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Identifying, Reviewing and Testing the Factors that Drive the Sustainable Behaviour and Transition of Communities, Groups and Individuals

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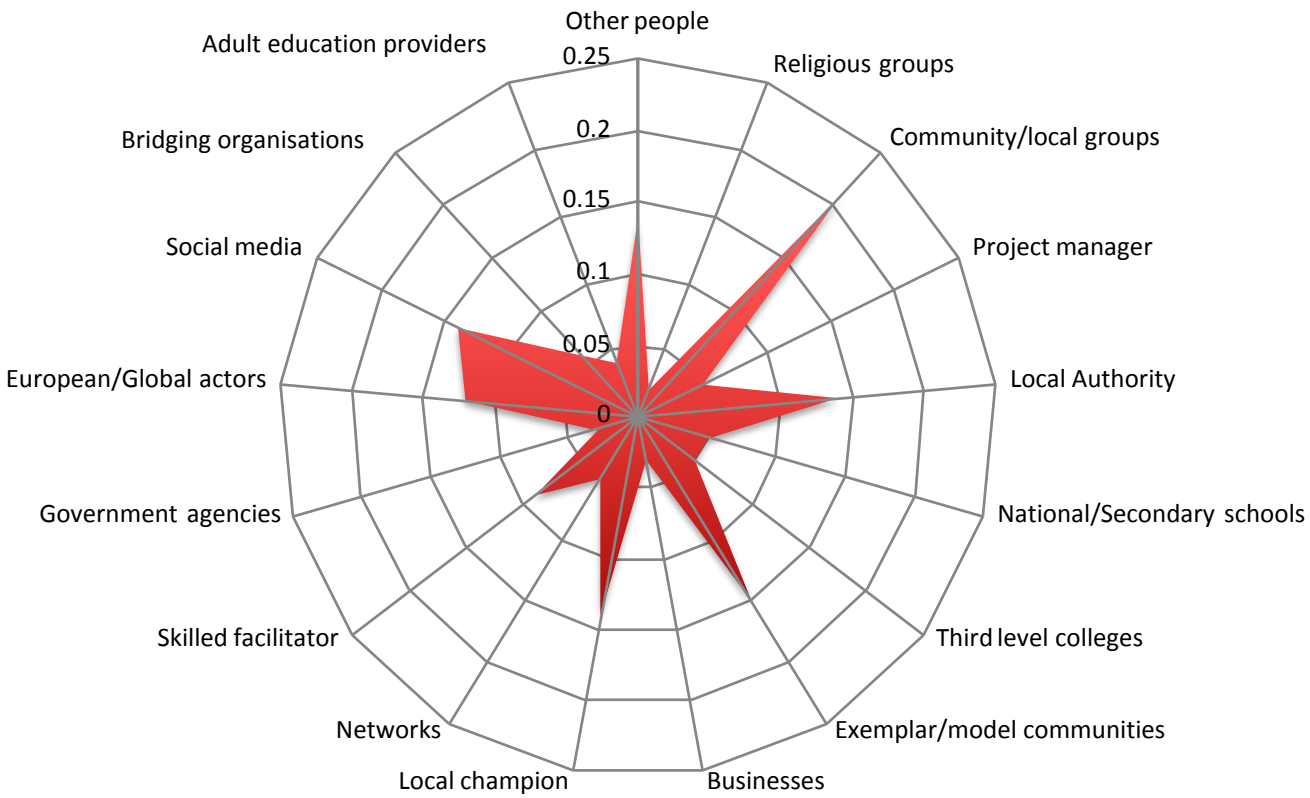

Roinn Cumarsáide, Gníomhaithe ar son na hAeráide & Comhshaoil
Department of Communications, Climate Action & Environment

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ENVIRONMENTAL PROTECTION AGENCY

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- Office of Evidence and Assessment
- Office of Radiation Protection and Environmental Monitoring
- Office of Communications and Corporate Services

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EPA RESEARCH PROGRAMME 2014–2020

Identifying, Reviewing and Testing the Factors that Drive the Sustainable Behaviour and Transition of Communities, Groups and Individuals

(2015-SE-DS-3)

EPA Research Report

Prepared for the Environmental Protection Agency

by

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Cover image: Actors contributing to local sustainability in Galway City.

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Executive Summary

This report details research undertaken to understand the factors that drive or enable sustainable behaviour and sustainable transition. Owing to the economy of scales provided by community, this research generally takes a community perspective. Nonetheless, the factors identified are relevant to individuals, groups and communities.

Firstly, this research needed to review and identify the factors that drive sustainable behaviour or transition for individuals, groups or communities. In doing so, it has built a list of 109 factors and separated them into 17 actors, 39 drivers and 53 communication factors, using rationale aligned with network theory. This research also attempts to categorise these factors using Stern's attitude–behaviour–context (ABC) approach with limited effect.

Focus groups were conducted with Irish communities to test the applicability of factors that were identified from community examples around the globe. The focus groups tested the applicability of the factors and also prioritised them within each community. This provided a unique factor (actor/driver) profile for each community, and it is clear from the results in this report that what drives sustainable transition in one community is different from what drives it in another. The findings from the eight sets of community results highlighted huge diversity. This clearly indicates why conventional policy approaches struggle to cope with such diversity, resulting in no or poor sustainable transition.

To cast light on this latter challenge, this research hosted a sustainability co-design event for six of the eight communities. In this co-design event, each community met sustainability academics, funders, community practitioners, policymakers and resource use specialists. Using discourse-based approaches, conversations were facilitated that generated 215 sustainability ideas for the six communities. Individual communities received between 30 and 70 sustainability ideas across the following sustainability themes: energy use, waste assimilation, transport use, food, water and miscellaneous. The conversations hosted, on behalf of and with communities, have provided short-, mid- and long-term ideas for sustainability projects based on the specific characteristics of those communities and their actors and drivers and on real-life case studies where the sustainability ideas generated are already being implemented.

This research has therefore cast light on the diversity of factors that drive sustainable consumption and transition. It has also attempted to provide some understanding of this diversity. In so doing, it explores how policymakers might support sustainable transition going forward. Single policy measures can be successful but there are cases where such policy does not fit the diversity presented by communities. Where this is the case, bundling of communities to fit policy measures would be beneficial. In this way, if communities with similar characteristics were pooled, appropriate policies could be designed to fit the relevant actors and drivers, and sustainable transition would be enhanced. The findings from the research suggest that community and local authority offer an economy of scale for such sustainable transition. This research therefore aimed to reduce the gap between sustainable community action and policy. Based on the results, stakeholder reaction and testimony and the actor/driver profiles, there is good potential for co-design and co-production of sustainability for and with communities.

1 Introduction

This research set out to identify and critically review drivers that compel sustainable behaviour and transition. Chapter 2 outlines reviews and updates sustainability drivers within interventions across the globe, adding these to those identified prior to 2011 (Carragher, 2011). Characterisation or categorisation of system factors enhances our understanding of their system and how the factors operate. The research categorisation generally uses reasoning similar to that of network theory, but Stern's attitude–behaviour–context (ABC) approach is also used to categorise the factors in Chapter 2. A format is adopted in Chapter 2, and repeated for Chapters 3 and 4, whereby both the method used and the results obtained are explored. This format was chosen because the methods in each chapter are diverse and are best placed beside their respective results and findings.

Chapter 3 then focuses on the testing of these sustainability drivers in Irish communities, using focus groups, to enhance the identification and understanding of the drivers. Chapter 4 then looks at how these research findings were utilised in a co-design event with communities and organisations or professionals who support sustainability interventions in communities.

The final chapters in this report present conclusions and make recommendations. We conclude with the factors relevant to enabling sustainable transition of individuals, groups and communities, which include actors, drivers and factors based on effective communication. For policymakers and academics, their presence in a community underlines where "quick wins" can be achieved. For the community, resource use specialists or community practitioners, they help identify where and how local support can be mobilised. The absence of these actors or drivers in profiled communities also points to potential gaps that, if focused on, might generate longer term sustainability solutions. Further work in this area is required and this is discussed in the recommendations. Such work could include further characterisation of the drivers, research on co-creation of sustainability ideas for communities and developing tools for the various stakeholders who work in and for communities.

2 Academic and Practitioner Review

2.1 Factor Review Methodology

This review utilised both academic and grey literature for evidence of top-down and bottom-up factors (actors and drivers) essential for sustainable transition. A search of the academic literature utilising paper and electronic databases was undertaken up to July 2016. Findings from journals, reviews, articles, books, case studies, websites, community practitioner events, related conferences, personal communications and community events were garnered. Given the depth and scale of the undertaking and the time resources available, this review provides a pragmatic examination of the key drivers and actors.

The grey literature reviewed included material from grassroots programmes and community-based interventions up to July 2016. The following relevant evidence bases were utilised:

1. Doug McKenzie-Mohr's community-based social marketing (CBSM) platform (http://www.cbsm.com/public/world.lasso) provided thoughts and practice on fostering and driving sustainable behaviour.
2. The Tools of Change (http://www.toolsofchange.com/en/home/) initiative supplied similar evidence to (1).
3. Networking was undertaken with appropriate communities and practitioners.
4. The electronic platform of the European Commission's Directorate-General for Energy was accessed and its ManagEnergy and Intelligent Energy Europe initiatives were utilised.
5. The Transition Towns (https://transitionnetwork.org/) initiative allowed tracking of relevant initiatives globally.
6. The Science for Environment Policy website (http://ec.europa.eu/environment/integration/research/newsalert/index_en.htm), an initiative of the Directorate-General for the Environment, was utilised.

The information required for the identification of each driver was:

- the community origin;
- location;
- reference;
- project/intervention name;
- sustainability impact; and
- presence of ongoing monitoring and feedback.

Evidence of measurement and monitoring activities, together with sustainability impact, were required for selection of factors. It was a significant challenge to this research that many interventions and campaigns at community level do not include sustainability impact measurement as a prerequisite and therefore cannot claim a measured change in sustainability. The review below is a broad synthesis, identifying the more salient drivers from tens of thousands of communities.

2.2 Characterisation of the Drivers

Characterisation is used to provide the necessary framework with which to interpret or understand the emerging factors. For the discussion below, a pragmatic approach utilises network theory-type reasoning, as it allows visualisation of the various relationships. Applying network theory to communication, two functional parts are nodes and links, where nodes are the members of a network and links are the connections or interactions between members (Collins *et al.*, 2004). This research uses actors and drivers, where actors are the physical entities in transition and are similar to the nodes of network theory. Drivers are effectively the processes with which the actors drive the transition and are similar to the linkages of network theory. This research also tested the applicability of an alternative characterisation using a framework adapted from the ABC categorisation adopted by Stern (2000). This framework is intended to add further understanding to the interpretation of the factors and their complexity.

A community's sustainability driver profile can be described as the specific set of drivers appropriate to driving that community on sustainable transition. The drivers identified in this research were tested on a number of Irish communities to generate unique community-based driver profiles. Sustainable transition presents difficulties for understanding the inter-relatedness of multiple drivers and their nuanced and complex relationships. There are considerable governance challenges in the navigation of sustainable transition, and it is intended that this research will provide greater insight for policymakers who need to design policy levers to drive sustainable transition in and across communities.

2.3 Factor Review

Actors are one component of a diverse system of behaviour change and sustainable transition worldwide. Taking a systems perspective, actors are an extremely important component, and it is through understanding their input that the complex patterns, relationships and drivers may be identified. Actors that are both top-down and bottom-up were identified, and co-operation or indeed conflict between these two functional layers is possible (Table 2.1). It is intended that this review provides the reader with a picture of a diverse and complex system and how in part this system functions.

Drivers are the chosen term for the factors that the actors use to drive sustainable consumption at the individual, group or community scales. Practitioners (P. de Schepper, University of Leuven, 15 November 2012, personal communication) and reviewers (Hume, 2015) identified advocacy services as a driver in the engagement of community in sustainable transition. Examples are stakeholder identification, characterisation and early recruitment (Luyet *et al*., 2012); these are all methods that are important in identifying synergies within a community. The profiling method is an important tool whereby settlements are assessed to establish community attributes such as demographics, capacities and deficiencies. An example of a useful source in this light is the Pobal Maps resource (https://www.youtube.com/playlist?list=PLP5HGg65POnAC-SjOINhus8PZJyUDd4CX).

Table 2.1. Actors driving sustainable transition

No	Actors	No	Actors
1	Human actors	10	Exemplar/model communities
2	Religious groups	11	Business actors
3	Community/local groups	12	Networks (businesses, etc.)
4	Energy/environmental champion	13	Bridging organisations (NGOs, etc.)
5	Project manager	14	Government agencies
6	Local authority	15	European/global actors
7	First- and second-level educators	16	Social media
8	Higher education institutes	17	Skilled facilitator
9	Further education providers		

NGO, non-governmental organisation.

2.3.1 Anthropogenic impacts and environmental damage

Population pressure is empirically associated with greenhouse gas (GHG) emissions and resource use, and ecological footprinting attempts to evaluate this (Carragher, 2011). Since 1950 the population of the world has more than doubled, and it is estimated to reach 10 billion by 2050. Land is a finite resource, yet globally the demand for land is increasing as a result of population growth, urbanisation and the need for food, energy crops and habitation. One example in forestry science is that key drivers for sustainable community forestry include deforestation and forest degradation (Charnley and Poe, 2007). With the pressure on land set to increase globally, the issues of land availability and population pressure will continue as drivers.

Environmental damage acts as a driver whereby climate change, for example, will lead to significant economic and social impacts, with some regions and sectors likely to bear greater adverse effects (EC, 2009). The more local and meaningful the damage, the more significant its impact as a driver (Angel *et al*., 1998). With growing demand for energy and resources, there is a pressing need for each of us to act to reduce our impact (Hickey, 2008).

2.3.2 Participation, public disaffection, social capital and empowerment

Figure 2.2 (Beckley *et al*., 2006) moves through the levels of participation, starting leftmost with low levels of information provision traditionally used in decide–announce–defend approaches. Increasing government and private involvement in the operation, funding and work of community and voluntary sector organisations reduces social capital, levels of participation and localism (Forde *et al*., 2015). The privatisation of services can lead to actors with no local connection displacing voluntary and community sector organisations. Ireland's Energy White Paper accepts that processes for community consultation and engagement on, for example, infrastructure planning and implementation, have resulted in a lack of trust (DCENR, 2015). Furthermore, Ramaswami *et al.* (2011) state that local governments lack the knowledge and personnel resources to gather sustainability data and therefore to monitor sustainability action.

A survey conducted in Ireland found that community development workers are spending less time in the communities and more time in the office fulfilling administrative duties set by funders (Forde *et al*., 2015). Government-led accountability and monitoring schedules are reducing local advocacy

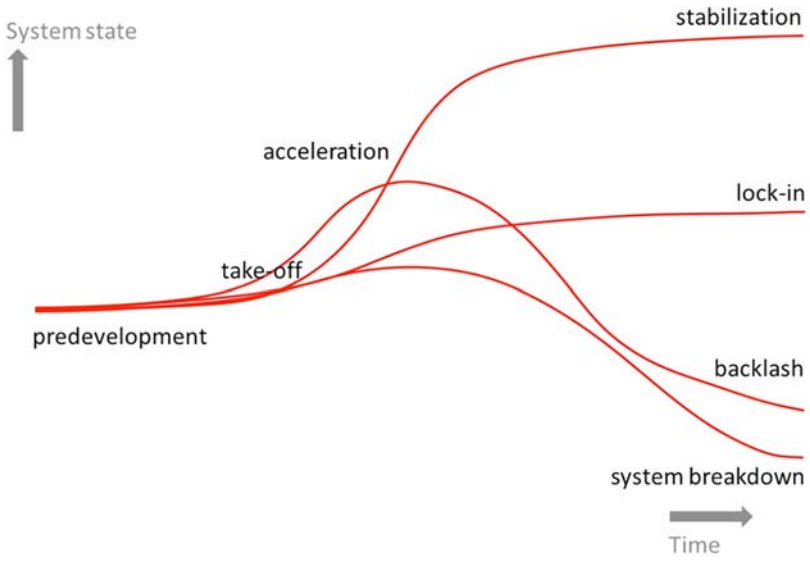

Figure 2.1 Potential transition states. Reproduced from Vandevyvere and Nevens (2015) (based on Rotmans, 2008) under the Creative Commons Attribution License.

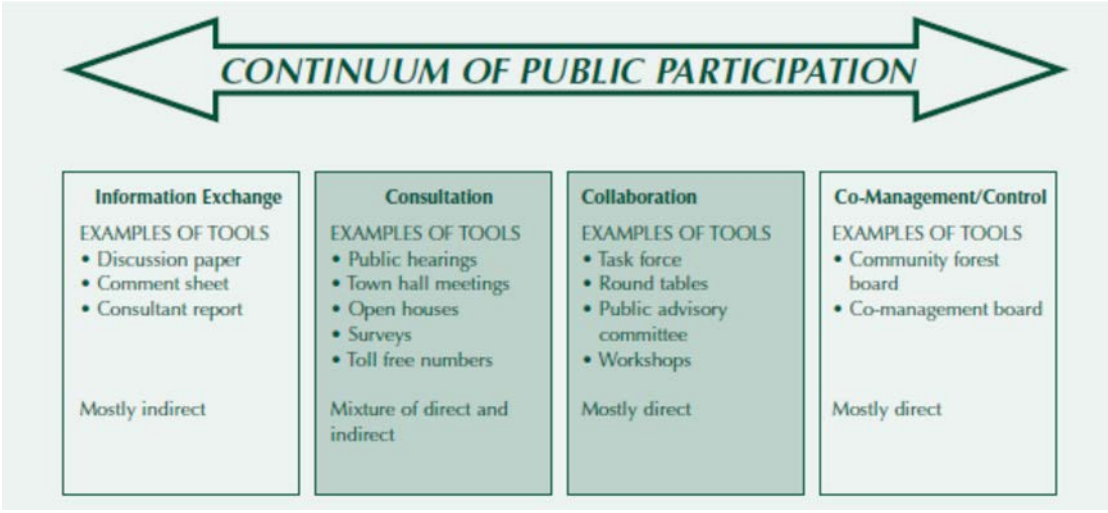

Figure 2.2. Continuum of participation. ©2006, Sustainable Forest Management Network. Reproduced from Beckley *et al*. (2006) with permission.

support and trust (Lee, 2015). Numerous authors have reviewed mistrust of government actions and civic disengagement (Putnam, 1996; O'Neill, 2002; Lyons and Sinnott, 2003; Powell and Geoghegan; 2004; Fleeger and Becker, 2007; Zero Carbon, 2015). Levels of discredence in Ireland have been aggravated by a relatively late ratification of the Aarhus Convention in 2012. Dissatisfaction with the system can spur community into action, leveraging localism and acting as a driver for sustainability initiatives at a local level. Such effects of conflict have been reviewed in relation to environmentalism (Martinez-Iglesias, 2014). It has been noted, for example, that in sustainable community forestry a key driver has been the resistance to top-down approaches, and this is an example of conflict acting as a sustainability driver (Charnley and Poe, 2007).

