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**What counts as success? Wider implications of achieving planning permission in a low-impact ecovillage. Accepted for publication in Environmental Values. POST-PRINT VERSION**

Fiona Shirani\* (Corresponding author)

[fionashirani@cardiff.ac.uk](mailto:fionashirani@cardiff.ac.uk) / 02922510129

Christopher Groves\*

[Grovesc1@cardiff.ac.uk](mailto:Grovesc1@cardiff.ac.uk) / 02920870466

Karen Henwood\*

[henwoodk@cardiff.ac.uk](mailto:henwoodk@cardiff.ac.uk) / 02920874678

Nick Pidgeon^

[pidgeonn@cardiff.ac.uk](mailto:pidgeonn@cardiff.ac.uk) / 02920874567

and

Erin Roberts\*

[Robertsem4@cardiff.ac.uk](mailto:Robertsem4@cardiff.ac.uk) / 02922510129

\* School of Social Sciences, Cardiff University, Glamorgan Building, King Edwards VII Avenue, Cardiff CF10 3WT, United Kingdom

^ School of Psychology, Cardiff University, Tower Building, 70 Park Place, Cardiff CF10 3AT, United Kingdom

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### **Abstract**

The need for future energy system change in order to address the energy trilemma of security, affordability and sustainability is well-documented and will involve an understanding of individuals, families and communities who are located within and engage with these systems and technologies. Alongside technical developments designed to address these challenges, alternative ways of living are envisaged by those engaged in low-impact development. We draw on data from a qualitative longitudinal study involving residents of a low-impact ecovillage in West Wales, UK to consider how the successful meeting of their planning targets has not been without personal and social troubles, which are absent from official measures of the project's success. We argue that through exploring issues of scaling up, policy timescales and the legacy of such projects – such as inspiring others – insights have a wider relevance beyond the specific case site.

Key words: Ecovillage, low-impact, policy, community

### **Introduction**

The energy trilemma presents challenges of decarbonisation, security of supply and affordability (IET, 2016). To achieve long-term policy goals of addressing these challenges,

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reductions in energy use will be essential. Technological developments will play an important role in addressing these issues, yet alongside this, it will be vital for individuals to make changes in their daily lives in order to address the social challenges related to energy system change. Whilst the difficulties people have in making connections between everyday activities and wider environmental and energy system impacts have been well-documented (see Shirani et al., 2013 for discussion), some people do opt to live more sustainable lifestyles in the present, for example, in low-impact ecovillage developments. Existing work has called for further exploration of the role that such sustainability-oriented communities can play in the transition to more sustainable sociotechnical systems (Daly, 2017). In this paper we explore the experiences of residents in one UK ecovillage as they sought to achieve planning permission, in order to elucidate implications for future low-impact developments and related policy. Whilst lifestyles adopted within low-impact ecovillages may still be considered relatively niche, there appears to be growing interest in this way of living (Miller and Bentley, 2012; Pickerill, 2015), which may be partly motivated by concerns about sustainability. We suggest that it is important to consider the position of such ‘alternative’ lifestyles in the context of efforts to encourage people to live differently in order to address the energy trilemma but also considering different models of a ‘good life’<sup>1</sup>. Studying an ecovillage community in depth therefore ‘affords the opportunity to look at a real community ‘living their lives differently’.’ (Scott, 2001:281) and consider insights that might hold wider relevance.

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<sup>1</sup> <https://www.worldenergy.org/work-programme/strategic-insight/assessment-of-energy-climate-change-policy/>

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The term ‘ecovillage’ may encompass a broad range of living arrangements; from homes reliant on technical solutions to address carbon emissions, energy production and saving; to low-impact solutions more radically different from mainstream living. Low-impact homes are those designed to have a minimal impact on the environment, meaning residents tend to live in self-built homes made from natural materials (often locally sourced) with no connection to the national grid. Dobson (2007) draws a distinction between environmentalism (an approach to solving environmental problems without fundamental changes in values or consumption) and ecologism (which positions sustainability as achieved through radical changes in our relationship with nature and in social and political life). Whilst a technological fix may fall under environmentalism, low-impact lifestyles show more affinity with ecologism – a distinction we return to later. Ecovillage community arrangements may also span a range of situations, from people living as independent householders to more communal living. In this paper, we focus on a low-impact ecovillage with some elements of communality as a specific niche within ecovillage developments, which is of particular interest in the context of Welsh Government policy support for such endeavours, as we outline in more detail later.

