Sustainable Housing: A case study of the Cloughjordan Eco-village

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In Davies, A. (Ed) (2012) *Building a Sustainable and Resilient Economy: Contributions from Grassroots Sustainability Enterprises*. **Advances in Ecopolitics 8, Emerald Group Publishing, Bingley UK.**

Introduction

In 2007, the development of Ireland's first eco-village began in the small town of Cloughjordan, which is in a scenic rural area of the midlands region in Ireland. Approximately 1.5 hours from the capital city of Dublin, it is accessible by train from a number of urban centres. In the past the town had suffered from both population decline and population aging. Some of its key services, such as the bank, post office and a school, were either under threat or had already closed. However, the town and its hinterland are rich in both natural and social amenities. This chapter traces the form, function and evolution of the eco-village (hereafter referred to as the Village) in Cloughjordan (hereafter the town) paying particular attention to the governing conditions in which it emerged. It is argued that the Village illustrates a particular form of grassroots sustainability enterprise fusing social and technological innovation around the concept of sustainable housing. It highlights the key drivers of the project, the main barriers

encountered along the way and provides a preliminary analysis of the impact of the enterprise.

Before embarking on the empirical analysis of the Village, which is based on interviews with a range of stakeholders and local residents as well as site visits and documentary research, it is useful to reflect on the concept of sustainable housing.

Characteristics of Sustainable Housing

Housing policy and practice can contribute to or detract from the sustainable development (SD) of a region; that is environmentally, socially and economically. Its importance was recognized in the report of the World Commission on Environment and Development and in the global action plan for SD, Agenda 21, and attention to the issues have subsequently been developed through an emergent, but still rather limited, body of academic literature (Bhatti, 2001; Bhatti *et al*., 1994; Bhatti and Dixon, 2003, Hall and Purchase, 2006; Huby, 1998; Pickerill and Maxey, 2009; Priemus, 2005; Seyfang, 2008; Seyfang and Hazeltine, 2010; Tosics, 2004; Williams and Dair, 2007; Winston, 2007, 2010). This work has emphasised how various aspects of housing can have significant negative impacts on the environment, including its location, construction, design, maintenance, management, and use. In addition, there are ecological limits to the main inputs to housing, including land and many non-renewable construction materials (Huby, 1998, 2002). These inputs, along with various outputs from housing, can be significant pollutants to the eco-system (Huby, 1998, 2002). Furthermore, housing is a significant contributor to CO2 emissions (Bin and Dair, 2005; EPA, 20011; Weber and Matthews, 2008). Developments seeking more sustainable housing often focus on: location; construction/design; and dwelling use. In terms of location, Wheeler (2004) argues that sustainable land-use planning is required which

entails a shift towards more housing being constructed within mixed use developments, resisting scattered settlements and a preference for brown-field rather than green-field sites. The sustainable planning literature suggests that housing should be built close to good quality public transport, which is linked to centres of employment, services and facilities (Lock, 2000; Stead, 2000; Wheeler, 2004). In terms of construction, sustainable housing requires high quality dwellings and neighbourhoods (Edwards, 2000, pp. 9-10). Dwellings also need to be constructed at higher residential densities (Stead, 2000), with a shift away from low density suburban housing (Norman et al, 2006). Wheeler (2004) calls for densities which are double the suburban densities of many places but points out that such densities will only be acceptable if residents have access to a range of outdoor open spaces. Sustainable housing also requires the use of building and design practices which increase the energy efficiency of dwellings, reduce the use of non-renewable materials, utilise local sources of renewable materials, and facilitate the recycling of resources (e.g. water, energy, waste). However, conceptualisations of sustainable housing are not simply concerned with environmental issues. Social and economic dimensions are also important including social mix, affordable accommodation, spaces for social interaction and community capacity building. For example, it is argued that sustainable housing should provide access within walking distance to facilities which promote social contact (e.g. community centres, and leisure facilities) (Worpole, 2003; Worpole and Know, 2007).