The National Economic Social Council (NESC) advocates an effective and inclusive process of participation that helps to shape and share local value (NESC, 2012, 2014). Social participation is beneficial and, where a high degree of ownership and engagement can be achieved, this can help strengthen communities, encourage self-regulation and build a sense of personal responsibility and self-reliance (Comhar, 2008). The categories of consultation, collaboration and finally co-management in Figure 2.2 provide gradually stronger levels of participation and ownership approaching the "public owns project" approach. Maximising participation, generating social capital and matching top-down intervention to bottom-up action, can present significant challenges for government (Hall *et al*., 2015). Hori *et al.* (2013) believe that community-based activities motivating social interaction drive sustainability and that trust is important in this. Golden (2014) advocates more deliberative processes, as they contribute to more proactive engagement. Active citizenship is based on participation in decision-making and delivery processes of local services (Milesecure, 2014; Forde *et al*., 2015). "Ireland has made commitments to reduce GHG emissions. The necessary emissions reductions will be not achieved without societal engagement" (NESC, 2013). NESC believes that critical dimensions of carbon neutrality must include sustainability education, positive community participation in local decisions and effective national communication on climate action (NESC, 2013).

Faith offers an alternative driver for social and sustainable action (Darnton, 2004), where significant energy savings can be made (Spirit, 2016). Investigation of the CBSM platform identified a number of faith networks: Noah's Alliance, the Regeneration Project, Greening Sacred Spaces, Faith and the Common Good, Catholic Earthcare Australia, and the Coalition on the Environment and Jewish Life.

The European Commission asserts the need for legislation and its effective implementation (EC, 2015b). The European Union (EU) aims to increase the passive state of citizen control as consumers through strong levels of demand-side management (EC, 2015a). The European Social and Economic Committee (http://www.eesc.europa.eu/?i=portal.en.ten-opinions.38148) states that the market must be opened up to citizens moving to a decentralised model based on prosumer choices. A prosumer, in short, is a person who produces energy as well as consuming it. The recent UK Low Carbon Community Challenge (LCCC) initiative offers further cause for optimism. In Ireland the government works with NESC and the Sustainable Energy Authority of Ireland (SEAI) to encourage the development of local intermediaries to foster local engagement (DCENR, 2015).

The integration and participation of the wider community, including strong partnership between citizen groups, government agencies and education providers, is essential to drive sustainable communities forward. This form of integration is essential to engage the public, meaningfully enhancing the ability of social capital, participation and engagement to act as drivers (UN, 1992). Ramaswami *et al.* (2011) discuss the organisational structure necessary for this integration. Corner and Randall (2011) advocate deeper engagement, impacts on citizens' values and environmental citizenship. Whitmarsh *et al.* (2013) state that community-based engagement is a crucial ingredient in public engagement and note that some public figures are adopting this approach. A strong example of this is the Energy White Paper's focus on sustainable energy communities in Ireland. Webb *et al.* (2013) report that the effect of autonomous motivation on behaviour is important to build and support high levels of engagement and self-determination to achieve sustainable transition.

EC (2015b) advocates the collective schemes and community initiatives that are adding to consumer choice and prosumer development. Wustenhagen *et al.* (2007) underline the importance of procedural and distributional justice, and Milesecure (2014) supports this, as local ownership of energy production assets seems to have been a key driver of active community consent. Direct and active citizen involvement has been achieved through the development of new forms of decision-making and the exercise of power (Milesecure, 2014). Successfully addressing challenges necessitates engagement of citizens in a conversation on values and action as part of the policy process (BIO Intelligence Service, 2012). NESC (2012) advocates the role of deliberative planning, supporting system capacity building, distributional justice and education in engagement. Partnering with communities that have a stake in the research ensures the relevance of acquired information in meeting their needs and interests (Lovejoy, 2009). This dual justice provision has been secured by a small number of community-based projects in Ireland, such as Templederry Community Windfarm, Tipperary Energy Cooperatives and the landfill community fund set up in Ballynagran (Walter, 2012). Maruyama *et al.* (2007) summarise the diverse value offered by such transition as the environmental, economic and social aspects of sustainable development, but also emphasise that mental and moral values such as consciousness, participation, compassion and co-operation can activate progress towards a sustainable society. Critical for transition management is that top-down approaches meet bottom-up approaches engaging communities in sustainable action (Vandevyvere and Nevens, 2015).

A fundamental barrier to effective resource planning and management has been the failure of researchers to adequately exchange knowledge and understanding with local communities (Boreux *et al.*, 2009). Through the use of skilled facilitation and participatory processes a more deliberative democracy can emerge in the field of natural resource management (Daniels and Cheng, 2004). These methods aim to empower the participants (Figure 2.3) and support a two-way flow of information together with decision-making. For a discussion to be called deliberative, it is essential that it relies on mutual exchange of arguments and reflections, builds trust and is co-determined. Where analysis is integrated with deliberation and interpretation (Renn, 2006), processes can enhance procedural legitimacy through building trust in the evaluation, increase understanding through social learning, and promote ownership of the decision-making process (Hajjar and Kozak, 2015).

Such participatory methods are diverse and include, for example, focus groups and design charrettes (Slocum, 2003; Beckley *et al.*, 2006). Important elements of such methods are: (1) active listening, thoughtful argument and reflection; (2) group action towards shared and agreed goals and values; (3) citizens become active participants moving beyond mere witnesses; and (4) redefining community as the fundamental unit of deliberation (Barber, 1984, cited in Daniels and Cheng, 2004). Participatory

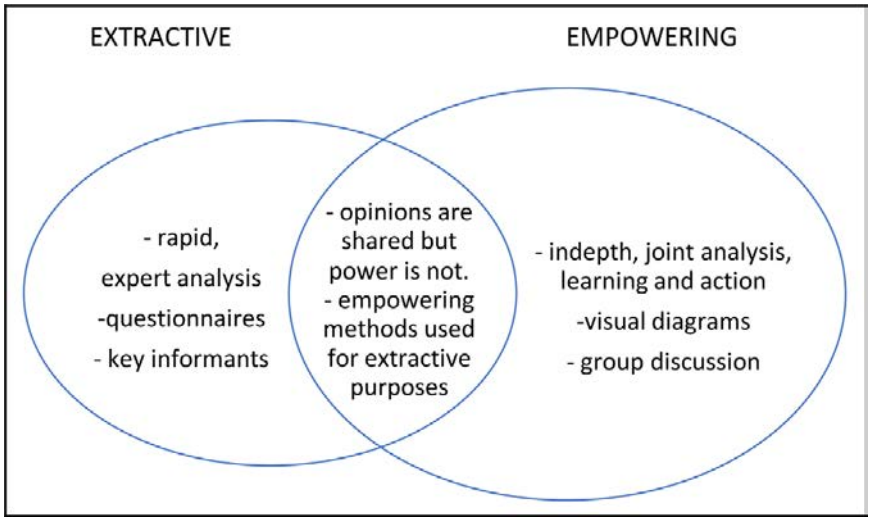

Figure 2.3. A scale of participatory processes (based on VSO, 2004).

Figure 2.4. The adaptive cycle in participatory action research (based on MacKenzie *et al*., 2012).

approaches include discourse-based approaches (DBAs), participatory decision support methods, analytical deliberation (AD) and community-based participatory research (Slocum, 2003; Daniels and Cheng, 2004; VSO, 2004; Sheppard, 2005; Beckley *et al*., 2006; Ramaswami *et al*., 2011). Such approaches enable citizen-directed scientific questions to be asked, answered and acted on by those who are affected by and who affect natural resource use (Carr, 2004). Jackson *et al.* (2012) present five principles that underline good practice for such engagement in relation to water planning: (1) drawing on available indigenous knowledge; (2) involvement through all stages; (3) addressing diversity of interest; (4) building local capacity; and (5) including locals in assessment and management. Participatory approaches (Pahl-Wostl, 2006; Fernandez-Gimenez *et al*., 2008; Kainer *et al*., 2009; Shackleton *et al*., 2009) involve citizens in analysis, and practitioners claim that community involvement in problem identification, research, modelling and monitoring provides major benefits. This inclusion in evaluation has been termed community-based participatory research (CBPR), while AD approaches utilise expert-led analysis together with a strong emphasis on engagement and deliberation (Ramaswami *et al*., 2011). Participatory action research, a concept that encompasses both CBPR and AD, is an approach in which participants take on an active co-researcher role. This blurs the separation between the observer and the observed. A unique feature of CBPR is that it provides the examined community with the opportunity to review and critique the research process, and it facilitates deeper engagement. The benefits of such genuine and effective engagement include wider access to information, increased participation in productive dialogue, improved decision-making and stronger opportunities for reflection, outcomes and co-learning (MacKenzie *et al*., 2012).

Engaging people as members of a community, not just as consumers of resources, is an important strategy for changing behaviour. Energy Neighbourhoods was an Intelligent Energy Europe project that engaged communities in energy and resource saving in a social and fun way. The social context and social system are as important to consider as the individual behaviour change and consumption elements (NESC, 2012).

In the LCCC, the extrinsic motivations of financial savings were an important initial motivation to engage local communities. Once involved, however, people were motivated more by intrinsic motivations such as a sense of community and social interaction. This shows the critical nature of striking a balance between top-down drivers and bottom-up drivers. As much as local participation plays a critical part in terms of generating knowledge, trust and confidence, the role of partners

such as government provides a badge of legitimacy or credibility to community-focused or community-led initiatives (DECC, 2012). Another example is the Global Action Plans EcoTeams programme, which provided social support and legitimation for participants (Nye and Hargreaves, 2010).

2.3.3 Public opinion, dialogue and local circumstances

Communities are now acknowledged to exhibit a far greater diversity of individual motivations, beliefs and behaviours. Collins *et al.* (2004) argue that a more diverse public makes the mobilisation of public opinion more difficult, but it also makes the use of softer influencing techniques more essential, as traditional policy tools struggle to adapt to the complexities of modern society. The current agendas, ideas, concerns and aspirations of a community are potential drivers. One such example is that local desire to increase social capital can be a driver for transition in communities, as demonstrated by a resident's initial motivations as to what he could do to increase the number of players for his local sports team (C. Harrington, Drombane-Upperchurch Energy Team, Tipperary, 18 October 2012, personal communication). This initial driver has resulted in extensive retrofit programmes for the residents of his community, Drombane-Upperchurch in Tipperary. The economic crisis in Ireland, which started in late 2007, led to emigration of citizens from rural areas. In turn this has resulted in sustainable initiatives to stimulate the economy and attract citizens to move back. Citizens have taken a more constructive approach by seeking to develop technological and social solutions to their local circumstances and the problems that concern them.

There is a significant role for public dialogue in policy development, and participation of the public should be systematically considered in sustainable consumption policies at the EU and national policy levels. Actively engaging the public through bottom-up involvement in policy decisions is an effective way of encouraging consumers to change behaviour sustainably (BIO Intelligence Service, 2012).

2.3.4 Norms

Behaviour is governed by an awareness and acceptance of norms (Barr, 2004), both subjective and descriptive. Norms act as drivers and, as Jackson (2005) neatly explains, despite our attempts at individuality, we learn by example, modelling our behaviours on those around us. In research conducted in Exeter, being aware of the sustainable behaviour (recycling habits) of others, and accepting those as the norm, had a great effect on sustainable transition (Barr *et al.*, 2003). Leveraging norms, the most potent message in one study was that "the majority of your neighbours are undertaking energy-saving actions every day" (Schultz *et al.*, 2007; Nolan *et al.*, 2008). There is significant support for the use of norms as drivers in sustainable transition (Gifford *et al.*, 2011; Delmas *et al.*, 2013; Wang *et al.*, 2013).

Ascription of responsibility is central to the norm activation theory (Stern *et al*,. 1999). Measurement is critical to ascription of responsibility and the setting of subjective and personal norms and therefore to behaviour change (Stern *et al.*, 1999; Abrahamse and Steg, 2009). Authors have outlined the importance of norms combined with measurement devices such as audits, whereby 55% energy savings were achieved (Delmas *et al.*, 2013). Whitmarsh *et al.* (2013) underline the importance of measurement in public engagement but note its absence in the evaluation of many intervention outcomes. Measurement interventions are likely to be more potent where measurement or estimation of a consumer's energy or resource use engages and includes the consumer (Nye and Hargreaves, 2010).

To convey an understanding of environmental impact, sustainability indicators provide beneficial measurement if they include household impacts (Castellani and Sala, 2013). Ecological footprints (EFs) include direct and indirect consequences of domestic consumption while their ability to rematerialise increases transparency and provides meaningful messages to consumers (Burgess and Nye, 2008), potentially impacting ascription of responsibility for consumption. Lin *et al.* (2013) point to the benefits of targeted EFs providing customised and more meaningful measurement, allowing households to reduce their consumption (Sutcliffe *et al.*, 2008). Wilson and Grant (2009) point out that bottom-up EFs promote consumption reflection, while Liu *et al.* (2012) note their impact on raising levels of consumption responsibility.

Infrastructure and organisational systems are important in establishing norms, and examples include

the Cloughjordan ecovillage and BedZED (Beddington Zero Energy Development) in the UK. Both were designed to create a community in which people could enjoy a sustainable lifestyle. The importance of such approaches has been shown by research conducted in the UK in which respondents were much more likely to recycle if they had access to a structured kerbside recycling scheme (Barr *et al.*, 2003). In Galway, Fahy (2005) discovered that the presence of facilities was a reason for action, while their lack was a reason for inaction. If infrastructure is provided people can become habitually bound to a behaviour, experiencing "lock-in" (Darnton, 2004). Thus, kerbside recycling facilities and other infrastructural factors are thought to provide structure and convenience, and drive sustainable transition.

2.3.5 Moral obligation

The moral obligation to act pro-environmentally is a driver, and the norm activation model or the value–belief–norm theory of environmentalism have had some success in explaining low-cost environmental behaviour and good intentions, such as willingness to change behaviour, political behaviour and environmental citizenship (Steg and Vlek, 2009). Relatedly, empathy with those most vulnerable to climate change impacts, such as residents of developing countries or future generations, also motivates behaviour change (Grabs *et al.*, 2016).

2.3.6 Local Agenda 21

The top-down direction and guidance provided by Chapter 28 of Agenda 21 has clearly had impacts at a local scale defining Local Agenda (LA) action and acting as a driver in Ireland (Stewart, 2012). LA21 and its LA partnership fund promote sustainable development by assisting small-scale environmental projects at community level. This is also the case for numerous projects across the globe, such as Alameda County Source Reduction and Recycling Board in California, and the Travel Smart Victoria Programme in Victoria, Australia.

2.3.7 Information, knowledge and education

The linear information-centric deficit model has been widely criticised as underestimating the complexity of both learning and behaviour change. Mourik and Rotmann (2013) point out that consumers are often bombarded with information that is either too mathematical or too generic. Information should use familiar language and not be overly theoretical or scientific. Ek and Söderholm (2010) argue that intervention material should be targeted and include personal, economic, environmental and social information. Personalised information and feedback through travel planning, for example, has been shown to be effective in enabling particular travel choices, as in Smarter Choice, in which car driver trips fell by 9%, and car driver distance driven by 5–7% (Sloman *et al.*, 2010 reported in NESC, 2012). In Carragher (2011), distances travelled by car were reduced using these same drivers by 28% over 4 years, as shown in Figure 2.5. Provision of customised information can also include training programmes (Faber *et al.*, 2012) and these have been applied successfully in projects such as Cleandrive (eco-driving) and Trainenergy [adopting low carbon dioxide (CO_2) building practices].

Emphasis is also placed on the need to utilise trusted sources of information, which include friends, neighbours and independent experts (Whitmarsh *et al.*, 2013). Facilitating local narrative provides capacity for engaging participants and renders technical information understandable. The importance of integrating local narrative and reinterpretation into DBAs has been shown by Satterfield *et al.* (2000) and Lejano *et al.* (2013). Moving rightwards across Beckley's continuum of participation increases ownership and empowerment, and this is enhanced by communities being informed rather than instructed, enabling them to participate in considered decision-making. In this way citizens are engaged in sustainable transition, establishing new knowledge based on appropriation and re-interpretation of information. An important element of such empowerment is the generation of a positive vision, which helps to drive a community towards a concept (Prochaska and DiClemente, 1994 in Grabs *et al.*, 2016).

