

Cloughjordan Ecovillage: Modelling the Transition to a Low-Carbon Society

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INTRODUCTION

As the objective of a low-carbon society by 2050 is fast becoming a key policy objective of countries around the world, there is an urgent need for public policy to be informed by examples of how this can be done. For example, a recent EU-funded research project designed to identify the obstacles to and drivers of the transition to a low-energy society undertook an analysis of 1,700 projects relating to energy transition at the local level throughout Europe, “so as to identify actual conditions that facilitate (or, conversely, hinder) a transition towards a post-carbon (or low-carbon) society” (Milescuré 2014: 7). Of the 90 anticipatory experiences initially identified, 23 were selected for a more detailed examination on the basis of a number of criteria including the success of the project, “in terms of social recognition and excellent results (indicatively defined ‘post-carbon’) from an energy and environmental point of view” (ibid.: 15). Among those selected was Cloughjordan Ecovillage in Ireland.

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The chapter begins by describing the ecovillage and its historical genesis. It then outlines a framework which identifies the key factors that create the conditions for the transition to a low-carbon society. Subsequent sections examine in turn each of these sectors in Cloughjordan ecovillage to identify the means through which the ecovillage community seeks to transition to a low-carbon society and its success in doing so. Particular attention is devoted to the model of governance that has been put in place and how this is working in practice. The chapter ends by outlining the project to measure the ecological footprint of the ecovillage and reporting its findings. Conclusions are drawn about the lessons of the project for public policy towards transitioning to a low-carbon society at national and international level.

CLOUGHJORDAN ECOVILLAGE

Cloughjordan Ecovillage owns a 67-acre (27-hectare) site behind the main street of the town of Cloughjordan in County Tipperary in the southern part of the Irish midlands. It is some 15 km from the M7 Dublin-Limerick motorway and some 60 km from the M6 Dublin-Galway motorway. It is on a secondary railway line, serving Dublin and Limerick, with two trains a day in each direction. It is easily accessible from the main cities of Dublin (143 km), Cork (156 km), Limerick (57 km) and Galway (94 km) (see Fig. 8.1). The origins of the project lie in a group loosely associated with the Dublin Co-Housing project and the Dublin Food Co-op in the mid-1990s that began discussing the possibility of establishing Ireland's first ecovillage. In 1999 a company called Sustainable Projects Ireland Limited (SPIL) was established as a legal entity with a board of directors but which is non-profit making and operates as a co-operative. SPIL is also a registered educational charity. Its purpose is to build an ecovillage which, according to SPIL's memorandum of association "will serve as a model for sustainable living into the twenty-first century and will serve as an education, enterprise and research service resource for all".

In selecting a site to build the ecovillage, SPIL decided that it should be contiguous to an existing population centre and not be built as a new urban settlement. It sought land appropriate for the mix of housing, amenities and wilderness areas that it planned. It was also important that it be served by public transport, to provide access to more low-carbon means of travel. To identify an appropriate site, it advertised in Ireland's main farming newspaper, *The Farmers' Journal*, visiting those villages and

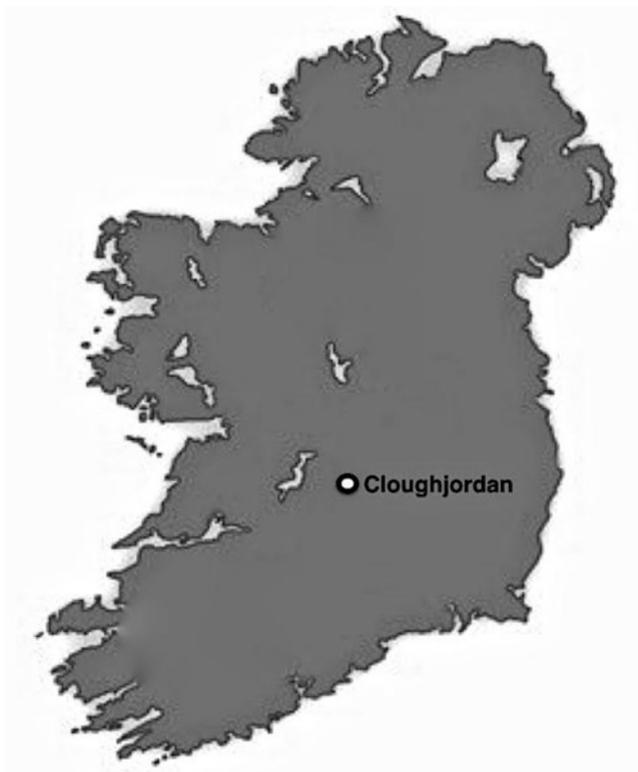


Fig. 8.1 Location of Cloughjordan in the Irish midlands

towns which responded positively. By 2002, the village of Cloughjordan in north Tipperary was selected and a year-long community consultation began with residents. This included getting the children in the two primary schools to build a model of the proposed ecovillage. An Ecological Charter of basic principles for the development of the ecovillage was drawn up and agreed by members and a master plan developed and submitted for planning permission. By 2005 a 67-acre site had been bought behind the northern side of the main street and, following the granting of outline planning permission by North Tipperary County Council, infrastructure work began in 2007 financed by contributions from members of SPIL and by loans, both from an ethical fund and from a commercial bank. An EU

Concerto grant for the proposed energy centre also contributed to the project's financial viability. With the completion of infrastructure works in 2008, the first houses were constructed in 2009 and the ecovillage's first residents moved in in December 2009.

