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An Ghníomhaireacht um Chaomhnú Comhshaoil

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Public Participation in the Selection of Sustainable Development Indicators in Limerick and Freshford, Ireland: Implications for Policy on Advancing Sustainability

STRIVE

Environmental Protection Agency Programme

2007-2013

SSTI
Strategy for Science, Technology and Innovation

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

Environmental Protection Agency

The Environmental Protection Agency (EPA) is a statutory body responsible for protecting the environment in Ireland. We regulate and police activities that might otherwise cause pollution. We ensure there is solid information on environmental trends so that necessary actions are taken. Our priorities are protecting the Irish environment and ensuring that development is sustainable.

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EPA STRIVE Programme 2007–2013

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STRIVE Report

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Prepared for the Environmental Protection Agency

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DISCLAIMER

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Executive Summary

Context and Aims

Within EU and national policy, there is a recognised need for stakeholders (including business, industry, agriculture, communities and NGOs) to play a more active role in the selection of sustainability indicators as a basis for social, economic and environmental decision making, in the belief that this will lead to more effective policy development and implementation. However, a review of the literature indicated clearly that to date it has proven difficult to develop a method which (i) satisfies decision makers that they have received from stakeholders valid and reliable information on which to base policy initiatives, and (ii) satisfies the public that their views have been actively included in the decision-making process. This project aimed to develop and evaluate the effectiveness of a method for effective stakeholder participation in sustainability indicator selection, and to idinterentify those indicators considered most important by community-based stakeholders. The research reported here was conducted within a city and a village, so that the adaptations necessary to the method, to improve its effectiveness in local circumstances, could be identified. It was found that the participants' level of understanding of sustainable development issues initially was rather low, to the extent that awareness raising was a vital initiate step. This focused on the inter-relatedness among sustainable development, quality of life and industrial/business competitiveness. The participation process successfully increased stakeholder (and hence community) awareness and understanding of issues central to sustainable development. On this basis, stakeholders were able to articulate clearly their own understanding of sustainable development issues, and to select indicators which best represented concerns which they regarded as most important. This project also compared indicators selected by community-based stakeholders with those selected by a group of technical/professional people: while the issues raised in both to some extent overlapped, important differences were evident. Going forward, this method provides a means of integrating stakeholder concerns into both policy making and presentation, so as to enhance wider community understanding of the need for policy development, and encourage greater 'buy-in' to the national sustainable development strategy. This will enhance opportunities for successful implementation of existing policy and the introduction of fresh policy initiatives towards sustainability goals.

Methods

The methodology adopted here was designed to incorporate as many as possible of the strategies reported as being successful in previous similar studies, while avoiding problems identified by previous authors. It comprised seven key components, for each of which a separate method was selected or devised: public information and participant selection, identification of participants' views on sustainable development, application of the Q-method of discourse analysis, expert opinion input, indicator selection, feedback to the public and an evaluation of the effectiveness of public participation. The methodology was implemented in two settings, Limerick City and Freshford, Co. Kilkenny, in order to evaluate its applicability in different settings.

Prior to the selection of the participants, a public information programme was undertaken to provide potential participants with information on sustainable development and relevant policies, so as to inform their decision as to whether or not to participate, and to increase the public's awareness of the complex issues surrounding sustainable development. Eleven participant groups were identified, and a special effort was made to include stakeholder groups generally not well represented in such participation processes. An attempt was made to encourage participants (and hence their communities) to take part in similar future participation processes.

The Q-method was used here to provide a statistical basis for the analysis of participants' opinions. The participants indicated aspects of sustainable development which they considered most relevant, by selecting appropriate statements from a set of candidate statements provided. These formed the basis for a questionnaire in which the participants were asked to rank the statements selected in this way. This ranking allowed for the statistical analysis of the participants' opinions, to identify discourses, which are viewpoints shared by a number of participants. Through input from expert opinion, these were then used to develop sustainable development indicators. The inclusion of expert opinion was considered necessary, so as to ensure that the indicators selected were scientifically robust, and relevant to the needs of decision makers. To test whether this set of indicators also reflected the views of participants and members of the wider public, interviews were undertaken in which interviewees were asked to comment on both the extent to which (i) the indicators reflected their views on sustainable development issues, and (ii) their wording was clear and understandable. Full feedback was provided to participants, so as to further increase the participants' awareness of sustainable development and also to encourage future involvement in such processes. Finally, those indicators selected through the participative process were compared with those generated by expert stakeholders represented on Limerick City Development Board.

Results

This project created and evaluated a method that enables a wide range of stakeholders to participate in policy making for sustainable development. It was clear from the outcomes that participants' views and attitudes in relation to sustainable development did not easily articulate with technical and expert conceptualisations of sustainable development. Further, it was clear that participants did not share a single set of views, and that while it was possible to identify groups of participants with broadly similar views, differences between groups were often marked. These were of significance in the next stage of the project, which was to identify indicators which were seen to be relevant, technically meaningful and capable of being developed. Differences between the indicators selected by the policy makers (top-down) and the stakeholders/ participants (bottom-up) were evident. Indicators selected by policy makers were more technical in language, and were concerned with strategic issues, reflecting a technical understanding of available data. Indicators derived through public participation were very different, and reflected much more local-scale concerns, and more frequently concerned issues that affected participants' daily lives. However, to a considerable degree, the two sets of indicators were in agreement in relation to the important themes within sustainable development: both were concerned with health, road safety, crime, employment availability, educational attainment, water quality and waste management. However, the differences identified are of great importance and may explain in large measure why 'official' sets of indicators often fail to resonate with the wider public. Results suggest that society in general may be in broad agreement in relation to the importance of sustainable development, but this importance is perceived in very different ways, and communication opportunities are lost when this is not recognised. The project delivered a final set of 36 indicators identified by participating stakeholders: these may form the basis of similar future participation processes at similar or wider scales. Replication of the process may clarify means of identifying and removing roadblocks to the public's buy-in to policies designed to strengthen sustainable development.

Policy Implications and Recommendations

1 That government at national, regional and local levels must more fully recognise the importance of dialogue with the general public in developing and implementing successful policies for sustainable development.

2 That the knowledge gap in relation to sustainable development issues is recognised as a major barrier to the successful implementation of sustainable development policies, and that policy initiatives should be implemented to narrow this gap.

3 That future dialogue between government and the general public in relation to sustainable development should be couched in terms that are both accessible and relevant to all members of local communities.

4 That policy makers use the discourses identified in this report to enhance the accessibility of public explanations of the justification for policy initiatives to enhance sustainability.

5 That policy makers adopt the method explained in this report to evaluate the extent to which publicity campaigns such as 'Race Against Waste' are successful in raising public awareness and understanding, and to select candidate topics for future campaigns.

6 While it was found that discourses supported by Freshford and Limerick participants differed very little, it cannot be assumed that these discourses and attendant indicators would be acceptable to all communities. It is therefore recommended that the process described in this report be replicated in other Irish settlements, to determine the extent to which different communities will support differing discourses and select differing indicators, as a guide to policy formulation at regional and national levels.

7 That Local Authorities be encouraged to adopt the process as described in this report, and to commit to longer-term support so as to allow more time for awareness raising and information dissemination, and to provide financial support for this process, and to fix quantified targets with timeframes based on indicators selected, and to report to the public on progress in meeting targets.

8 That Local Authority Environmental Awareness Officers be encouraged to adopt the method described in this report to create opportunities for public awareness raising. This should be undertaken in a manner similar to the Sustainable Seattle Project, in which participant awareness raising was seen as more important than indicator selection.

9 Pressing contemporary issues identified through the discourses should be addressed through policy initiatives, as a precursor to fuller community engagement with longer-term sustainability issues.

10 Indicators identified in this project should be used as metrics for the evaluation of future policy initiatives designed to advance Ireland towards a more sustainable future.

Further Research Needs

1 The extent of possible inter-regional and urban–rural differences in discourses on sustainable development should be investigated through follow-on projects adopting the method as described in this report.

2 The indicators selected in this project should be developed; that is, scored, and past performance and progress in achieving published targets measured, and this information reported to participants.

3 A next step might be to study linkages in more depth. Two types of linkages are of interest. The first type of linkage is between top-down and bottom-up indicators, and the attendant possibilities of merging these into a single set of indicators which aims to satisfy a majority of stakeholders and create an agreed, accessible, unified agenda for community sustainable development. Sufficient overlap between top-down and bottom-up indicators was found to make this a practicable exercise. The second type of linkage is that existing between indicators in the various categories, such as linkages between social and environmental indicators. It has been argued that the essence of planning for sustainability is the identification of such linkages and their integration into policy formulation. Understanding of such linkages is considered by some authors to be the acid test for a full appreciation of the concept of sustainability. Participants in this project displayed some understanding of these linkages, so that developing this understanding is seen as a practicable undertaking.

4 Future research should explore the value of adopting the method described in this report in evaluating the impact of sustainability awareness-raising campaigns.

5 Future research should explore other methods for enhancing the effectiveness of participatory processes in providing information valuable to decision makers, so as to enhance the successful implementation of sustainable development policy.

6 This research topic might be recognised by funding bodies as of importance to both Northern Ireland and the Republic of Ireland, and that future North–-South collaboration is encouraged in follow-on projects.

1 Project Context and Aims

Ireland, amongst other EU States, has declared its intention to move towards a 'knowledge society' as a means of maintaining economic competitiveness and to enhance citizens' quality of life. Such an evolution will require Ireland to embrace novel science and technology: convincing Irish citizens of the importance and relevance to them of science and technology is a challenge to be faced. This project represents a case study in developing effective means of communicating with the general public and other stakeholders on technical matters. It has been generally accepted by both scientists and policy makers that our current rates of energy use and resource exploitation place constraints on future economic development. Sustainable development is the process by which society alters its economic base and organisation in such a way as to enhance quality of life but reduce environmental impact. However, it has been found to be difficult to both evaluate the success of steps towards enhanced sustainability and to effectively communicate the need for sustainable development to the public and stakeholder groups. The use of indicators has been found to be at least partially successful under certain circumstances in achieving both these objectives. It has been recognised for some time that sustainability will be achieved only when individuals live in societies which do not exploit resources beyond sustainable limits. In a democracy, a government may expect to have difficulty in introducing sustainable development measures if the electorate do not appreciate the importance of sustainable development, or if sustainable development is generally viewed in negative terms as denying people goods or opportunities which they regard as crucial to their lifestyles or, indeed, as their rights. However, if the public is included in the decision-making process on sustainable development, then relevant policies will better reflect the views of the public, hence potentially facilitating successful implementation of these sustainability policy initiatives. Public participants will also have an increased awareness of the complex interaction between economic, social and environmental trade-offs, hopefully resulting in them being able to make informed choices and decisions, and perhaps helping them to live more sustainable lives whilst supporting those institutions driving and promoting the transition towards sustainable development.

For a public participation process to be successful, the aim of this public participation must be clearly defined and the barriers to greater public involvement overcome. Public participation processes often face difficulty in including socially marginalised groups due to these barriers. For a process to be adequately inclusive of all sections of society, the methods used must be flexible and adaptable to differing groups and geographical areas: such methods have not been developed in previous studies. Another crucial issue is finding ways in which the views expressed by the public may be presented in a form which is useful to policy makers and subsequently represented in policy formulation. Some authors note an increasing cynicism amongst members of the public who think that while their views may be sought, this will not result in policy changes to reflect them. To reverse this trend, it is crucial that the public is made aware that their views are valued, and that they were incorporated into improved policy making. Only in this way may we expect the public in future to take the time to explain their views to researchers and policy makers.

The aims of this research project were to devise, demonstrate and evaluate a methodology for effective public participation in sustainability indicator selection, and to identify those indicators considered most important by members of the public within Limerick City and the small rural settlement of Freshford, Co. Kilkenny. These are detailed in Table 1.1 below.

Table 1.1 Project objectives.

1	Within the context of EU and national policy, to develop an action-orientated methodology for enabling stakeholders (including business, industry, agriculture, communities and non-government organisations) to play a more significant role in the selection of sustainability indicators.
2	To demonstrate the effectiveness of this methodology within a city and village, and ide ntify appropriate modes of adapting it to local circumstances.
3	To identify stakeholder groups often excluded from the participation process, and employ means of encouraging their participation in the future.
4	From this stakeholder participation, to identify and develop indicators of sustainability deemed important by local communities and to highlight similarities and differences between the issues considered important by urban- and rural-based stakeholder groups.
5	To increase community and stakeholder awareness and understanding of issues central to sustainable development, and improve the chances of future participation, so as to enhance opportunities for successful implementation of existing policy and the introduction of fresh policy initiatives towards sustainability goals.
6	To focus community awareness raising on the interrelatedness among sustainable development, quality of life and industrial/ business competitiveness.
7	To analyse ways in which stakeholders articulate their own understanding of sustainable development and to integrate these with policy making and presentation, so as to develop more effective stakeholder commitment to the sustainable development strategy.
8	To aid in the development of collaboration between research centres in Northern Ireland and the Republic of Ireland.

Therefore, the methodology needed to be both process and outcome orientated. It was required to elicit public opinion on what are the most important sustainable development indicators, and to generate a set of indicators that are relevant to the public while being both scientifically robust and policy relevant. It needed to be sufficiently flexible to be capable of implementation in both urban and rural settings, and to be effective in enhancing public awareness of the complex issues surrounding sustainable development. It also needed to provide for feedback to participants, so that they would know that their views were taken into consideration.

2 Literature Review Relating Sustainable Development Indicators and Public Participation in their Selection

There is widespread recognition that we are living unsustainably. The primary goal for sustainable development is to reduce the negative impacts of existing economic practices on the environment and society (Byggeth and Hochschorner, 2006). Sustainable development involves a complex interaction between economic, social and environmental considerations in the movement away from current unsustainable development paths. Trade-offs are frequently unavoidable to achieve sustainability goals: any analysis of sustainability is therefore necessarily wide ranging and complex, and, as a result, difficulties arise in trying to communicate results and recommendations (Lu and van Ittersum, 2004).

In relation to policy making, or governance, at international, European, national and local scales, the issue of the need for greater sustainability is becoming increasingly important. The EU *Sustainable Development Strategy* (2002) is designed to facilitate policy making which provides balanced and equitable economic development and maintains high levels of employment, social cohesion and inclusiveness, together with high levels of environmental protection and more sustainable use of natural resources. Public participation is crucial to the strategy, as set out within *Local Agenda 21* (UN, 1992). Partnerships between government agencies and stakeholders such as industrialists, farmers, non-governmental organisations (NGOs) and communities are recognised as being necessary for the successful implementation of many sustainable development policies. This allows the integration of citizens' views into the process of policy development, and gives stakeholders a sense of ownership of policies. Such inclusiveness is considered likely to lead to more sustainable behaviour patterns amongst all stakeholders (Madlenera and Stagl, 2005).