The case for strategic education-type interventions and moving beyond one-dimensional technological fixes is therefore very strong (Pilkington *et al.*, 2011). Poor engagement in environmental campaigning is a serious obstacle to behaviour change and a recent Irish example of this has been critiqued (ESRI, 2013). Dolan and Galizzi (2015) find pervasive evidence for behaviour spillover effects and conclude that

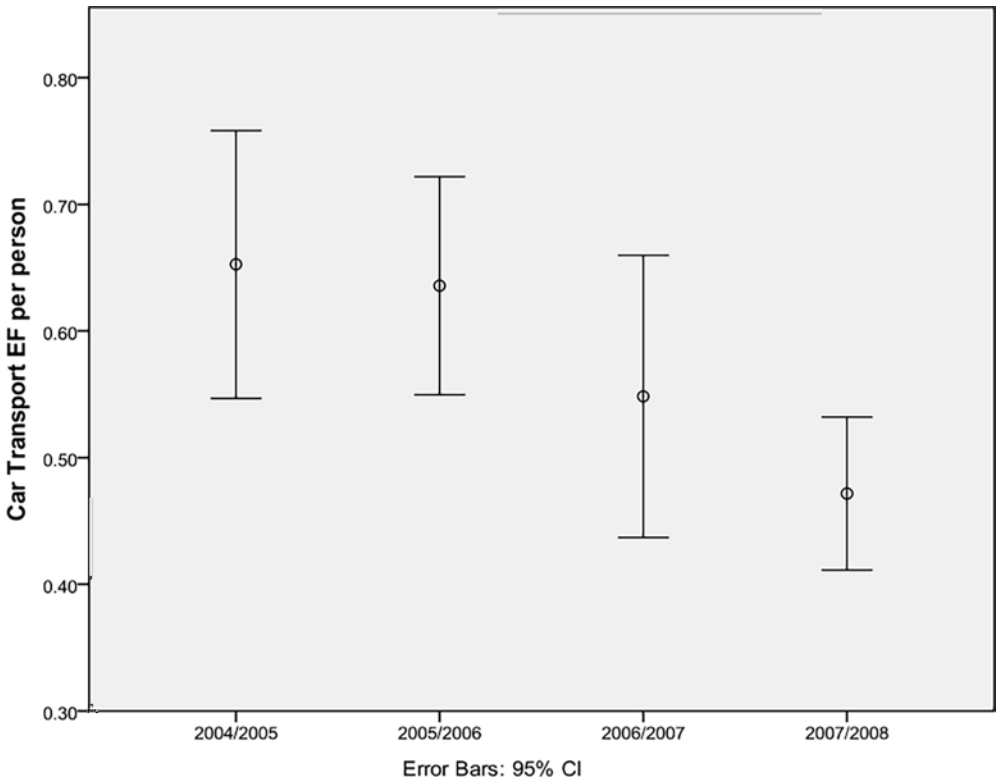

Figure 2.5. Reductions in resident's car transport EF by year. Source: Carragher, 2011. CI, confidence interval.

behavioural scientists should capture all spillover effects and not just the behaviour under consideration (Truelove *et al.*, 2014). This finding is critical in relation to information provision in relation to the interconnectedness of potential behaviour choices for participants.

2.3.8 Agency/self-efficacy

Agency, or one's belief in one's ability or collective ability to bring about change, acts as a substantial driver (Jiang *et al.*, 2013; Grabs *et al.*, 2016). It is intuitive that without a strong trust in the fact that one is capable of pursuing an intended action, and without a realisable end point, that taking action is unlikely (Grabs *et al.*, 2016). Making sustainable choices available, affordable and desirable by increasing individuals' capacity to know about them, access them or create them is central to increasing agency (NESC, 2012). Linked to this can be the level of faith the subject has in a product to perform a specific action, and product labelling can affect this (Faber *et al.*, 2012). One second-order effect of DBAs is that they create a confidence among subjects in their own agency (Renn, 2006). Carbon capability specifically refers to the necessary understanding and capabilities for citizens to have a more active role in a transition to a lower carbon energy system (Whitmarsh, 2009; Nye and Hargreaves, 2010).

The Academy of Champions of Energy project led a focus group that gathered the views of practitioners, finding that experiential learning was an important part of sustainable transition (P. de Schepper, University of Leuven, 15 November 2012, personal communication). Marx *et al*. (2007) explain that the emotional impact of the concretisation of abstract risks motivates action in ways not provided by an analytic understanding (Marx *et al.*, 2007). The more experiential the learning during the community meetings, the greater the engagement, interest and impact. Individual as well as collective agency is greatly enhanced by having successful mastery experiences that reinforce the feeling that change is possible (McAlister *et al.*, 2008 in Grabs *et al.*, 2016).

2.3.9 Health and technology

Whitmarsh (2009) states that reasons for taking up sustainable behaviours such as walking and cycling

are connected to related improvements in health, and such potential health impacts are a driver for change (Leiserowitz, 2007; Whitmarsh *et al.*, 2013). The Institute for Public Health argues that retrofit reduces the negative health effects associated with fuel poverty, especially for more vulnerable groups (Institute for Public Health, 2010, reported in NESC, 2012). Interventions such as the Energy Plus Community project in Ballynagran utilise such logic, encouraging residents to improve their health, reduce fossil fuel use, walk, cycle and buy locally (Stewart, 2012). The International Energy Agency (IEA) estimates cost–benefit with a five-fold increase in such health benefits, such that for every €1 spent on retrofit there are €5 of health benefits created (Mourik and Rotmann, 2015).

NESC (2012) advocates the use of smart meters, while others note that there has been relatively poor energy saving recorded by smart metering campaigns (ACEEE, 2012; Vassileva *et al.*, 2013). Savings were calculated in the range 0–9.3%, with an average saving of just 3.8% (ACEEE, 2012). In a similar evaluation, control groups without smart meters saved more than householders with them (Alexander and Hunt, 2013). Poor understanding of and interaction with technology related to programming features of heating systems (Peffer *et al.*, 2011; Huebner *et al.*, 2013) may be a factor. This points to the need for technological support or assistance, which has also been shown to be important by Charnley and Poe (2007) and various practitioners (Focus Group, 2016).

The rebound effect, or Jevons paradox, has been reviewed by many authors, including Carragher *et al.* (2014) and weakens the case for technology solutions alone; despite the fact that domestic energy efficiency is on the increase though improvements in technology, appliances and built form, the increase in the amount and the use of these appliances nullifies any positive effects of efficiency gains (ADEME, 2012). The rebound effect emphasises that it is not enough to design and produce more efficient households, car technology and in-home technologies, because, despite the gains, national energy use and concomitant emissions have generally increased since the Industrial Revolution.

2.3.10 Affective (emotive)

Triandis in 1977 developed a theory of interpersonal behaviour proposing that, while behaviour is influenced by rational deliberation and social factors, habits and emotions also play their part. Some studies have explicitly examined the role of affect in explaining environmental behaviour where, for example, car use is significantly related to affective factors (Steg and Vlek, 2009).

2.3.11 Policy measures

Policy instruments generally take the form of one of the following four measures (BIO Intelligence Service, 2012):

1. regulatory – bans or limits;
2. economic – incentives and disincentives;
3. information – such as product labels;
4. behavioural – tools or nudges.

In developing countries, policy initiatives to improve harvesting, storage and processing efficiencies translate into higher incomes for farmers and into lower prices and greater food security for poor consumers. Reducing such food losses also reduces pressure for increasing food production, thereby saving on land, water, fertiliser use and carbon emissions (Raworth, 2012).

Regulatory/legal measures require that the relevant laws and regulations are enforced, and that violations are met with a penalty (Steg and Vlek, 2009). An example is the “Law of the Dehesa”, which protects ecosystems in Spain (Stewart, 2012). Demonstrating the central premise of the economic self-interest model, a number of authors have underlined money saving potential as the strongest driver for behaviour change (Han *et al.*, 2013; Huebner *et al.*, 2013). One example is that 81% of respondents reported that they conserved energy at home to save money, while just 15% did so to help the environment or reduce pollution (DEFRA, 2001). Co-benefits of incentives, for example retrofit subsidies, can help to cut fuel bills, reduce fuel poverty and improve social equity, while simultaneously cutting national carbon emissions (Raworth, 2012). Mizobuchi and Takeuchi (2013) show the extra sustainability achieved where incentives are applied together with feedback. The average saving rates of their reward-intervention group were 5.9%, while the reward with comparative feedback group saved 8.2% ($n = 300$). Incentives can take various forms, including direct financial gain,

awards, cost saving, adding value or status, and social approval (CERES, 2008; IEE, 2010; NESC, 2012). Disincentives can also be useful in that they can drive transition away from non-sustainable practices, and one example is a plastic bag tax (AP EnvEcon, 2008).

2.3.12 Commitment

Policymakers, however, need to be careful with incentives, in that people often have a tendency to discount the future in as much as they may prefer a smaller reward today over a larger reward in the future. McKenzie-Mohr and Smith (1999) and Inauen *et al.* (2013) argue that increases in commitment strength can increase sustainable consumption through behaviour change.

> When individuals agree to a small request, it often alters the way they perceive themselves. That is, when individuals sign a petition favouring the building of a new facility for the handicapped, the act of signing subtly alters their attitudes on the topic. In short, they come to view themselves as the type of person who supports initiatives for the handicapped. When asked later to comply with the larger request, giving a donation, there is strong internal pressure to behave consistently.
>
> McKenzie-Mohr, 2011

Commitment techniques have been shown to be effective in promoting a diverse variety of sustainable behaviours and practices, and one example is the CRed campaign (University of East Anglia) and its use of pledges.

2.3.13 Chronology

Behavioural theories tend to focus on a single point in time, while transition theories are focused on change over time. NESC (2012) points out that it can be useful to target moments of lifestyle transition and institutional or infrastructural pressure points; for example, moving house can present an opportunity for motivating new habits. Community-focused interventions should also take note of the LCCC learning in that incorrect timing of interventions can be a barrier to community action. In this light, it is imperative that individuals and communities are able to respond to supports in a flexible manner (DECC, 2012).

2.3.14 Removing barriers

McKenzie-Mohr and Smith (1999) advocate CBSM and make the identification and removal of barriers an essential factor in driving sustainability. Several studies have pointed out that higher impact behaviour changes are more likely to be achieved through time-intensive initiatives (particularly small-group settings and regular face-to-face interaction), and this may be a barrier to scaling up. At the same time, several reports point to insufficient resources, including funding, time, expertise and leadership, for community-based organisations (CBOs) to provide more effective initiatives or engage more deeply with the behaviour change agenda (Church, 2005; SCR, 2006; Baring Foundation, 2010; CAT, 2010; Büchs *et al.*, 2012).

2.3.15 Organisational management

Communities and their practitioners have questioned how easy it would be for others to follow in the LCCC project's footsteps, pointing to organisational management as critical. The development of organisational structures and their management is essential to sustainable transition. Successful projects have utilised mutual structures such as industrial and provident societies, community energy companies, community interest companies and social enterprises. Functions of such structures are: (1) guiding objectives; (2) providing a holding company into which income generated could be deposited; and (3) involvement in other income generation practices (DECC, 2012). At the community scale, key elements for managers are the recruitment of representative interests, active facilitation, collaborative framing, optimising interaction, managing the unpredicted (Petts, 2006) and managing the unexpected (Seyfang and Longhurst, 2013 in Grabs *et al.*, 2016). A balance is required between assistance and direction, and therefore the facilitator and manager roles should be kept separate (Renn, 2006).

2.3.16 Co-management

Co-management is a knowledge partnership between multiple actors at the community scale. It provides a hospitable environment in which diverse stakeholders can interact and learn together (Buck *et al.*, 2001) and where they participate in collective self-reflection (Fernandez-Gimenez *et al.*, 2008) in a context open

to critical examination that is unimpeded by power and knowledge differentials (MacKenzie *et al.*, 2012). The resulting growth in understanding and skills, from co-management, is often referred to as social learning. Social learning is essential both for the co-operation of partners and for providing an outcome for this co-operation. Community-bridging organisations provide a forum for the interaction of different kinds of knowledge and the co-ordination of other tasks that enable co-operation. Such a role can include accessing resources, networking, bringing together different actors, building trust and resolving conflict. Through successive rounds of learning and problem solving, learning networks can incorporate new knowledge to deal with problems at increasingly larger scales, and this has been termed adaptive co-management (Keen, *et al.*, 2005; Berkes, 2009; Measham, 2009). NESC (2012) advocates the development of co-production and states that government has a leadership role in changing behaviour through demonstration by doing. Loorbach and Rotmans (2010) (in Figure 2.6) explore the steps necessary in transition management such that top-down actors can support community-based entities in such action.

Participatory process models have leveraged co-management in a number of examples. City climate action plans have been co-produced in Denver and Broomfield (USA), utilising academia, local governments and community members (Ramaswami *et al.*, 2011). Significantly, interventions that extend to co-creation can produce visions by consensus. Another example has connected the material footprint methodology for measuring household resource use to co-designing visions in local workshops to reduce material flows in a community (Laakso and Lettenmeier, 2016). Stakeholders interact, craft new knowledge and advance the development of their understanding within a co-learning experience. This enhances appreciation of the nature and quality of the relationships and interactions and the combined knowledge (Baldwin *et al.*, 2012).

2.3.17 Effective communication

Human communication engages and drives change, and the transition to a low-carbon future will require that significant portions of the population be

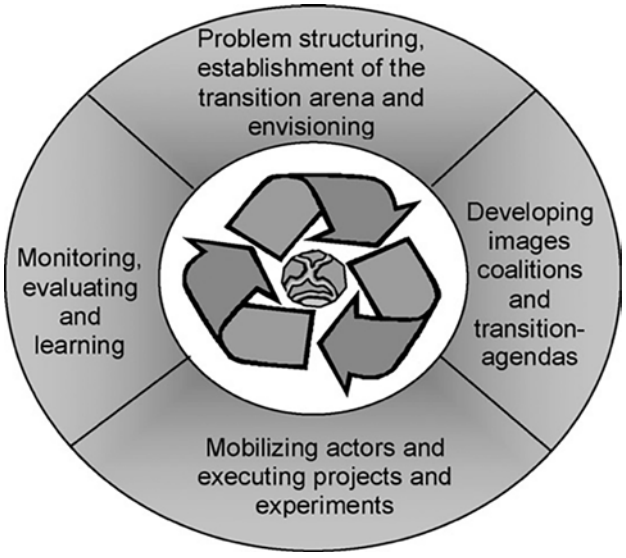

Figure 2.6. Transition management cycle. © 2009 Elsevier Ltd. Reproduced from Loorbach and Rotmans (2010) with permission.

persuaded to take up more sustainable behaviour. Effective communication is the basis of local informed participation and ownership (Comhar, 2008). This driver has been reviewed previously in Carragher (2011), and Table 2.2 lists its component factors. The categorisation of this factor is broadly pragmatic. The contextual factors are based on the positionality or even perspective of the community, and they stipulate that interventions should explore, understand and work with the local context. Messaging factors are important in that they make the message of projects more potent and, taken together, sharpen the communication material significantly. The channels represent communication conduits available to projects within communities.

2.4 Drivers Compiled

This review identifies factors that drive sustainable consumption at the individual, household occupant and community scales. Table 2.3 presents the factors characterised into two distinct groupings: actors (17) and drivers (39).

Driver number 38 is effective communication and includes contextual message factors (6), other messaging factors (12) and channels (35) reviewed elsewhere (Carragher, 2011). The total number of factors is 109; 53 of these factors are ascribed to

Table 2.2. Effective communication factors

No	Contextual factors	No	Contextual factors
1	Physical places in a location	4	Varied audience beliefs
2	Audience demographics	5	Various community repertoires
3	Potential audience benefits	6	Identify and target barriers
No	**Message factors**	**No**	**Message factors**
1	Internalising the message	7	Facilitation
2	Induce rivalry	8	Narrative threads
3	Normative messaging	9	Bridging metaphors
4	Modelling (normalising role models)	10	Immediacy
5	Local and solution-orientated messaging	11	Feedback and self perception
6	Scientific knowledge incorporation	12	Emotive messaging (ambient cues)
No	**Channels**	**No**	**Channels**
1	Guidebooks	18	Television and videos
2	Email	19	Meetings
3	Webinars	20	Leaflets and booklets
4	Information ‘toolkits’	21	Workbooks
5	Letters	22	Interpersonal
6	Payslip inserts	23	Advertisements
7	Posters	24	Blogs
8	Newspapers	25	Webcasts
9	Pester power	26	Podcasts
10	Navigation service	27	Competitions
11	Awards	28	Press releases
12	Survey reports	29	Newsletters
13	Directories	30	Interviews
14	Web pages	31	Interactive
15	Sermons	32	Workshops
16	School bags	33	School diaries
17	School-to-parent texting	34	Quiz
		35	Open homes

effective communication, 17 to relevant actors and 39 to drivers or mechanisms that enhance sustainable transition.

The 17 actors are important in leveraging activity in and for community. Similarly, the 39 drivers generally point to processes that can be enlivened or utilised within communities. The actors and their drivers are important for policymakers and academics to envisage action and transition, for community to identify those around them who can support endeavours and for resource specialists who aim to embed sustainability projects within communities. The absence of these actors or drivers in profiled communities also points to potential gaps where external or internal actions can take place. Effective communication breaks out into 53 drivers, and it is important for policymakers, academics, community, community practitioners and resource specialist stakeholders to utilise these to deepen and sharpen their messages.

2.5 Characterisation Using Stern’s ABC Approach

The Stern ABC approach (2000) categorises by attitude, capability, habit and context. Sociologists make a further useful separation of context into social and material elements (E. Garcia, University of Valencia, 11 March 2017, personal communication). As this research analysis incorporates multidisciplinary perspectives, the categories of attitude, capability, habit, social context and material context are used in

Table 2.3. Actors and drivers

No	Actors	No	Actors
1	Human actors	10	Exemplar/model communities
2	Religious groups	11	Business actors
3	Community/local groups	12	Networks (business, etc.)
4	Energy/environmental champion	13	Bridging organisations (NGO, etc.)
5	Project manager	14	Government agencies
6	LA	15	European/Global actors
7	First- and second-level educators	16	Social media
8	Higher education institutes	17	Skilled facilitator
9	Further education providers		
No	**Drivers**	**No**	**Drivers**
1	Discredence	21	Identification and removal of barriers
2	Participation – social capital, localism	22	Advocacy
3	Population pressure and land demand	23	Profiling techniques
4	Environmental damage/global warming	24	Technology
5	Public opinion and dialogue	25	Technological/technical assistance
6	Normative concerns	26	Product labelling
7	Local circumstances	27	Experiential learning
8	Infrastructure/organisational systems	28	Compliance and incentives – policy
9	Agency/capability	29	Legal/regulative – policy
10	Moral obligation	30	Citizen approach
11	Emotive/affective	31	Discourse-based approaches – reinterpretation
12	Faith	32	Distributional justice
13	Health	33	Procedural justice
14	Information	34	Interconnectedness/spillover
15	LA21	35	Organisational management
16	Feedback	36	Chronology/timing
17	Commitment	37	Co-management/social learning
18	Indicators and measurement	38	Effective communication
19	Recognition/visibility/legitimation	39	Polycentric approach/combination
20	Exploring synergies		

NGO, non-governmental organisation.