Altogether 114 residential housing units are planned including individual houses, semi-detached houses, terraces of houses and apartments, plus 16 live-work units with spaces in which to run businesses. By 2014, 85 sites had been sold and 55 housing units built with more planned; SPIL had 86 registered members in mid-2014 of whom the great majority are living in the ecovillage. When members' partners and children are included as well as people renting houses, the total number of residents comes to around 140. The residential area comprises one-third of the site. A further one-third is devoted to support services and amenities including a district heating system, an eco-enterprise centre, allotments for growing food and a community farm. Native varieties of apple trees have been planted in this area and throughout the ecovillage various varieties of herbs and fruit bushes have been planted to create an "edible landscape" (Cloughjordan Ecovillage website: www.thevillage.ie). The final one-third is devoted to woodland in which 17,000 trees were planted in 2011, mainly native species such as oak, ash, Scots pine, birch, rowan, cherry, hazel and alder. This is regarded as an amenity area for visitors and a contribution to promoting biodiversity (see Fig. 8.2). According to the ecovillage website (www.thevillage.ie) "the community's land use plan is based on the principles of environmental and ecological diversity, productive landscape and permaculture".

The 49-page Village Ecological Charter is a set of agreed standards and the means to achieve them approved by members and binding on them (SPIL 2007). This states that the primary objective of the ecovillage "is to demonstrate truly sustainable development, in as holistic a way as practicable, in order to serve as a model and an educational resource for Ireland" (SPIL 2007: 11).

Cloughjordan and its ecovillage have won a number of high-level awards. It won the National Green Award for Ireland's greenest community three years in a row from 2012 to 2014 and won a gold medal award at the 2013 International Awards for Liveable Communities (LivCom), also known as the Green Oscars, hosted by Xiamen in the People's Republic of China and supported by the UN Environment Programme (UNEP). It was ranked by readers of *The Irish Times* in a national survey as one of the ten best places to live in Ireland. It features in radio and TV programmes

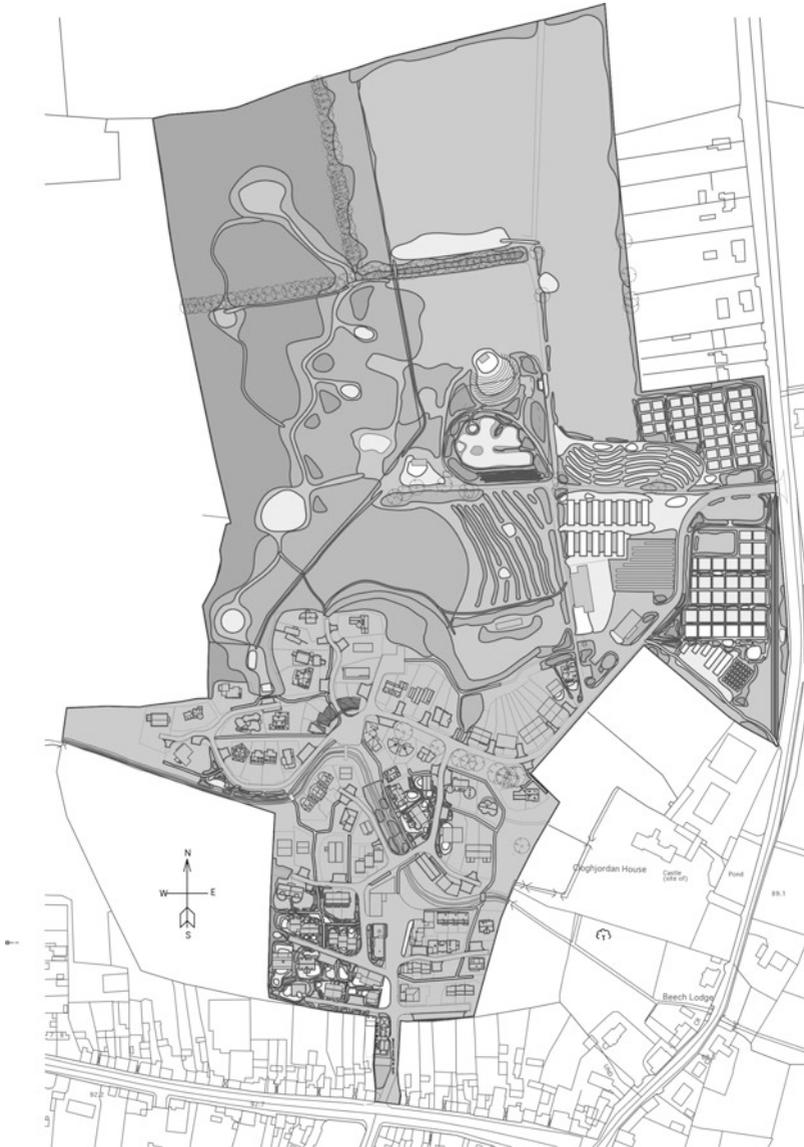


Fig. 8.2 The site of the ecovillage with the residential area in the south, the woodlands in the north-west, the community farm in the north-east and the services such as the district heating system, allotments and the enterprise centre to the south of the farm

and numerous articles have been published in the national media on the project. Most of this coverage is very positive.

As part of the Milescore research project reported above, an analysis was undertaken of all tweets since 2006 about the 90 anticipatory experiences identified. In total 753 tweets relating to Cloughjordan were identified making it the ninth most numerous, despite being in one of the smallest countries in the survey in terms of population (only two smaller countries—Croatia and Slovenia—are included). Of the total number of authors identified, Cloughjordan had the eighth most at 235 (Milescore 2013: 82, 83). A deeper qualitative analysis was done of the 23 experiences selected for examination in the project. Since three of these garnered minimal attention on Twitter, the researchers were left with a corpus of tweets on 20 projects. These were grouped under a number of headings including type of author (individual, media, government, non-profit organization, for-profit organization) and their stance towards the project (positive, neutral, negative). Of the tweets on Cloughjordan, 80% were positive and 18% negative. In terms of the source of the tweets indicating the range of people and organizations engaging with the project, 56% of those about Cloughjordan came from individuals, 20.6% from non-profit organizations, 12.9% from media sources, and 10% from for-profit organizations. Analysis of tweets about Cloughjordan shows that the “ecovillage is considered as a good place for living and visiting. A lot of personalized content, people share and search for information about education courses and events” (Milescore 2014: 118).

