe gáis ceaptha teasa na hÉireann i gcomhthéacs ár dtiomantas Kyoto.
- Cur i bhfeidhm na Treorach um Thrádáil Astuithe, a bhfuil baint aige le hos cionn 100 cuideachta atá ina mór-ghineadóirí dé-ocsaíd charbóin in Éirinn.

TAIGHDE AGUS FORBAIRT COMHSHAOIL

- Taighde ar shaincheisteanna comhshaoil a chomhordú (cosúil le caighdéan aeir agus uisce, athrú aeráide, bithéagsúlacht, teicneolaíochtaí comhshaoil).

MEASÚNÚ STRAITÉISEACH COMHSHAOIL

- Ag déanamh measúnú ar thionchar phleananna agus chláracha ar chomhshaol na hÉireann (cosúil le pleananna bainistíochta dramhaíola agus forbartha).

PLEANÁIL, OIDEACHAS AGUS TREOIR CHOMHSHAOIL

- Treoir a thabhairt don phobal agus do thionscal ar cheisteanna comhshaoil éagsúla (m.sh., iarratais ar cheadúnais, seachaint dramhaíola agus rialacháin chomhshaoil).
- Eolas níos fearr ar an gcomhshaol a scaipeadh (trí cláracha teilifíse comhshaoil agus pacáistí acmhainne do bhunscoileanna agus do mheánscoileanna).

BAINISTÍOCHT DRAMHAÍOLA FHORGHNÍOMHACH

- Cur chun cinn seachaint agus laghdú dramhaíola trí chomhordú An Chláir Náisiúnta um Chosc Dramhaíola, lena n-áirítear cur i bhfeidhm na dTionscnamh Freagrachta Táirgeoirí.
- Cur i bhfeidhm Rialachán ar nós na treoracha maidir le Trealamh Leictreach agus Leictreonach Caite agus le Srianadh Substaintí Guaiseacha agus substaintí a dhéanann ídiú ar an gcrios ózóin.
- Plean Náisiúnta Bainistíochta um Dramhaíl Ghuaiseach a fhorbairt chun dramhaíl ghuaiseach a sheachaint agus a bhainistiú.

STRUCHTÚR NA GNÍOMHAIREACHTA

Bunaíodh an Ghníomhaireacht i 1993 chun comhshaol na hÉireann a chosaint. Tá an eagraíocht á bhainistiú ag Bord lánaimseartha, ar a bhfuil Príomhstiúrthóir agus ceithre Stiúrthóir.

Tá obair na Gníomhaireachta ar siúl trí ceithre Oifig:

- An Oifig Aeráide, Ceadúnaithe agus Úsáide Acmhainní
- An Oifig um Fhorfheidhmiúchán Comhshaoil
- An Oifig um Measúnacht Comhshaoil
- An Oifig Cumarsáide agus Seirbhísí Corparáide

Tá Coiste Comhairleach ag an nGníomhaireacht le cabhrú léi. Tá dáréag ball air agus tagann siad le chéile cúpla uair in aghaidh na bliana le plé a dhéanamh ar cheisteanna ar ábhar imní iad agus le comhairle a thabhairt don Bhord.

NDP
National Development Plan 2007 - 2013

Science, Technology, Research and Innovation for the Environment (STRIVE) 2007-2013

The Science, Technology, Research and Innovation for the Environment (STRIVE) programme covers the period 2007 to 2013.

The programme comprises three key measures: Sustainable Development, Cleaner Production and Environmental Technologies, and A Healthy Environment; together with two supporting measures: EPA Environmental Research Centre (ERC) and Capacity & Capability Building. The seven principal thematic areas for the programme are Climate Change; Waste, Resource Management and Chemicals; Water Quality and the Aquatic Environment; Air Quality, Atmospheric Deposition and Noise; Impacts on Biodiversity; Soils and Land-use; and Socio-economic Considerations. In addition, other emerging issues will be addressed as the need arises.

The funding for the programme (approximately €100 million) comes from the Environmental Research Sub-Programme of the National Development Plan (NDP), the Inter-Departmental Committee for the Strategy for Science, Technology and Innovation (IDC-SSTI); and EPA core funding and co-funding by economic sectors.

The EPA has a statutory role to co-ordinate environmental research in Ireland and is organising and administering the STRIVE programme on behalf of the Department of the Environment, Heritage and Local Government.

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