Table 2.4 to compartmentalise the drivers and provide further understanding for the reader.

In relation to the adaptation of the Stern ABC approach (2000), attitudes are a predisposition to act and can include, for example, norms, beliefs, values, lifestyle, willingness to pay and political orientation. The capability classification includes knowledge, education, skills, income, social status, availability of time, literacy, money, and social and economic resources. The habit classification is self-explanatory and can also be referred to as routines. The social contexts of action include social constraints, social networks, law, policies, interpersonal relationships, persuasion, modelling and government regulations. The material contexts contain, for example, physical constraints, technology and infrastructure.

Although it is intuitive, it is of note that the actors in Table 2.3 categorise easily into the material and social contexts and the capabilities that any given community may possess or utilise. The pragmatic categorisation adapted from network theory in Table 2.3 provides a clear distinction between categories. The categorisation adapted from the Stern ABC approach in Table 2.4 provides strong overlap with some of the drivers, fitting into three categories. This latter classification shows the diverse and nuanced action of sustainability drivers, as individual drivers defy attempts to group them. In this respect the overlap in

Table 2.4. Categorisation using Stern's ABC approach

Factors	Drivers			
Attitudes	1a	Discredence	17a	Commitment (personal)
	6a	Normative concerns	19a	Recognition/visibility/legitimation
	13a	Health	21a	Identification and removal of barriers
	10	Moral obligation	27a	Experiential learning
	11	Emotive/affective	32a	Distributional justice
	12	Faith	34a	Interconnectedness/spillover
	16a	Feedback	39a	Polycentric approach/combination
Capabilities	2a	Participation/social capital/localism	25a	Technological/technical assistance
	9a	Agency/capability	26a	Product labelling
	13b	Health	27b	Experiential learning
	14	Information	31a	Discourse-based approaches – reinterpretation
	18a	Indicators and measurement	36a	Chronology/timing
	19b	Recognition/visibility/legitimation	37a	Co-management/social learning
	21b	Identification and removal of barriers	38	Effective communication
	22a	Advocacy	39b	Polycentric approach/combination
	23	Profiling techniques		
Habits and routines	16b	Feedback	27b	Experiential learning
	21c	Identification and removal of barriers	39c	Polycentric approach/combination
Social contexts of action	1b	Discredence	25b	Technological/technical assistance
	2b	Participation/social capital/localism	28	Compliance and incentives – policy
	5	Public opinion and dialogue	29	Legal/regulative – policy
	6b	Normative concerns	30	Citizen approach
	9b	Agency/capability	31b	Discourse-based approaches – reinterpretation
	15	LA21	32b	Distributional justice
	16c	Feedback	33	Procedural justice
	17b	Commitment (collective)	34b	Interconnectedness/spillover
	18b	Indicators and measurement	35	Organisational management
	20	Exploring synergies	37b	Co-management/social learning
	21d	Identification and removal of barriers	39d	Polycentric approach/combination
	22b	Advocacy		
Material contexts of action	3	Population pressure and land demand	24	Technology
	4	Environmental damage/global warming	25c	Technological/technical assistance
	7	Local circumstances	26b	Product labelling
	8	Infrastructure(/organisational systems)	36b	Chronology/timing
	21e	Identification and removal of barriers	39e	Polycentric approach/combination

categorisation is counterbalanced by the fact that the adaptation of the Stern ABC approach provides the reader with a varied and more layered framework with which to understand the factors.

3 Community Factor Testing

The factors identified in the review of Chapter 2 were tested and prioritised by a number of Irish communities. These factors were then utilised to support a sustainability co-design (SCD) event. The methods utilised generally follow those of Slocum (2003) and Beckley *et al.* (2006).

3.1 Focus Groups

This research organised focus group-type events in communities across Ireland between September and December 2016. The aim was that each community through its focus group would assess the preferences of the attendees for the list of factors identified in the review and in so doing provide an evaluation of what drives sustainability in those communities. As the community space is dependent on volunteers, the authors recruited numerous communities knowing there would be unavailability. The results here refer to focus groups in eight communities. This research has chosen these communities based on their size, populations and attributes, with a view to making future national scalability of its findings more possible.

3.1.1 Focus group background and preparation

Qualitative methods, although often sacrificing the representative nature of other methods, allow the researcher to obtain rich, in-depth information about issues. While quantitative approaches, such as questionnaire-based surveys, can provide insights on, for example, how much energy is consumed, qualitative approaches can detail the complexities of the consumption practices (Miles and Huberman 2003). A deeper understanding is required to explore the complexity of sustainable behaviour change and transition. The interpersonal characteristics of qualitative approaches such as DBAs lend themselves well to gaining deeper and shared understandings. Sharing experience (experiential information) in group discussions leveraged by qualitative methods provides a richer and deeper sample of relevant experience and can motivate bilateral action in ways not provided by a specifically analytical, statistical or technical approach (Marx *et al.*, 2007). The participation leveraged by qualitative methods can help attendees to see the big picture and to understand issues. Likewise, it enables experts and policymakers to communicate issues in the field and supports the co-creation of more local level sustainability consensus.

As mentioned in Chapter 2, early recruitment, profiling and surveillance with and of communities are essential for establishing engagement in such interventions. This preparatory work led to strong and representative attendance from the locality and built on synergies with local stakeholders. The potential focus group attendees needed to be selected to sample and represent local opinion on the sustainability actors and drivers. Recruitment of participants took place at least 1–2 weeks prior to the scheduled focus groups. When recruiting, the need for attendee insight to discuss and identify their preferences was underlined. Participants were chosen to represent a balanced cross-section from the community and were community residents and members of voluntary groups and CBOs. On occasion, they also included small numbers of local authority staff and local councillors. A reception with food and beverages was provided for each focus group and this was advertised in all promotional material.

The facilitator and at least one administrator from a CBO in the community were required to prepare for the focus groups. The former provided generic promotional

Table 3.1. Populations of eight chosen communities

No	Community	County	Population
1	Cloughjordan	Tipperary	511
2	Birdhill	Tipperary	729
3	Inis Mór	Galway	845[a]
4	Killaloe	Clare	1826[a]
5	Abbeyleix	Laois	2837[a]
6	Westport	Mayo	5543[a]
7	Ballymun	Dublin	19,517[a]
8	Galway City	Galway	75,529[a]

Source: CSO (2011).

[a]Electoral division.

material, including template emails, posters and flyers in hard and soft copy, specific workshop materials and a presentation. The factors identified in Table 2.3 were listed on large A2 posters to facilitate their ranking by focus group attendees. A location was selected that was easy to find in each case, providing a neutral environment that generally facilitated informal cafe-style or semi-circular seating arrangements.

3.1.2 Focus group content and procedure

The focus group method was based on participatory approaches reviewed in Chapter 2. In general, the focus groups were carried out using a focus group guide which:

1. standardised and harmonised the approach used across the focus groups in this research;
2. supported engagement of the attendees;
3. enhanced preparation and attendance levels;
4. directed the management of the events.

Focus groups were used to test the preferences of the group for the factors generated by the draft review. The factors identified within the literature review were communicated to all by the facilitator. It was necessary here to summarise and fairly present information from the multiple points of view in the literature (Beckley *et al*., 2006). The facilitator opted for a presentation using a visual format, with photographs to illustrate each factor, and these were supported by short explanatory comments. The focus group format, the structured presentation and the explanatory comment was identical in each focus group. Each focus group lasted one hour and the facilitator led the group through a structured discussion surrounding the factors (45 minutes), and discussion was then opened to the floor with a question and answer session followed by a forced ranking exercise. The list and order of the factors was prepared, and they then were numbered and presented visually, using short and simple explanatory wording. The factor images were accompanied by sufficient background explanation to minimise assumptions and to place them in the appropriate context. Information was exchanged in a considered, contemplative atmosphere conducive to deliberation.

Following the guidance of Slocum (2003) and Beckley *et al.* (2006), as participants arrived the facilitator greeted them where possible and made polite conversation, avoiding the topic of the focus group. At this time the facilitator had a chance to quickly assess the communication styles of the participants. In relation to segregation it has been suggested that participants with dominant communication styles be placed near the facilitator and more reticent participants where eye contact can be easily established. A focus group needs to build synergy and secure co-operation from its participants. Thus, it is crucial that communication is open and trust is built as quickly as possible. Once all participants were seated, the facilitator welcomed the group, introduced him- or herself, and provided relevant background information and an overview of the topic. It was emphasised that this was an opportunity for participants to give voice to their preferences, to influence policy and to educate the researchers on what drives sustainability locally.

The facilitator explained what the results of the focus group would be used for, that all points of view were confidential and important, and that the overall opinions of the group were the most important feature. The facilitator outlined the proceedings, including timelines. As mentioned during the course of the discussion, the facilitator used a presentation to illustrate the factors identified in Chapter 2; each factor was represented by a picture and an identifying number. The facilitator provided each participant with a pencil and notepad, and suggested that all participants write down the numbers of their preferential factors as they worked through them (Figure 3.1).

As discussing 109 factors could burden the attendees unduly, the factors were firstly concentrated and secondly divided into two groups. The first group of 17 factors were the actors, and the second group of 39 factors were the drivers. In this way the facilitator condensed the complexity into 56 factors, which were more easily discussed in 45 minutes than 109 factors would have been. On conclusion of the presentation, the floor was opened for discussion and queries. Refreshments provided at this time allowed for the participating individuals to develop and express their opinions in as natural and as sociable a context as possible. This discussion period helped to answer queries and to highlight the reasoning and thoughts underlying people's opinions. The method was relatively simple, allowing participants to readily grasp the process and purpose. Such a method is particularly useful when one is interested in the

Figure 3.1. Focus group contemplation of the drivers.

complexity of preferences, when one needs to benefit from a multiplicity of view points, and when one needs to foster and develop a consensus. A disadvantage with focus groups like this is that the multiple voices of the participants, as well as flexibility in process structure, can result in the researcher having limited control over the proceedings. Moreover, sometimes group expression can interfere with individual expression and the results may reflect a type of groupthink (Slocum, 2003). These disadvantages were mitigated by imposing a firm structure on the focus groups, involving a 45-minute presentation by one of the authors, followed by a question and answer session, and a forced ranking exercise (Figure 3.2).

In the forced ranking exercise, attendees were given eight stickers each for their preferences on actors and eight for their preferences on drivers. This was made as informal as possible and many attendees enjoyed refreshments and conversed while voting. Some attendees voted for their preferences in groups, while others preferred to vote more privately and waited for their opportunity to do so. The attendees were instructed to first vote for actors, and this was felt judicious given that their preferences for drivers were more restricted (eight stickers for 39 drivers). In this way the ranking of the actors, which was easier, was completed first, while the forced ranking took place afterwards as attendees grew more comfortable with the exercise.

3.1.3 Focus group recording

Attendance sheets were safely stored for each focus group, and no participant names or personal details were mentioned in any reporting or public documentation. Summary or specific quotes, where used, do not mention individuals' names or details, and this protects confidentiality.

All results of the focus groups were collated with a view to supporting the writing of this report. Immediately after the focus group the facilitator recorded and analysed the focus group and the participant input. Notes were also compared with other researchers, where they were present in the focus groups. Between September and December 2016, the notes from the various focus groups were compared and contrasted, and emerging themes were noted, charts constructed and findings described.

3.1.4 Focus group results

Attendance

The recruitment of groups and organisations effectively gathered the views of others in the locality who could not attend (Figure 3.3). This preparatory work broadened the reach and impact of the focus groups. Because of this gathering of opinions through group representatives, it was generally acknowledged that each person present would represent the views of at least 10 others not present. This being true, the percentage evaluated by this research varied from that in Cloughjordan, at 28%, to that in Galway, at approximately 1% (Table 3.2).

Actor and driver charting

Radar charting has been carried out by researchers where a number of data streams or axes have to be represented in the same visual. Their utility has been such that there are electronic services supporting radar charting, such as the Outcome Stars Initiative

Figure 3.2. Focus group ranking of the drivers.

Figure 3.3. Some of the Ballymun focus group attendees.

Table 3.2. Focus group attendance

No	Community	County	Attendance
1	Cloughjordan	Tipperary	13
2	Birdhill	Tipperary	14
3	Inis Mór	Galway	10
4	Killaloe	Clare	16
5	Abbeyleix	Laois	10
6	Westport	Mayo	28
7	Ballymun	Dublin	16
8	Galway City	Galway	26

(http://www.staronline.org.uk/default.asp?section=2), which has been used on a number of community development projects in the UK. Other examples include the Stretching the Web concept from the UK Department for Environment, Food and Rural Affairs (DEFRA). For this research, the pattern provided by these charts visually empahsises the actors and processes that contribute to local sustainability. This shows where efforts to support sustainability would have immediate and effective impact. The patterns also reflect those actors and processes that are not at work and potentially where efforts might have an impact in the mid- to long term.

The attendee views on the importance to their community of the 17 actors and 39 drivers were then plotted in radar charts for the eight communities, using Excel and proprietary software such as those mentioned above. The actor radar charts below contain all 17 actors, while the driver radar charts could not contain all 39 drivers, as this visual was far too complex when attempted. For this reason the top six drivers from each of the eight communities were taken and pooled, and this summed to 20 drivers in total. These common 20 drivers were used for the

radar charting of the drivers of the eight communities. While this ignored the impact of 19 (39−20) drivers, it provided a strong visual interpretation of the activities of the main drivers in these communities. The ranked data tables are included in Appendix 1 (Tables A1.1 and A1.2). The radar charts contain 17 and 20 axes, as mentioned, and with this level of complexity radar charts without connecting lines and space fill are unclear. For this reason, it was thought more judicious to connect the points of each axe to create a strong illustration of what was happening in these communities and what was not. This provides a better graphic because it also defines an area of activity given those particular axes in those particular orders. To provide a clear graphic, a number of alternatives were tried but none compared with the clear visual provided by the radar charts with connected axes and space fill.

3.1.5 Discussion of focus group results

Significant variation between the factors driving each community can be seen by comparison of the related radar charts. Starting with the actors in Cloughjordan (which includes the village settlement and the ecovilllage), the other people and exemplar community categories score highest.

European actors and environmental champion categories also feature as do, to a lesser extent, local authority and local groups. The absence of sustainability impacts of actors such as national government, bridging organisations, skilled facilitators, religious organisations, schools, third-level colleges and business is also depicted (Figure 3.4).

Birdhill attendees also rated the impact of other people and exemplar communities highly, but the most significant impact there was felt to be community and local groups. Environmental champions and skilled facilitators were judged to have a larger impact than government agencies and local authority. Scoring a low impact were adult education providers, bridging organisations, social media, European actors, religious groups and networks (Figure 3.6).

Though Birdhill and Cloughjordan represent two small settlements in Tipperary, one can see very different activity in them. It is also clear from these charts where the different patterns of inaction affect these settlements. Based on the driver radar charts, environmental damage/global warming scored highest, with product labelling, health and the participation – localism driver next in Cloughjordan (Figure 3.5).

Taking the Cloughjordan driver and actor profiles together, the participation – localism activities that

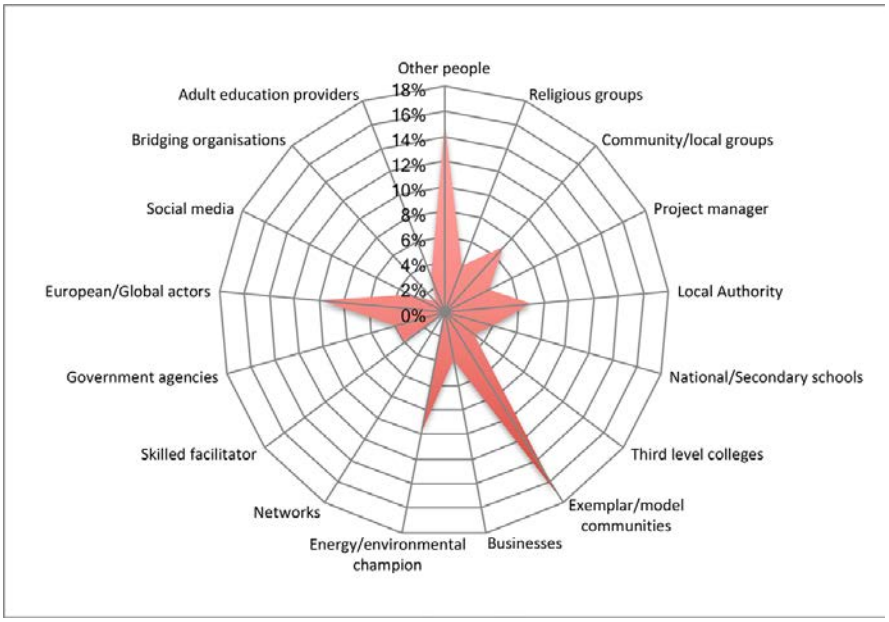

Figure 3.4. Actor radar chart for Cloughjordan. Attendees agreed their views were representative of at least 10 others in the community, thus *n* = 13/143, where the 13 refers to the number of attendees while the 143 = 10 × 13 + 13.