ECOVILLAGES AND THE TRANSITION TO A LOW-CARBON SOCIETY

Cloughjordan Ecovillage is a member of the Global Ecovillage Network (GEN) which defines an ecovillage as “an intentional or traditional community using local participatory processes to holistically integrate ecological, economic, social, and cultural dimensions of sustainability in order to regenerate social and natural environments”. It sees them as one solution to the great problems of our times, the limits to growth and the unsustainability of our societies. It states: “Ecovillages, by endeavouring for lifestyles which are ‘successfully continuable into the indefinite future’, are living models of sustainability, and examples of how action can be taken immediately. They represent an effective, accessible way to combat

the degradation of our social, ecological and spiritual environments. They show us how we can move toward sustainability in the twenty-first century (Agenda 21)". In 1998, ecovillages were first officially named among the United Nations' top 100 listing of Best Practices, as excellent models of sustainable living (GEN website).

Ecovillages are therefore "living laboratories" as Litfin calls them in her book on the lessons for sustainable community that ecovillages offer (Litfin 2014: 18). Cunningham identifies essential features: "Ecovillages are commonly conceived around four pillars: sustainable building, organic farming, resilient community and alternative energy" (Cunningham 2014: 236). Yet, this seems to treat community as yet another feature alongside buildings, energy systems and farming. Gilman's definition has a very different emphasis in that he sees an ecovillage as being a "human scale, full-featured settlement in which human activities are harmlessly integrated into the natural world in a way that is supportive of healthy human development and can be successfully continued into the indefinite future" (Gilman 1991: 10). By "full-featured settlement", he means one "in which all the major functions of normal living – residence, food provision, manufacture, leisure, social life, and commerce – are plainly present and in balanced proportions" (ibid.). This takes the focus off technologies and sees the human community as the core. In examining an ecovillage as a model of the transition to a more sustainable low-carbon society, therefore, a balance must be found between the concrete examples of how technologies can be used to lower greenhouse gas (GHG) emissions and build the resilience of the community, and the quality and vibrancy of community life itself. This is described well by Litfin as she reflects on her time spent in 14 very different ecovillages around the world:

The sense of wealth seems to rest upon the intangible kinds of sharing that are the essence of community – the sharing of knowledge and skills, joys and sorrows, births and deaths. These are the signs of community I looked for in my nine months of ecovillage living. I experienced a principle I'd been theorizing about for years: the foundation for ecological sustainability is social sustainability, person to person. In many of the ecovillages I visited, I saw concrete demonstrations that a self-replenishing social order is based on relationships of trust and reciprocity (Litfin 2014: 16–17).

For this reason, she structures her book around what she calls "E2C2: four windows into sustainability" (ibid.: 30). The two Es stand for ecology

and economy, namely how to find ways of livelihood that are in balance with the ecosphere but these rest on values and worldviews expressed by the two Cs, community and consciousness. “Ultimately, how I live outwardly will express who I am inwardly”, she writes (*ibid.*: 31). While each ecovillage tends to highlight certain elements of E2C2, the four dimensions are interconnected. “Because ecovillages take a strongly integrative approach, E2C2 takes on a dynamic, self-reinforcing character” (*ibid.*: 31).

But why are ecovillages important in modelling the transition to a low-carbon society? Most scenarios for such a society devote extensive attention to how new technologies can be used to wean ourselves off fossil fuel use and drastically reduce greenhouse gas emissions. This, for example, is the message of *The New Climate Economy Report* from the Global Commission on the Economy and Climate (2014). Others acknowledge the need for behavioural change to accompany technological innovation, but it is often treated in a cursory fashion (see NESG 2012; Kirby 2013 for an assessment). In answering the question “What is a low-carbon society?”, Peake acknowledges that “there tends to be an emphasis on physical artefacts or processes such as energy technologies, transport or food production in the envisioning of low-carbon communities”. But, he asks: “What kind of lifestyles add up to a low-carbon community?” Instead of visions of society, what we tend to get are different visions of technological futures, he writes (Peake 2012: 25). This underlines the importance of ecovillages as laboratories of a low-carbon future society since they embed technologies within community lifestyles, experimenting with various means to achieve that objective. They offer visions of how a *society* moves to a low-carbon future and are an example of Low Impact Development (LID) in practice (Pickerill and Maxey 2009).

If, therefore, “ecovillages have a big head start in figuring out how to make sustainability work” (*ibid.*: 32), it is important that the lessons they offer for the wider society are captured in their integrated complexity, embedded in strong vibrant communities where people live well together with a light footprint on the planet and with resilient local economies and societies. It is this mixture of the low-carbon practices taken from the best in contemporary technologies integrated into and held by strong community bonds that lies at the core of the lessons that can be learned. The examination of Cloughjordan Ecovillage in the next section will, therefore, attempt to balance a description of its energy, building, food, water, transport, waste and livelihood practices with its community life and the values

underpinning it. The subsequent section will then examine its governance system which is an essential part of holding together successfully the complexity of the project as a whole.