Housing built to facilitate low energy use is more likely to result in a high standard of energy efficiency in the use of dwellings, although a 'rebound effect' may occur where, for example,

residents utilise air-conditioning in well-insulated dwellings during the summer months

(Priemus, 2005, p. 11). Similarly, sustainable designs can increase the extent of recycling among

residents. Another aspect of use is the sustainable management and maintenance of housing.

Priemus (2005) notes that the potential of housing providers such as social and private

landlords to contribute to SD is often neglected despite their pivotal role.

Although sustainable housing as a concept has been articulated globally since the 1980s its

manifestation in mainstream housing developments has been limited even in relatively

wealthy, industrialised countries. There have been some improvements in general building

regulations, encouraged for example in Europe through various Directives and regulations such

as the European Communities (Energy Performance of Buildings) Regulations, 2006. However,

these advances have been rather limited in both scope and impact. As a result, sustainable

housing initiatives have tended to be isolated experiments in housing construction or design.

Eco-villages form one pillar of these experimental spaces. In theory, eco-villages incorporate

many of the characteristics of sustainable housing. They encapsulate a considerable diversity of

projects, and have been defined in various ways (Dawson, 2010; Gilman and Gilman, 1991).

However, the Global Ecovillage Network (GEN), established in 1996, defines them as:

> urban or rural communities of people who strive to integrate a supportive social
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> environment with a low-impact way of life. To achieve this, they integrate various aspects
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> of ecological design, permaculture, ecological building, green production, alternative
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> energy, community building practices, and much more… Ecovillages are living models of

sustainability. They represent an effective, accessible way to combat the degradation of our social, ecological, and spiritual environments (GEN, 2011).

As Joseph and Bates (2003) point out, one of these dimensions (social, ecological or spiritual) usually dominates while another may be completely absent. UN-Habitat, the agency responsible for promoting socially and environmentally sustainable communities, has included eco-villages in its database of best practices since 1998 (Kessler, 2008). In 2011, there were approximately 500 eco-villages registered with GEN and, a reflection of their geographic spread, GEN has regional networks for the Americas, Europe and Oceania-Asia (GEN, 2011).

From a sustainable housing perspective, previous research suggests that eco-villages and eco-neighbourhoods are not without limitations. Barton's (2000) survey of 'eco-neighbourhoods' around the world assessed their sustainability using a range of economic, social and environmental criteria, with projects only deemed to be 'successful' if they met several of these criteria. The criteria were: heterogeneous social composition; land use diversity; green economic activity; distinctive, pedestrian scaled public realm; effective pedestrian/bike/public transport networks linking to the wider area; private motor use discouraged; ecologically responsible water strategy; ecologically responsible energy strategy; recycling of land and/or buildings; ecological landscape/local food; community/user involvement; and sustainable management. On these grounds, 55 projects were considered a success. Fourteen were located in Europe, seven in North America, five in Australasia and two in the rest of the world. However, Barton (2000) argues that successful projects have led to problems of affordability

and exclusion for those on lower incomes as the developments become desirable residences. In addition, he finds that many are built at a relatively low density on green-field sites. Furthermore, there is relatively limited implementation of such schemes in most countries (Barton, 2000). While financial factors have been a barrier in some cases, bureaucratic factors as well as political and institutional inertia are identified as the key impediments (Barton, 2000). The remainder of this chapter reflects on the experience of one such eco-village enterprise.

The Eco-Village and Cloughjordan: form, function and governance

A key feature of the Village is its physical integration with the town of Cloughjordan. Its principal entrance is directly off the main street. This integration facilitates access to a wide range of existing services and organisations located in the area. In addition to basic core facilities (retail and education), there are a number of community development organisations, a range of leisure, sporting, arts, heritage and cultural groups, church related organisations, a weekly street market, and a number of festivals during the year. However, between 1991 and 2002, the population of Cloughjordan declined by 13 percent despite a national increase of 11 percent and a regional increase of 6 percent (North Tipperary County Council, 2006). The 2002 census revealed that, compared with the State, the town had a relatively low proportion of the population aged 15-25 years, and a relatively high proportion in the 65 years plus category. These processes of population aging and decline raised concerns for the sustainability of many of its services and organisations. In parallel with the declining fortunes of Cloughjordan was an

emerging coalition of interests who were keen to explore the construction of an eco-village within Ireland.