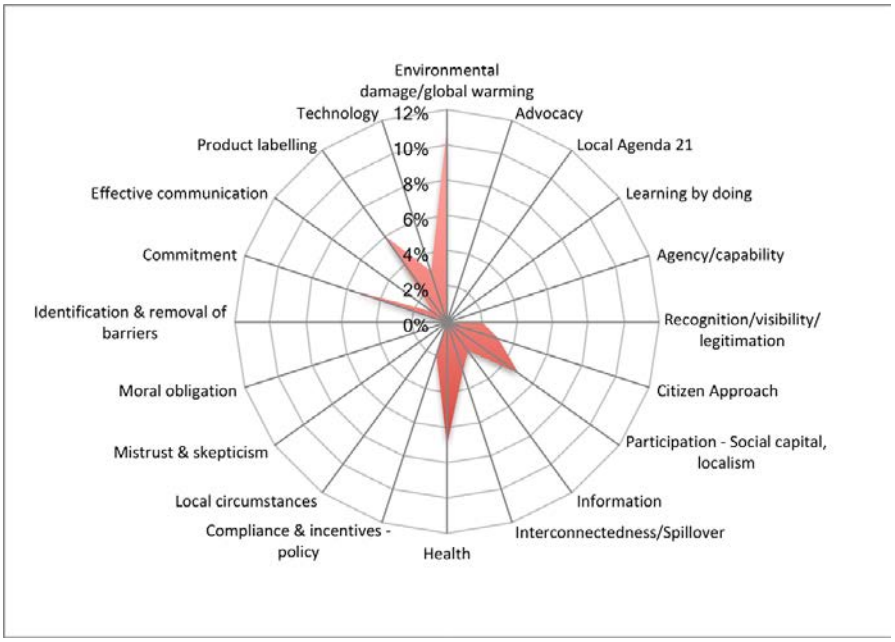

Figure 3.5. Driver radar chart for Cloughjordan, *n* = 13/143.

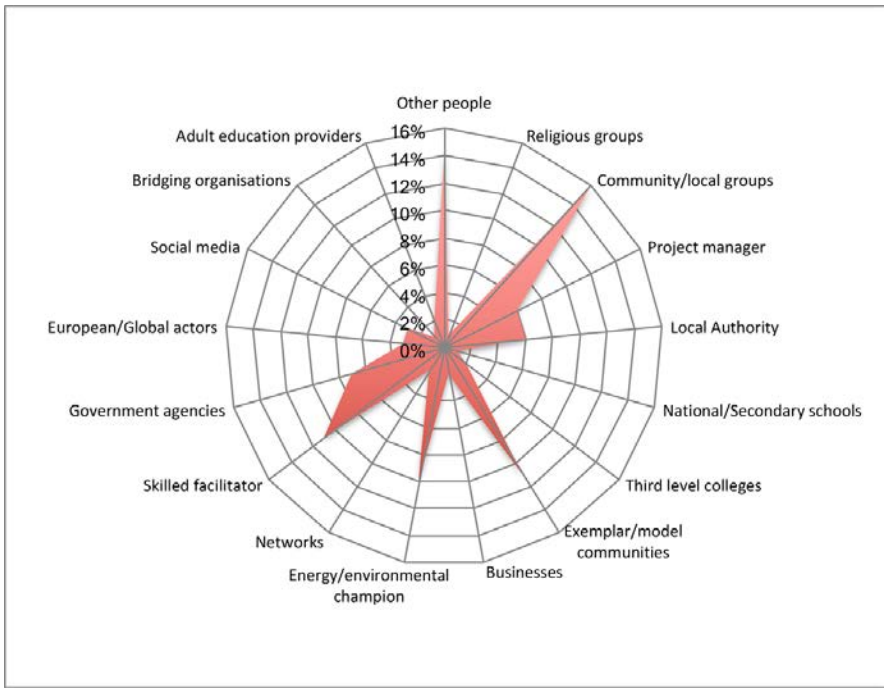

Figure 3.6. Actor radar chart for Birdhill, *n* = 14/151.

would benefit hugely were bridging organisations and skilled facilitators getting involved (Figures 3.4 and 3.5). Perhaps the European and local authority actors could leverage this potentially fruitful combination, which is exposed by the radar charts. The participation– localism driver is the highest ranked driver in Birdhill, followed closely by health, and compliance and incentives. This finding is substantiated by the Better Energy Community scheme, which is active in Birdhill. It is interesting to note that a significant driver for residents in joining this scheme was the resultant betterment of their health (Figure 3.7). Interestingly, in Birdhill, moral obligation scores well and, taken together with participation– localism and the environmental damage/ global warming drivers, this provides strong enabling

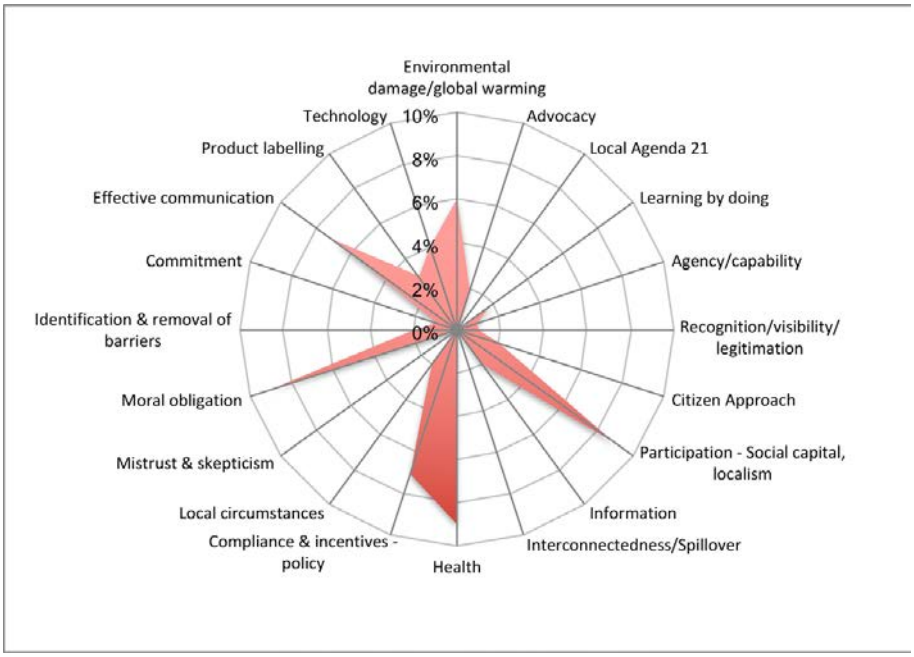

Figure 3.7. Driver radar chart for Birdhill, *n* = 14/151.

capacity for the community's various environmental endeavours. In this light, of all the communities, Birdhill has the more significant sustainable transition, and the profile evidence of actors and drivers supports this. Effective communication appears to be part of the strategy used by the environmental groups locally.

Inis Mór is a small but isolated community and represents an interesting comparison with Birdhill and Cloughjordan. On initial inspection, the pattern of action, and indeed inaction, is clearly different in these communities. Inis Mór, like Birdhill, rates the impact of community and local groups, and exemplar communities, highly. Interestingly, social media, bridging organisations, networks, environmental champions, schools, colleges and local authority are all rated (Figure 3.8) with a positive but small impact.

Government agencies appear to have been busy within this community, and proof of this can be seen in the iterations of Better Energy Community improvements, which SEAI grant aid has provided to the island. Levels of inaction are high in relation to religious groups, European actors and adult education providers. Drivers ranked as important by the islanders were environmental damage/global warming followed by agency/capability, participation – localism, health and removal of barriers (Figure 3.9).

Interestingly, mistrust/scepticism of government and authority ranked as a driver, and this was the only community reported here where this was the case. It would appear that if certain actors such as adult education providers, colleges, bridging organisations, local authority and European actors were to collaborate a little more with this community, this agency/capability as a driver could leverage significant impacts (Figures 3.8 and 3.9).

The Killaloe settlement is so close to the Ballina community in Tipperary that these are effectively one community for the purposes of this research. Community and local groups were judged to have the greatest local impact, followed closely by schools (Figure 3.10). The local authority, exemplar communities, skilled facilitators and other people also featured, with European actors, bridging organisations and social media also judged to be active.

It appears that significant inroads could be made if government agencies, environmental champions, religious groups, colleges and/or businesses were enabled, as these were judged to be low scoring. Abbeyleix, not dissimilar in size to Killaloe and Ballina, again presents a unique actor profile through its radar chart. Community and local groups again were judged to be active, as were local authority, environmental champions, exemplar communities, skilled facilitators and (less so) government agencies.

According to Abbeyleix participants, more could be expected from adult education providers, bridging

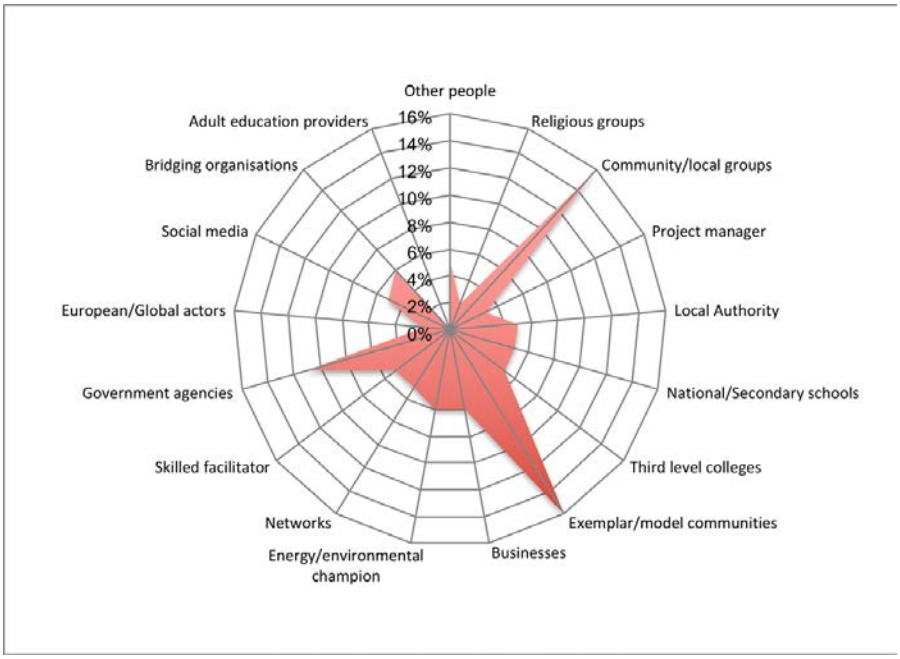

Figure 3.8. Actor radar chart for Inis Mór, *n* = 10/110.

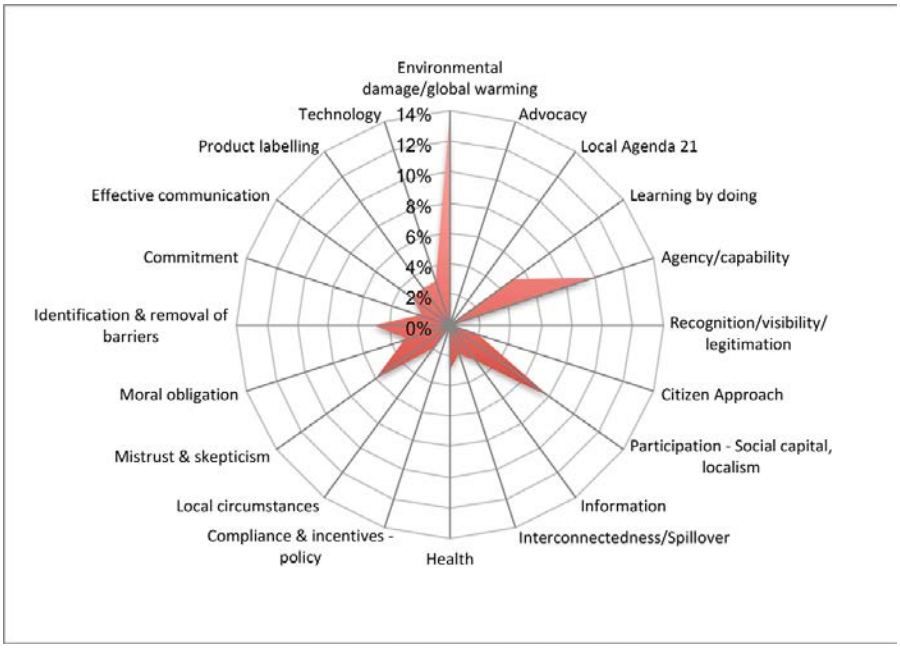

Figure 3.9. Driver radar chart for Inis Mór, *n* = 10/110.

organisations, European actors, networks, businesses and colleges and again project managers, as sustainability actors have been inactive as judged by attendees (Figure 3.12). Interestingly, in Figure 3.11, Killaloe ranked effective communication and technology as the most significant drivers locally. Next were environmental damage/global warming, product labelling, moral obligation, information and citizen approach. The identification and removal of barriers was also cited as being an important driver locally. Given the technological and product labelling focus, it would appear that sustainable business models might be attractive to locals. It is also of note that local authority together with schools could support the driver information in this locality, with a potentially promising short-term impact. In Abbeyleix (Figure 3.13), the driver recognition/visibility/ legitimation scored highest, and this might provide

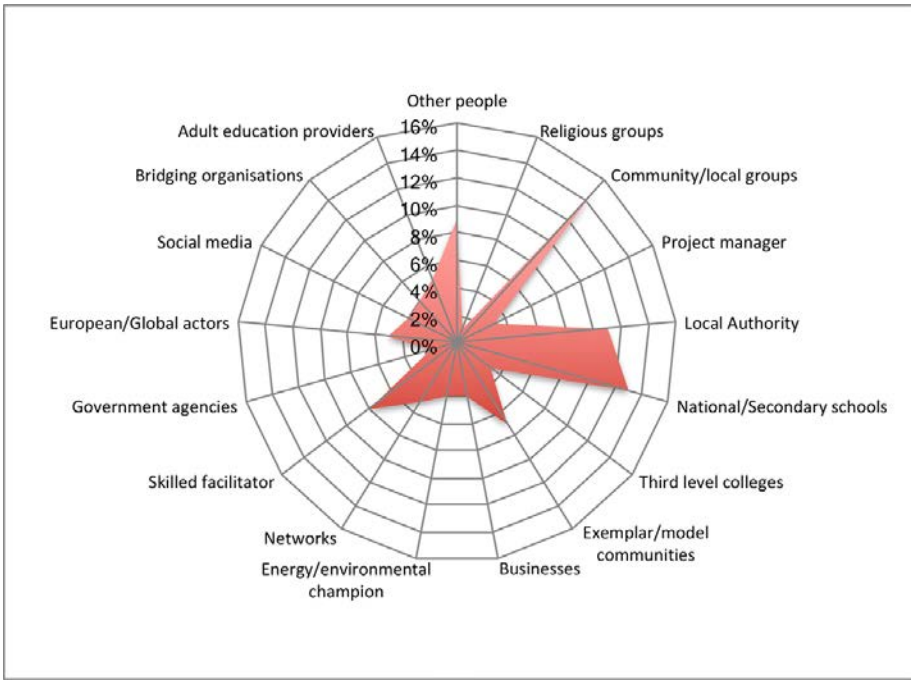

Figure 3.10. Actor radar chart for Killaloe, *n* = 16/176.

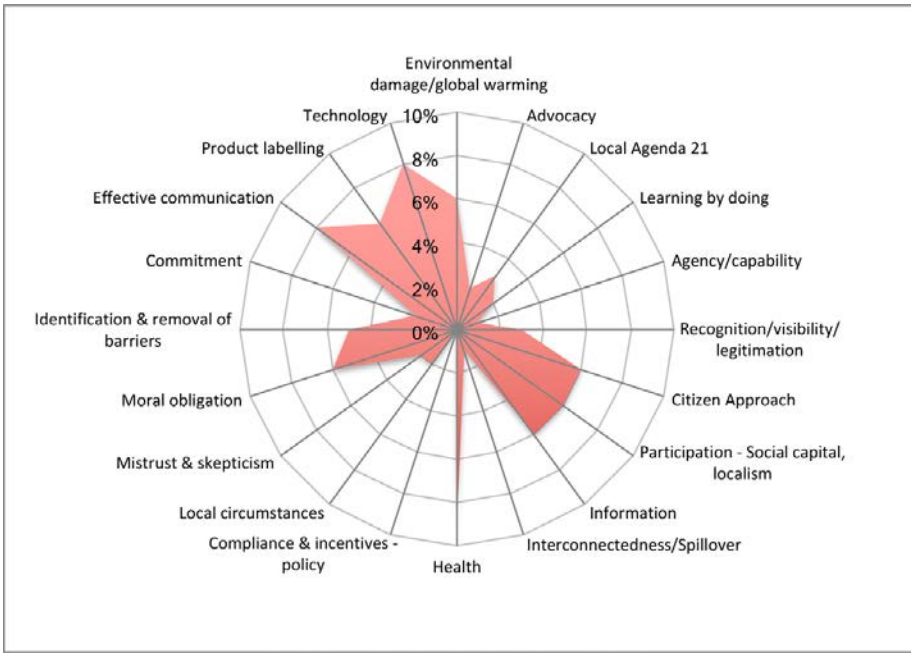

Figure 3.11. Driver radar chart for Killaloe, *n* = 16/176.

a conduit for sustainability “quick wins” for the local authority and environmental champions. Given the low score for education providers and colleges, local adult education could also provide strong leverage of this legitimacy driver. Weight is also added to this type of transition potential because information and “learning by doing” are also rated highly as a driver of sustainability locally. Local circumstances, environmental damage/global warming and effective communication were the next most important drivers. Identification and removal of barriers was also ranked as important.