TRANSITIONING TO A LOW-CARBON SOCIETY: THE CLOUGHJORDAN EXPERIENCE

The Village Ecological Charter contains the guidelines for the development of the built and the natural environment of the ecovillage so as “to reduce the impact of the project on the natural environment and so promoting sustainable development” (SPIL 2007: 5). This includes detailed and specific targets for energy supply and use, plans for land management, water and solid waste, construction (including materials, light and air, and ventilation), and community issues such as transport, social and communal facilities, and noise and light pollution. Each will be dealt with in turn here, supplemented by discussion of food and of livelihoods. This section ends with discussion of the wider context of community.

Energy

Renewable energy supply is one of the key features of Cloughjordan Ecovillage. The entire heating and hot water for the ecovillage is supplied by a district heating system which uses no fossil fuels for its primary energy sources and emits no greenhouse gas emissions. (Electricity supply to drive the pumps and for other purposes is taken from the public mains at present but there are plans for on-site wind-power in due course.) This is the first of its kind in Ireland in a private housing development and is estimated to save 113.5 tonnes annually of carbon that would be emitted by conventional heating systems for the number of houses served. This saving will increase as more houses are built in the ecovillage. The heating plant comprises two 500-kilowatt wood-chip boilers backed up by 500 m² of solar (thermal) panels, the largest array in the country. The fuel is waste wood from a sawmill about an hour from the ecovillage that uses Irish-grown softwood, mostly spruce. It is hoped to source the wood locally within a few years. This plant supplies hot water to each house via a well-insulated network of piping and maintains a 17,000-litre reserve of hot water. Within each house, the hot water flows through a heat meter and a heat exchanger, which heats the water in a well-insulated 700-litre storage tank. This tank provides all the space heating and hot water needed,

so homes don't need their own boilers, stoves, electric showers or electric water heating. This method of heating homes is significantly cheaper than conventional methods.

The targets set in the Ecological Charter for energy inputs were 30% better than the national building regulations at the time and very exacting targets were set for the total heat input from all fuels (including electricity) per square metre of floor area per year (kWh/m².yr). To meet these, exact specifications were given for insulation as well as recommendations for cooking and other electrical appliances so as to minimize the amount of heat and energy required by each house. Some houses also have a mechanical heat recovery ventilation system, which reduces heat losses due to ventilation. Since the ecovillage was a partner in the EU-funded SERVE project (Sustainable Energy for the Rural Village Environment) and received funding to help build the district heating system from this source, the energy performance of each of the houses has been tested and those meeting the required standard received a small grant. Almost all the houses met the minimum standard set by the Ecological Charter. The few exceptions, which came close, were built of simple materials, such as cob, with low-embodied energy. The energy use of the inhabitants is monitored and houses have been supplied with a monitor for heat and electricity use. While electricity is currently taken from the national grid, SPIL advises that members source supplies from companies which are switching generation to renewables.

Land Management, Water and Waste

In developing and managing the land, the Ecological Charter specifies that the objective is “a landscape that has high productivity, biodiversity, education and amenity value”. The development and maintenance of all land follows organic practices and draws on permaculture principles (Holmgren 2011). Priority is given to indigenous plants to facilitate wildlife supplemented by “non-indigenous varieties and species to create a productive, edible and useful landscape” (SPIL 2007: 30). Corridors for the movement of wildlife are built into the design of common and private areas and the composting of organic matter to regenerate the soil and avoiding toxic or other harmful substances is strongly recommended to all members. Since the upkeep of the common areas is the responsibility of all, regular periods of communal work on the land are organized (the Gaelic word “meitheal” is used for

these, recalling the traditional practice of communal work among Irish farmers). Among the amenities built and maintained in this way are communal gardens, an apple-tree walk which has some 65 native varieties of apple trees planted and a hazel copse supplying hazel nuts to the community. Fruit-bearing bushes and trees are widespread throughout the ecovillage.

The Ecological Charter specifies a target for the use of potable water of 85 litres per person a day which compares to a national average of 140 litres per person a day. Furthermore, water harvesting and recycling is recommended and some members have incorporated systems into their homes, in some cases supplying the full water needs of the household. Many homes harvest rainwater for outdoor uses. Originally it was planned to use a natural system of reedbeds and wetlands to treat waste water and sewage but this has not been possible as the local council would not grant a discharge licence and a conventional system had to be installed. However, national water authorities have more recently expressed interest in the possibility of natural treatment and these plans are again being looked at by the ecovillage. A sophisticated sustainable urban drainage system (SUDS) was incorporated into the infrastructural works and has proved very successful. Surface water from roads, roofs and the like is piped to catchment basins, in which it is naturally filtered by the soil before percolating into the ground—exactly as it did before building began. These basins are designed to overflow into the nearby stream if heavy rain continues for many days. However, this has only happened once in five years of operation, a period which saw flooding in other parts of the region while the Cloughjordan SUDS system avoided any flooding in the ecovillage.

Household waste is recycled as far as possible and organic waste composted. A composting site for the ecovillage is currently being developed. Members' activities themselves generate a dynamic of recycling within the ecovillage as the requirement for plastic or glass jars and bottles, newspapers or brown paper bags, plastic cartons or other waste materials for those engaged in producing and processing food or other products (for example soap) means that some members simply take waste products to neighbouring houses where they can be productively used. Waste that cannot be recycled within the ecovillage is currently collected by commercial waste disposal companies (clusters of households sharing one bin is a regular practice) though it is envisaged that in time the ecovillage will develop its own ways of treating such waste.

Sustainable Building

Within Cloughjordan Ecovillage, members buy sites from SPIL which have outline planning permission and build their own houses to their own designs, in keeping with the principles and specifications of the Ecological Charter. This advises the use of non-toxic materials that are safe and sustainable in manufacture, use and decay, regionally sourced and with low-embodied energy wherever possible, thereby reducing the environmental impacts of transport and manufacture. Extensive attention is devoted to issues of air-tight construction, ventilation, and maximizing natural light and heat (SPIL 2007: 40–45). However, it is acknowledged that “in the present underdeveloped state of the eco-construction industry in Ireland, some compromises might be necessary, such as the import of specialised products and the use of PVC insulation on wiring” (ibid.: 40). Adherence to these standards was to be verified by SPIL as all building plans had to be approved beforehand by the company before being submitted for planning permission to the local municipal authority.