2.1 Sustainable Development Indicators

Sustainability encompasses not only the environmental, social, economic and governance of institutional dimensions, but also various actors, interests and groups (Spangerberg, 2002), and it tends to mean different things to different people (Gustavson *et al.*, 1999), which complicates communication with the public (Barry, 2002). The use of indicators is commonplace in modern society, and indicators of sustainable development have been adopted to reduce complexity and improve communication, while allowing scientific analysis of societal trends towards and away from sustainability (Huang *et al.*, 1998; Gustavson *et al.*, 1999; Pannell and Schilizzi, 1999; Pannell and Glenn, 2000). Indicators are pieces of information that summarise or typify characteristics of complex systems and therefore identify trends in system functioning. They are designed to highlight trends which are not otherwise immediately apparent, or quantify trends which may be suspected to be present (Hammond *et al.*, 1995; Pagina, 2000). In this way, negative trends may be identified early and policies implemented to reverse them, so that progress towards a more sustainable future is facilitated.

The effectiveness of policies cannot be assessed scientifically unless practical metrics exist (Huang *et al.*, 1998), and sustainability indicators represent such a metric (Tallon, 1995; Moles *et al.,* 2008). Conventional measures of economic performance (such as GNP and GDP) are unable to capture the interdependence between society, the economy and the environment (Albert, 1996) and, indeed, there is a body of evidence which suggests that dependence on these measures may be counter-productive in the search for a more sustainable future (Barry, 2007). However, the alternative approach has its critics: Bell and Morse (1999) criticise the reductionism involved in assessing sustainable development through a

necessarily small number of indicators. They point to the difficulties associated with indicator selection, suggesting that in selecting some indicators, others are excluded, often without any tangible scientific justification, and consequently policy makers may be deprived of crucial information. However, there is also wide support for the view that a degree of simplification is required if the concept of sustainability is to be practicable in informing policy development as well as contributing to public education and involvement and informed political debate around this complex issue.

Many methods for the selection of indicators have been suggested (Hammond *et al.*, 1995): some focus on impacts; others on driving forces, pressures and responses; and some on the availability of data (OECD, 2001). The OECD (2001) framework, which has been adopted by the Irish EPA in its publications (EPA, 1999; EPA, 2002), recognises indicators for driving forces, resulting pressures, states, impacts and responses (DPSIR framework). The advantage of this framework is that it necessitates selection of a wide range of indicator types, which might be expected therefore to provide a better overall assessment of progress towards sustainability and involves some evaluation of policy.

Most indicator selection methods distinguish between states and trends and there is a consensus that indicators work effectively when historical data are available to detect trends to the present day (McMahon, 2002). Given that sustainable development is a process, it is more significant to find that for an indicator the trend over time is improving or deteriorating, rather than simply to evaluate an indicator at any one point in time (Pannell and Schilizzi, 1999). Aggregation is a further issue: policy makers usually prefer a small number of aggregate indicators, while scientists often favour larger sets (O'Malley and Wing, 2000). A solution may be to define a small set of key indicators tailored to provide the evidence needed by policy makers, together with a larger set to provide additional information to explain the wider significance of the key indicators.

A further issue in relation to indicator selection is the choice between theory- and data-driven methods (Niemeijer, 2002). Theory-driven selection is informed by a preconceived concept of what is crucially important in evaluating the success of sustainable development. Data-driven approaches focus instead in a pragmatic fashion on the availability of data, as researchers find that data gaps are a major limiting factor in developing (that is, finding and applying data to quantify states and trends) many theoretically important indicators.

EU policy is to adopt sustainable development indicators as tools in assessing progress towards sustainable development, and EU-wide progress is published within EU *Signals* publications. However, it is acknowledged that there exists no single set of indicators which has achieved universal support, and, for many individuals, frequently adopted indicators appear unintelligible and unduly abstract and thus are not meaningful in the context of their daily lives. Public participation in the selection of sustainable development indicators may result in the indicators being more generally relevant. The public may then have an enhanced sense of ownership of the resulting policy, making it easier to implement and increasing its likelihood of success.

2.2 Public Participation

In a democracy, a government may have difficulty in introducing sustainable development measures if the electorate are unaware of the strategic level imperatives which drive long-term changes. It is generally recognised that sustainability will be achieved only when individuals live sustainable lives, and that the necessary attitudinal, behavioural, economic and social changes will occur only when individual stakeholders and voters recognise the need for these (WCU, 1991). The 1998 Aarhus Convention gives the public the right to participate in local decisions that will impact their environment (EU, 2003). It also gives them the right to information and justice on environmental issues that affect them (DETR, 2000). The Irish DoEHLG in 2001 published *Guidelines on Local Agenda 21* (2001) to encourage adoption of Agenda 21 by Irish local authorities (LAs). These guidelines encourage LAs to develop sets

of indicators for sustainable development and to actively encourage public participation in this process (DoEHLG, 2001).

The most frequently implemented top-down approach in the implementation of policy is often perceived to impose unwanted or misunderstood solutions on the public, making implementation difficult (Booth and Richardson, 2001). However, international experience shows that managing bottom-up consultation can be problematic, and achieving a sense of shared purpose and ownership can be difficult (Mega 2000; Dooris, 1999) but not impossible. It must be recognised that differences in understanding (sometimes incompatible and competing) may arise amongst different interest groups (Barry and Proops, 1999). Partly for this reason, some top-down proponents express deep concern that stakeholder participation will result in contradictory outcomes and thus undermine the validity of the process (Wolfe *et al.*, 2001). Public participation aids in the combination of technical facts with public value, so that a set of recommendations/solutions can be developed that are technically sound but that incorporate the values and wishes of the people (Abelson *et al.*, 2003). Public involvement in decision-making processes improves the quality of the final decision and will also aid in the implementation of related policy (Bruch, 2004) as well as according with the principles of democracy, social inclusion, participation and justice which are at the heart of many conceptions of sustainable development (Barry, 1999; Jacobs, 1999).

In order for a public participation process to be successful, the goal of the process must be clearly defined from the outset (Booth and Richardson, 2001; DETR, 2000). Public participation should be undertaken only if there is a clear goal to validate their involvement, there is a commitment to listen to the public's views and when their input can make a difference (DETR, 2000). Hence, it is important to avoid token 'consultation' or related processes in which the outcomes and decisions have already been decided and public involvement is not taken seriously by decision makers (Barry, 2005a).

Sometimes it is not feasible to include the public in decisions on particular aspects of policy (Booth and Richardson, 2001), but at the very least successful public involvement should mean that the public are told about this in advance and the reasons for it given to them. Pellezzoni and Ungaro (2000) identified two goals of public participation: to legitimise the decision by making the process more transparent, and to increase the knowledge base for making decisions by involving the public and stakeholder groups. In practice, the goals of a public participation process can be multifaceted (Wolfe *et al.*, 2001). Public participation processes can be used simultaneously to inform the public on particular issues, elicit their opinions and to empower them by giving them a role in decision-making processes. The establishment of clear goals and effective communication will facilitate the effective implementation of a public participation process. Of special importance in relation to both effective decision making and implementation, and democratic legitimacy is the argument made by analysts such as Fischer (2000, 2004). Fischer pointed out that faced with increasingly complex policy issues (with sustainable development perhaps being the quintessential example of a complex policy issue) in which scientific 'facts' by themselves cannot resolve the issue since, at the root problem, definition and solution suggestions are value based (Barry, 1996), public involvement is not just a desirable add-on extra to existing 'expert-led' policy making, but a necessary innovation required for effective and legitimate public policy making in the 21st century.

The success of public participation will depend heavily on those who are involved in the process, as exclusion of sections of society will lead to unrepresentative decisions. The target public must be identified in relation to on whom the final decision will impact (DETR, 2000). Ideally, for effective public participation, the results should be statistically representative of the targeted public, but in practice this is difficult to achieve (DETR, 2000). Making the results statistically representative would require a very large sample size, making the process unmanageable and very expensive. Vantanen and Marttunen (2005) advised that the public should be 'actively searched for' to gain

the involvement of as many people as possible and that a range of participation methods be used to encourage their involvement.

Using targeted representatives of particular groups is often cited as an appropriate method to gain public input into the decision-making process (Abelson *et al*., 2003; DETR, 2000). However, caution is advised, as while they may provide a generally held viewpoint, they do not represent the full spectrum of viewpoints within a target group (Abelson *et al*., 2003; Booth and Richardson, 2001; DETR, 2000). The representatives of a stakeholder group also may themselves not be truly representative of their constituents (Wellstead *et al*., 2003).

The methodology adopted for eliciting the public's views will also have an impact on the form of representation. The process of identifying representatives is difficult and time intensive. Questionnaire-based surveys potentially provide the best method to obtain results from the greatest number of people possible (Vantanen and Marttunen, 2005), although the sample size obtained will depend on the response rate to the survey. The respondents to the survey are often individuals who have specific problems or who have a vested interest (Vantanen and Marttunen, 2005). Those individuals who are uninterested or not motivated by a problem are unlikely to respond.

Public meetings also provide each member of a community with an opportunity to participate, though again often only people motivated by the issue will attend the meeting and there is a danger that the confident and articulate will dominant proceedings, and such meetings can also be dominated by men: those who are better educated and professionals, and those who are confident and articulate in speaking in public (Becker *et al*., 2003). The sample size will vary depending on the issue being discussed and the interest generated within the community. Community fora and focus groups provide a structure in which representatives of community groups and stakeholders can contribute to the decision-making process (Becker *et al*., 2003), although as mentioned previously the issue of who they are representing must be carefully considered.

Inadequate inclusiveness is one of the main failings of many public participation processes (Bickerstaff *et al*., 2002). As it is often the people who are excluded from public participant processes who are most affected by unsustainable development patterns and who can benefit most from a more sustainable development, within the relevant literature, the discussion on public participation has moved on from whether or not the public should be involved, to how best to implement public participation effectively (Bruch, 2004). Often, marginal groups in society are reluctant to be involved in public participation processes due to a suspicion and mistrust of the authorities involved (MacNaghten and Jacobs, 1997). They may also consider the issues being discussed as remote and not important to them (MacNaghten and Jacobs, 1997).

The authorities may also be sceptical in relation to the merits of undertaking a public participation process (Bickerstaff *et al*., 20002; Booth and Richardson 2001; DETR, 2000; Barry, 2005a). Officials may feel uneasy about public participation, as this will make the decision-making process more transparent (DETR, 2000; Barry, 2005a), and often the authorities are reluctant to incorporate the views of participants into policy, as these may be viewed as uninformed and subjective (DETR, 2000) and they may prefer to accept the opinions of experts (Booth and Richardson, 2001; Fischer, 2000). The perception often exists that public participation wastes time, resources and money. Historically, decisions on policy have been based on a top-down approach, and local and national authorities are structured to do this efficiently (Booth and Richardson, 2001).

It has been recommended that authorities should have a long-term strategy for increasing the efficiency of public participation by changing the structure of the organisation to facilitate the implementation of bottom-up approaches because, in the longer term, public participation will decrease the cost and resources required to implement new policy (DETR, 2000). To facilitate this change, authorities should attempt to provide the public with the skills and the knowledge to engage in the decision-making process (DETR, 2000). This will help to make public participation processes more accessible and of interest

to members of the public, who may previously have been reluctant to become involved. The implementation of a long-term strategy on public participation should involve the training of decision makers (DETR, 2000), so that they have a greater understanding of its power, the benefits to them and to the participants, and enable them to make more effective use of the outcomes.

2.3 Types of Public Participation

Methods of public participation vary from surveys that elicit public opinion, to methods that allow for direct interaction and give the public an active role in the decision-making process (Collentine *et al.*, 2002). This spectrum of public participation methods is discussed extensively in the literature (Abelson *et al.*, 2003; Bickerstaff *et al.*, 2002; Collentine *et al.*, 2002; Booth and Richardson, 2001; DETR, 2000; Fischer, 2000, 2004; Smith, 2005). The timing and methods used are considered key to the success of public participation (Abelson *et al.*, 2003). The level of public interaction will depend on the point at which the public become involved, which can range from public involvement after a decision has been made, to full public participation in the decision-making processes (DETR, 2000).

The methods utilised for public participation depend in part on the goal of the process. Vantanen and Marttunen (2005) suggested that there are four categories of public participation methods, which are those:

1 For informing and educating the public.

2 That seek public input.

3 That promote information exchange and interaction.

4 That aim at reaching a commonly agreed solution to a problem.

It is considered good practice for public involvement to occur early in the process when there is a range of options still open for the public to consider (Bickerstaff *et al.*, 2002; Booth and Richardson 2001; DETR, 2000). The role of the participants is stronger the more often and the earlier they are involved (Bickerstaff *et al.*, 2002; DETR, 2000).

For successful public participation, the selection of information, how and by whom it is presented, and how the public interprets it, is important (Abelson *et al.*, 2003; Smith, 2005). Providing appropriate information to participants (in part as determined by themselves) helps them to frame the process in the correct context. The information should be complete, easy to understand, accessible, factual and objective (DETR, 2000). The authorities should encourage the public to consider all relevant issues while attempting to keep the process focused on the particular topic under consideration (DETR, 2000). It is important that a balance is reached in the provision of information to the public. Some consideration must be given to how well defined the understanding of the topic already is in the minds of the participants (Collentine *et al.*, 2002). Too much information may result in their own opinions being unclear, but too little information can result in poorly informed decision making.

Carrying out a public participation process in a city may differ greatly from an equivalent process carried out in a rural community (DETR, 2000). However, the same principles can be applied in all settings. Where the public participation process is being used to elicit the views of a cross section of people within a community, it must be adaptable to match the abilities of all groups. A process that is overly complex may exclude those with more limited reading and communication skills.

2.4 Analysis of Data

The analysis of the results of the public participation process must be considered when the process is designed (DETR, 2000). Issues such as sustainable development will elicit a range of responses from the participants, modulated by personal circumstances, education and many other variables. For this information to be incorporated successfully into the decision-making process, it must be presented in an appropriate form. Tools such as value tree analysis, analytic hierarchy processes, the Q-method, cognitive mapping, the CATCH model and SWOT have been adopted in the analysis of such information (Renn, 2006; Leskinen *et al.*, 2004; Hjortso, 2004; Wright, 2004; Collentine *et al.*, 2002; Kurtilla *et al.*, 2000; Barry and Proops, 1999; Marttunen and Harmalainen, 1995).