One of the material components of living differently is self-build sustainable housing. In the UK, housing accounts for 30% of energy consumption and 27% of national carbon dioxide emissions (Mason, 2014). Given UK government targets of 80% reductions in carbon dioxide emissions by 2050, following the Climate Change Act 2008, there is an urgent need to ensure that new and existing homes are more sustainable in terms of both mitigating climate change (reducing carbon emissions) and adapting to the changing climate (Seyfang, 2010). Alongside this, providing more affordable housing is a recognised need (DCLG, 2012; Shelter, 2015).

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With low-impact self-build homes offering a low or zero carbon and low-cost option<sup>2</sup>, proponents argue that there is potential for this way of living to become more widespread. In addition, there is increasing interest from government and other institutions in sustainable housing as a solution to a range of policy problems (Lovell, 2004). Within sustainable housing, low-impact building is a particular niche. Although noting that neither the term nor concept was new, Simon Fairlie is credited with establishing a definition of low-impact development in his 1996 book of the same name, which he later amended to ‘development which, by virtue of its low or benign environmental impact, may be allowed in locations where conventional development is not permitted.’ (Fairlie, 2009, pg1). This later definition highlights the different regulatory approach required for low-impact buildings, which cannot straightforwardly be evaluated using measures reserved for conventional development. The well-established notion of the rural idyll arguably underpins the assumption that building in the countryside should be restricted, or is the preserve of particular groups (Shucksmith, 2000, Phillips, 2005, for discussion), which creates challenges for permitting low-impact developments in rural areas (Scott, 2001). Therefore, whilst low-impact homes have the potential to contribute towards sustainable housing targets, there continue to be significant obstacles in realising such developments. Low-impact developments also differ from other forms of eco-building in that the builders are also the dwellers, and virtues such as durability and frugality are evident (Mason, 2014).

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<sup>2</sup> Several well-publicised low-impact homes have been built for a few thousand pounds e.g. <http://www.stylist.co.uk/home/3000-hobbit-house-built-in-welsh-hillside>

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In focusing on one ecovillage, we offer a detailed view of residents' experiences of building and living in low-impact housing. We argue that presenting a case study in this way has wider relevance as, although an apparently small-scale development, such examples of alternative living often connect and have influence far beyond their apparent remit (Seyfang, 2010; Pickerill, 2015), with wider implications for policy change (Lovell, 2009). They could also be seen as constituting socio-technical niches or demonstration projects. By seeking to learn from pioneers of such developments, it is possible to elucidate challenges that others might face in implementing these kinds of sustainable practices (Pickerill, 2015) and therefore have relevance for future developments and related policy.

**Policy context**

The UK Lammas Tir y Gafel<sup>3</sup> ecovillage that we focus on in this paper was established in relation to the development of Pembrokeshire County Council's 'Policy 52 – Low-impact Development Making a Positive Contribution' (2006), with some Lammas residents contributing to the formation of this policy, making it an iterative process. A key facet of Policy 52 was that it allowed some contexts for permitting development in the countryside, thereby offering some security in living a low-impact lifestyle, making it a viable longer-term option. A number of Lammas residents were involved with establishing the ecovillage from its inception, having had longstanding relationships with one another through their interests in

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<sup>3</sup> For simplicity we refer to Lammas rather than Tir y Gafel, as Lammas is the more identifiable 'brand' although we note that decisions over community identity were complex. See <http://energybiographies.org/wp-content/uploads/2012/09/Energy-Biographies-at-Lammas-Tir-y-Gafel-Ecovillage.pdf>