The Village was initiated by Gavin Harte and Gregg Allen in the mid-late 1990s. Both had a strong interest in sustainable development and had been involved in the Dublin Food Co-operative for some years. They joined with a small group who were interested in establishing an eco-village. To facilitate this process, they founded Sustainable Projects Ireland Ltd (SPIL), a not for profit company limited by guarantee. A board of directors and an advisory panel were appointed consisting of people with a range of skills required to establish the project including an engineer, an architect, an accountant, a solicitor, a quantity surveyor and the then leader of the Irish Green Party. SPIL was officially launched in autumn 1999 when the general public was invited to attend a presentation on the proposed eco-village. They identified a number of 'milestone's, including times at which people would invest small sums of money in the project. Harte gave monthly presentations on the Village, at which people were invited to become members of SPIL and invest in the project. By June 2000, they had approximately 25 members. Initially, membership was limited so that the group would be small enough to develop core principles for the organisation. SPIL rented an office and Harte was employed to progress the project. They established a constitution (Memorandum and Articles) for the company, and a Membership Agreement outlining the responsibilities of both the company and the members. This agreement has been revised on a number of occasions. They also developed an Ecological Charter, outlining the core principles for the development (see SPIL, 2007 for the latest version

of the Charter). At this stage, they applied for charitable status, and established Rules of Operation with an emphasis on consensus decision-making.

The next phase (2002 on) was to identify a site. This phase involved consultation with planning authorities within approximately an hour of Dublin to see if there was an 'appetite from planning departments' for such a development. They were advised to consider sites adjacent to an existing village rather than greenfield sites, as this was consistent with the development plans of a number of local authorities at that time, and this approach was adopted. Approximately ten sites were identified and a working group was established to visit and conduct an initial investigation of their suitability. Members chose a location via a preferendum whereby they ranked the sites from high to low and the total number of points allocated to a site led to the preferred site - Cloughjordan. This town was favoured due to the range of existing infrastructure available there, including access to public transport. The members negotiated with the landowners to obtain a one year option to purchase the site while they investigated whether or not they could obtain planning permission.

After negotiating an agreement on the site, the members hosted a number of public meetings in Cloughjordan to inform people of their plans and answer any questions. They utilised the 'Planning for Real' approach which involved members of the existing community. Children in the two schools were invited to make a model of their part of the town. Village members constructed a model for the Eco-village and then put the three models together for a

presentation on the project. This event was extremely important in winning the support of the existing residents. In addition, they published an information magazine and a quarterly newsletter which they delivered to every house in the community.

Around this time, the local planning authority was re-drafting its county development plan. SPIL worked with the planning authority to get the concept of a sustainable settlement incorporated in their plan for Cloughjordan. Next, the members set about drafting the Master Plan for an eco-village. This was a collaborative process between the planning authority, some of the members, and the 'master architect' (Solearth Ecological Architure) and an engineering firm (Buro Huppold). Next, the members worked with the planning authority on a successful application for Full Planning Permission for the infrastructure and Outline Planning Permission for the housing. In 2005 they obtained full planning permission for the infrastructure and closed the sale of land. By this time, each member had invested approximately €15,000 in the project in two stages and membership had been expanded to about 50. These investments enabled the project to pay for the various consultants required to assist them in getting planning approval. In order to purchase the land, the members obtained half of the cost of the purchase price via a loan from a social finance agency (Clann Credo) and the other half via a Loan Stock Scheme, whereby supporters of the project lent money for a fixed period and received interest on the loan but at a lower rate than those offered by commercial banks. In 2005, the land was purchased. While the project had obtained full planning permission, there were 36 conditions attached to it. This led to a number of significant costs for the project and it took approximately

15 months to comply with those conditions. Next, SPIL made a successful application to a commercial bank towards the cost of the infrastructure, with the remaining cost being covered by a second Loan Stock Scheme. The infrastructure was completed in 2008. Housing in the Village is divided into clusters and members in each cluster submit an application for planning to the council for that particular cluster of dwellings. The Village planning group was also involved in 'on-going work' with relevant departments in the local authority on specific issues such as: the mixed use aspect, the live-work element, the community infrastructure, the linkage to the town, and sustainable urban drainage. The building phase of the development was launched in 2009.