Public participation processes optimally are designed so that the results are as representative as possible of the views of the target public. However, when designing the process some consideration must also be given to the quantity and quality of the results obtained. Where a large amount of data is collected, the analysis of these data may become unmanageable and can have a negative impact on the outcomes of the project (Vantanen and Marttunen, 2005). Ideally, each participant's contribution should be used in the decision-making process. However, unless some form of integration and analysis of the data occurs, it is very difficult for a decision maker to assimilate and make sense of all the information provided. Which method is most appropriate will depend on the goal of the process and the form of interaction with participants.

2.5 Outcomes and Evaluation

Abelson *et al.* (2003) suggested that for the outcomes of a public participation process to be successful they need to be expressed as a combination of technical facts with public values, so that a set of recommendations or solutions can be developed that are technically sound but that incorporate the values and wishes of the people, and that those who participated can see the results of their inputs in the final decision (Barry, 2005a; Smith, 2005). The interaction with the participants should not stop after direct interaction at meetings or interviews: feedback should be given on the process and on how the results are being utilised (DETR, 2000). Where the goal of the public participation was to give participants a role in the decision-making process, then incorporation of their input into decisions has to be clearly seen to occur (Bickerstaff *et al.*, 2002; DETR, 2000; Vantanen and Marttunen, 2005).

Authorities also make decisions that relate to wider issues, such as regional- or national-scale strategic planning, which at the same time are contrary to the wishes of many local people. In such cases authorities should explain clearly to participants why this has occurred (DETR, 2000). The making of such 'tough decisions' lies at the heart of many of the issues relevant to the transition towards more sustainable development, such as limiting energy use through a reduction in air travel or private-car dependence. The degree to which public participation improved the decision-making process needs to be considered (Abelson *et al.*, 2003) and this may be achieved in part by consideration of the outcomes.

3 Research Methodology

3.1 Overview of Methodology

The methodology selected here attempted to incorporate as many as possible of the strategies reported as being successful in the relevant literature, while avoiding problems identified by previous authors. Methods adopted here for community participation in the selection of sustainable development indicators comprised six key components: a public information programme, the Q-method of discourse analysis, expert opinion, indicator selection, feedback to the public and an evaluation of the effectiveness of the process (Figure 3.1). The methodology was implemented in two settings, Limerick City (2006 population 52,560) and Freshford, Co. Kilkenny (2006 population 1,090) (CSO, 2007), in order to evaluate the general applicability of the method in different settings.

Prior to involving the public in indicator selection, a public information programme was undertaken to provide potential participants with information on sustainable development and relevant policies, so as to inform their decision as to whether or not to participate. The programme also contributed to increasing the public's awareness of the complex issues surrounding sustainable development. The participating groups are shown in Table 3.1: Eleven groups took part in the project, comprising 105 individuals in total.

The Q-method (described in detail in the End of Project Report) was adopted in this study to identify the main discourses (positions held in relation to single issues or groups of issues) on sustainable development, which were then utilised to develop indicators for Freshford and Limerick City. The Q-method of statement analysis provides a statistical method that allows for the analysis of subjective opinions (Barry and Proops, 1999). The participants choose statements that are important to them, and these form the basis for a questionnaire in which the participants are asked to rank the statements.

Table 3.1 Participating focus groups.

Stakeholders represented	Location
St Munchin Elderly Group	Limerick
Limerick Education Network	Limerick
Limerick Chamber of Commerce	Limerick
Irish Wheelchair Association	Limerick
Limerick Childcare Committee	Limerick
Freshford Community Group	Freshford
Freshford Business Group	Freshford
Castletroy secondary pupils	Limerick
University of Limerick students	Limerick
Limerick Travellers Development Group	Limerick
Freshford Farmers Group	Freshford

This ranking allows for the statistical analysis of the participants' statements (Barry and Proops, 1999), to identify commonly held viewpoints ('discourses').

The Q-method allows for the 'systematic study of subjectivity' (Van Exel and De Graaf, 2005), and assumes that there are a finite number of discourses held by community members on any topic. The Q-method identifies, in a statistically verifiable manner, the most commonly held discourses in relation to a topic or issue (Brown *et al.*, 1999). It may be assumed that discourses identified as important are also held within the wider community, but the Q-method does not allow quantitative extrapolation of results to the wider community. In selecting indicators for development, the results from application of the Q-method were augmented by technical input of experts' views. This approach was taken so as to facilitate development of indicators that were both meaningful to the public and also relevant to policy makers. The final stage in the public participation process was to provide feedback to the participants and the stakeholder representatives so as to further increase the participants' awareness of sustainable development and also to encourage future involvement

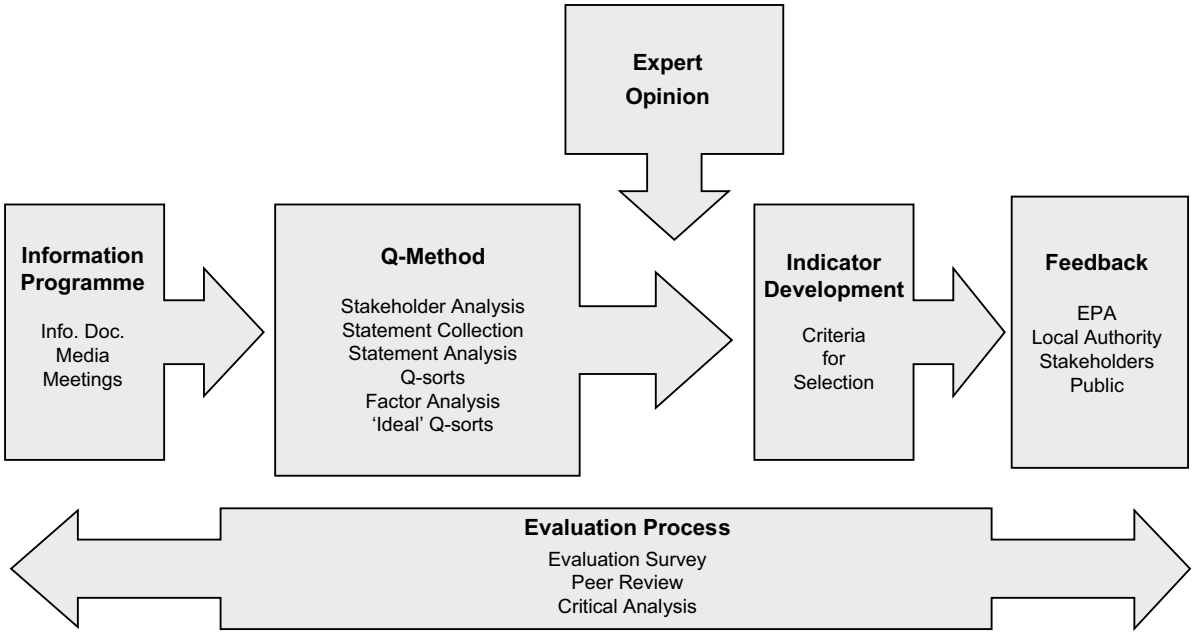

Figure 3.1. Overview of the methodology for public participation in the selection of sustainability indicators.

in such processes. Members of the public were asked to evaluate the appropriateness of indicators identified by the project team to represent their views on sustainable development. The overall methodology was evaluated to determine if it satisfied the criteria for the implementation of a successful public participation process. Finally, to provide an analysis of the difference between the top-down and bottom-up selected sustainability indicators, those indicators selected through the participative process were compared with those generated by expert stakeholders represented on Limerick City Development Board.

3.2 Public Information Programme

In order to maximise inclusiveness, a number of different measures were adopted to inform the public about the project and the key issues concerning sustainable development. These measures included information distributed through the media, circulation of public information documents, telephone calls, meetings with stakeholder representatives and construction of a dedicated website. The methods used in both Limerick and Freshford were broadly similar.

Key stakeholder groups from Limerick and Freshford were identified through informal discussions with members of Limerick City Development Board and Freshford 2020. These groups were then informed of the project through email, telephone and in one-to-one meetings and at the same time were invited to become members of the project Steering Committee. The successful establishment of this committee was followed by a well-attended public project launch to which stakeholder groups from both Limerick and Freshford were invited to attend, along with representatives from the University of Limerick (UL) and the Environmental Protection Agency (EPA). In conjunction with the launch, a press release describing key features of the project was issued (reproduced in Appendix 1 of the End of Project Report) resulting in newspaper coverage in the *Freshford Newsletter*, *Kilkenny People* and the *Limerick Leader*. A two-page public information document was prepared explaining sustainable development, indicators and the need for community involvement in the project (reproduced in Appendix 2 of the End of Project Report). This document was written and piloted in an attempt to ensure that the concept of sustainable development was made relevant and accessible to a wide range of people irrespective of age, education, socio-economic group or previous knowledge of sustainable development. The public information programme continued throughout the lifetime of the project so as to inform them of progress and

to maintain their interest in the project. The final step in the public information programme was to provide feedback on the results of the project to the participants and their constituents.

3.3 Q-Method

A full description is provided by Van Exel and De Graaf (2005), Barry and Proops (1999), Brown (1993) and Brown (1986). The Q-method was adopted successfully in studies on environmental politics (Barry and Proops, 1999) and in assessing discourses of objection (Ellis, 2004). It has also proved to be particularly suited to analyses of environmental policy (Barry and Proops, 1999; van Eeten, 2000).

The first step in the application of the Q-method is to identify the 'concourse' under investigation, defined as 'the volume of discussion on any topic', 'the flow of communicability surrounding any topic' or the 'discourse domain' (Brown, 1993, 1986). The concourse in this case is sustainable development. Barry and Proops (1999) defined discourses as 'a way of seeing and talking about something'. The collection of positions, ideas and opinions held by individuals allows characterisation of the many discourses contained within a concourse. These discourses are articulated by people in a series of often interconnected statements which are not simply a function of a person's opinion on a topic, but also include views on: what exists (ontological claims); which entities have agency, views on knowledge and expertise (epistemological claims); and what types of relationship and phenomenon ought to exist, and passing judgement on those that do exist (normative claims). For the successful application of the Q-method, it is vital that the information collected from the public covers a broad spectrum of these types of discourse, so that despite the relatively small number of respondents, their opinions provide a fair reflection of the range of opinions that exist in the wider community.

3.3.1 Stakeholder Analysis and Selection

Selection of a sample of stakeholders sufficiently large for it to represent the communities in a statistically significant way was impractical because of time constraints, and would have been exorbitantly expensive. However, careful stakeholder analysis was carried out to ensure as far as possible that a broadly representative spectrum of discourses on sustainable development could be identified. This was carried out in consultation with the Steering Committee, representatives of Limerick City Development Board, Limerick Community Forum, Limerick Chamber of Commerce, the Paul Partnership, Freshford 2020 and Kilkenny County Council. Purposeful sampling targeted as wide a range of stakeholder groups as possible to be invited to be involved in the project, which included socially marginalised groups. Through telephone conversations and meetings with the representatives of these groups, the project was explained to them. The stakeholder representatives were asked to assemble a focus group of 8–12 of their constituents. It was explained that the members of the focus groups where possible should be members of the public without any representative function. Initial dates for the focus group meetings were agreed with the project leaders, and the public information document was provided to the representatives to distribute to the focus group participants one week prior to their first meeting. In Limerick, eight existing stakeholder groups agreed to select focus group members: all eight were included in the project. Focus groups were therefore self-selected and all willing groupings were included. The UL project team did not have direct contact with the individual members until the day of the focus group meetings. However, in Freshford fewer potential stakeholder groups were identified by the Steering Committee, and in order to include a spectrum of opinion which represented community and economic interests, three focus groups were organised by UL researchers in collaboration with the Freshford 2020 organisation: a Business Group, a Community Group and a Farmers Group. Identification of possible members was undertaken, again in collaboration with the Freshford 2020 organisation, and subsequently a member of the UL project team made direct contact

Table 3.2 Age distribution of participants. Participants declining to provide their age is indicated by NA.

Age in years	NA	15–20	21–26	27–32	33–38	39–44	45–50	51–56	57–62	63–68	69–74	75–80	80+	Total
No. of participants in focus group meetings	3	35	5	7	3	6	13	7	11	9	3	2	1	105
No. of participants in Q-sort meetings	1	3	5	3	2	4	5	4	2	5	1	2	0	37

by phone with those identified, to explain the project and ascertain if they were willing to participate in a focus group meeting. All three focus groups were established.

3.3.2 Profile of Stakeholders

Information on participants was collected through the administration of questionnaires after the focus group and Q-sort meetings (see Appendix 3 of the End of Project Report). Female participants formed 51% and 54% of the focus group and Q-sort meetings, respectively. A total of 105 participants attended the 11 focus group meetings, and 37 participated in the individual Q-sorts[i] (individual Q-sorts are distinguished here by 'Q-sort[i]'). The age distribution of participants is provided in Table 3.2.

3.3.3 Statement Collection

A standard method of statement collection was adopted in focus group meetings, but this was modified somewhat to provide the participants of each group with the best environment in which to express their views. All steps were taken to ensure that the participants were happy with the meeting set up so as to maximise the quality of the data collected. The location and timing of the meetings were chosen to be convenient for the participants. Two members of the UL project team attended each meeting, one acting as facilitator and the other taking notes. Meetings lasted approximately two hours. Following advice from stakeholder representatives, proceedings of the meetings were not recorded electronically.

Meetings commenced with introductions in which the participants described their prior knowledge of sustainable development. The facilitator then outlined the structure of the meeting, and provided an introduction to sustainable development and indicators. These terms were defined for the participants so as to frame the discussion in the desired context. Facilitation of the meetings was found to be crucial in eliciting participants' views: care was taken not to overemphasise any aspects of the explanation in order to avoid influencing participants' views; participants were encouraged to ask questions on any fact or issue, but were not exposed to project team members' views. Discussion was facilitated in three separate sections: social, economic and environmental aspects of sustainable development. Participants were asked to consider sustainable development from their own personal perspective and in relation to what they felt were the important issues that affected present and future quality of life in their community and area. The discussion was recorded by the note taker and key statements were also recorded on a flip chart by the facilitator. At the conclusion of each meeting section, the facilitator reviewed the information on the flip chart to ensure that all participants agreed with what had been recorded. Participants were requested to indicate their willingness to participate in the subsequent phases of the project and provide contact details.

3.3.4 Statement Analysis

The 11 focus group meetings generated a total of 750 statements. The selection of statements to be included in subsequent analyses has an impact on the results obtained using the Q-method, and care was taken to ensure that the statements were selected using a transparent and standardised method. A mechanism was devised to

reduce the 750 statements down to a manageable number for subsequent analyses, here considered to be about 50 (see the End of Project Report for more details).