Westport is a significant town in Mayo and, like most of the others, shows strong action from community and local groups (Figure 3.14). Exemplar communities and environmental champions have also

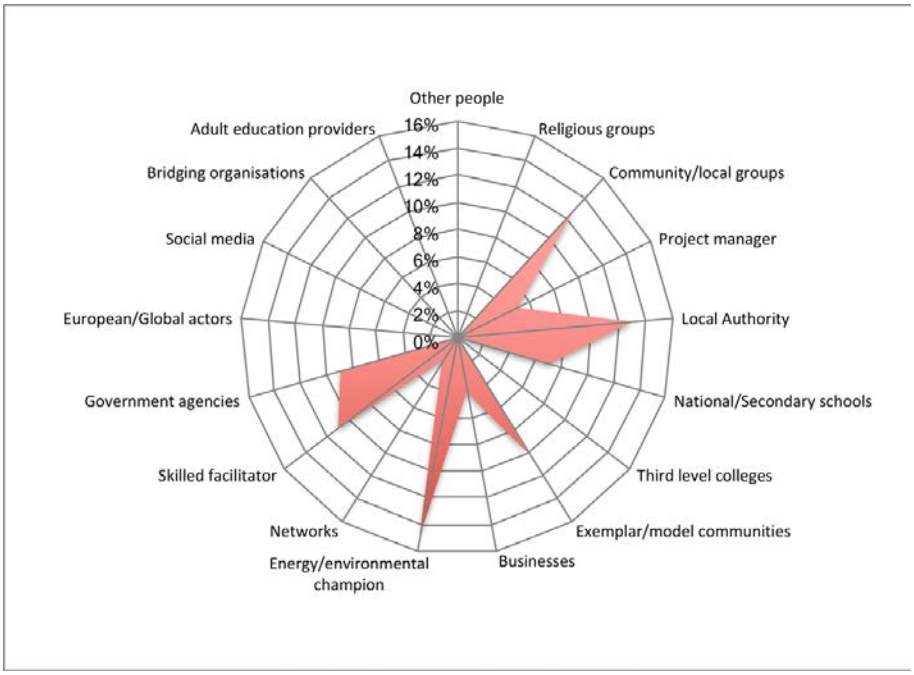

Figure 3.12. Actor radar chart for Abbeyleix, *n* = 10/110.

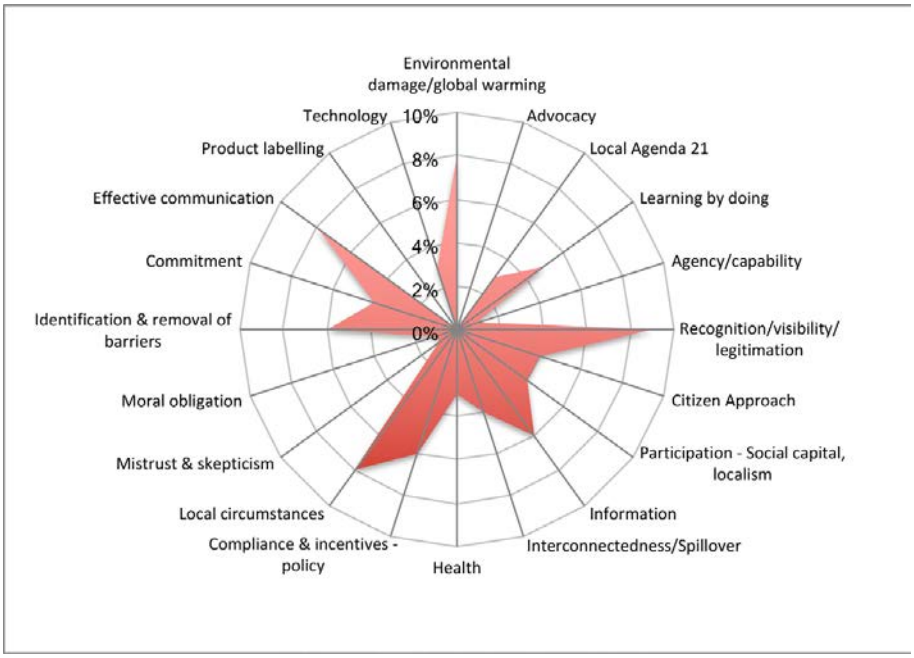

Figure 3.13. Driver radar chart for Abbeyleix, *n* = 10/110.

been important. Local authority, schools, colleges, networks, government agencies, European actors, adult education providers and social media have also had an impact, but less so. More action at the college, school, religious group, project manager, business, skilled facilitator and bridging organisation levels could prove fruitful in relation to potential long-term sustainability improvements.

In the short term it appears that collaboration between already active parties, such as some of the community and local groups, local authority, exemplar communities and environmental champions, could provide “quick wins”, as their activity has already been established and this legacy can be leveraged.

In Figure 3.15, the Westport attendees ranked environmental damage/global warming as the most

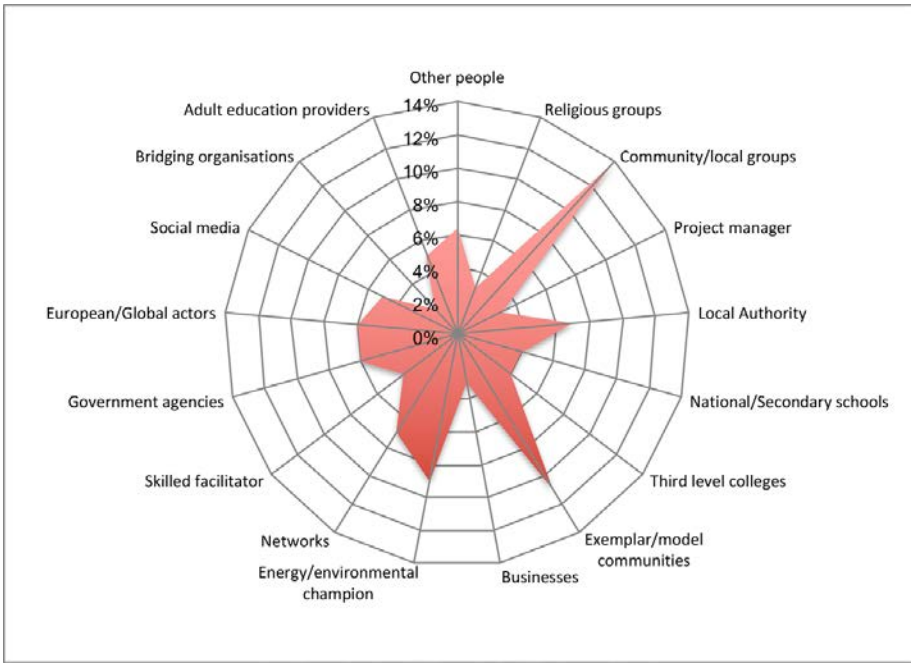

Figure 3.14. Actor radar chart for Westport, *n* = 28/308.

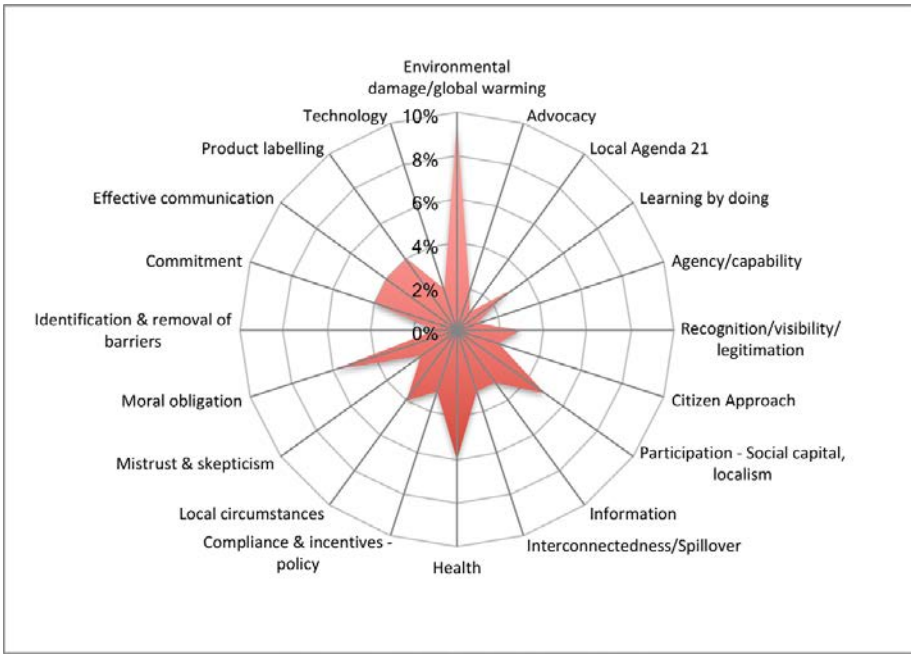

Figure 3.15. Driver radar chart for Westport, *n* = 28/308.

important driver locally. Health and participation – localism were also ranked well, and together with the ranked government agencies actor this would indicate that a SEAI-type Better Energy Community programme could prove fruitful in Westport. Interestingly, though, their organisational capacity and agency/capability drivers do not feature, indicating that administrative and organisational resources would need to be supported among local volunteers were a Better Energy Community programme to be successful. Moral obligation, commitment and effective communication also scored as significant drivers locally. The findings suggest that much could potentially be achieved in Westport and in other communities given the high moral obligation rating as a driver and the low activity of religious actors.

Ballymun shows a sizable increase in population from Westport and its actor profile is again unique. Bridging organisations score the highest and adult education providers also score well; these two actors can be and are linked in Ballymun. The attendees rated their community and local groups as significant, like most of the other assessed communities. The local authority and school action were well ranked. Exemplar communities, skilled facilitators and European actors also featured, but less so. Again, a unique profile emerges from the radar chart, and the inaction of government agencies, colleges, project managers, religious groups and social media as sustainability actors is also evident. Ballymun's highest ranked driver was the participation – localism driver, and together with the scoring of advocacy this is consistent with the fact that their bridging organisations score highest among their actors (Figure 3.16).

Environmental damage/global warming again scores relatively well as a driver, followed closely by learning by doing. Effective communication, identification and removal of barriers and moral obligation also score well. The findings suggest that collaboration between the active bridging organisations and the inactive colleges, leveraged by the inactive government or relatively active local authority, could enhance the learning by doing driver and potentially significant transition could occur here. The leverage of the active adult education providers could also enhance this driver.

Galway City was the largest settlement represented in this research study and shows that community and local groups, exemplar communities, local authority and social media were important (Figure 3.18). European actors are evident but government agencies feature poorly, as do adult education providers, bridging organisations, religious groups, project management, schools, colleges and businesses. In the short term, it appears that collaboration between already active parties, such as some of the community and local groups, local authority, exemplar communities, European actors and environmental champions, could provide "quick wins", as their activity has already been established and this legacy can be leveraged.

Some of this activity is currently in progress in Galway, with the Green Leaf Award bringing these specific actors together. The Green Leaf Award is an EU programme aimed at small cities and towns that recognises commitment to better environmental outcomes. Again, the negative of the radar chart actor profile shows where particular actors, if engaged, could have longer term impacts, and any policy measures ought to have both short- and long-term levers. The strongest driver in Galway

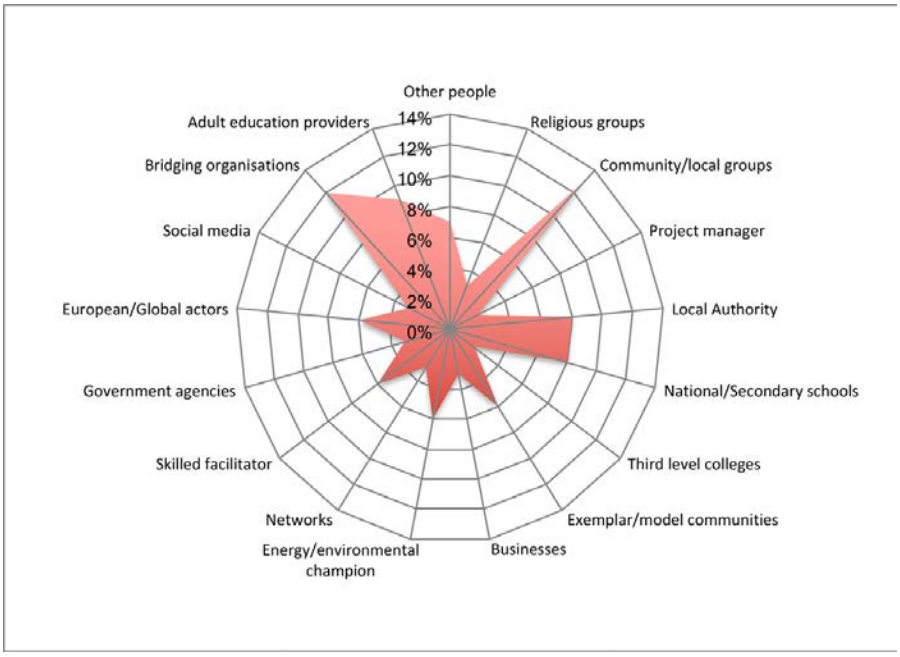

Figure 3.16. Actor radar chart for Ballymun, *n* = 16/176.

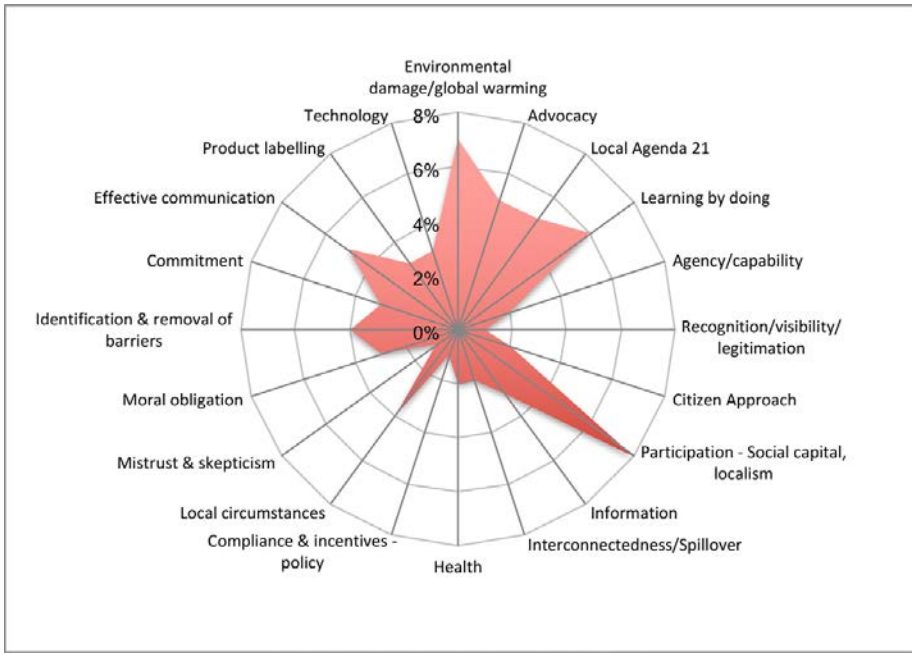

Figure 3.17. Driver radar chart for Ballymun, *n* = 16/176.

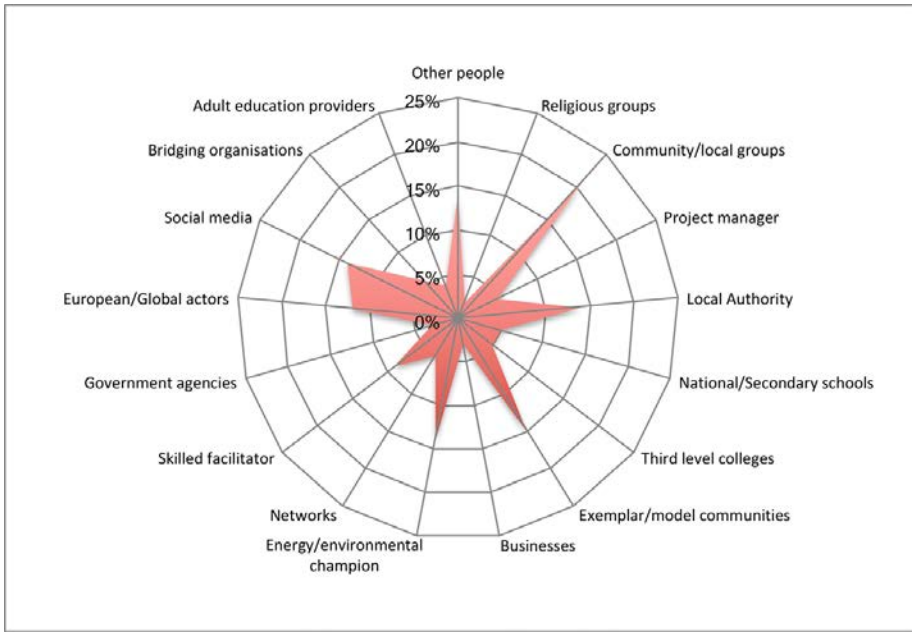

Figure 3.18. Actor radar chart for Galway City, *n* = 26/286.

City was found to be environmental damage/global warming (Figure 3.19). This was closely followed by participation – localism, health and moral obligation drivers. The example of Inis Mór and Birdhill could work in Galway City, where the health driver is so significant, and therefore government schemes such as the Better Energy Community programme could leverage this, especially given their relative inactivity.

The citizen approach, technology and learning by doing also feature in the ranking of drivers.