In terms of governance, SPIL is a not-for-profit company limited by guarantee and a registered educational charity run along co-operative principles. There are approximately 125 members, and a board of directors whose work is now limited to overseeing the project. The aims, objectives and 'regulations' for the Village are outlined in a range of documents referred to above: the constitution (Memorandum and Articles), the Membership Agreement, the Ecological charter (outlined below), and the Rules of Operation. SPIL currently uses an analytical tool called the Viable Systems Model (VSM) which was introduced to improve the organisational structure, decision-making and accountability. Designed by Stafford Beer, two of his protégés have worked with the members to implement this method of non-hierarchical decision-making based on natural systems. It is characterised by an approach described as 'Shared-Out Responsibilities' and consensus decision-making. Members can sign up to one of

six working groups corresponding with 'primary activity' areas: sales and marketing of sites; infrastructure maintenance; land use; building the local economy; community buildings; and education, research and training. There are also a number of co-ordination or 'meta-system' groups. At present, the company employs a full-time general manager, a part time sales manager and a part time administrator. There are monthly meetings of the members, at which information is shared, the remit of working groups approved and various policies and practices discussed. There is also an Annual General Meeting which requires a quorum of approximately 70 percent of members.

The Village Ecological Charter stipulates that in the design of dwellings and communal buildings the primary energy requirement be 30 percent below the input allowed by the 2006 Building Regulations. The Charter also outlines the members' responsibility to commit to total energy usage of 84 kWh/m².yr. To enable this, members must achieve high levels of insulation in the construction of their dwellings (SPIL, 2007, p.19). Certain construction and other materials are also recommended with a particular emphasis on the avoidance of 'non-toxic materials that are safe and sustainable in manufacture, use and decay' (SPIL, 2007, p. 38). A variety of such construction methods, designs and materials have been used to date including: timber frames (including passive timber-frame[1]) with a variety of insulations & finishes; Canadian log houses[2];

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[1] See http://www.scanhome.ie/ for more details.

[2] See http://www.fourseasonsloghomes.com/index.html for more details.

Griffner kit houses [3]; Durisol blocks (wood concrete material); Hemp Crete; Lime Hemp; sheeps wool; cellulose (shredded newspaper); natural slate or recycled roof tiles; and 'green roofs'. A district heating system, fuelled by wood chips and a solar panel field, supplies hot water and heat to all the houses. The entire development has been designed so that it has a sustainable drainage system (SuDS).[4]

The 67 acre site owned by the membership organisation is still under construction, but on completion it will be a mixed use development with a strong emphasis on economic, social and environmental sustainability. Approximately one third of the site will be residential with the remainder set aside for an organic farm and a woodland reserve. Overall the Village will consist of 130 residential dwellings (live-work units, apartments, terraced houses, semi-detached and detached houses), community buildings, a green enterprise centre, an education centre, an eco-hostel, individual allotments, community gardens and leisure facilities. Soft and edible landscaping is being used throughout as well as pedestrian greenways including with a walkway along the stream running through the site and two community gardens with playgrounds. The

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[3] See http://www.griffner.com/en/homes/ for further information.