As a result, many different building types have been used to date in constructing houses, including passive timber frame with a variety of insulations and finishes, Durisol blocks (blocks of chipped waste wood bonded with ecocement), sheep’s wool, cellulose (shredded newspaper), hemp-lime (lime is a traditional Irish form of finish but the addition of hemp, a fibrous plant material, gives it strength and insulation), cob (clay, sand and straw), a Canadian stick-frame house with double stud walls (with no cold bridging) and kit houses, while natural slates or recycled plastic roof tiles and “green roofs” are widely used. These provide a colourful variety of different designs and finishes that gives the ecovillage a very distinctive look compared to other residential areas in Ireland. The high standard of materials used however and the specifications to which houses are built result in the ecovillage having some of the highest standards of building energy ratings (BER) in Ireland. In 2013, the ecovillage constituted 0.015% of all houses rated nationally yet 6.25% of all those given an A rating and 2.5% of all those given a B1 rating nationally. (As houses are only rated when sold or let, the national database is very partial and incomplete.) In examining the ecovillage according to the principles of sustainable housing, Winston concluded that it meets many of the criteria including the use of sustainable housing construction designs and materials, on-site recycling of construction materials and energy efficient buildings (Winston 2012: 99).

Community Issues

1. *Transport*: The Ecological Charter specifies that the objective of SPIL is “to make it easy to live without owning a car” (SPIL 2007: 46). To achieve this, roadways are kept narrow (4.5 metres wide) and households are allocated only one parking space close to each house. Travel by train is actively encouraged; members are active in a local train users’ forum which liaises with the state-owned company Irish Rail, educational events in the ecovillage are scheduled to allow travel to and from them by train from Dublin, and discounts are offered on some ecovillage events to those who travel by train. A car-sharing club has been established allowing ten households to share three cars and the costs of maintaining them. The initial cars were lent to the club by car-owning members. Bicycles are widely used by ecovillage residents for local travel.
2. *Social and communal facilities*: A number of community buildings are included in the ecovillage plan for which planning permission was granted by the then North Tipperary County Council. However, due to financial constraints, it has not been possible to build any of these and the only communal building is an existing old building at the pedestrian entrance to the ecovillage, which is the deposit point for farm produce (see below). The ecovillage secured funding to improve this building but this was not sufficient to fit it out and modernize it for more extensive uses such as a welcome centre. This means that local church halls and the enterprise centre are used for a lot of community events and meetings while community meals take place in members’ houses or, when weather permits, outdoors. Communal gardens are also a part of the site plans and these are maintained by the residents in each of the adjoining clusters of houses.
3. *Noise and light pollution*: The Ecological Charter states that “noise and light pollution should be kept as low as possible to protect wildlife and to create a calm, peaceful home zone for human residents” (ibid.: 48). This involves a shared ethic of avoiding noisy events and a set of agreed rules for pets. By and large these are working well and there are rarely complaints of excessive noise. While national regulations specify the need for public lighting, this has not been installed except for one solar-powered large LED light in a public area as one enters; as a result residents enjoy the rich starscape that is visible in the absence of strong public lighting. The absence of light pollution is widely supported by ecovillage residents.

Community-Supported Agriculture (CSA)

Members of Cloughjordan Ecovillage have established Ireland's first member-owned and operated CSA farm in Ireland and one of the few CSAs to exist in the country (Moore et al. 2014: 139). Located within the emergence of civic food networks throughout Europe, CSAs are seen to embody the three Es of ecology, ethics and equity in the distribution of voice, resources and power. Some two-thirds of the 54 households which are members of the Cloughjordan community farm live in the ecovillage and the rest live in the wider Cloughjordan community (there were 84 adult members in mid-2014). The farm began on two holdings which are farmed in a biodynamic way—a 12-acre (5-ha) site on the land of the ecovillage and a farm of 26 acres (11 ha) leased nearby. Currently the former grows 4 acres (1.6 ha) of vegetables, 1 acre (0.4 ha) of cereals, 1 acre of green manure (humus building) and 6 acres (2.43 ha) in permanent pasture while the latter is now privately run and the farm buys in milk on a contract basis. Members pay a monthly fee (around €130 for a household of typically two adults and two children) and can take what food they want from a central distribution point that is supplied three times a week, all year around. Some meat is included in the membership fee. Extra can be purchased, when available, outside of this arrangement. While two part-time co-ordinators act as the main producers and receive payment from the farm budget and are answerable to the farm board which is elected by members, they rely on WWOOFers (Worldwide Opportunities on Organic Farms) and interns as well as on the voluntary labour of members when called upon. WWOOFers offer labour in return for accommodation and meals, the provision of which is shared among the community. Children are also integrated into activities through links with the local schools. The farm engages extensively in educational activities with its members and the wider community, including raising issues about the politics of food production and distribution, safety issues (for example, a public debate was held on the subject of unpasteurized milk) and the nutritional and medicinal properties of wild plants. Members often share recipes.