Overall there is a clear indication that the communities assessed are low in project managers, as these score low across the board. Matching this, organisational management scores relatively low as an active driver in the communities visited. This is the same

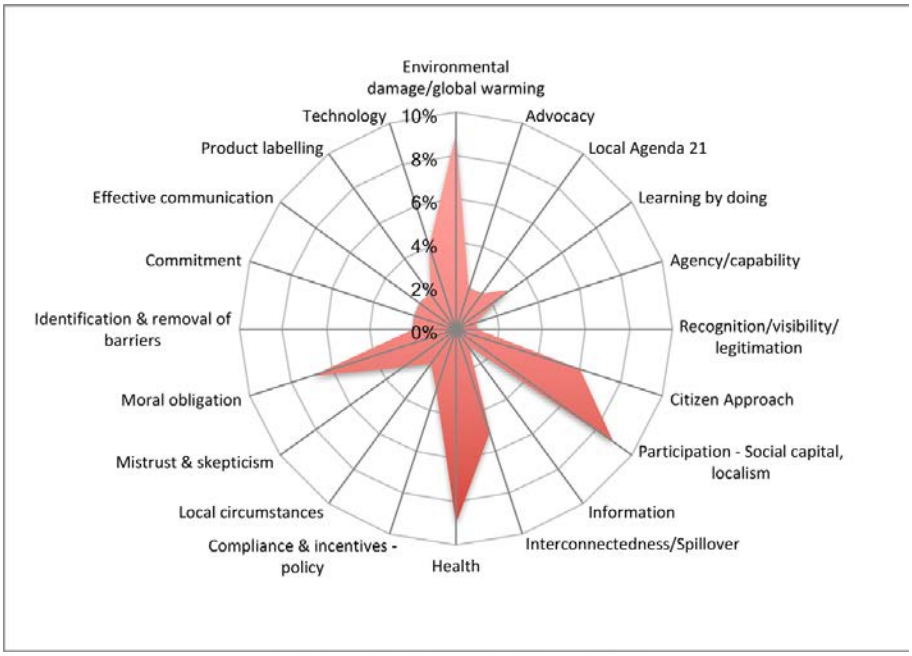

Figure 3.19. Driver radar chart for Galway City, *n* = 26/286.

for religious groups and, given the significant moral obligation driver in many of the communities, much could also be achieved here.

In summary, working together with these radar chart profiles provides an insight for community and points to where short-term and long-term actions could focus. This represents a worthwhile mechanism for policymakers, community, practitioners and resource use specialists to leverage in planning and implementing sustainability. There are 39 drivers in total identified in Table 2.3, but just 20 of the more significant drivers are evaluated here, and this means that further and deeper analysis might prove fruitful. The ranking data for the 39 drivers and 17 actors are included in Appendix 1 (Tables A1.1 and A1.2).

4 Co-design Event

World Café has been found useful to engage large groups in dialogue where the discursive approach needs to generate input, share knowledge, stimulate innovative thinking, conduct in-depth exploration of key strategic challenges or opportunities, and to deepen relationships and mutual ownership of outcomes. Conventionally, in these events, the participants explore an issue by discussing in small groups or "tables" for multiple consecutive sessions. At regular intervals the participants move to a new table. One table host remains to summarise the previous conversation to the new table guests. Thus, the ensuing conversations are cross-fertilised with the ideas generated in previous conversations at each table. At the end of the process, the main ideas are summarised in a plenary session and follow-up possibilities are discussed.

4.1 Co-design Introduction

Some of the potential of the radar charts as a sustainability design tool was presented in Chapter 3. It is apparent that communities could benefit through co-design, using their driver and actor radar charts, and conversing together with resource use specialists and policymakers. These conversations, aiming to generate sustainability ideas for the communities, together with relevant policies for the policymakers, would be a significant step forward in relation to co-design of sustainable solutions. This potent combination, together with these communities, could potentially harvest significant sustainable solutions related to local issues and problems. It was decided to bring these stakeholders together in a World Café-type event to test this rationale and generate creative dialogue and SCD (Figures 4.1 and 4.2). Suggestions from stakeholders relevant to each community needed to incorporate the following elements: the sustainability idea itself, its potential impact given the scale of the community, case study evidence and appropriate policy levers. This mix of related elements needed to be discussed by each stakeholder in a controlled fashion with each community. For synergies to emerge between ideas, and given the breadth of the inputs required, it was decided to aim for eight to nine contributors at each table. A recorder was nominated for each table and their purpose was first listening to the ideas and then recording them. A facilitator was nominated for each table, from a team of facilitators that the research engaged for this event. The facilitator and the recorder were the hosts and remained at each table. Frequently in World Café there is just one facilitator managing the conversations of up to five participants at various tables. This research, however, needed a facilitator at each table, as eight to nine participants were planned at each table, and this was therefore a significant deviation from World Café. It can be helpful to have a "talking object" on each table that can be passed among the stakeholders. This was famously exemplified by the conch in William Golding's *Lord of the Flies*, and two roles for the "talking object" exist: (1) the holder is empowered to speak, while (2) the others in the group are empowered to listen. The size of the groups at the table and the complexity of the inputs necessitated the use of an egg timer, and this represents a second deviation from World Café method. This provided the empowerment aspects mentioned above but instilled discipline and preparation in contributors' inputs. It also enhanced the empowerment of the listeners by securing time for their listening. In each round of conversation, the "talking object" was passed around the table twice so that there was a chance to listen and learn, and to adapt overall inputs for each contributor. This double deviation from World Café left some of our facilitators describing the event as a World Café event within a World Café event, and others comparing it with a number of roundtable events in one World Café event. Whichever is closer to the truth, the event was a significant deviation from World Café and has therefore been termed an SCD event. That said, the methods have been drawn largely from Brown (2002), Slocum (2003), Beckley *et al*. (2006) and the World Café website (World Café, 2017), except for the deviations outlined. The question defined for each contributor was "Can you provide at least one sustainability idea for each community together with its potential impact, a location where the idea is already happening and a policy lever?" The contributions were based on each community's attributes and competencies.

Figure 4.1. Co-design event in SEAI (2016).

Figure 4.2. SCD event discussions at the Inis Mór community table.

This information was provided at each table together with its unique actor and driver radar charts. It was essential that each recorder was from the community in question, providing practical knowledge and answers to questions from contributors. Each recorder was given a recording template, which provided an easy-to-complete breakdown of the spoken elements required for each sustainability idea. This was provided for each of the following sustainability themes: energy, water, food, waste and transport. Substantial numbers of ideas were offered by contributors, and these were incorporated in Table 4.1, under miscellaneous.

The method was designed for up to nine contributors at each table, and one community at each of six tables (Figure 4.2), and our stakeholder recruitment and attendance backed this up. Within each round, each contributor would get two 1-minute chances to

contribute, totalling 20 minutes per round. Typically for action research, a late change meant that just five communities were present, and this increased the conversation time at each table, resulting in just four rounds of conversation followed by a plenary session. Ideas were harvested using the planned format and based on the attendees at the SCD event.

It is key for such co-design to establish an approach of appreciative enquiry, and so a positive and undemanding approach was maintained throughout. This started with a welcome to the morning session, followed by a number of short presentations that set out the context, and which were provided by SEAI and the EPA. Subsequently, just before lunch, the guidelines for the proceedings of the SCD event were outlined. This placed a clear picture of the afternoon's proceedings in the contributor's minds, with a simple statement of the question above together with the elements required for each sustainability suggestion/ idea. It is important that the question is relevant to the stakeholders to engage them fully, and this meant that stakeholders were recruited from the following groups: community, community practitioners, resource use specialists, sustainability academics and sustainability policymakers. Given the set of circumstances that the event team had engineered, Slocum (2003) would classify the question above as a "powerful question", as it provokes and focuses enquiry. Slocum (2003) comments that good questions provoke continual surfacing of new ideas and possibilities, and, given the broad compass of sustainability together with the facilitating method utilised, this question very much did that.

4.2 Preparation

Resource considerations play a strong part in scoping event possibilities, and chief here were budgetary items for stakeholder and community travel, food and refreshments, recruitment, invitations, promotion and communications. Based on the capacity and form of appropriate venues, the resources available to the research team and the requirements of the methods and approaches utilised, it was decided by the event team to invite six of the communities in Table 3.1 to a co-design policy event on 17 January 2017. The communities invited were Galway City, Ballymun, Westport, Killaloe, Inis Mór and Birdhill. A large central venue was acquired from SEAI for the event, in which appropriate seating arrangements were possible and catering services were present. All six communities agreed to attend, but, as mentioned above and due to matters beyond their control, Ballymun had to cancel their attendance on the day of the event.

The SCD event was planned to take 5 hours and to be straddled either side of lunchtime, and this left ample time for attendees to manage their logistics. Thanks to the potent engagement and communication drivers of Carragher (2011), the event was oversubscribed and maintained a cancellation list.

The choice of facilitator is important for such events, and because there were six tables and floating facilitators were required, this SCD event needed eight facilitators. The facilitator needs to ensure that the guidelines for dialogue and engagement are implemented and maintained. The responsibilities of the facilitators included: (1) working with the event team; (2) welcoming the participants; (3) explaining the event's purpose; (4) posing the above question; (5) explaining the event guidelines and etiquette; (6) supporting the table hosts; (7) encouraging contributions and dialogue; and (8) encouraging active listening. Facilitators were placed at each table and two facilitators roamed between the tables, supporting and maintaining conversations. An important role of these central facilitators was timing the rounds, and a lightly toned bell was used to terminate each round's conversations. Given this co-design experiment, the recorders' role was critical and they were provided with a simple template to facilitate their recording. All recordings were visual and made within visual range of the seated contributors.

4.3 Recording

Facilitators at each table asked the participants to share their individual perspectives and listened to what was emerging. Recorders were encouraged to use the markers and templates on the table to create a "shared visual catalogue" of emerging ideas. Setting up the event in conversational rounds and asking people to change tables between rounds meant that cross-pollination was important and allowed a dense web of connections to be formed. A plenary session was held after the four rounds of dialogue to bring all ideas back to the floor for discussion. This was important as, given that there were four rounds, participants would not have got to all five tables. In this way, the idea clusters

harvested at each table were shared among the whole group using flipcharts for recording purposes. Subsequently, Duncan Stewart, one of the event team, tackled emerging themes. As mentioned, the recorders were important to create a catalogue of the emerging ideas, but their status as residents of each community also put them in an ideal place to discuss the practicalities of ideas suggested.

4.4 Results

The four rounds of SCD idea generation visited each community table and generated 215 sustainability ideas for these communities. Although ideas are categorised into individual themes in Table 4.1, some of the ideas had combined effects and in that sense categorisation is not an advantage. One example is that anaerobic digestion from human sewage and food waste could affect the transport, waste and the energy themes. The report presents only the general summary data of the SCD event, as the ideas are confidential and currently under discussion in a co-production phase. The co-production phase follows the co-design event, completes co-creation and intends to implement sustainability ideas from the SCD event.

During the SCD event, the policymakers, resource use specialists, academics and communities agreed to meet again in relation to potential co-production of specific ideas. It was felt that selecting the “low hanging fruit” or the easy, inexpensive ideas was a real option to gain momentum initially, from which communities could generate further success – mitfahrt banks, a library of things, grow it yourself initiatives, edible landscape initiatives, and wood energy projects similar to the Clare wood energy project were examples of such ideas. The vision was that this momentum could in time easily lead to longer term projects being implemented. A commitment was achieved on the day, and further meetings between the stakeholders are imminent at the time of writing. In these meetings, the specific ideas in which the communities are most interested will be discussed, together with the community, academic, policymaker and/or resource use specialist idea generators. It is envisaged that, by using this knowledge potential, together with the community and the actor and driver radar charts, this research will support a well-informed co-design process that will enhance co-production and implementation.

Table 4.1. Summary of the ideas harvested for each community

Community	Birdhill	Inis Mór	Killaloe	Westport	Galway	Total
Energy	10	5	14	11	16	56
Food	6	6	6	6	8	32
Waste	4	7	11	5	13	40
Transport	10	5	8	13	19	55
Water	0	3	2	0	7	12
Miscellaneous	0	0	9	6	5	20
Total	30	26	50	41	68	215

5 Conclusion

Given the challenges policy and technological solutions face with climate change, and unsurpassed resource depletion, the ideas and methods developed within this research carry significant benefit. Important factors for local sustainability initiatives are overall vision and identity, leadership, the presence of social capital and environmental champions, and norms. Also important are measurement, commitment strategy, strong procedural and distributive justice, capacity building and effective communication. These represent some of the actors and drivers identified. The review produced a list of 109 factors relevant to enabling sustainable transition of individuals, groups and communities. The factors do not group distinctly and simply, and this is thought to be an indication of the complexity of sustainable transition and the polycentric perspectives or approaches needed to overcome humankind's lack of foresight intelligence (Ostrum, 2009). These factors should prove useful for communities and for their stakeholders, which include community-based organisations, practitioners, academics, policymakers and resource use specialists. The 17 actors and their 39 drivers are important for policymakers and academics to envisage sustainable action and transition, for community or their practitioners to identify those around them who can support sustainable endeavour, and for resource specialists who aim to embed sustainability projects within communities. The absence of these actors or drivers in profiled communities also points to potential gaps where external or internal actions can take place.

A defining set of these factors does not exist for any one group, as sustainable transition processes are extremely complex and positional (context based) in nature. Such transition requires varying actors and drivers, dependent on the aims, stakeholders, community, individuals, time, context and place. A mix of interventions is likely to be successful if it is: (1) tailored to various (national, local, organisational or domestic) levels; (2) targeted at both the individual and social level; (3) aiming to change both investment and habitual behaviour; (4) targeting multiple motivations (not only economic and informational ones); (5) adding strong quantitative and qualitative evaluation (of actual and perceived/modelled behaviour changes) into project design; and (6) focusing on the lifestyle in which energy is key to performing functions (Mourik and Rotmann, 2013). In short, a multilevel polycentric perspective is necessary to drive sustainable transition.

A community's sustainability driver profile, as developed by this research, is described here as the unique specific set of drivers appropriate to driving that community on sustainable transition. The drivers identified in this research have been tested on a number of Irish communities to generate unique community-based driver profiles. Further to the testing, these unique profiles have been utilised in policy co-design workshops to lay out sustainable transition for each community. Sustainable transition presents difficulties for understanding the diversity of drivers, and their nuanced and complex relationships. These profiles in the form of radar charts provide a useful resource for policymakers, community, community practitioners, academics and resource specialists. Firstly, they provide a clear visualisation of who and what is working with, and within, any community in relation to sustainability. By utilising and leveraging prominent actors, and drivers, specialists can gain ground swiftly in relation to driving sustainable initiatives. This means that, for new sustainability ideas in communities, actors and drivers already present, and identified here, can provide significant advantage. The benefits will take a relatively short time to harvest, as these actors and drivers are present, accessible and ready. Secondly, the profiles utilising radar charts also show where actors and drivers are not present, and this can be useful information for projects with longer timelines. For these, mid- to long-term progress could more easily be achieved by focusing on these areas of inactivity. This research identifies gaps where future sustainability action can be harvested. The utility of the driver actor profiles is illustrated by the following findings. In Cloughjordan, the participation – localism activities would benefit hugely from bridging organisations and skilled facilitators becoming more active. It was suggested that the European and local authority actors might leverage this potentially fruitful combination. On Inis Mór, if adult education providers, colleges, bridging organisations, local authority and

European actors were to collaborate, then agency/capability as a driver could leverage significant impacts. For Killaloe, it appears that (1) significant inroads could be made if government agencies, environmental champions, religious groups, colleges and/or businesses were enabled; and (2) that local authority together with schools could drive short-term impacts.

In Westport, more action at the college, school, religious group, project manager, business, skilled facilitator and bridging organisation levels could prove fruitful in relation to potential long-term sustainability improvements. Short-term gains could be achieved with collaboration between already active parties, such as some of the community and local groups, local authority, exemplar communities and environmental champions. In Ballymun, the findings suggest that collaboration between the active bridging organisations and the inactive colleges, leveraged by the inactive government or relatively active local authority, could enhance the learning-by-doing driver, and potentially significant transition could occur here. Promotion of the active adult education providers could also enhance this driver. Health as a driver is significant in Inis Mór and Birdhill, and government schemes such as the Better Energy Community programme could leverage similar action and benefits in Galway. This research, by combining the dual benefits of active and non-active actors and drivers, provides a clear visualisation of how sustainable transition can proceed in study communities over various timelines.

The solutions offered by this research do not intend to replace top-down policy and action, but instead to complement and support it. The 109 actors and drivers identified in Chapter 2 are based on top-down, bottom-up and horizontal action. In leveraging the economy of scales offered by community and by the actor/driver profiles, potential top-down policy actors can support the advancement of exemplar communities, and this fulfils a number of the actor/driver actions required. These beacon communities act as sustainability guides enhancing self-efficacy, collective agency, the development of norms and the reachability of sustainable transition for other communities. This research intends to strengthen the activity of top-down, horizontal and bottom-up support for community.

6 Recommendations

The characterisation of the drivers has proved difficult, and further work on this would be beneficial. However, characterisation simply provides a conceptualisation on which we base an understanding. Sustainability is complex and the factors identified may not be easily characterised, and it may be that the approach based loosely around network theory is the best achievable.

Further exploratory research is recommended on the co-creation of sustainability ideas for communities, using and building on the method of this research. This would allow further co-design for other communities, and co-production of designs through the implementation stage. Modelling or providing beacons for sustainable endeavour provides a mechanism that incorporates the benefits of many of the actors and drivers identified. Such modelling is a beneficial approach for society and policymakers to take, as other communities can be effectively persuaded into action by modelled communities. As an accomplishment of co-production research, beacons or case study-type examples in various sustainability themes would be of great advantage in persuading others to follow suit.

Initial interpretation of the diversity in the actor/driver profiles could lead policymakers to expect huge complexity in following such approaches as a solution to the unsustainable trajectory of society. An extension of this research beyond the communities here, however, would provide significant rationale for transferability and scalability. A number of potential avenues of research exist here, and two examples are: (1) through cross-tabulation one finds markers or characteristics in big data that simplify its complexity and are predictive of trends in the data; and (2) an initial grouping of communities, by, for example, their attributes, would be followed by actor/driver profiling and co-design activities providing models of sustainability based on, among other things, the attributes of Irish communities. By grouping or bundling communities based on, for example, their attributes, trends in the solutions offered by actor/driver profiles and co-design activities can be easily identified. Such envisaging of sustainable transition based on community characteristics would provide significant economy in applying such research to the community space. As exemplified by this research, the actor/driver profiling and its subsequent co-design is strongly synergetic with co-production activity. If a transition process for communities were identified, supported and enhanced using actor/driver profiling of communities, with co-design, and if a critical mass of these communities were facilitated, a sustainable transformation at the national scale would be possible.