The additional filter included in this study divided statements into the three categories of social, environmental and economic issues and topics. The aims for this participation process provided the overarching criteria for selecting the statements for subsequent analysis. When each statement was entered into the database it was classified as especially relevant to either the social or economic or environmental category, and assigned a keyword as well as an identification number (ID) (see Table 3.3). Participants in focus group meetings identified into which category a statement should be placed, and the UL team assigned the keywords to each statement.

The number of statements to be selected for inclusion in the next phase of analysis (individual Q-sorts – Q-sort[i]) was determined such that there was a sufficient number of statements in the Q-sorts[i] to reflect the full spectrum of the opinions collected, while avoiding burdening participants with an unmanageable number of statements to sort. The method adopted to reduce the number of statements followed a number of steps. Initially, erroneous and duplicate statements were deleted. The statements were then filtered by keyword and category, and repetitive statements were removed (that is, where two statements dealt with the same issue, the less clear of the statements was deleted). This method reduced the number of statements to a number which could be managed in a subsequent statement analysis meeting attended by the full UL research team, at which an attempt was made to make further reductions in the number of statements so as to select approximately equal numbers of statements in relation to each key word, and to include at least ten statements from each of the social, economic and environmental categories. Some statements were deleted and others combined and reworded to ensure they were unambiguous and would be clear to the participants carrying out the Q-sorts[i]. A balance was maintained between the number of positive and negative statements selected. The outcome was unanimous agreement on a set of 40 statements (Table 3.3).

3.3.5 The Individual Q-Sorts[i]

The purpose of individual Q-sorting was to enable some members of each focus group to rank the 40 statements in order of importance. Contact was made with two or three members, in each case through the stakeholder representative, so as to include as many participants for Q-sorting as possible. In addition, members of the public who had not participated in the original focus groups also carried out Q-sorts[i] in order to further broaden the spectrum of opinions collected and to contribute additionally to increasing public awareness of sustainable development. Individual Q-sorts[i] were carried out by 37 participants. The 40 statements were printed individually on cards and laminated (see Appendix 4 of the End of Project Report). In meetings the participants were asked to place each of the statement cards in columns in a framework (reproduced in Figure 3.2), the columns being numbered from –4 for statements considered least important, to +4 for statements considered most important. This forced ranking method was adopted to ensure that participants prioritised the statements, that is, they could not indicate all statements as being equally important. The ranking was undertaken in a series of stages. Participants first were instructed to categorise each statement into one of three sets, depending on whether they (i) agreed, (ii) disagreed or (iii) had no strong view in relation to the statement. They then moved on to rank the 40 statements in the framework illustrated in Figure 3.2. The participants were encouraged to move the statement cards about between columns until satisfied that the ranking fully reflected their views. No time limit was imposed for the sorting process but all participants completed the sort in less than 45 minutes. Each participant completed only one Q-sort[i]. To overcome problems with literacy, all participants were provided with a voice recording of each statement. A researcher sat with each participant while they were undertaking the Q-sort[i], to provide clarification in relation to the method but not to comment on the statements, to avoid biasing the participant's opinions.

On completion of the individual Q-sorts[i], the participants were asked to comment on why they ranked the statements as they did, with particular attention given to the statements

Table 3.3 Statements selected for inclusion in the Q-sorts.[i]

ID number	Statement	Category
1	Noise pollution from neighbours needs to be controlled	Environment
2	Too much rubbish is still going to landfill and not being recycled	Environment
3	There has been an increase in illegal dumping	Environment
4	Money spent in the local area would improve the local economy	Economic
5	The negative image of our community reduces outside investment	Economic
6	There is still a lack of access to many areas for those in wheelchairs	Social
7	Things are better now for education, there are more options available	Social
8	There are not enough banking facilities in our local area	Economic
9	Too many groups in the local area are pulling in different directions	Social
10	There are enough hospital beds locally	Social
11	There is a lack of employment in the area	Economic
12	There is an increased awareness of local and global environmental problems	Environment
13	There are not enough green spaces and parks in the local area	Environment
14	Discrimination against travellers is a serious problem	Social
15	People need to be able to come forward to voice their opinions outside of elections	Social
16	The lack of affordable childcare is a barrier to returning to work and education	Economic
17	There is a lot of litter on the streets	Environment
18	I am generally satisfied with the benefits system	Economic
19	Who cares if life is better for future generations, we are still struggling now	Environment
20	There are a lot of homeless people due to high property prices	Economic
21	CCTV would prevent a lot of dumping, fires, joy riders, trouble on green areas	Environment
22	Keeping social groups apart is a good thing	Social
23	The cost of living is going up all the time	Economic
24	It is not safe to go out in the evenings in our area	Social
25	Local industry would help people live locally	Economic
26	Antisocial behaviour is a serious problem in our community	Social
27	The minimum wage is not being enforced	Economic
28	Family-friendly work practices need to be more widespread	Social
29	Ireland should not be dependent on other countries for food	Social
30	Tax incentives should be given to companies that in the long term will be environmentally friendly	Economic
31	There is a lack of leadership by the local authority	Social
32	We need better government funding for community projects and local services	Economic
33	The Gardaí are doing a good job	Social
34	The tax on plastic bags is a good thing	Environment
35	There is a lot of help out there for people in need	Social
36	The number of deaths on our roads is caused by people not taking responsibility for their actions	Environment
37	I would prefer to be able to walk to work	Environment
38	The government is doing enough about environmental problems	Environment
39	People's involvement in their community is important	Social
40	It is important to keep our local rivers clean	Environment

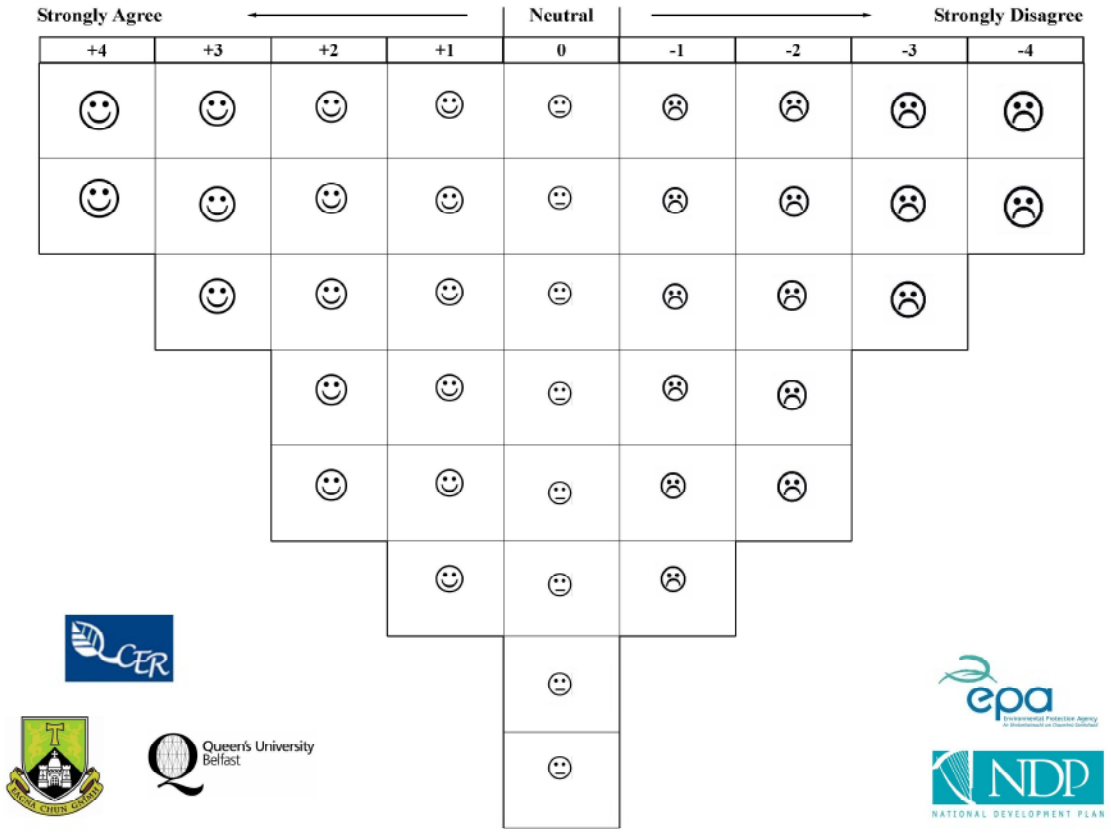

Figure 3.2 Ranking framework use for the forced ranked distribution of the Q-sort[i] statements. The original scale used was 841 × 1189 mm (A0).

ranked +4 and +3, and -4 and –3, as these were the statements that defined a participant's discourse, and responses were noted to aid with subsequent analyses. Participants also evaluated the individual Q-sorting process from their perspective, using the questionnaire reproduced in Appendix 3 of the End of Project Report.

3.3.6 Q-Sort Analysis

To identify the most commonly adopted discourses within the concourse of sustainable development, the Q-method utilises Q-sort analysis. In each Q-sort[i] the 40 statements (Table 3.3) were ranked in the order selected by each of the 37 participants. This ordering differed amongst Q-sorts[i] to a greater or lesser extent. The Q-method software initially calculated a correlation matrix for the Q-sorts[i], in which positive Q-sort 'loading' indicated similarity, and negative Q-sort loading indicated dissimilarity. Similarity was quantified in terms of the number of Q-sorts[i] which were (i) significantly correlated with one another, and (ii) not significantly correlated with other Q-sorts[i]. As a next step, PCQWin software (Stricklin, 1996) was employed to compare all possible pairs of Q-sorts[i] (using a varimax rotation), and in this way divide the Q-sorts[i] into discrete sets, which maximised the degree of similarity within sets, and the degree of dissimilarity among sets. A further consideration was that the number of Q-sorts[i] which played a role in the separation out of sets should be maximised, so as to avoid losing information. Such a discrete set is termed an 'Ideal Q-sort'. It is a generalised Q-sort to which individual Q-sorts[i] will be similar, or dissimilar, to varying degrees. This level of similarity is measured as a percentage, and the extent to which individual Q-sorts[i] were similar or dissimilar to the Ideal Q-sort is again referred to as 'loading'.

This process was undertaken in a series of steps, with decisions taken at each step in relation to the selection of options offered by the software. The optimal number of Ideal Q-sorts (which best satisfied the criteria described above) was found to be six, here labelled A–F (please see End of Project Report).

It is possible for individual Q-sorts[i] to load significantly on to more than one Ideal Q-sort, thereby reducing the influence of such Q-sorts[i] in separating out Ideal Q-sorts. Such Q-sorts[i] are termed 'confounded Q-sorts[i]'. To minimise the number of confounded Q-sorts[i], the threshold percentage value to separate significant from non-significant loading may be varied. Here, the value selected was the default value provided within PCQWin (41%). It is also possible for Q-sorts[i] to load negatively on an Ideal Q-sort, indicating significant dissimilarity: where this happens, the opposite of the view recorded for the participant in the Q-sort[i] is taken to agree with the Ideal Q-sort.

A further step taken in the Q-method analysis is best illustrated by reference to an example. In Figure 3.3, the statements which loaded on to Ideal Q-sort A are represented by their identifying numbers (as in Table 3.3). As described above, the statements placed in columns +4 and –4, and +3 and –3 are those which the participants (seven in this example) agreed with, or disagreed with, most strongly (see Table 3.4 for the statements).

–4	–3	–2	–1	0	1	2	3	4
24	17	1	5	11	2	16	4	7
38	19	10	6	12	3	25	23	30
	22	26	8	18	15	32	34	
		27	9	20	28	39		
		31	13	21	29	40		
			14	33	37			
				35				
				36				

Figure 3.3 Ideal Q-sort A identified by the Q-sort analysis. The numbers in the unshaded boxes represent the statement identification numbers – see Table 3.3.

Table 3.4 Statements placed at +4 and –4, and +3 and –3 in Ideal Q-sort A are the statements that seven participant Q-sorts[i] agreed with, or disagreed with, most strongly.

–4	–3	+3	+4
24 It is not safe to go out in the evenings in our area	**17** There is a lot of litter on the streets	**4** Money spent in the local area would improve the local economy	**7** Things are better now for education, there are more options available
38 The government is doing enough about environmental problems	**19** Who cares if life is better for future generations, we are still struggling now	**23** The cost of living is going up all the time	**30** Tax incentives should be given to companies that in the long term will be environmentally friendly
	22 Keeping social groups apart is a good thing	**34** The tax on plastic bags is a good thing	

3.4 Indicator Identification

Indicators were then identified to represent these statements for each of the six Ideal Q-sorts. Participants were most clear in relation to statements which were placed in the +4 and –4 columns (as in Figure 3.3), but were less certain about statements they placed in the +3 and –3 columns. Indicators for the ten +4 and –4 statements were therefore given higher weighting, and referred to as 'primary indicators'. Indicators for the ten +3 and –3 were considered to be of secondary importance.

To ensure that the indicators developed were scientifically robust, the public input, in the form of the Ideal Q-sorts, was combined with technical expertise. The selection of indicators to best represent each statement involved identification of candidate indicators by the research team and selection of those considered most appropriate by the public participants. Several candidate indicators were selected for each statement, with the exception of three statements for which only one could be generated. Members of the public were then tasked with selecting from this list of candidate indicators those which they considered most appropriate using the following method.

A questionnaire was drawn up in which statements and 87 candidate indicators were listed. All previous participants were contacted, of whom 12 completed the questionnaire. The questionnaire was also administered to randomly selected people: 38 questionnaires were completed by people selected randomly on Limerick city-centre streets, and 11 following the same method in Freshford. A total of 59 questionnaires were completed fully. The respondents were asked to both select the indicators that they thought most appropriate (by marking the questionnaire sheets) and to suggest alternative indicators they thought might be more appropriate. This process carried the advantage that it allowed the project team to assess the clarity and relevance of the indicators for people who had not participated in the Q-sorts. Inspection of the questionnaire returns indicated that there was no discernible difference between the responses of those who had and had not participated in the individual Q-sorting. For 18 of the 25 statements listed on the questionnaire, a single candidate indicator was clearly seen as most appropriate by respondents. However, for seven statements, two or three candidate indicators were considered by respondents to be somewhat similarly appropriate. For these statements, there were two or more candidate indicator options on the questionnaire. An arbitrary cut-off was established to identify candidate indicators which were similar in frequency of selection to the most frequently selected indicator. The percentage of respondents who selected each candidate indicator were calculated. A comparison was made between the percentages calculated for the most popular candidate indicators for the seven statements, and for those for similarly popular candidate indicators. For statements with three or more candidate indicator options, candidate indicators which were within 10% of the most popular option were also selected. For statements with only two options, candidate indicators within 20% of the most popular choice were also selected. No respondents suggested indicators additional to those listed on the questionnaire. The appropriateness of indicators was evaluated using a set of criteria, adapted from Ravetz *et al*. (2001).