Not only does the form of food production and distribution link the producer and consumer in a deeply interactive relationship, but it changes practices of consumption since members are reliant on whatever food is available according to the season, the weather and the amounts planted. Thus consumption practices adjust to availability. Frustration at the lack of produce led in 2011 to a survey of members and interactive facilitated discussions which

resulted in a new structure emerging and more involvement by members in the functioning of the farm. The restructuring has successfully resolved many of the problems of the CSA and is seen by Moore et al. as “testimony to its robustness, or, specifically, its reflexive resilience” (ibid.: 149). The farm is also seen as contributing to the resilience of the ecovillage itself, lessening reliance on commercial producers (often very distant), improving greatly the quality of food consumed, and enhancing skills and practices among members. Its sustainability rests both on its being imbedded in a wider community and also on the practices of soil regeneration, balanced agriculture and active seed saving. It thus provides a rare example of the sort of agriculture to which Feehan argues Ireland must return: “Community Supported Agriculture holds out hope for the return of integrated farming, the only kind of farming that is truly sustainable, where livestock and crops are reared together” (Feehan 2003: 518).

Livelihoods

The Cloughjordan community farm addresses one key issue of economics but it is much more focused on shared production and consumption than on the provision of livelihoods. The Ecological Charter acknowledges that key features not covered “include the development of a localised economy and, especially, of local work and business opportunities” (SPIL 2007: 46). In her visits to ecovillages around the world Litfin found them to be “laboratories for economic experimentation”, reinventing economies through satisfying needs communally rather than individually and doing so on the margins of the cash economy. As a result, “many ecovillagers are living comfortably on incomes that place them well below the poverty line” since they combine “self-sufficiency, sharing, and elegant simplicity” (Litfin 2014: 79, 81). Yet, at the heart of sustainable living is the ability to generate sufficient income to live well within the ethic of sharing and mutual support.

Cloughjordan has faced this challenge. A number of those who moved to Cloughjordan to live in or on the margins of the ecovillage established businesses. These include an ecohostel with 34 beds and a wood-fired bakery, both businesses within the ecovillage, and a book and coffee shop on the main street. A group of ecovillagers established a company called VINE (Village Internet Network Engineering) to provide internet and telephone services to ecovillage residents. A number of national organizations now have their main offices in the ecovillage including the

educational non-governmental organization (NGO) Cultivate, and the Foundation for the Economics of Sustainability, FEASTA. Consultancies run from the ecovillage include event management, low-energy and sustainable building techniques, and renewable energy. A green enterprise centre WeCreate, built in the ecovillage with local, national and EU funding, hosts a Fabrication Laboratory (FabLab) established by two ecovillage members and part of the worldwide network of FabLabs allowing the manufacture of almost anything through downloading plans and using computers to make the products. It is the only community-based FabLab in Ireland. The centre offers workspaces to local businesses and colleges and also runs courses. It has been accredited as a “Discover Primary Science and Maths” centre by Science Foundation Ireland (SFI) allowing visiting schools claim credits towards SFI awards. As an educational NGO, the ecovillage organizes its own educational activities but also encourages members to do the same, thereby allowing for a rich variety of educational offerings providing income for members and for SPIL. In these ways the ecovillage is the centre of extensive economic activity generating livelihoods and drawing many visitors to the locality.

Community

Consistent with Litfin’s findings in other ecovillages, building a vibrant community is central to the Cloughjordan ecovillage. Interestingly, a process in mid-2014 that sought to achieve a common statement of purpose from members of the ecovillage focused on community. The final text, agreed by members, placed as the first of its objectives “building a resilient, supportive community based on fairness and mutual respect”. Yet, as Litfin writes, “community living requires enormous skill – the kind that often comes only through the school of hard knocks” (Litfin 2014: 113). What facilitates the development of community is the dense web of interconnectedness that characterizes the relationships in the ecovillage, strengthened and at times tested through a myriad of different kinds of activities, from the often tense discussions attempting to reach a community consensus on key issues to the enjoyment of community meals and parties where rich encounters take place. As described below, a special Process group exists to facilitate community interactions and the monthly community meeting puts aside a period which allows any member to voice any issue that is troubling them, including issues of grievance and pain caused within the community. A successful community, then, depends not on avoiding or

minimizing pain and tensions but rather on facilitating their expression in an atmosphere of mutual respect. A diverse membership, which includes professional facilitators, counsellors and psychotherapists helps this process.

In her research on the ideological, cultural, political, ecological and social discourses which frame the daily lives of the residents of Cloughjordan Ecovillage, Casey found that ecovillage members “are embedded in the deep structure of a community dedicated to sustainable living and education. Cloughjordan ecovillage fits the definition ... of a COP [community of practice]. It is a group of diverse and committed individuals bound by a common goal and shared sense of identity, values and norms” (Casey 2012: 27). She found that “anti-consumption and localisation feature heavily in the ecovillage’s discourse” (ibid.: 24) and “the members consciously participate in the local economy” (ibid.: 25) seeing it as a positive value to consume locally produced food and use local services as far as possible. This, then, constitutes something of the dimension of consciousness that Litfin finds characterizes all the ecovillages she visited. “Every ecovillager I interviewed reported having experienced extraordinary personal growth through their shared experiments”, she writes (Litfin 2014: 149). It is this inner transformation that is a vitally important subjective dimension of sustainable living. As in the ecovillages that Litfin visited, Cloughjordan ecovillagers have diverse spiritual beliefs but spirituality is an important dimension for some members and found expression in the building of a Celtic labyrinth amid the woodland area.