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low-impact living. These residents had experience of low-impact living and building and wanted to pursue an opportunity to practise this lifestyle legally. Once the project was more established, other potential residents heard about the ecovillage through promotional activities at green events and plot advertisements. This group tended to have lived more mainstream lifestyles, albeit making efforts to be sustainable, and had little or no experience of low-impact building, but saw the ecovillage as an opportunity to live a land-based lifestyle in an affordable way. Some of these residents had left full-time professional employment to establish land-based livelihoods and therefore found that their financial situations were much more restricted than they had been used to, although several described subsequent advantages, such as no longer having to do a lengthy commute. None of the residents had grown up in the area, but some moved there prior to planning permission being granted in order to become involved in the local community, with many families also learning to speak Welsh. The initial planning application was submitted in June 2007 with planning permission granted on appeal in August 2009. Detailed accounts of the initial planning process and annual progress reports showing how businesses developed can be found on the Lammas website.<sup>4</sup> The measure which preoccupied many of our interviewees was the requirement to meet at least 75% of household needs from the land within five years (negotiated from an initial term of three years). The policy specified that buildings be zero carbon in construction and use, but buildings did not have to be completed within five years to comply with planning. The policy further required that the development make a positive environmental, social and/or economic contribution with public benefit.

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<sup>4</sup> <http://lammas.org.uk/en/research/>

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Policy 52 has since been superseded by the Welsh Government's national One Planet Development Policy (2010) (hereafter OPD) as part of its One Wales: One Planet (2009) scheme. This incorporates a requirement that the minimum needs of residents must be provided from the site, which includes most of the food needs and sufficient income to pay for the basic requirements that the site is unable to provide directly (e.g. clothing, council tax), as well as production of energy and assimilation of waste. Buildings remain governed by separate regulations, with the wording of OPD suggesting that the Code for Sustainable Homes (CSH) would largely cover the requirements for low-impact properties, although acknowledging that there would be some elements that are incompatible. However, CSH was scrapped in 2015 (see Cherry et al., 2017 for discussion of low-carbon housing policy). Despite arguments from proponents that low-impact buildings require some different regulations (Fairlie, 2009; Dale and Saville, 2011), these are not currently in place. Developments under this legislation are supported by the voluntary body One Planet Development Council, which includes some members of the Lammas community. The OPD Council is described as a 'bridge between applicants and local planning authorities.'

Whilst Wales has taken what could be regarded as a pioneering approach in permitting such developments, residents faced personal and social challenges in meeting the legislative requirements, which we consider in this paper. By being the first ecovillage approved under these policy conditions, Lammas offers a unique insight into some of these issues, with relevance for further policy development in this area.

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**Methods**

Lammas has been described as a radical form of housing and livelihood, where the environmental impact of all aspects of daily life is dramatically minimised (Pickerill, 2016). Residents of the nine smallholdings are engaged in establishing land-based livelihoods, meeting their basic needs from the land, dealing with energy, water and sanitation via off-grid mechanisms and building zero carbon homes from local sustainable materials, as well as the everyday demands of family living. In establishing the project, the aim was to make it as much like a conventional village as possible, where residents could choose the level of community engagement that they wanted. However, a number of shared resources (such as woodland, hydroelectricity, communal hub building) has meant that some level of active interdependency is inevitable. A concern for wider social equity has also been seen as evident within the Lammas project (Mason, 2014). Many of the Lammas residents spoke about a concern for future generations as a motivation to live differently in the present (see Shirani et al., 2016a for discussion), which bears some relationship to non-reciprocal compassion towards distant others as part of what has been termed 'ecological citizenship' (Dobson, 2007). Beyond a common attraction to Lammas as offering the opportunity to live a land-based lifestyle in an affordable way (in contrast to purchasing a conventional smallholding for example), Lammas residents were drawn to the ecovillage for a wide range of social, environmental and practical reasons. This makes it difficult to present a unifying vision of the site and its community (see also Parkhill et al., 2015) beyond an interest in land-based permaculture development. Whilst residents who were more experienced in low-impact building offered some support to others, the building of homes was largely organised on an individual household basis, with volunteers

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providing much of the necessary labour. As more experienced builders were more likely to attract volunteers, the less experienced residents could be seen as facing compounded challenges of having less knowledge of how the build should be carried out and being less likely to have the labour force to undertake it.