3.4.1 Feedback from and to Stakeholders

The final stage of indicator selection was to ascertain from stakeholders if indicators identified in this way reflected fully and clearly their views. Initially it was planned to reconvene all the focus groups to achieve this, but in practice the project team was able to reconvene three focus groups only. To overcome this problem, project team members interviewed a total of 61 people (50 in Limerick, 11 in Freshford), identified by the focus group leaders, whom they believed represented well the views of the group members. These 61 people were asked to compare the statements from the relevant Q-sorts with the indicators which had been identified to represent them, and to select those indicators which they thought were most appropriate and understandable. This also represented feedback to a wider group of participants. This final selected set of indicators is highlighted in italics in Table 4.2 below. Information on the project and its results was communicated to all participants and other members of the public through a well-publicised project website and by direct mailing to all participants.

The evaluation forms for the focus group and Q-sort meetings were used to involve the public in the evaluation of the methodology developed (see Appendix 3 of the End of Project Report) Questionnaires that were completed by participants after focus group and Q-sort meetings provided information on the participants and were designed to determine whether involvement increased the participants' awareness of sustainable development, to assess the accessibility of the method to the various stakeholder groups and to determine if the participants felt that their involvement had been worthwhile.

The second half of the evaluation forms for the focus group and Q-sort meetings were different. These questions provided feedback from the participants as to their satisfaction with their involvement in the focus group or the Q-sort meetings. Figures in Appendix 8 of the End of Project Report show the participants' response to each of the questions listed on the evaluation forms, which was overwhelmingly positive.

4 Research Results

4.1 Stakeholder Representation in Focus Groups

The key result arising from the public information process was feedback from stakeholder representatives on how best to provide information on the project to the public so as to encourage participation. The generic public information document was adapted for each focus group, on the advice of the stakeholder representatives. Appendix 2 of the End of Project Report contains the public information documents, and relevant newspaper articles are contained in Appendix 1 of the End of Project Report. The target was set to involve participation through approximately ten focus groups: this number was selected by balancing the sample requirements of the Q-method, the need to be as inclusive as possible, and practical time and resource constraints. Assembling focus group membership was a time-consuming process: 11 focus groups were selected (Table 3.1 above).

4.2 Statement Selection

On the basis of output from the focus group meetings, 750 individual statements were recorded. Following the steps described in Section 3, this number was reduced to 40 for inclusion in the Q-sorts[i] (Table 3.3 above): 12, 13 and 15 statements fall into economic, environmental and social categories, respectively. In almost all cases the wording of the statement was not changed, although some were reworded to enhance clarity.

4.3 Q-Method Results

Results of the analysis of 37 individual Q-sorts[i] resulted in the identification of six Ideal Q-sorts (labelled A–F; see the End of Project Report). The defining statements for each Ideal Q-sort are emboldened in Table 4.1 below, which also shows how each statement was ranked for each of the six Ideal Q-sorts.

4.4 Ideal Discourses

The Ideal Q-sorts were then described in text: a textual expression of an Ideal Q-sort is a 'discourse'. The resultant six discourses corresponded to the Ideal Q-sorts. The purpose in describing the discourses was to provide a clearer understanding of the range of opinions and attitudes identified through this analysis, and to illustrate how the method adopted not only identified how participants' views differed, but also how it was possible to identify groupings of participants who shared generally similar views. The discourses were assigned brief titles designed to best describe the viewpoints expressed (see End of Project Report).

- Discourse A: Secure, confident, futurist, local environmental critic.
- Discourse B: Socially inclusive, anti-discrimination, insecure.
- Discourse C: Local community activist.
- Discourse D: Local waste manager, positive-thinker.
- Discourse E: Modern citizen-consumer, ecological moderniser.
- Discourse F: Disability environmentalist.

4.4.1 Summary

It was clear from the outcomes that participants' views and attitudes in relation to sustainable development did not easily articulate with technical and expert conceptualisations of sustainable development. These differences are explored in Section 5. Further, it was clear that participants did not share a single set of views, and that while it was possible to identify groups of participants with broadly similar views, differences between groups were often marked. These were of significance in the next stage of the project, which was to identify indicators which were both seen to be relevant to the Q-sort results, and also technically meaningful and capable of being developed.

Table 4.1. Statement loadings for six Ideal Q-sorts A–F. Emboldened shaded values indicate the defining statements (loadings >+3 or <–3).

Statement number (see Table 3.3)	Statement	Ideal Q-sort					
		A	B	C	D	E	F
1	Noise pollution from neighbours needs to be controlled	–2	0	2	1	–2	0
2	Too much rubbish is still going to landfill and not being recycled	1	1	0	–2	–1	**–4**
3	There has been an increase in illegal dumping	1	–2	1	**–4**	–2	–2
4	Money spent in the local area would improve the local economy	**3**	–1	**–3**	0	0	0
5	The negative image of our community reduces outside investment	–1	–1	–1	0	2	1
6	There is still a lack of access to many areas for those in wheelchairs	–1	0	–2	2	–2	**–4**
7	Things are better now for education, there are more options available	**4**	**–3**	–1	0	1	–1
8	There are not enough banking facilities in our local area	–1	0	0	**4**	1	–1
9	Too many groups in the local area are pulling in different directions	–1	2	0	1	1	2
10	There are enough hospital beds locally	–2	**3**	**3**	–1	**4**	**3**
11	There is a lack of employment in the area	0	**3**	**–4**	2	–1	2
12	There is an increased awareness of local and global environmental problems	0	1	0	1	2	0
13	There are not enough green spaces and parks in the local area	–1	–2	2	2	–1	**4**
14	Discrimination against travellers is a serious problem	–1	–2	0	**3**	**3**	2
15	People need to be able to come forward to voice their opinions outside of elections	1	1	**–3**	–2	0	0
16	The lack of affordable childcare is a barrier to returning to work and education	2	**–4**	1	–2	**–3**	1
17	There is a lot of litter on the streets	**–3**	–1	0	**–3**	**–3**	–1
18	I am generally satisfied with the benefits system	0	**3**	**4**	–1	–1	0
19	Who cares if life is better for future generations, we are still struggling now	**–3**	0	2	**3**	0	2
20	There are a lot of homeless people due to high property prices	0	–2	2	0	0	**3**
21	CCTV cameras would prevent a lot of dumping, fires, joy riders, trouble on green areas	0	0	–1	**–3**	**–4**	**–3**
22	Keeping social groups apart is a good thing	**–3**	**4**	1	2	0	**3**
23	The cost of living is going up all the time	**3**	**–3**	–1	–1	1	–1
24	It is not safe to go out in the evenings in our area	**–4**	–2	2	2	2	0
25	Local industry would help people live locally	2	1	–2	0	0	0
26	Antisocial behaviour is a serious problem in our community	–2	**–4**	0	1	0	–1
27	The minimum wage is not being enforced	–2	0	1	1	2	–2
28	Family-friendly work practices need to be more widespread	1	–1	–1	0	–1	2
29	Ireland should not be dependent on other countries for food	1	1	–1	0	2	1
30	Tax incentives should be given to companies that in the long term will be environmentally friendly	**4**	2	0	0	**–3**	1
31	There is a lack of leadership by the local authority	–2	0	**–3**	**–3**	–1	0
32	We need better government funding for community projects and local services	2	–1	**–4**	–2	–2	–2
33	The Gardaí are doing a good job	0	**4**	**3**	**4**	**4**	–2
34	The tax on plastic bags is a good thing	**3**	2	1	–1	1	–1
35	There is a lot of help out there for people in need	0	2	**4**	1	**3**	1
36	The number of deaths on our roads is caused by people not taking responsibility for their actions	0	**–3**	–2	**–4**	**–4**	**–3**
37	I would prefer to be able to walk to work	1	1	1	**3**	0	1
38	The government is doing enough about environmental problems	**–4**	2	**3**	–1	**3**	**4**
39	People's involvement in their community is important	2	0	–2	–1	1	–2
40	It is important to keep our local rivers clean	2	–1	–2	–2	–2	**–3**

4.5 Selection of Candidate and Final Sets of Indicators

While many methods for indicator identification and selection have been published, some reviewed by Garcia *et al.* (2002) and Bossel (1999), the resultant indicator sets are couched in technical language and therefore are often not accessible to the general public. No previous study was found which described a method for indicator selection which had as its primary objective that the indicators be easily understood by non-technical stakeholders. Therefore, a novel method of indicator selection was devised for this study as described in Section 3.

A final list of 36 indicators was selected (Table 4.2). Table 4.2 shows the full set of results for the indicator evaluation and selection process from this project. For each statement, the percentage of the questionnaire respondents who indicated that it was a suitable indicator is shown (see also Appendices 5 and 7 of the End of Project Report).

This process of indicator selection was complex and time intensive. To be justified, it would need to produce results which were more valuable in meeting project objectives than those produced by more usual indicator selection methods in which a Delphi approach is adopted with participation by, for example, representatives of decision makers, planners, technical experts and business leaders. In a previous study, indicators were developed for the Limerick City Borough in collaboration with the Limerick City Council (Kelly and Moles, 2002). Results of this work formed the basis of an unpublished project with the Limerick City Development Board, in which aspects of sustainability identified by Kelly and Moles formed the basis of an indicator selection process undertaken by Board members, following a typical top-down method. The categories and the associated indicators are provided in Table 4.3.

Table 4.2. Indicators selected and evaluated

Statement and indicators Tier 1 statements	Percentage of sample	Number of positive responses (n = sample size)
Too much rubbish is still going to landfill and not being recycled[a]		
Level of recycling	23	14
Tonnage of waste going to landfill	16	10
Tonnage of waste been diverted from landfill	20	12
Per capita waste produced versus other EU countries	41	25
There has been an increase in illegal dumping[a]		
Level of illegal dumping prosecutions	13	8
Tonnage of illegal dumping been recovered by local authorities	16	10
Cost of clean up of illegal dumping	54	33
Number of illegal dumping incidents been reported to each local authority	16	10
There is still a lack of access to many areas for those in wheelchairs[a]		
Number of pavements with dishing	65	40
Number of disabled parking spaces available	26	16
Number of disabled toilets available	9	6
Things are better now for education, there are more options available[a]		
Pupil/teacher ratio	7	5
Number of special-needs teachers	9	5
Cost of uniforms/books	5	3
Level of government grants	8	5
Number of pupils taking the applied Leaving Certificate	28	17
Number dropping out of school	20	12
Number going on to third level	23	14

There are not enough banking facilities in our local area[a]		
Number of banking facilities within 5 km, including ATMs	75	46
Number of banks per capita	8	5
Number of post offices in the area	3	2
Number of credit unions	13	8
There is a lack of employment in the area[a]		
Number of people on the live register	46	28
Number of small to medium businesses in the area	15	9
Number of community employment schemes in the area	7	4
Level/Number of people on FAS courses in an area	5	3
The number of people in the area who have to travel less than 5 km to get to work	26	16
I am generally satisfied with the benefits system[a]		
Level of complaints to the welfare office	8	5
Level of benefits compared to the average industrial wage	54	33
Number of people not getting benefits they should be getting	36	22
Number of appeals to the Rights Board	2	1
It is not safe to go out in the evenings in our area[b]		
Non-headline crime figures (petty-crime level)	78	47
Headline crime figures (serious crime)	22	13
Tax incentives should be given to companies that in the long term will be environmentally friendly[a]		
Level of grants/subsidies, cleaner greener grants from the EPA	52	32
Local services available in an area, e.g. bus service	24	15
IPC licence breaches prosecutions	25	15
We need better government funding for community projects and local services[a]		
Grants to art projects and other community projects	13	8
Level of government funding to childcare	41	26
Government funding to schools	27	16
FAS community employment schemes	14	8
Number of playgrounds	2	1
The Gardaí are doing a good job[a]		
Level of complaints about the Gardaí	7	4
Confidence levels in the Gardaí	62	38
Detection rates	31	19
There is a lot of help out there for people in need[a]		
Level of funding to disabled	28	17
Number of call outs by community welfare officers	40	25
Emergency accommodation provision rate	16	10
Homeless accommodation	9	6
Number of meals on wheels been distributed	7	4
The number of deaths on our roads is caused by people not taking responsibility for their actions[a]		
Number of deaths on roads caused by alcohol/speeding and issues of personal responsibility, e.g. speeding, reckless driving	85	52
Number of penalty points	15	9
The government is doing enough about environmental problems[a]		
EPA prosecutions; number and/or value of prosecutions	11	7
Number of citizens in Ireland who complain to EU abut environmental problems	2	1
Illegal dumping prosecutions by local authorities	32	19
Government investment in environmental research	7	5

Number of environmental cases been taken against the government	11	7
River/Lake water quality	8	5
Greenhouse gas emission levels	28	17
Tier 2 statements	**Percentage of sample**	**Number of positive responses**
There are enough hospital beds locally[a]		
Number of public hospital beds available within 15 km	3	2
Number of hospital bed days available within 15 km	3	2
Number of hospital beds related to the population in an area	11	7
Waiting times	83	51
Discrimination against travellers is a serious problem[a]		
Reported incidents of discrimination in an area	20	12
Number of halting sites	69	42
Number of planning permissions for halting sites refused	11	7
People need to be able to come forward to voice their opinions outside of elections[a]		
Activity within community forums	20	12
Opening hours of politicians' clinics	13	8
Time spent by politicians in areas	67	41
There is a lot of litter on the streets[a]		
Level and number of litter fines	48	29
Tonnage of street sweepings	52	32
Who cares if life is better for future generations, we are still struggling now[a]		
Number of people volunteering in the community	38	23
Number of people in an area under the poverty line	63	38
There are a lot of homeless people due to high property prices[a]		
Number of homeless people	18	11
Average price for rental accommodation	82	50
CCTV cameras would prevent a lot of dumping, fires, joy riders, trouble on green areas[a]		
Number of community CCTV systems	13	8
Number of community cameras in an area	9	6
Number of Gardaí CCTV in an area	78	48
Keeping social groups apart is a good thing[b]		
Percentage of school children from a non-Irish background	35	21
Percentage of the workforce made up by immigrants	65	39
The cost of living is going up all the time[a]		
Household budget survey index	65	40
Measurement of fuel costs	35	22
I would prefer to be able to walk to work[a]		
I would prefer to be able to walk to work	16	10
Mode of travel to work	84	51
It is important to keep our local rivers clean[a]		
Number of reported pollution incidents	30	18
River water quality levels	39	24
Drinking water quality levels	30	19
Number of fishing licences issued in an area	2	1

[a] sample size *n* is 61;

[b] sample size *n* is 60 (one questionnaire spoiled).