The driver profiles presented in this research use just 20 of the main drivers and thus provide a snapshot, as there are 39 drivers in total. Beyond the useful guidance offered by the 20, component profiles for strong sustainability action, research and genuine transition efforts should reflect on all 39 drivers where possible. As the actors and drivers are identified from community action across the globe, it is likely that any one community would possess a portion of these. As mentioned, part of the benefit of the actor/driver profiling is the identification of actors and drivers that are dormant and that can be activated.

Because of the economy of scales presented by communities, it would be useful to develop this research by further designing and creating tools for the various stakeholders who work inside and outside communities. Easy-to-use driver tools would present future sustainability actors with a method to engage and empower communities in sustainable activity. A potential multiplier and location for such community actor/driver profiling might be the local authorities acting in the regions of these communities.

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Abbreviations

ABC	Attitude–behaviour–context
AD	Analytic deliberation
CBO	Community-based organisation
CBPR	Community-based participatory research
CBSM	Community-based social marketing
CO_2	Carbon dioxide
DBA	Discourse-based approach
EF	Ecological footprint
EU	European Union
GHG	Greenhouse gas
LA	Local Agenda
LCCC	Low Carbon Communities Challenge
NESC	National Economic Social Council
SCD	Sustainability co-design
SEAI	Sustainable Energy Authority of Ireland

Appendix 1

The following tables contain the preference results of the focus groups for each community. These preferences are also presented as percentages.

Table A1.1. Actors as ranked by eight communities

No	Actors	W	I	Ba	A	C	GI	GII	K	B	Mean	Total	Total (%)
1	Other people	12	3	8	4	11	5	10	10	13	8	76	9
2	Religious groups	5	1	3	0	3	1	1	1	1	2	16	2
3	Community/local groups	27	10	14	11	5	12	11	17	14	13	121	14
4	Energy/environmental champion	17	4	7	12	7	6	9	4	9	8	75	9
5	Project manager	5	2	2	4	3	3	3	3	5	3	30	3
6	Local authority	14	3	9	11	5	3	12	12	5	8	74	8
7	National/secondary schools	7	3	9	6	3	0	5	14	1	5	48	5
8	Third-level colleges	7	3	2	0	2	0	6	3	2	3	25	3
9	Adult education providers	10	0	10	0	2	1	3	5	2	4	33	4
10	Exemplar/model communities	20	10	6	8	12	9	8	8	10	10	91	10
11	Businesses	5	4	3	3	3	1	2	4	2	3	27	3
12	Networks	14	3	3	2	0	2	4	5	2	4	35	4
13	Bridging organisations	4	4	13	0	1	1	6	4	1	4	34	4
14	Government agencies	12	7	3	7	3	2	1	2	6	5	43	5
15	European/global actors	11	1	6	0	7	3	10	5	3	5	46	5
16	Social media	10	3	3	5	2	4	11	4	3	5	45	5
17	Skilled facilitator	8	3	7	9	3	2	8	9	10	7	59	7

A, Abbeyleix; B, Birdhill; Ba, Ballymun; C, Cloughjordan; GI and GII, Galway; I, Inis Mór; K, Killaloe; W, Westport. Two events took place in Galway and the radar charts presented in this report are the sum of the two.

Table A1.2. Drivers as ranked by eight communities

No	Drivers	W	I	Ba	A	C	GI	GII	K	B	Mean	Total	Total (%)
1	Mistrust and scepticism	5	4	1	1	0	3	2	2	0	2	20	2
2	Participation – social capital, localism	10	5	10	3	4	6	11	8	8	7	72	7
3	Population pressure and land demand	1	0	0	0	0	0	2	0	0	0	3	0
4	Environmental damage/global warming	20	9	8	6	10	10	8	8	6	9	94	9
5	Public opinion and dialogue	4	1	3	1	3	2	5	1	2	2	24	2
6	Normative concerns	2	2	0	1	2	0	1	2	2	1	13	1
7	Local circumstances	8	1	5	6	0	2	1	3	2	3	31	3
8	Infrastructure/organisational systems	3	1	3	1	2	2	2	1	1	2	18	2
9	Agency/capability	3	6	2	1	0	0	2	1	1	2	18	2
10	Moral obligation	13	2	4	1	6	4	9	8	8	6	61	6
11	Emotive/affective	8	1	3	2	0	3	3	3	1	3	27	2
12	Faith	5	0	2	0	4	0	0	0	0	1	12	1
13	Health	12	2	3	2	6	6	11	12	8	7	69	6
14	Information	7	2	4	5	2	0	1	8	2	3	34	3
15	LA21	2	0	6	2	0	1	2	4	0	2	19	2
16	Feedback	2	1	3	1	4	2	0	1	3	2	19	2
17	Commitment	8	1	4	3	5	0	3	2	1	3	30	3
18	Indicators and measurement	5	0	4	1	2	0	2	1	3	2	20	2
19	Recognition/visibility/legitimation	6	0	1	7	2	2	0	4	1	3	26	2
20	Exploring synergies	4	0	4	2	3	1	6	3	1	3	27	2
21	Identification and removal of barriers	2	3	5	5	0	1	2	6	2	3	29	3
22	Advocacy	4	0	6	0	0	1	3	2	2	2	20	2
23	Profiling techniques	1	0	2	0	0	0	0	1	0	0	4	0
24	Technology	4	3	4	2	3	2	5	10	4	4	41	4
25	Technological/technical assistance	2	2	0	1	0	0	0	0	0	1	6	1
26	Product labelling	9	2	4	0	5	1	2	8	3	4	38	4
27	Learning by doing	6	3	7	4	2	2	4	4	2	4	38	4
28	Compliance and incentives – policy	7	0	1	5	2	2	3	0	7	3	30	3
29	Legal/regulative – policy	6	0	0	0	1	3	2	1	2	2	17	2
30	Citizen approach	5	1	3	3	3	3	8	8	2	4	40	4
31	Discourse-based approaches – reinterpretation	1	2	2	0	1	1	3	0	4	2	16	1
32	Distributional justice	4	2	1	0	3	2	0	0	3	2	17	2
33	Procedural justice	1	0	1	1	2	1	0	0	2	1	9	1
34	Interconnectedness/spillover	6	1	2	3	3	5	4	1	0	3	28	3
35	Organisational management	0	3	3	1	1	0	1	0	3	1	13	1
36	Chronology/timing	2	0	0	1	3	1	1	1	0	1	10	1
37	Co-management/social learning	3	1	2	0	0	1	3	1	1	1	13	1
38	Effective communication	9	2	6	6	1	1	2	10	7	5	49	5
39	Polycentric approach/combination	8	0	3	0	2	0	6	2	0	2	23	2

A, Abbeyleix; B, Birdhill; Ba, Ballymun; C, Cloughjordan; GI and GII, Galway; I, Inis Mór; K, Killaloe; W, Westport. Two events took place in Galway and the radar charts presented in this report are the sum of the two.

AN GHNÍOMHAIREACHT UM CHAOMHNÚ COMHSHAOIL
Tá an Ghníomhaireacht um Chaomhnú Comhshaoil (GCC) freagrach as an gcomhshaol a chaomhnú agus a fheabhsú mar shócmhainn luachmhar do mhuintir na hÉireann. Táimid tiomanta do dhaoine agus don chomhshaol a chosaint ó éifeachtaí díobhálacha na radaíochta agus an truaillithe.

Is féidir obair na Gníomhaireachta a roinnt ina trí phríomhréimse:

Rialú: *Déanaimid córais éifeachtacha rialaithe agus comhlíonta comhshaoil a chur i bhfeidhm chun torthaí maithe comhshaoil a sholáthar agus chun díriú orthu siúd nach gcloíonn leis na córais sin.*

Eolas: *Soláthraímid sonraí, faisnéis agus measúnú comhshaoil atá ar ardchaighdeán, spriocdhírithe agus tráthúil chun bonn eolais a chur faoin gcinnteoireacht ar gach leibhéal.*

Tacaíocht: *Bímid ag saothrú i gcomhar le grúpaí eile chun tacú le comhshaol atá glan, táirgiúil agus cosanta go maith, agus le hiompar a chuirfidh le comhshaol inbhuanaithe.*

Ár bhFreagrachtaí

Ceadúnú
Déanaimid na gníomhaíochtaí seo a leanas a rialú ionas nach ndéanann siad dochar do shláinte an phobail ná don chomhshaol:
- saoráidí dramhaíola *(m.sh. láithreáin líonta talún, loisceoirí, stáisiúin aistrithe dramhaíola)*;
- gníomhaíochtaí tionsclaíocha ar scála mór *(m.sh. déantúsaíocht cógaisíochta, déantúsaíocht stroighne, stáisiúin chumhachta)*;
- an diantalmhaíocht *(m.sh. muca, éanlaith)*;
- úsáid shrianta agus scaoileadh rialaithe Orgánach Géinmhodhnaithe *(OGM)*;
- foinsí radaíochta ianúcháin *(m.sh. trealamh x-gha agus radaiteiripe, foinsí tionsclaíocha)*;
- áiseanna móra stórála peitril;
- scardadh dramhuisce;
- gníomhaíochtaí dumpála ar farraige.

Forfheidhmiú Náisiúnta i leith Cúrsaí Comhshaoil
- Clár náisiúnta iniúchtaí agus cigireachtaí a dhéanamh gach bliain ar shaoráidí a bhfuil ceadúnas ón nGníomhaireacht acu.
- Maoirseacht a dhéanamh ar fhreagrachtaí cosanta comhshaoil na n-údarás áitiúil.
- Caighdeán an uisce óil, arna sholáthar ag soláthraithe uisce phoiblí, a mhaoirsiú.
- Obair le húdaráis áitiúla agus le gníomhaireachtaí eile chun dul i ngleic le coireanna comhshaoil trí chomhordú a dhéanamh ar líonra forfheidhmiúcháin náisiúnta, trí dhíriú ar chiontóirí, agus trí mhaoirsiú a dhéanamh ar leasúchán.
- Cur i bhfeidhm rialachán ar nós na Rialachán um Dhramhthrealamh Leictreach agus Leictreonach (DTLL), um Shrian ar Shubstaintí Guaiseacha agus na Rialachán um rialú ar shubstaintí a ídíonn an ciseal ózóin.
- An dlí a chur orthu siúd a bhriseann dlí an chomhshaoil agus a dhéanann dochar don chomhshaol.

Bainistíocht Uisce
- Monatóireacht agus tuairisciú a dhéanamh ar cháilíocht aibhneacha, lochanna, uiscí idirchriosacha agus cósta na hÉireann, agus screamhuiscí; leibhéil uisce agus sruthanna aibhneacha a thomhas.
- Comhordú náisiúnta agus maoirsiú a dhéanamh ar an gCreat-Treoir Uisce.
- Monatóireacht agus tuairisciú a dhéanamh ar Cháilíocht an Uisce Snámha.

Monatóireacht, Anailís agus Tuairisciú ar an gComhshaol
- Monatóireacht a dhéanamh ar cháilíocht an aeir agus Treoir an AE maidir le hAer Glan don Eoraip (CAFÉ) a chur chun feidhme.
- Tuairisciú neamhspleách le cabhrú le cinnteoireacht an rialtais náisiúnta agus na n-údarás áitiúil *(m.sh. tuairisciú tréimhsiúil ar staid Chomhshaol na hÉireann agus Tuarascálacha ar Tháscairí)*.

Rialú Astaíochtaí na nGás Ceaptha Teasa in Éirinn
- Fardail agus réamh-mheastacháin na hÉireann maidir le gáis cheaptha teasa a ullmhú.
- An Treoir maidir le Trádáil Astaíochtaí a chur chun feidhme i gcomhair breis agus 100 de na táirgeoirí dé-ocsaíde carbóin is mó in Éirinn.

Taighde agus Forbairt Comhshaoil
- Taighde comhshaoil a chistiú chun brúnna a shainaithint, bonn eolais a chur faoi bheartais, agus réitigh a sholáthar i réimsí na haeráide, an uisce agus na hinbhuanaitheachta.

Measúnacht Straitéiseach Timpeallachta
- Measúnacht a dhéanamh ar thionchar pleananna agus clár beartaithe ar an gcomhshaol in Éirinn *(m.sh. mórphleananna forbartha)*.

Cosaint Raideolaíoch
- Monatóireacht a dhéanamh ar leibhéil radaíochta, measúnacht a dhéanamh ar nochtadh mhuintir na hÉireann don radaíocht ianúcháin.
- Cabhrú le pleananna náisiúnta a fhorbairt le haghaidh éigeandálaí ag eascairt as taismí núicléacha.
- Monatóireacht a dhéanamh ar fhorbairtí thar lear a bhaineann le saoráidí núicléacha agus leis an tsábháilteacht raideolaíochta.
- Sainseirbhísí cosanta ar an radaíocht a sholáthar, nó maoirsiú a dhéanamh ar sholáthar na seirbhísí sin.

Treoir, Faisnéis Inrochtana agus Oideachas
- Comhairle agus treoir a chur ar fáil d'earnáil na tionsclaíochta agus don phobal maidir le hábhair a bhaineann le caomhnú an chomhshaoil agus leis an gcosaint raideolaíoch.
- Faisnéis thráthúil ar an gcomhshaol ar a bhfuil fáil éasca a chur ar fáil chun rannpháirtíocht an phobail a spreagadh sa chinnteoireacht i ndáil leis an gcomhshaol *(m.sh. Timpeall an Tí, léarscáileanna radóin)*.
- Comhairle a chur ar fáil don Rialtas maidir le hábhair a bhaineann leis an tsábháilteacht raideolaíoch agus le cúrsaí práinnfhreagartha.
- Plean Náisiúnta Bainistíochta Dramhaíola Guaisí a fhorbairt chun dramhaíl ghuaiseach a chosc agus a bhainistiú.

Múscailt Feasachta agus Athrú Iompraíochta
- Feasacht chomhshaoil níos fearr a ghiniúint agus dul i bhfeidhm ar athrú iompraíochta dearfach trí thacú le gnóthais, le pobail agus le teaghlaigh a bheith níos éifeachtúla ar acmhainní.
- Tástáil le haghaidh radóin a chur chun cinn i dtithe agus in ionaid oibre, agus gníomhartha leasúcháin a spreagadh nuair is gá.

Bainistíocht agus struchtúr na Gníomhaireachta um Chaomhnú Comhshaoil
Tá an ghníomhaíocht á bainistiú ag Bord lánaimseartha, ar a bhfuil Ard-Stiúrthóir agus cúigear Stiúrthóirí. Déantar an obair ar fud cúig cinn d'Oifigí:
- An Oifig um Inmharthanacht Comhshaoil
- An Oifig Forfheidhmithe i leith cúrsaí Comhshaoil
- An Oifig um Fianaise is Measúnú
- Oifig um Chosaint Radaíochta agus Monatóireachta Comhshaoil
- An Oifig Cumarsáide agus Seirbhísí Corparáideacha

Tá Coiste Comhairleach ag an nGníomhaireacht le cabhrú léi. Tá dáréag comhaltaí air agus tagann siad le chéile go rialta le plé a dhéanamh ar ábhair imní agus le comhairle a chur ar an mBord.

EPA Research Report 238

Identifying, Reviewing and Testing the Factors that Drive the Sustainable Behaviour and Transition of Communities, Groups and Individuals

Authors: Vincent Carragher and Sarah McCormack

This research critically reviewed community interventions and sustainable-behaviour change programmes identifying drivers (enablers) adopted by those interventions. The aim was to distinguish key characteristics of success while also identifying barriers to sustainable transition and change.

Identifying Pressures

This research identified pressures firstly through white and grey literature review and secondly through stakeholder outreach using Discourse Based Approaches. This research engaged a broad range of stakeholders who critiqued the identification of pressures such as academics, policy makers, resource-use specialists, community practitioners and community. Focus Groups were hosted and facilitated in communities throughout the country and the learnings were bought to a policy design event in January 2017.

The research identified significant policy pressures as the efficiency gap, the attitude behaviour gap, government alignment and generally low engagement of communities in meaningfully contributing to sustainability solutions which impact them. These have the effect of disconnecting the sustainability policy maker from the environment to which the policies must impact and taken together with the rebound effect, the complexity of behaviour change and sustainable transition add pressure to effective policy formation.

Informing Policy

This research informs policy by providing an understanding of the actors and drivers of sustainable behaviour change and sustainable transition which impact individuals, groups and communities. In total 17 actors and 92 drivers were identified by the research review. These were taken, tested and prioritised by various communities in Ireland in Focus Groups providing a granular perspective on what uniquely drives sustainable transition in each. Results for each community were clearly visualised in actor-driver profile charts and these provide a useful communication of the diversity of factors which uniquely drive sustainability within each community.

The research communicated its findings to policy makers, resource-use specialists, academics, community practitioners and communities at its Roundtable policy co-design event. All stakeholders were provided with an understanding of what drives sustainable transition and strong discussion critiqued the diversity of sustainability ideas and policy solutions required.

This Report provides novel and practical guidance for communities, community actors, academics, resource-use specialists, and policy makers involved in sustainability interventions.

Developing Solutions

This research built a novel sustainability co-design model which identified and critiqued sustainable solutions and their policies. In this, six communities were facilitated within the Roundtable co-design event to explore sustainability solutions for their settlements. Using Discourse Based Approaches, stakeholders expert in various sustainability themes representing academia, policy makers, resource-use specialists, financiers and community practitioners, discussed and critiqued sustainability solutions for each community. A total of 215 sustainability ideas together with policies were harvested for the 6 communities. This novel facilitated co-design approach gained commitment from the stakeholders and communities to develop the co-design approach and support and co-produce sustainability projects within each community. The approaches here attempt to co-create sustainability solutions for and with these six communities. The 109 actors and drivers represented inform the co-creation activities as they identify what can work in each community. Due to the community critique of the Focus Groups they also identify where there are gaps and where and how perhaps sustainable solutions should be developed and deployed. This report is Report lays open the methods used and intends to impact similar method and activities in other communities in Ireland and beyond.

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