Semi-structured interviews were conducted with 16 adult residents at Lammas as part of the Energy Biographies project. Energy Biographies was a qualitative longitudinal study conducted across four community case sites in the UK in order to explore everyday energy use, the relevance of past lifecourse transitions and anticipated future trajectories. Case sites were selected along a continuum from mainstream to niche – the latter involving substantial community sustainability and energy reduction innovations, such as those at Lammas – in order to provide wide-ranging insights into everyday energy use and the relevance of lifecourse transitions. Participants took part in three interviews over the course of one year (2012-2013), plus two interim visual activities (for more details on visual methodology see Shirani et al., 2016b). The ecovillage met their five year planning targets in 2014. Following this, further interviews were conducted with 11 residents in 2016 as part of work on the FLEXIS project. FLEXIS is an interdisciplinary research programme, which integrates social science and technical research to address issues concerning the energy system of the future, with a particular focus on Wales. The follow-up interviews took place once planning permission had been achieved and were thus undertaken partly to give a longer-term perspective on the experience of creating a low-impact lifestyle under the Welsh policy system.

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A longitudinal approach can help to elucidate the unfolding repercussions of an experience or event over time, exploring the impact this has on everyday lives (Thomson, 2009; Shirani et al., 2017). Therefore taking such an approach has proved useful for detailing experiences of the planning process and its implications for site development and for personal life. When researchers returned in 2016, some of the expectations that residents had had in the earlier interviews had not been met, sometimes with these initial ambitions consequently revised as unrealistic. In addition, many of the children in the community had become teenagers, creating new issues for family life. The data presented here is from the most recent interviews once planning permission had been granted, in order to give insight into the process of achieving this. Therefore whilst this analysis is based on one wave of data, it is informed by our knowledge of the previous longitudinal dataset. Participants are referred to by pseudonymous initials.

In conducting this analysis, we seek to elucidate some of the challenges that residents experienced in meeting planning targets, in order to highlight insights for policy development in this area, as well as for others undertaking similar developments. It is not our intention to be critical of residents' endeavours, indeed we acknowledge their considerable achievements in the face of significant adversity. We suggest that illustrating some of the unintended consequences that such an undertaking may entail could lead to better informed policy-making in future, as an increasing number of people make OPD applications<sup>5</sup>. We raise the issue of

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<sup>5</sup> Since the inception of Lammas 14 individual OPDs have been approved, with 5 in the application process (as of January 2017) <http://www.oneplanetcouncil.org.uk/approved-applications/>

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how participants subjectively understand success and the way this varies from official measures.

## **Analysis**

### *Building sustainable homes*

The 75% target had been frequently referred to throughout our interviews as something that residents felt hovering over them and had different degrees of concern about. By the fourth interviews, residents were able to reflect on the process of meeting this target. For some it was relatively easy or unproblematic to achieve, as doing so was in line with the lifestyle that they wanted anyway. For others, the process was described as stressful and exhausting.

Whilst it had been a relief to achieve the 75% target, common across many of the accounts was a sense of anti-climax as there had been no acknowledgement from the council, as GR reflects:

I don't really feel a massive sense of achievement you know. And if anything, kind of things seem to kind of collapse a little it would almost be, it was almost as though that threat that we had from planning was kind of holding things together a bit and when that threat kind of disappeared, I mean we submitted the annual monitoring report for Year 5 with all our figures in saying we had achieved the 75% and we didn't hear anything from the council at all ... We submitted it into a vacuum and nothing happened.' (GR)

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Without the ‘threat’ from planning holding the community together, others echoed GR’s comments about a sense of ‘collapse’, which has implications for resilience and community cohesion. As noted above, completing buildings was not part of the five year planning target, so residents had prioritised establishing businesses and smallholdings over building houses. In our final interviews for the Energy Biographies project, most residents anticipated that they would have completed buildings and be living in their family homes within a year or two. Yet when we returned three and a half years later under FLEXIS, no homes had been finished. Most people put this down to a lack of time and money, as establishing plots had been prioritised. In addition, they had faced significant challenges in complying with building regulations for their temporary dwellings. Whilst Lammas residents appreciated the need for building regulations to ensure that homes were safe, there was ongoing frustration about the perceived incompatibility of building regulations (e.g. having a mains connected fire alarm) with the requirements of the low-impact development policy under which they were initially granted planning permission (e.g. that developments do not use mains resources) (Dale and Saville, 2011). Such problems and inexperience on the part of regulators (and in some instances, residents) in dealing with low-impact buildings was seen as a key factor in delayed completion of buildings.