Differences between the indicators selected using the two methods are evident. Indicators selected by the Board are more technical in language, and are concerned with strategic issues at Limerick City scale, such as population and population change, crime rates, overall employment levels, and economic issues from the perspective of the employer, such as property rates. Indicators reflect a technical understanding of the available data, such as biological oxygen demand, sulphur dioxide levels, and the extent of types of conservation area. Indicators derived through public participation are very different, and reflect much more local-scale concerns, and, more

Table 4.3. Aspects of sustainable development identified by Kelly and Moles (2002), and indicators selected by members of the Limerick City Development Board.

Aspects of sustainability (after Kelly and Moles, 2002)	Indicators selected by Limerick City Development Board members
Population	Population of Limerick City Borough
	Number of residents of Greater Limerick area resident outside the city limits
	Proportion of the population of Limerick City living outside the city limits
Health	Number of GPs operating in Limerick City and environs and the number of residents per GP
	Annual incidence of asthma in Limerick City
	Incidence of coronary artery disease in Limerick City
Road deaths and injuries	Number of fatalities on Limerick City roads
	Number of injuries on Limerick City roads
Crime	Crime rate in Limerick City and County
	Number of inditable offences and the number of detections in the Greater Limerick area
Rates	The annual value of the rate warrant in Limerick City Borough
	The average rate demand per account in Limerick City, and the percentage annual increase yearly in rates
Employment levels	Average annual number of persons on the live register in Greater Limerick area
	Labour force participation rate of individuals at least 15 years old in Limerick City
Air quality	Mean annual sulphur dioxide levels in the Greater Limerick area, 1996–2002
	Mean annual smoke levels in the Greater Limerick area, 1996–2002
	Number of new vehicle registrations in the Limerick area
Integrated pollution control (IPC) licensed companies	IPC licensed companies in the Greater Limerick area
Water quality	Average monthly biological oxygen demand for outflow water from municipal treatment plant
	Quality of public water supply
	Quality of river water in Limerick City
Education	Average school leaving age
	Retention rates of pupils in post-primary schools
	Third-level students normally resident in Limerick City/County
	Numbers of students from Limerick City and County enrolled in third-level education
Waste management	Weight of waste per capita generated by Limerick City
	Domestic waste generated per capita
Conservation areas of European and national importance	Areas designated as Special Area of Conservation
	Areas designated as Special Protection Area
	Areas designated as National Heritage Area

frequently, express issues that affect participant's daily lives. However, to a considerable degree, the two sets of indicators are in agreement in relation to the important themes within the sustainable development discourse: both are concerned with health, road safety, crime, employment availability, educational attainment, water quality and waste management. Population, air quality, rates, IPC licences and conservation areas were of concern to Board members alone. Wheelchair access, banking facilities, welfare benefits, green taxation, local government funding, the Gardaí, support for those in need, central and local government effectiveness, hospital bed availability, social discrimination and segregation, community activism, litter, homelessness, and travel modes were of concern to public participants alone. Public participants placed more emphasis on the social dimension of sustainable development, though economic and environmental dimensions were also well represented in the selected indicators. These differences are of great importance and may explain in large measure why 'official' sets of indicators often fail to resonate with the wider public. Results suggest that society in general may be in broad agreement in relation to the importance of sustainable development, but this importance is perceived in very different ways and communication opportunities are lost when this is not recognised.

5 Review and Evaluation

The primary aim of this project was to develop and implement an effective method for public participation in the selection of indicators for sustainable development. Following on from previous published studies by Vantanen and Marttunen (2005), Becker *et al.* (2003), Bickerestaff *et al.* (2002), Booth and Richardson (2001), Wolfe *et al.* (2001) and MacNaghten and Jacobs (1997), quantitative and qualitative methods were combined to satisfy the criteria explained in Section 2. In Section 5.1, the results of the project are reviewed, and evaluated in terms of policy relevance. To assess the success of the project in meeting its objectives, the participation process, and the extent to which participants were satisfied with it, also requires evaluation (DETR, 2000): Section 5.2 provides this evaluation.

5.1 Evaluation of Results and Policy Relevance

The project was designed so as to provide information which is policy relevant. As noted previously, provision of huge detail does not satisfy this requirement, as policy makers have neither the time nor the expertise to make sense of it. The judgement was made that results presented here (as six Ideal Q-sorts and discourses with associated indicators) provides policy makers with a manageable volume of information, but at the same time communicates the complexities inherent in the assessment of stakeholder's views and attitudes in relation to sustainable development. Results reported here provide policy makers with additional information to facilitate addressing the central issue: how to communicate to the general public the pressing need for additional policies to allow Ireland to move towards sustainability. The discourses point up the issues and concerns articulated by members of the public: this provides a basis for a more meaningful dialogue with policy makers and LAs. Indicators selected may achieve two goals: first, they may enhance further the public's awareness of sustainable development and, second, they may be adopted as one set of metrics to evaluate the success of policy initiatives in driving Ireland towards a more sustainable future. Also, the method used here provides a guide to the development of sustainability metrics. As members of the public contributed to the development of these indicators, their adoption as tools for communicating with the public, and as metrics, may be expected to enhance public ownership of new policy initiatives, and increase public acceptance of the need for them.

It is commonplace for policy makers and LAs to adopt indicators to measure the success of implementation policies. As reported in the End of Project Report, the University of Limerick, in collaboration with Limerick City Development Board, selected through input by experts and technical practitioners a list of technical indicators to assess the sustainability of development in Limerick City. While this list of indicators was concerned with a similar set of issues and concerns to those raised in this project, in detail the indicators selected were different. Based on public participation and focus group outcomes, it was very clear that, in general, participants did not understand the meaning and significance of many of the Limerick City Development Board indicators. There are more general issues arising from this finding. Ananda and Herath (2003) suggested that it is easier for policy makers to incorporate technical information, rather than the vernacular opinions of the public, into policy decision making, as the inclusion of expert opinion in the indicator development process provides policy makers with confidence that the indicators create a meaningful metric for sustainable development. Further, this expert input is understandable and familiar to policy makers, whereas value-based and vernacular information and data are perhaps not. However, this creates a potential problem, as members of the public will not necessarily understand the meaning and significance

of such technical indicators, and will therefore not see the value of related policy initiatives. Whereas if the selection of indicators were achieved entirely through public input, this might be expected to decrease the likelihood of policy makers trusting their validity sufficiently to consider them in policy making (Booth and Richardson, 2001; DETR, 2000). An ideal indicator should both be technically accurate and also resonate with the public (MacGillivary and Zadek 1995). Renn (2006) recommended that public participation processes need to combine technical expertise, rational decision making, and public values and opinions. In this project, an attempt was made to balance the needs of policy makers to be provided with technically reliable guidance, and at the same time to provide for the need for the public to gain a level of ownership in the process, and to understand and agree with the outcomes of this process and, subsequently, the implementation of policies designed to enhance Ireland's sustainability.

Involving the public in the decision-making process and providing them with feedback is of little benefit unless their input has a meaningful and visible impact on policy. Best practice, as reviewed in this report, suggests that public involvement and input should result in policy changes. Development of policy falls outside the scope of this project: there is a need to research this next stage. MacNaghten and Jacobs (1997) concluded that there had been little investigation into the political relationship between governance and the public that would be required to make fully operative policies designed to enhance sustainable development, through the creation of structures to integrate regulatory requirements with technical expertise and public opinion (Renn, 2006). The growing literature on governance for sustainable development (Lafferty, 2004; Lafferty and Meadowcroft, 2000) is contributing to filling in the knowledge gap on this institutional pillar of sustainable development, as are the theoretical and empirical studies around the practices of citizenship and sustainable development (Barry, 2005b; Dobson and Bell, 2005), and the prospects for and challenges to the acceptance of sustainable development by states (Barry and Eckerlsey, 2005).

The value of integrating participatory processes into LAs' decision making was explained in the Irish government's *Guidelines on Local Agenda 21* (DoEHLG, 2001). These guidelines encouraged LAs to adopt Agenda 21, which enshrined the necessity for public participation in the decision-making process (MacNaghten and Jacobs 1997; Spangerberg *et al.,* 2002; Smeets and Weterings, 1999). The Aarhus Convention further supported this, as it argued that the public owned the right to be involved in decision making on issues that impacted on their local environment (EU, 2003). It has been suggested that an analysis is required of the decision-making structures of LAs to identify ways in which a bottom-up process can be integrated into what are predominantly top-down decision-making processes (Booth and Richardson, 2001), to lead into a longer-term strategy for enhanced public participation. This may require the training of the decision makers (DETR, 2000), to develop a greater understanding of the potential advantages to be gained through enhanced public participation in policy making.

The methodology developed for this project was implemented at both city and village scales, and was found to be effective in each. The methodology might be replicated at local scale, and the results amalgamated to inform decision making at regional or national scale. However, this may not be the most cost effective option, and there is no reason why the methodology might not be implemented at county and national scale. At larger scale, a much longer and more intensive public information programme would be required to ensure all sectors of the population were adequately informed. To ensure statistically verifiable results from the Q-method, more than 12 individual Q-sorts[i] are required. Amongst researchers, no clear consensus has emerged to date on the value of administering a greater number of Q-sorts[i], but some have administered up to 250. This larger number may confer little benefit in identifying additional discourses, but it might be expected to enhance wider public awareness of sustainable development issues. It is to be expected that discourses will not vary significantly amongst regions: once this is established, Q-sort outcomes from a few regions might form the basis of a national-scale campaign

to enhance awareness of sustainable development issues and the need for such policy implementation.

Arising from this discussion, a number of more specific points might be made regarding the relevance of results within an Irish context:

1 For future projects which adopt the method developed in this project, it is necessary to clarify the outcomes required. Is the project objective primarily to identify indicators which are both technically sound and also resonate with the public, or is the project primarily concerned with awareness raising, and developing community activism and communication? In this project we found that the level of understanding of sustainable development issues at the outset was very low, and participants declared themselves to be unprepared to select indicators without initial and continuing support by the UL researchers. This may be expected to be a limiting factor in future similar projects. It might be argued that a primary need is for more general awareness raising and information dissemination. Many LAs have appointed environmental awareness officers: organising projects following the method described in this report might be a useful means of achieving these aims, as has been found to be the case elsewhere. Various authors have suggested that this level of enhanced understanding is a necessary precursor to the creation of widespread acceptance of, and desire for, change, which itself may be a necessary precursor to community-wide involvement in planning for a more sustainable future.

2 If future projects adopting this method have as their primary goal the development of indicators, then such projects must include additional steps not taken in this project. It is necessary that indicators selected be developed; that is, data are found to quantify them, and historical data located to allow identification of trends over time. All the indicators selected in this project are capable of this development, but future projects may result in differing indicator sets.

3 Trends over time for indicators are not in themselves adequate to ensure policy relevance. Targets to be met by specified future dates are also required, so as to measure the extent to which policy is successful in relation to the indicators.

4 This step in the process, while vital, is not in itself sufficient to ensure policy relevance: there needs to be both long-term financial and technical support from a policy-making body (such as a LA). Provision of such support will in turn depend on the policy-making body deciding that this is a productive use of resources; that is, the body intends to use the results of the process in its decision-making process. This requires the decision-making body to accept some loss of autonomy in the interests of enhancing the quality of decision making, and the involvement of the community in the process.

5 There may be an indirect route available to policy relevance. It is perhaps noteworthy that the indicators selected by the Sustainable Seattle Project (Sustainable Seattle, 1998) were not accepted by any formal decision-making body. Rather, the participants learned from the project, and this additional understanding influenced their attitudes and behaviours in relation to sustainability. It also influenced the way in which they voted in local elections, as they favoured candidates who highlighted sustainability issues in their manifestos. The methodology described here might be adopted by self-funding NGOs and community associations to enhance awareness and knowledge dissemination.

6 The differences between the bottom-up and top-down indicators for Limerick as mentioned earlier in this report are insightful. As might be expected, the community-generated indicators were focused more at neighbourhood scale, and were often concerned essentially with 'good neighbourliness'. They focused more on everyday issues related to the management of Limerick, such as access to health care, the reduction in crime and antisocial behaviour, perhaps summed up by the view that we need to tackle current issues before we start thinking about future issues. This highlights the institutional dimension of sustainable development: it has been argued that good management of contemporary issues is a prerequisite

to good management of future issues. It may also suggest an effective means of communicating the essence of sustainable development: problems and issues that we face now may be expected to become increasingly serious in future if we fail to alter policies appropriately.

7 It is often said to be difficult for policy makers to address issues raised by the public, as often each member of the public appears to have a somewhat different perspective on each issue. It is suggested here that policy makers (at national, regional and local levels) can learn how to communicate more effectively by considering the various discourses described here, and organising their information to address the concerns important to each discourse.

8 Such information has to be provided in a range of modes, including some using non-technical language. The project team were unprepared for the difficulty in communicating technical ideas with many focus group participants, and our documentation had to be made increasingly more accessible through a series of iterative modifications. Audio versions of the documents helped some participants, and visual material was often effective when text failed to communicate.

9 The process as described in this report should not be seen as a blueprint for community involvement in indicator selection, to be applied in an identical fashion to all future projects. To encourage and support community buy-in to policy formulation, it will be necessary to allow a degree of flexibility in agreeing on the precise method to be adopted. The method described here should be seen as a starting point, capable of adaptation and, indeed, reinvention by different groups and communities.

10 There exists on the one hand an urgent need to gain widespread acceptance for new policies in relation to sustainability, perhaps especially climate change, but on the other hand there is no fully tried and tested method for achieving this. Many issues raised in this report are not easily tackled: they revolve around a number of key concerns, such as the management of power relations in the planning process, how to decide which new policies are actually better than existing ones, and how communities themselves can manage irreducible differences in judgements regarding planning initiatives. For good reasons, this project was titled ‘action research’: the only way to find solutions is through trial and error.

5.2 Evaluation of the Methodology Adopted

5.2.1 Inclusiveness

A project objective was to identify stakeholder groups often excluded from the participation process, and employ means of encouraging their participation in future. This section evaluates the degree to which this objective was achieved. Failure to adequately address the issue of inclusiveness in participation processes was identified as a problem by Bickerstaff *et al*. (2002): there is need to include as many stakeholders as possible, and also to ensure that those most affected by the process results are included (DETR, 2000). To maximise the spectrum of views included, requires consideration of both which stakeholder groups to include and which people within each group. Here, active targeting was employed in an attempt to ensure that an equal balance of males and females in a diversity of socio-economic groupings (including minority groups) and in a range of age groups were represented, following Vantanen and Marttunen (2005).