[4] Conventional drainage involves piping surface water to the nearest watercourse while SuDS entail delaying the rate of runoff via filtration through soil/similar substances or redirecting it slowly over the ground to the nearest ponds and/or filter drains. This is more similar to natural processes whereby pollutants can be filtered through soils or broken down by bacteria (CIRIA, 2001).

car will be regarded as a guest. Overall, the Village enterprise is inspired by the principles of permaculture, which Holmgren (2002) has defined thus:

> Permaculture is about creating sustainable human habitats by following nature's patterns. It uses the diversity, stability and resilience of natural ecosystems to provide a framework and guidance for people to develop their own sustainable solutions to the problems facing their world, on a local, national or global scale. It is based on the philosophy of co-operation with nature and caring for the earth and its people.

Some of the Village members are involved in a local Community Supported Agriculture (CSA) scheme runs in conjunction with the wider Cloughjordan community. The aim of CSA is to provide fresh organic locally grown food to residents of the Village, the town and the wider Cloughjordan area. The scheme leases 28 acres of land from a farm approximately 2 miles from the site as well as 12 acres from the Ecovillage. Vegetables are produced on the ecovillage land, while the more distant site is dedicated to grains, dairy, pigs and sheep. The scheme is funded by the subscriptions of members in return for which members receive farm produce.

At the time of writing, 20 dwellings were complete and occupied, with another 30 households residing in the town while awaiting the construction of their dwellings with approximately 80 sites sold in total. The district heating system and solar panel field are in place and fully operational. 'Phase two of the project', launched in May 2011, was marked by the opening of the eco-hostel, the commencement of construction on the Enterprise Centre, and the planting of 17,000 mainly native trees in the community woodland.

Drivers of the project

A number of factors have contributed to the progress of the project. First, the drive and enthusiasm of the initial members was highlighted by a range of respondents. These characteristics are still very much evident among the members interviewed for this research. A significant proportion of the work is done by the members on a voluntary basis. A second crucial driver of the project was the diversity of professional skills possessed by members. The skills of the members are relevant to another perceived driver of the project and that is the fact that they established a company which was sufficiently professional to attract members, get planning permission, obtain investment and the support of a local community. As one member put it:

> You need to have a robust looking company…it helped…it gave people comfort…helped in getting investment…If we hadn't been so robust, the planners wouldn't have gone near us.

Another important facilitating factor was obtaining a suitable site linked to an existing settlement. None of the other sites identified during the search process had access to the range of infrastructure that was available in Cloughjordan. The project was also greatly facilitated by a local planning officer who, according to a number of members, was 'very receptive to it'. In the early stages, the project was allocated a dedicated team in the planning authority for whom the

project was a priority and, according to one planner involved at that stage, the planners were 'highly supportive of the principles of the development'. A local elected councillor and an historian were also very supportive and helped introduce the members to the wider community.

Getting the local community on board was an essential task and it is clear that the Village members involved in information sessions with the local community were very effective at this. One stakeholder described this stage as 'exemplary' and as a result they had no objections to their planning applications. While some residents were supportive from the start some stakeholders argued that the term 'eco' used in conjunction with the enterprise may have been an impediment at various stages. As one member put it, the perception amongst some residents was that the members were a 'bunch of hippies who want to build a load of old houses' or that they were 'eco-warriors'. This initial mixed reaction from existing residents is not uncommon with eco-town or low impact developments (Pickerill and Maxey, 2009) and can be linked to the development of the environmental movement in Ireland more broadly (Davies, 2008). However, local 'indigenous' residents interviewed for this project also noted that some people who had been vehemently opposed to the project were won over after attending the information sessions.

Another important driver of the Village enterprise was the involvement of SPIL as a partner in the SERVE (Sustainable Energy for Rural Village Environment) Project which aims to develop a

sustainable region in North Tipperary. Among its actions it lists 'the development of an eco-village with 132 houses in Cloughjordan, which showcase energy efficient design and is supplied by Ireland's first renewable energy district heating system'. Funded under the EU CONCERTO Programme and co-ordinated by the Tipperary Institute, the project resulted in the Village receiving a grant towards the cost of purchasing its district heating system and solar panels. As a result of participating in the project, the energy performance of each of the dwellings constructed in the Village is tested, and dwellings which meet the required standard (a minimum Delivered Energy Rating of 77 KWhrs/m2/yr) qualify for a grant from SERVE. Participation in the SERVE project also means that the energy use of the inhabitants will be monitored. In conjunction with the Tipperary Energy Agency, the SERVE project will run a range of courses on energy efficiency, renewable energy technologies and sustainable energy. The findings from monitoring and research in the Village will inform some of these courses.