GOVERNING FOR THE TRANSITION: THE VIABLE SYSTEMS MODEL (VSM)

Finding a governance structure that reflects its values is a particular challenge for any intentional community, particularly one as complex and multifaceted as an ecovillage. As Cattaneo puts it: “Normally, horizontal decision-making and deliberative non-representative processes characterize eco-communities, while some adopt consensus rather than majority decision rules” (Cattaneo 2015: 166). This is exactly what happened in Cloughjordan. By 2007, the existing organizational structure of Cloughjordan Ecovillage based on multiple committees was seen to be under strain, unable to deal effectively with the many tasks and challenges facing the project. This led members to turn for support to consultants Angela Espinosa and Jon Walker who promote the use of the VSM in co-operatives and large communities looking for alternatives to

traditional hierarchies. Following a visit by Espinosa and Walker in 2007, the community decided to restructure its governance structures according to the principles of the VSM. From July 2007 to November 2011, they made 11 visits, on each occasion offering at least one workshop on the VSM. This process helped members identify the project's primary activities (PA) and establish PA groups (PAGs) such as education, land use and site development (the three PAGs in existence at the time of writing), each of which has a number of task groups within them responsible for different aspects of the PA. These are known as System 1 groups in the VSM. Espinosa and Walker write of the change this involved in the ecovillage's self-organization:

The most relevant change resulting from this stage, was the migration from the initial structure of 20 working groups, to a structure focused on these primary activities – supported by technical and administrative roles; this significantly diminished the complexity of their interaction and focused scarce resources (mainly people) on the most relevant tasks (Espinosa and Walker 2013: 122).

They then moved on to identifying what in the VSM are called the meta-systemic management functions, Systems 2–5, each of which fulfils essential functions in the organization. As a result a Process group was established to oversee the smooth functioning of the whole structure and to resolve problems as they arose (System 2). A Co-ordination team was established to co-ordinate all the activities of the various groups and provide a monthly reporting mechanism to members and to the Board (System 3). System 4 involves keeping a close eye on what is happening in the wider society so as to strategically relate to developments. This led to the establishment of a Navigation group to hold this function. Finally System 5 which involves oversight and direction of the whole project includes the Board of directors and the monthly members' meeting supplemented by an Identity group which deals with issues of membership and purpose. This essential structure, which emerged between 2007 and 2011 through the workshops led by Espinosa and Walker continues to be adapted to reflect the needs of the project as it develops and they remain in contact making occasional visits. A survey of members in 2011 to assess the results of implementing the VSM concluded that it helped “to develop a more coherent community, with higher connectivity and reciprocity, and with a more efficient communication network” (Espinosa and Walker 2013: 126). Espinosa and Walker

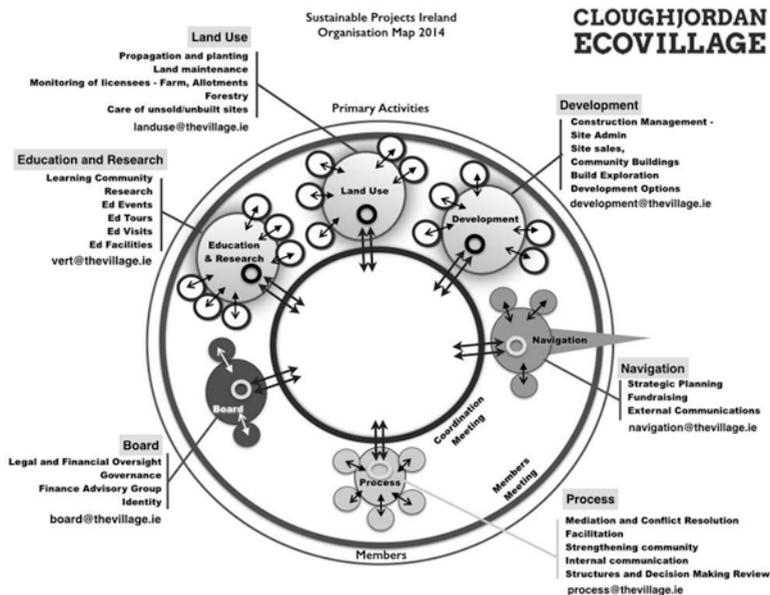


Fig. 8.3 Cloughjordan ecovillage governance structure based on the Viable Systems Model (VSM).

conclude that “the main structural problems, which were threatening the survival of the community in 2007, have now been identified and solutions found. There has been improved communications, task appropriation, and organizational effectiveness for achieving their core purpose of developing as a sustainable community” (ibid.: 128), see Fig. 8.3.

MEASURING THE TRANSITION: CLOUGHJORDAN’S ECOLOGICAL FOOTPRINT

The evidence of the success of Cloughjordan Ecovillage in achieving the goals it sets itself of becoming a sustainable and low-carbon community requires measuring its ecological footprint and comparing it to other similar communities in its locality as well as nationally and internationally. The concept of the ecological footprint (EF) is widely used internationally to quantify the amount of carbon emitted by a household through measuring energy consumption, waste assimilation, food consumption, water

consumption, built land area and travel impacts. Through aggregating household measures, an estimate for a community can be produced. In mid-2014 a survey was distributed to all households in the ecovillage to gather data with the purpose of estimating the EF of the ecovillage. A measure developed at the Centre for Environmental Research at the University of Limerick and implemented in communities in the region by Tipperary Energy Agency (TEA) was used and the results compiled and analysed by the TEA (Carragher et al. 2011). The survey covered the following areas:

1. Household characteristics (number of dwellers; size and type of house).
2. Household energy use and its sources.
3. Household waste (amounts and disposal).
4. Food consumption and its origin.
5. Transport (modes and frequency).
6. Water use, including water-saving measures and water harvesting.

Following a meeting of ecovillage members at which the design and objectives of the survey were outlined, the questionnaire was distributed to all households; 94% returned completed questionnaires indicating a high level of interest. Based on the survey, an EF of 2 global hectares (gha) was estimated for the ecovillage, the lowest recorded for an Irish settlement. This compares to an EF of 2.9 gha for the town of Ballina in county Tipperary after a four-year campaign to reduce its footprint, 3.9 gha for a commuter community and 4.3 gha for 79 settlements throughout the country. Apart from measuring the ecovillage's EF, the results also allow the sources which constitute each of these EFs to be compared. Globally, it is estimated that the maximum EF for each human being that allows them to live within the planet's biocapacity is 1.8 gha. Based on this, ecovillage residents would currently need 1.1 planets to continue living the way they do. A plan for the systematic reduction of the ecovillage's EF with targets and periodic measurements to establish progress was being developed in 2016.