Wellstead *et al.* (2003) noted that established stakeholder representatives were not necessarily fully representative of their constituents. In this project, stakeholder representatives were encouraged successfully to involve less-active members of the public in their stakeholder groups. However, this was not found to be straightforward, as barriers to participation identified previously by, for example, Wolfe *et al.* (2001) and DETR (2000) were encountered. These arose because of problems identified by potential participants (Wolfe *et al.*, 2001; MacNaghten and Jacobs, 1997) and relating to the authority commissioning the process (Bickerstaff

et al., 2002; Booth and Richardson, 2001; DETR, 2000). Major barriers encountered here were doubts about relevance to daily lives, consultation fatigue and apathy: strategies were developed to overcome each. Many potential participants did not understand 'sustainable development' either in simple terms, or as a complex concept. This barrier was to an extent overcome through the public information programme and focus group meetings. The public information document was written in non-technical language and with examples relevant to the everyday lives of potential participants. A balance had to be struck to ensure that the document adequately described the complexity of sustainable development, otherwise the process of participation would have been rendered meaningless. However, the process also had to be meaningful to people who had a good understanding of sustainable development, otherwise they would not have been motivated to dedicate time to participate. Here, one focus group withdrew from the process before the Q-sort stage, as they believed the exploration of sustainable development required of them was over-simplistic and unproductive. To overcome such problems increasing, a number of versions of the information document were written, over much iteration and in consultation with stakeholder group leaders, to fine-tune the language and degree of technical detail to the interests and needs of individual groups (see Appendix 2 of the End of Project Report for examples). MacNaghten and Jacobs (1997) reported that the participants of their focus groups described the term 'sustainability' as 'a piece of abstract jargon, even gobbledygook'. Here it was found that language created more problems than the concept: while, for example, for some participants 'sustainable development' meant little, 'quality of life now and for their children' was generally understood.

The success of this project in overcoming this barrier was assessed through responses to questionnaires distributed at meetings (Appendix 3 of the End of Project Report), in which participants were asked to indicate the extent to which the information provided allowed them to participate fully in the project (results are shown in Appendix 8 of the End of Project Report)**.** Many of the participants (43%) were satisfied with the information they received, 26% were not fully satisfied with the information and 25% were not satisfied. This may be indicative of a wider problem. In the initial focus group meetings, 35% of participants indicated that they had prior knowledge of sustainable development. In a survey of 200 members of the public in Limerick, 44% claimed some knowledge of sustainable development, but when asked to define it, only 24% provided a definition. These findings point to the need for a more intensive education process in comparable future participation processes. In focus group meetings, sustainable development was disaggregated into the social, economic and environmental issues and concerns, and participants were asked to discuss these in the context of their local communities. By framing the discussion in the personalised context of quality of life in their local community, the majority of participants were willing and able to express their views. As 17% expressed significant difficulties in understanding the topics being discussed, the facilitation was not fully successful in making the topic relevant and understandable to the participants. This same issue resulted in 14% of participants undertaking the individual Q-sorts[i] expressing a difficulty in understanding the process.

Consultation fatigue resulted in difficulty in persuading participants to attend meetings. Several meetings were abandoned as no participants attended, despite intensive efforts to contact participants made by the stakeholder representatives and project members. The most frequently given reason for non-attendance was disillusion associated with being involved in previous consultation processes but seeing no positive results arising from them, as also noted by Barry (2005a). Some regular attendees were overburdened with requests and felt exploited. Feedback mechanisms built into the process were designed to overcome this barrier: being told that their views would form a basis for evaluation of the project encouraged participants. Participants stressed the need for LA representatives to be actively involved, and for the authorities to build project outcomes into their decision-making process. This issue has been raised by other authors (Fisher, 2000; Smith, 2005) and needs to be addressed in comparable future participation processes.

Apathy as a barrier to thinking about sustainable development was reported by MacNaghten and Jacobs (1997), and was encountered in this study by both stakeholder representatives and the project team. Apathy is evidenced by a statement made by one participant during a focus group meeting:

> Who cares if life is better for future generations, we are still struggling.

To overcome apathy, strong stakeholder analysis and purposeful targeting of specific groups were identified as critical by Becker *et al.* (2003) and Vantanen and Marttunen (2005), respectively. Instead of waiting for stakeholder groups to express their interest, the public were actively encouraged to take part in the process (following guidance provided by DETR (2000)). Contact was made directly with stakeholder groups and the relevance of the project to them was explained in order to generate enthusiasm amongst potential participants: involving stakeholder representatives and community members in the setting up of the focus groups also helped to encourage their further participation.

Mistrust was a further barrier encountered. Attempts to establish one focus group failed due to people's fear of expressing their views in public. For other groups, there was less but still significant mistrust of the project team members when contact was initiated. A first step in overcoming this barrier was to solicit the involvement of established community groups, such as Freshford 2020 in Freshford and the Community Forum and the Paul Partnership in Limerick, to enhance the success of the initial communication with individual stakeholder groups. It was also important to build a good relationship with the individual stakeholder representatives, who could then vouch for the impartiality of the project team. It was made very clear at the start of the focus groups that the project team did not favour any interest group, that comments made would remain confidential, and that no statement would be associated with a person or focus group. The evaluation questionnaire was anonymous and the provision of contact details was voluntary, and such details would remain confidential. Assurances were given that contact details were to be used to provide feedback or, in the case of people who volunteered to take part in the Q-sorts[i], to contact them to make necessary arrangements.

5.2.2 Timing and Extent of Public Participation

A project objective was to develop a methodology for enabling stakeholders (including business, industry, agriculture, communities, policy makers and NGOs) to play a more significant role in the selection of indicators. This section evaluates the extent to which this objective was achieved. DETR (2000) suggested that best practice for a participation process is that the public are involved as early as possible in both the design and implementation stages. Here, stakeholder representatives were members of the Steering Committee and played a role in the project design. Members representing Limerick Community Forum, Limerick Chamber of Commerce, Freshford 2020, Kilkenny County Council and the Paul Partnership in Limerick, were consulted in relation to the most effective way to plan and implement participation for their stakeholder groups. Early in the project, through implementation of the Q-method of discourse analysis, the issues that the participants considered most important were identified. From these were derived statements and, subsequently, indicators. Indicator selection was not undertaken in the first instance by participants because of project team concerns that some groups might have experienced difficulty with this stage of the process, and would therefore have been effectively excluded from the process. Thus the judgement was made that the benefits of inclusiveness outweighed those of involving the public in the initial selection of indicators. However, members of the public were asked to evaluate the extent to which the indicators identified were relevant to statements arising from focus group meetings.

5.2.3 Extent to which Broader Public Opinion was Represented

A project objective was to analyse ways in which stakeholders articulate their own understanding of sustainable development and to integrate these with policy making and presentation, so as to develop more effective stakeholder commitment to the sustainable

development strategy. Sections 5.2.3 and 5.2.4 evaluate the extent to which this objective was achieved. While the Q-method is designed to provide results which reflect the views of participants in a statistically justified manner, clearly the results cannot be claimed to be representative of the entire populations of Limerick and Freshford. The ideal discourses do represent the views of a proportion of the population, but this proportion is not estimated or quantified. The value of the Q-method lies is its ability to identify discourses current within a population, using a relatively small sample size. The assumption is made that through careful stakeholder and statement analyses the results will provide an accurate reflection of a broad spectrum of discourses current in the population. MacNaghten and Jacobs (1997) suggested that:

> When there is a consensus across a number of (focus) groups of differing characteristics, one may speculate that such consensus might be pervasive within – and therefore of more general significance for – society as a whole.

This highlights the necessity that methods adopted in stakeholder and statement analyses are transparent and standardised. However, it is acknowledged that despite the best intentions of researchers, some personal bias is possible. Here, attempts were made to limit researcher bias by involving the Steering Committee, LAs and NGOs. Within the statement analysis, criteria were established prior to the selection of statements, and the project team met three times so that members could challenge each other in relation to the appropriateness of candidate statements for the Q-sorts[i]. However, statement analysis, to an extent, is driven by the views of the selection team (Van Exel and de Graaf, 2005). The assumption is made that in replicating the process, if the same method of statement selection was followed, then, although individual statements selected may be different, the overall spectrum of opinions identified would be similar.

Indicator selection also involved an element of researcher judgement. While the Ideal Q-sorts identified the most important issues for participants, identification of scientifically robust indicators requires input by researchers familiar with indicator development. Indicator selection was therefore divided into two stages. In the first, researchers identified indicators most appropriate to the statements to form an initial set. Following a set of criteria provided in Ravetz *et al*. (2001), these indicators were also capable of being developed, that is, scientifically meaningful. Then the stakeholders were asked to select from this candidate list of indicators those which they felt were most appropriate. In this way, the integrity of the public participation process was protected.

During the focus group meetings, the context of the discussion was framed for the participants by the facilitator, but participants were free to discuss whatever issues they considered relevant to sustainable development in their community. The facilitator experienced difficulty some of the time in preventing the discussion from deviating from sustainable development issues, or from fixating on one issue. Often participants focused on a limited spectrum of issues that were most relevant to their stakeholder group but too limited in scope to represent the complexity of sustainable development. Facilitators quickly learned techniques of balancing discussion of local issues with more general issues related to sustainable development.

5.2.4 Evaluation of the Effectiveness of Participant Involvement

For the results of the participation process to be fully valid, all participants should have an equal opportunity to contribute. Views expressed through evaluation forms distributed after focus group meetings indicated that only 4% of the focus group participants expressed dissatisfaction with these meetings. In addition, 82% of participants agreed that all relevant topics were included in discussions (Appendix 8 of the End of Project Report). These results suggest that focus groups were a suitable method of eliciting information on sustainable development from members of the public. MacNaghten and Jacobs (1997) advocated the use of focus groups in policy-related studies, and considered them to be 'responsive' and allow researchers to obtain information beyond the 'superficial' response often given in questionnaire surveys. They also suggest that focus groups allow the

participants to use their own language and explain their own meanings. Here, focus groups of 8–12 people were found to be sufficiently large to elicit a broad range of opinions and at the same time allowed each participant to express his or her view, even when they had little prior knowledge of the topic. Effective and proactive facilitation of the meetings encouraged participants to explore wider (in addition to more local) issues. No one participant dominated meetings, and stakeholder analysis and purposeful sampling ensured that those with vested interests or exceptional prior knowledge of sustainable development did not overly influence discussions. Thus, focus group meetings offered clear advantages over less structured and larger public meetings, and allowed many more individuals to participate than would have been possible if views had been elicited through one-to-one interviews. Focus group discussion was encouraged on the three pillars of sustainable development, namely society, economy and environment. The effectiveness of institutions or governance is considered to form a fourth pillar, but this pillar was discussed only in the context of the other three.

The duration of focus group meetings was two hours: this duration represented a compromise between (a) providing a sufficient length of time to allow adequate discussion on a complex issue, and (b) avoiding lengthy meetings which would have acted to discourage participation. In order to gauge whether it would be possible to both explore the concept of sustainable development and to identify candidate indicators within a two-hour focus group meeting, participants in the first few focus group meetings were asked to assign candidate indicators for the key issues discussed. For most participants, on the basis of the information programme undertaken here, it was clear that two hours was not sufficient time to (a) introduce the complexity of sustainable development and identify key issues, (b) describe the significance of indicators, and (c) select indicators. This issue is relevant in relation to another project objective, which was to focus community awareness raising on the interrelatedness among sustainable development, quality of life and industrial/business competitiveness. Most participants expressed no great difficulty in making linkages amongst these dimensions of sustainable development, as they saw clearly the importance of links between, for example, the availability of employment, good neighbourliness and a healthy environment. However, the significance of these linkages was not well represented in the final set of indicators. This was in large part a product of the process of statement and thus indicator selection: a further step in the process might have focused on such linkages and appropriate indicators. This step would require at least one additional meeting for each group: in this case researchers clearly understood that convincing participants of the need for a further meeting was not practicable. The process of identifying such linkages happened over a period of some years in the Sustainable Seattle Project (Sustainable Seattle, 1998; Atkisson, 1996): it proved to be an overambitious objective within the context of this project.

Best practice suggests that public participation should not stop after the generation of results, but should involve feedback to participants and the wider public. Here, feedback was provided through various media to maximise the target audience. All participants who provided contact details were mailed a short summarising non-technical report (see Appendix 9 of the End of Project Report). Feedback was also provided through stakeholder representatives and through the project website. However, there is a possible danger in these actions: they have raised awareness and the hope that action might be taken by policy makers. The absence of future relevant policy initiatives may be expected to further encourage local community disillusion.

5.2.5 Increasing Public Awareness of Sustainable Development

A project objective was to increase community and stakeholder awareness and understanding of issues central to sustainable development, and improve the chances of future participation, so as to enhance opportunities for successful implementation of existing policy and the introduction of fresh policy initiatives towards sustainability goals. This section evaluates the extent to which this

objective was achieved. Increasing public awareness of sustainable development was an important aim of this project: the need for this was demonstrated by the fact that of 105 participants in focus group meetings, only 35% indicated that they had prior knowledge of sustainable development. Of focus group participants, 69% indicated that their knowledge of sustainable development had been improved significantly through participation, and a further 13% indicated that their knowledge had been improved slightly. Only 11% of participants indicated that participation did not improve their understanding of sustainable development. A similar question was asked of the individual participants in Q-sorts[i], with similar results, though a higher percentage (19%) indicated that this stage of the process failed to improve their knowledge of sustainable development (Appendix 8 of the End of Project Report). Reasons for this were not clear: it may be that the information programme was inadequate, but conversations with participants suggested that, for some at least, their relatively full prior understanding of sustainable development was the cause. However, a project goal, to ensure that all participants benefit to some extent such that participation is a form of social and mutual learning, was achieved to a satisfactory level.

5.2.6 Adaptability of the Methodology

A project objective was to demonstrate the effectiveness of this methodology within a city and village and identify appropriate modes of adapting it to local circumstances. This section evaluates the extent to which this objective was met. As the foregoing text explains, the methodology was successful in that a set of indicators was selected, for which all participants expressed satisfaction. Recruitment of participants in Limerick was relatively more straightforward as there existed a greater pool of established business, social and community groups. Within the village of Freshford, such groups did not exist and, in addition, other sectors, especially farming, were relatively more important. The project demonstrated a method to overcome this situation: by linking with a Freshford community group (Freshford 2020) local social and business networks were accessed, thus facilitating the identification of willing participants.