Barriers

While there has made considerable progress on the project to date, it has had to contend with many challenges. One of the most significant barriers for the Village so far has been the combined effects of the collapse of the property market, the banking crisis and economic recession within Ireland (Norris and Winston, 2011). Infrastructure and site development occurred at the peak of the economic and housing booms and, as a result, the serviced sites are now relatively expensive. However, SPIL made savings in some areas which were passed on in the form of reductions in the price of some sites. Apart from the difficulty of attracting new

members in the current climate, some existing members are having difficulty obtaining mortgages and/or are unable to sell houses elsewhere in order to move to Cloughjordan. A range of proposals to overcome these barriers are being considered including rent to buy, co-housing and co-operative housing models, equity partnerships, and investment packages. An advisory panel has been established to investigate their viability. However, there is considerable interest in the Experience Days and the sales manager receives a significant number of enquiries from people seeking more information about the project.

At certain stages, the project encountered some resistance to the concept of eco-villages and to not-for profit approaches to development. For example, commercial banks were not interested in lending to the project prior to its gaining planning permission, and it was difficult to obtain funding for the community buildings. To increase their chances of success in applying to a commercial bank for a loan for the infrastructure, the members enlisted international firms (engineers and quantity surveyors) of some repute to work on its development. However, the fees for these services added significantly to the overall cost of the project. Also with regard to the eco-village concept, one stakeholder suggested that 'it would have been easier without the term eco' from a planning and implementation perspective'. Another noted that some local authority departments adopted a 'more conservative approach' than others when it came to considering alternative approaches to development such as sewage, roads and pathways. Similarly, some members experienced difficulties getting a mortgage for certain house designs, 'if you went for any thing radical…if it didn't fit into a box that they could tick'.

The project got full planning permission for reed beds as an organic waste water management system in its plan for the infrastructure. In order to ensure that reed beds would be sustainable over time, the local authority required considerable research relating to their design which included expensive geological and hydrological testing. to the dismay of many members, the plans for reed beds were put 'on hold', as SPIL was unable to get a discharge license from the Environmental Protection Agency due to increasingly stringent EU water quality directives and the cost of maintaining and managing reed beds to meet EU requirements. However, the infrastructure that was put in place is designed so that they can revisit the issue of reed beds at a later stage.

As was noted above, members of each housing cluster have to submit an application for planning to the council for that particular cluster of dwellings. This task proved to be hugely complex. First, not all the sites were sold so the company had to take on the cost of designing the dwellings on those sites. Second, getting members who were to live within a cluster to agree on aspects of design was also challenging. After the first number of submissions was made, the Council expressed some concern with the overall design and coherence of the settlement. As a result, SPIL re-engaged the master architect and a planning consultant to work with the members and the planning authority to sketch an outline of the development and the houses.

Many members felt it was unfair that that they had to pay for development levies. Despite its not-for-profit status, the project was subject to the same development levies which standard commercial residential projects are obliged to pay under Irish planning legislation which stipulates that local authorities may require developers to set aside up to 20 percent of a development for social and affordable housing or to pay the local authority the equivalent monetary value of the sites. Members argued that this payment was unfair as one of the main aims of the project was to provide accommodation for people on low incomes. In addition, members also have to pay individual development levies. SPIL was also obliged to get a bond to ensure they completed the project but it was felt that this was unfair as the members were not going to be 'moving on' on completion of the project, as per a 'standard' developer, but living on the site. All of these 'unforeseen' costs impacted on the site costs. Furthermore, the various delays to the project added to the expenses of members who were renting while waiting to build and move into their new dwellings.