CONCLUSIONS: HARVESTING THE LESSONS

Ecovillages are small projects and will remain so. But are they just nice places for people to visit or do they hold lessons for how society is organized at all levels, from the local to the global? Litfin argues at the end of

her book that they have something to teach us “at every scale of human existence” (Litfin 2014: 187). “Ecovillagers have managed to move out of the mainstream and orient their lives around the core purpose of sustainability. They are rethinking the values of convenience and comfort, profit and growth, and building a culture that reflects and amplifies their sense of purpose” (ibid.: 188). It is this core purpose and the implications that flow from it for the ways we organize our societies and economies that constitute the core lesson for Litfin. She then identifies five principles from the ecovillage experience that could be scaled up to the level of neighbourhoods, towns and cities, national societies, businesses and the global community. These are:

1. Systemic thinking: Replacing “prevailing piecemeal approaches to city planning, national policy making, and international institutions” with a focus on the whole and its sustainability.
2. Subsidiarity: Meeting human needs “with the lowest possible resource consumption and waste disposal” which will require localizing material production and consumption while remaining active global citizens.
3. Sharing: Turning from an ethic of individual possessiveness to an ethic of sharing everything, from our land and cars to our skills, our governance structures and our life stories. This will require far greater transparency and full-cost accounting at all levels of society.
4. Design: If we are to create the kind of society that can be powered by renewables, then society could learn from ecovillage design strategy “one that prioritises quality of relationships over quantity of stuff, at every level”.
5. The power of yes: “Focusing on the most practical issues of life, ecovillages embody a kind of hands-on, do-it-yourself politics. They are creating parallel structures for self-governance within the prevailing social order while demonstrating how to live well with less” (Litfin 2014: 188–189).

Essentially therefore ecovillages alert the wider society to the scale of the challenges facing us all if we are swiftly to transition to a low-carbon society. They show forcefully that technological contributions to meeting this objective must be embedded in social structures, value systems and active intentionality, in other words they show that the challenge is essentially a social and economic one rather than just a technological one. In a world still far too obsessed with technical solutions to complex social challenges, ecovillages offer a loud wake-up call that needs to be heard and heeded.

REFERENCES

- Carragher, V., O'Regan, B. & Moles, R. (2011). *Development of a community-based ecological footprint*, CER, University of Limerick (available at <http://erc.epa.ie/safer/iso19115/displayISO19115.jsp?isolD=3024>).
- Casey, K. (2012). *A case study of Cloughjordan Ecovillage*. MSc dissertation, University of Limerick.
- Cattaneo, C. (2015). Eco-communities. In G. D'Alisa, F. Demaria, & G. Kallis (Eds.), *Degrowth: A vocabulary for a new era* (pp. 165–168). London: Routledge.
- Cunningham, P. A. (2014). Exploring the efficacy of consensus-based decision-making: A pilot study of the Cloughjordan Ecovillage, Ireland. *International Journal of Housing Markets and Analysis*, 7(2), 233–253.
- Espinosa, A., & Walker, J. (2013). Complexity management in practice: A Viable System Model intervention in an Irish eco-community. *European Journal of Operational Research*, 225(1), 118–129.
- Feehan, J. (2003). *Farming in Ireland: History, heritage and environment*. Dublin: University College Dublin Faculty of Agriculture. GEN website: http://gen.ecovillage.org/en/what_is_an_ecovillage. Accessed 19 September 2014
- Gilman, R. (1991). The eco-village challenge. *Living Together*, Context Institute, Issue 29, Summer 1991.
- Holmgren, D. (2011). *Permaculture: Principles and pathways beyond sustainability*. Hartford: Chelsea Green.
- Kirby, P. (2013). Policy optimism: NESC, climate change and achieving decarbonisation. *Administration*, 61(2), 75–90.
- Litfin, K. T. (2014). *Ecovillages: Lessons for sustainable community*. Cambridge: Polity Press.
- Milescure-2050. (2013). *Deliverable 2.1: Report on integrated analysis of local anticipatory experiences in energy transition in Europe*, Milescure-2050 (available at www.milescure2050.eu).
- Milescure-2050. (2014). *Deliverable 2.2: Report on comparative analysis*, Milescure-2050 (available at www.milescure2050.eu).
- Moore, O., McCarthy, O., Byrne, N., & Ward, M. (2014). Reflexive resilience and community supported agriculture: The case that emerged from a place. *Journal of Agriculture, Food Systems, and Community Development*, 4(3), 137–153.
- NESC. (2012). *Ireland and the Climate Change Challenge: Connecting 'how much' with 'how to'*. Dublin: NESC.
- Peake, S. (2012). What is a low-carbon society? In H. Herring (Ed.), *Living in a low-carbon society in 2050* (pp. 15–27). Basingstoke: Palgrave Macmillan.
- Pickerill, J., & Maxey, L. (2009). *Low impact development: The future in our hands*. Leeds: Footprints Workers Co-operative.
- SPIL. (2007). *The village ecological charter*, version 5, Cloughjordan: SPIL.

- The Global Commission on the Economy and Climate. (2014). *Better growth, better climate: The new climate economy report*. Washington, DC: World Resources Institute.
- Winston, N. (2012). Sustainable housing: A case study of the Cloughjordan ecovillage, Ireland. *Advances in Ecopolitics*, issue on *Enterprising Communities: Grassroots Sustainability Innovations*, 9, 85–103.

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