5.2.7 Indicator Development and Differences in Results from Urban and Rural Settings

A project objective was to identify and develop indicators of sustainability deemed important to local communities. This section evaluates the extent to which this objective was met. The first part of this objective has been evaluated in the previous section: a set of indicators deemed important to participants was identified. A check was made to ensure that data were available to develop each indicator selected: all were capable of development. Scoring indicators was not undertaken. Various stages in the development and implementation of the method took longer than had been anticipated at the project outset. Meetings always took longer to organise than had been anticipated, and none could be held over the summer months or near to Christmas because of participants' holidays. Material to be disseminated to explain the meaning of sustainable development had to be rewritten four times to enhance its accessibility for some focus group participants. Also, explanations had to be provided via audio tape, and visual aids had to be created for some focus group members. These and other delays created time pressure during the closing stages of the project (which had a time frame of 18 months). Other parts of the project were considered a priority to complete, especially the communication of findings to participants. The agreed indicators reported here were selected by a particular set of participants, and other focus groups might be expected to agree on a somewhat different set of indicators. In the absence of any need expressed at Steering Committee meetings, and given the time pressure, researchers decided to take indicator development no further than reported here.

5.2.8 Similarities and Differences between the Issues Considered Important by Urban- and Rural-based Stakeholder Groups

A project objective was to highlight similarities and differences between the issues considered important by urban- and rural-based stakeholder groups. This section evaluates the extent to which this objective was met. At the outset of the project, based on the experience of stakeholder participation in indicator selection in Limerick

City and County (Kelly and Moles, 2002), researchers thought it probable that indicators selected by Limerick and Freshford participants would differ considerably. In fact, indicators selected by participants at both locations were remarkably similar. Making meaningful comparisons was therefore not possible, and results from the two locations were pooled in all analyses reported here. This finding is of potential significance: it may be that the discourses described here are representative of many people living in Ireland, and are therefore of greater value to policy makers.

5.2.9 Collaboration between the Republic of Ireland and Northern Ireland

A project objective was to aid in the development of collaboration between research centres in Northern Ireland and the Republic of Ireland. The research was undertaken through a close collaboration between the University of Limerick's Centre for Environmental Research and the Queen's University Belfast's Institute of Governance, Public Policy and Social Research. Collaboration between these research centres is active (as of November 2008) on other research projects.

6 Conclusions

6.1 Results and Policy Relevance

1 It was found that the initial knowledge and understanding level of many participants was somewhat low, to the extent that they did not believe themselves competent to contribute to focus groups without continuing support and guidance by university researchers. Participation in the process of indicator selection described here was found to be a very successful means of enhancing awareness of sustainability issues.

2 It was found that initial attempts by researchers to provide written explanation of the concept of sustainability were unsuccessful as communication instruments, as the language was too technical and the complexity was too great. Four iterative revisions of these materials, along with audio and visual aids, each progressively more straightforward, were required before they were deemed by all participants to be accessible.

3 Results presented here demonstrate that each participant's view on sustainability issues was not individualistic or unique, so that generalisation was possible.

4 This generalisation was achieved through the separating out of six distinct discourses (these being a set of views and attitudes held in common by a group of participants), which individually and collectively provide important insights into general public attitudes and opinions in relation to sustainability.

5 However, these discourses differed in important ways: there existed a diversity of opinion and a clear lack of unanimity on issues related to sustainability. Of special note, there existed no obvious consensus amongst discourses on environmental issues, with the sole exception of waste management. This evidence, along with that from previous surveys reviewed here, serves to underline the significance of the public information gap in relation to sustainable development. Most members of the public do not have a clear conceptualisation of sustainability, and why it is important to contemporary Ireland.

6 The indicators selected by participants (bottom-up method) differed considerably from those selected by 'technical experts' involved in Limerick City management (top-down method). These differences were twofold. First, the top-down generated indicators were couched in more abstract and technical language. Second, the bottom-up generated indicators were more concerned with everyday issues at local scale, and more concerned with present experience rather than future generations.

7 In relation to communication from policy makers and decision makers to the public on issues related to sustainability, these findings have a number of important implications. It has to be assumed that current levels of public understanding in relation to sustainability issues are somewhat low. Enhanced awareness-raising measures are required. Such awareness raising may take a variety of forms, but to ensure that communication is accessible to all sections of the community, (a) issues need to be explained in a way which avoids use of technical language, and (b) in a way which focuses on everyday experiences and neighbourhood-scale issues.

8 The importance of the institutional pillar of sustainable development emerged as being of significance: some participants viewed many sustainability issues in relation to the need for better current management of neighbourhoods. Enhancing current experience was seen as a crucial precursor to moving towards a more sustainable future. Results contribute to our understanding of the 'value–action' gap, whereby people appear to articulate one view, but make daily decisions apparently in accordance with a rather

different and contradictory view. Ideas common to most discourses related especially to social issues of immediate concern and at community scale: these were the need for tougher measures to reduce antisocial behaviour, better financing of community projects and local services, better help for people in difficulty, and issues relating to the spatial separation of social groups. In order to encourage behavioural changes to advance sustainable development, it may be that these pressing social issues first need to be addressed through policy initiatives.

9 Results presented here provide guidance for future campaigns to reduce the public knowledge gap. It is important that future campaigns target the issues and concerns which are important to people, as illustrated by the discourses described here. These discourses also suggest additional themes (comparable to Race Against Waste) for campaigns to enhance public awareness of sustainable development issues.

10 Results described here may provide a guide to the selection of indicators which are likely to be perceived as relevant to the everyday lives of members of the public. However, there exist two caveats: (i) it cannot be claimed that these indicators are representative of national views, and (ii) for members of the public, the process of selecting indicators is in itself of great value in raising awareness.

11 Feedback to participants is crucial: this may take the form of feedback in relation to the process of indicator selection (as was undertaken in this study), but importantly in the longer term, needs to take the form of feedback on the reaction of decision-making bodies to the indicators selected. This latter form of feedback was not provided in this study, as no decision-making body to date has accepted the indicators as a basis of policy development. Participatory indicator selection, to be fully effective, requires buy-in and long-term support (including financial support) by such decision-making bodies, perhaps especially city and county councils and regional authorities. Of fundamental importance to effective feedback, the decision-making bodies need to translate indicators into targets, each quantified and with a date for achievement. Based on experience elsewhere, this will be crucial in convincing participants that the time expended and the expense incurred in the process are worthwhile.

6.2 Methodology and Policy Relevance

The method adopted here combined established and novel techniques and instruments, and was successful in facilitating participants in arriving at statements and in deriving indicators from these statements. It was also successful as a means of enhancing participants' awareness of sustainability issues. The indicators selected differed in important ways from sets of indicators published in technical and scientific sources: the method provided sufficiently different results to justify its employment.

The method is, to an extent, scalable: here it was applied at settlement level in a city and a village, and it worked well in both. The assembling of focus groups in the village required a more proactive approach by the researchers, as at village scale no suitable pre-existing grouping existed. At the village scale, the organisation Freshford 2020, the aim of which was to plan a more sustainable Freshford, did pre-exist, and this provided researchers were some initial contacts within the local community and with important opportunities for introducing researchers and the project. However the existence of such an organisation, while useful and time saving, is not considered critical to the success of the outcome. The Q-method, theoretically, is also applicable at regional and, indeed, national scales, though the resource cost will increase with the scale of application, though not to the extent required for census-type surveys. Replication of the study in other regions will identify the extent to which indicators selected in this study are representative of the views and attitudes of the people resident in Ireland.

No changes to the fundamental method adopted here are considered necessary. Future similar projects following this method will therefore be less time and cost intensive, as all necessary materials and the organisation of meetings are included in this report, and are capable of straightforward alteration to meet other circumstances.

Replication of the study at larger spatial scales will require some adaptation of the method and may impact on the usefulness of the results gained. The number of candidate focus groups will necessarily increase, requiring a selection procedure to be adopted in order to ensure that the groups remain as representative as practicable. Differences amongst discourses as identified in this study underline the importance of including a cross section of the community and of attracting participants who would not normally take part in such processes. Indicators selected by participants often reflected concern for sustainability issues at local scale. Issues may be expected to differ from locality to locality (although this was not found in this study of two settlements). Therefore it may be that enlarging the scale will result in a loss of focus on local issues, which may be expected to weaken the overall results as participants will not see their concerns reflected adequately in the final indicator selection. At larger scale, a smaller proportion of the community can be involved in the process so that the opportunities for awareness raising will be weakened. It may be that an insufficient proportion of the community is involved to allow successful dissemination of awareness within the community to encourage a change in attitudes and behaviour. If this point is accepted, then the method may be expected to be most successful at LA scale, and to provide most useful information to decision making at this level.

Under optimal conditions, policy innovation based on indicators selected following this method will alter the liveability of the city or county, and hence the community's views on the most urgent sustainability issues facing them. Therefore, to be of greatest value, the process of indicator selection should be seen as ongoing or at least iterative. The longer that participants are involved, the greater the opportunities for, and the likely success of, awareness raising. Within a longer-term process, participants may take the opportunity to adapt, perhaps reinvent, the process, to make it more effective as their understanding increases, or as circumstances evolve. This may be expected to increase their sense of ownership of the process.

The recent campaign Race Against Waste provided relevant information on waste management. Results of this project suggest that there was a much greater uniformity in views on waste management: on this issue alone the six discourses differed very little. It may be concluded that such uniformity arose as a result of this campaign: most people were better informed by it. This suggests a further application for the method described here: it might be adopted to evaluate the success of future similar campaigns, and thus inform decision makers on the most productive forms of campaign to mount in future.

The Q-method was adopted in this study to select indicators for sustainability: there is no reason why the same process might not be adopted to capture and process the views and attitudes of communities in relation to other associated issues, such as education or public-transport provision, or. indeed. issues within any other policy arena.

The project furthered North–South collaboration in Irish research, and aided in the development of strong links between research centres in the University of Limerick and Queen's University Belfast.

6.3 Value for Money

In accessing public views on issues, adoption of the Q-method creates major savings in cost and time when compared with more traditional means of accessing information of this quality, such as interview-based surveys. The most time-intensive phase was the identification of the concourse (the major ideas surrounding the discourses).

This low cost is attributed to:

- The relatively small number of participants required for Q-sorting.
- The ability of the method to deliver results quickly.
- Low equipment and software licence costs.

The concourse and associated discourses may be adopted in future replication of the participation process described here, thus creating cost savings in follow-up projects.

The project provides a successful example of effective interdisciplinary research, bringing together researchers from environmental and social sciences from the Republic of Ireland and Northern Ireland, and making efficient use of expertise in the two jurisdictions. Each contributed in crucial ways to the successful outcome. Publication of this report may encourage further interdisciplinary work, and greater collaboration between North and South.

The process followed in this study has an added value in that it allows evaluation of possible further developments in the participatory process in aiding the development of policies for enhanced sustainability in Ireland. Examples reviewed in the literature include sustainable development-focused citizen juries and deliberative polling. Future projects developing and evaluating methods for operating such processes may be expected to provide additional methods for breaking down knowledge and attitude/ behaviour gaps, and knowledge-policy formulation gaps, both frequently cited as barriers to the successful implementation of sustainable development policy.

Section 7 follows with details of policy recommendations and future research requirements stemming from this project.

7 Recommendations

7.1 Policy Recommendations

1 That government at national, regional and local levels must more fully recognise the importance of dialogue with the general public in developing and implementing successful policies for sustainable development.

2 That the knowledge gap in relation to sustainable development issues is recognised as a major barrier to the successful implementation of sustainable development policies, and that policy initiatives should be implemented to narrow this gap.

3 That future dialogue between government and the general public in relation to sustainable development should be couched in terms that are both accessible and relevant to all members of local communities.

4 That policy makers use the discourses identified in this report to enhance the accessibility of public explanations of the justification for policy initiatives to enhance sustainability.

5 That policy makers adopt the method explained in this report to evaluate the extent to which publicity campaigns such as Race Against Waste are successful in raising public awareness and understanding, and to select candidate topics for future campaigns.

6 While it was found that discourses supported by Freshford and Limerick participants differed very little, it cannot be assumed that these discourses and attendant indicators would be acceptable to all communities. It is therefore recommended that the process described in this report be replicated in other Irish settlements, to determine the extent to which different communities will support differing discourses and select differing indicators, as a guide to policy formulation at regional and national levels.

7 That local authorities be encouraged to adopt the process as described in this report, and to commit to longer-term support so as to allow more time for awareness raising and information dissemination, to provide financial support for this process, to fix quantified targets with time frames based on indicators selected and to report to the public on progress in meeting targets.

8 That local authority environmental awareness officers be encouraged to adopt the method described in this report to create opportunities for public awareness raising. This should be undertaken in a manner similar to the Sustainable Seattle Project, in which participant awareness raising was seen as more important than indicator selection.

9 Pressing contemporary issues identified through the discourses should be addressed through policy initiatives as a precursor to fuller community engagement with longer-term sustainability issues.

10 Indicators identified in this project should be used as metrics for the evaluation of future policy initiatives designed to advance Ireland towards a more sustainable future.

7.2 Recommendations for Future Research

1 The extent of possible inter-regional and urban–rural differences in discourses on sustainable development should be investigated through follow-on projects adopting the method as described in this report.

2 The indicators selected in this project should be developed; that is, scored, past performance and progress in achieving published targets measured, and this information reported to participants.

3 A next step might be to study linkages in more depth. Two types of linkage are of interest. The first type of linkage is between top-down and bottom-up indicators, and the attendant possibilities of merging these

into a single set of indicators which aims to satisfy a majority of stakeholders and create an agreed, accessible, unified agenda for community sustainable development. Sufficient overlap between top-down and bottom-up indicators was found to make this a practicable exercise. The second type of linkage is that existing between indicators in the various categories, such as linkages between social and environmental indicators. It has been argued that the essence of planning for sustainability is the identification of such linkages and their integration into policy formulation. Understanding of such linkages is considered by some authors to be the acid test for a full appreciation of the concept of sustainability. Participants in this project displayed some understanding of these linkages, so that developing this understanding is seen as a practicable undertaking.

4 Future research should explore the value of adopting the method described in this report in evaluating the impact of sustainability awareness-raising campaigns.

5 Future research should explore other methods for enhancing the effectiveness of participatory processes in providing information valuable to decision makers, so as to enhance the successful implementation of sustainable development policy.

6 This research topic might be recognised by funding bodies as of importance to both Northern Ireland and the Republic of Ireland, and that future North–South collaboration is encouraged in follow-on projects.

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Acronyms

CCTV	closed-circuit television
CSO	Central Statistics Office
DETR	Department of the Environment, Transport and the Regions (UK)
DoEHLG	Department of the Environment, Heritage and Local Government (Ireland)
DPSIR	driving forces–pressures–states–impacts–response
EPA	Environmental Protection Agency (Ireland)
GDP	gross domestic product
GNP	gross national product
IPC	integrated pollution control
LA	local authority
NGO	non-governmental organisation
OECD	Organisation for Economic Cooperation and Development
SWOT	strengths, weaknesses, opportunities, threats
UL	University of Limerick

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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