Another barrier for the project was the lack of government support for mutual companies. As a not for profit company limited by guarantee, attracting investment is very difficult. In addition, it was not possible to obtain any of the varied and generous property related tax breaks that private limited companies were able to acquire during this period (Norris and Gkartzios, 2011). One member argued that company law needs to be amended for mutual and co-operative structures so that there is 'a level playing field'. Other members suggested that, in retrospect,

an alternative legal entity might have been more suitable such as a Community Land Trust or a

Limited Liability Partnership, although the latter is not currently available under Irish legislation.

There are a number of costly barriers to the implementation of 'Live-work' units in the Republic

of Ireland, including the application of levies, rates, and value added tax. An enterprise

operating from such a unit needs to be making significant profits in order to pay these costs and

they act as a disincentive to the introduction of this form of accommodation. It was argued that

incentives may be required for developments of this type, to encourage them given the

advantages associated with them such as reduced commuting, more vibrant residential areas

by day and commercial areas by night.

From the very early stages of the project, the founding members were committed to consensus

decision-making. The challenge of consensus decision-making is summed up by one member:

> Everyone comes to a project like this with their personal goals and personal
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> ambitions…25 different stories… it's very easy for people to agree a vision but to
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> actually implement the vision collectively…it's a hugely comprehensive and complex
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> process.

Decision-making became increasingly difficult as the size of the membership grew. One

member pointed out:

Usually a small number of people get something off the ground. Then you get to about 30 and then you have a problem with decision-making.

More recently, the members have committed to using the Viable Systems Model as an approach to decision-making, which was outlined above. To date, this appears to function well.

Impact

In many respects, it is too early to judge the impact of the Village in any quantitative sense. However, at a generic level the actual existence of the site with functioning units has already marked a watershed for sustainable housing initiatives within Ireland. As one member stated, it has led to 'the realisation that it can be done'. Another member commented:

It's had a hearts and minds function nationally.

This has been assisted by both the communications work of some of the members and coverage of the project in various media, including a number of television programmes and numerous newspaper articles. Much of the media attention is most favourable to the project. However, some members criticised the dated nature of the coverage and a somewhat unbalanced presentation of the issues and of the members:

But it's the same story again and again, the media portrayal of us...the images they use...greenies.

In particular, little connection has been made by the media of the resonance between the Village and its fusion of social and technological innovation and the now commonplace calls for a smart, green economy in Ireland to counteract the economic recession. One of the most significant outputs of the project to date is the number of enterprises and organisations which have either been established by members in Cloughjordan or have been transferred there as a result of members moving to the town. These include: a book shop; Go-Car (a company which allows you to rent a car on a pay-as-you-drive basis); an eco-hostel; Greenworks (an education programme which focuses on up-skilling the workforce for the green economy); Feasta (The Foundation for the Economics of Sustainability); a bike shop; VINE (Village Internet Network Engineering Ltd) established by a group of members to provide broadband internet access, telephone services and website hosting to the site and the surrounding area; a bakery; and a number of consultancies in the area of event management, energy, energy efficient construction (Gaia Ecotechture) and the environment. The Enterprise Centre, will play a significant role in the project as well as at a broader level in the surrounding area. It will link into the work of the community farm so that grains can be dried and packaged there. It will also have an educational element in relation to green business. There will be a 'fablab' (fabrication laboratory) where people with green business ideas can rent space to develop and test prototypes. Similarly, universities can rent out space in the centre for a period of time. The on-site hostel facilitates such visitors, as well as tourists and other visitors.

One of key goals of the Village is to be a model for sustainable living and an educational resource (SPIL, 2010). Various members felt that the main impact of the Village to date has been to demonstrate the potential for mainstreaming sustainable housing and communities in both the urban and rural context.

> It could be a model for traditional estates, having community infrastructure, energy...much more viable.

> It's an example of sustainable rural development …there're just as many issues in rural areas, fuel poverty and so on, almost worse.

The Village receives approximately 200 visitors a month, including visitors from national and international educational institutions. In addition, some of the members have been invited to speak in a variety of institutions and organisations at national and international levels. At local level, some of the members and indigenous residents noted that it was having an impact in terms of both interest in and increasing knowledge of sustainability issues. As one local put it:

> People are talking about it in the pubs…the issues.

An important potential impact will be the information it provides on the behavioural aspect of energy use. Each of the dwellings constructed to date has been assessed for its energy performance via the SERVE project and energy use in the different types of dwellings will also be monitored.

We will be monitoring the energy use...every house is different...we will have this huge diversity ...what is becoming apparent with people building the most efficient house is that user behaviour becomes a real obstacle because people either don't know or care enough to use the building properly... we will be able to look at the behavioural stuff and work it out. We will have this range (of dwelling and household types) and might get real results from it. The one constant thing is the district heating which is the same for everyone.

Conclusion

Although still under development the Village meets many of the criteria for sustainable housing outlined earlier in this chapter. Its noteworthy sustainable housing features include: access to public transport; on-site or local employment for the most part; the use of sustainable housing construction designs and materials; on-site recycling of construction materials; on-site renewable energy; energy efficient dwellings; access to high quality green space for food, energy, and leisure; and access to a wide range of social resources. Its integration with an existing town is particularly laudable from a sustainable development perspective and, to a large extent, counterbalances the fact that it is built on a green-field site, a criticism frequently targeted at eco-villages (Barton, 2000). Indeed Fairlie (1996) argues that green-field developments may be justifiable if they demonstrate a high level of sustainability. Furthermore, its integration into the town is most important in the Irish context due to the proliferation of 'one-off housing' in the open countryside. This 'urban generated housing in the countryside'

not only detracts from the vibrancy of rural towns and villages but also has significant negative

environmental and economic impacts (Irish Planning Institute, 2010; NUI Maynooth *et al*,

2005).[5] The success of a scheme such as the Village could help to promote urban living.

Aside from the SERVE monitoring, little explicit sustainability assessment has been conducted

for the entire enterprise to date. This makes it more difficult for the Village and its members to

communicate the kinds of impact that it has already had and could make in the future. In order

to fulfil its aims as a demonstration project it is clear that more structured and detailed

sustainability reporting should be established. The members are anxious to do this to meet one

of their goals, that of diffusion and mainstreaming, a task which has proven challenging with

grassroots housing innovations in the UK (Seyfang, 2008). To this end, they have established

The Village Education Research and Training (VERT) group. From an environmental perspective,

there is a need to monitor how well the project is in keeping with its ecological charter, some of

which is being done under the SERVE project. Research on the economic pillar is also most

important. This might monitor the employment situation of members (including location,

transport methods), the work of the business development group, the implementation and

operation of the live-work units as well as the success of the Enterprise Centre. Research on the

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[5] Between 1971 and 2010 the number of one-off houses almost trebled, despite policy
guidelines to restrict urban generated rural housing. Their negative effects include: impacts on
groundwater and biodiversity; costing the State three times as much to service compared with
housing in urban areas; the generation of traffic and its carbon footprint (IPI, 2010).

social dimension might examine issues such as the levels and quality of participation in a range

of areas of Village life, as well as the level and quality of interaction with the wider

Cloughjordan community. Pickerill and Maxey (2009) have found that, even in cases where

there has been local opposition to low impact developments in the UK, strong positive links

have been established over time. Most of the local residents interviewed for this study were

very positive about the new members of the community and some Village members participate

in a range of local organisations and activities. However, on-going efforts at integration will be

required.

Some of the planning issues raised in this chapter are not unique to this project and to the Irish

context. For example, promoters of low impact developments in the UK have experienced 'long,

costly and exhausting battles with planning authorities' (Pickerill and Maxey, 2009, p. 1531).

Data from the monitoring of the project should be fed into policy guidelines for 'emerging

technologies' (e.g. renewable energy, waste treatment) and for the design of sustainable

housing and communities. Furthermore, both the data and guidelines should be incorporated

into the training of relevant professionals in this field. Such advances would greatly facilitate

the development of similar types of schemes elsewhere.

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