The continuing lack of family housing was one of the biggest strains that participants described in our FLEXIS interviews. For some of those who had been motivated to move to the ecovillage to provide a particular kind of life for their children, there was a strong sense of regret that their vision had not yet been achieved, as LS indicates:

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[O]ur dream when we moved here was to have this lifestyle, growing our own vegetables and experimenting with solar panels and compost toilets and solar showers and all this kind of thing whilst our children were young. And having this idyllic lifestyle and have them, you know, the lovely outdoors and everything, the mill pond, um, and the reality is when we reach that point ... they'll be pretty close to thinking about moving out of home... I think it's, like everybody here, although they have the intention and the spirit of what they're supposed to be doing is happening, nobody's actually succeeded, like we may have managed to demonstrate that we've provided 75 %, but nobody's actually built their main house (LS)

Whilst the project could be considered an objective success for meeting planning targets, LS describes feeling that 'nobody's actually succeeded' because of the continuing lack of family housing. In this context, what LS would regard as success (i.e. a family home and time to enjoy the immediate environment) would take much longer to achieve than the policy timescales would cover, whilst, relatedly, meeting the expectations of the policy by focussing on livelihoods partly contributed to other aspects of ecovillage life (such as making homes and enjoying a higher quality of life) taking longer to establish. This mismatch between policy and permaculture development timescales is a theme that other residents raised, as we return to later.

During the building process, some families continued to live in single room dwellings, or confined static caravans, whilst others had built additional accommodation so that their

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children (many now teenagers) had a separate sleeping space. Beyond concerns about the impact this was having on their children, several participants discussed the toll that this was taking on them:

I actually have a need for space ... the roundhouse is where my bed is so that's my bedroom as well as our kitchen ... But you know if somebody needs something they come to the roundhouse, well I could be lying in bed trying to have a nap and I haven't got that opportunity you know so where do I go? ... The pressure is the comfort, the being able to find that space and comfort ... I think once I have that space, it's mythical at the moment, but once I have that space and the ability to have that hot bath, for me I will be comfortable, this is what I need yeah? ... For me that would make it, suddenly it's sustainable. (JH)

The relevance of comfort has been much discussed in social practice theory, with calls from proponents of sustainable living to re-envisage how comfort may be felt and achieved in these ecovillage settings (Pickerill, 2015; Vannini and Taggart, 2015). For JH, lack of space (and subsequent privacy) and hot running water is experienced as a lack of comfort. JH suggests that achieving this level of comfort will be necessary if this way of living is to be 'sustainable' (i.e. remain desirable) in the longer-term. This indicates that whilst it may be subject to different standards than mainstream lifestyles, achieving comfort is an important aspect of residents' subjective understanding of the project as a success.

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Whilst some residents had experience in low-impact building, others had next to none, and no-one had completed a project on the scale of a sizeable family home before. Several people attributed the delay to inexperience and unrealistic expectations about how long the building process would take. Those who were most inexperienced often felt that they were doubly disadvantaged as they were less able to attract a volunteer workforce than those with an established reputation in low-impact building. Differences in experience and ability to achieve the planning targets could also be a source of potential friction for community relations. Whilst the building process was a central aspect of the low-impact lifestyle for some, for others it was not something that they had been particularly motivated by, but was seen as a necessary part of the process for achieving an affordable land-based lifestyle. One resident raised the possibility of having a low-impact kit house that could be constructed quickly and thus provide adequate living space whilst livelihoods are established, to achieve greater comfort.

Yeah, 'cause we did the business and it's really hard to do the business and the house because they're two just massive projects. If you could do the house differently, like get a log cabin, obviously it's going to be easier. So for me that's going to be a solution. Get a kit house, or get a really easy house, and then concentrate on your business ... I think that's what's needed really because for a lot of people it's just too much of a bigger challenge, and it can kind of destroy your energy and [chuckle] you as a person, it's all gone hasn't it, it's all gone to pot once that happens. (LS)

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The idea of a kit house raises potential challenges for a low-impact, sustainable approach to building, and related issues about the possibility of ‘scaling up’ sustainable actions. Whilst work is being undertaken to develop low-cost, sustainable housing that incorporates renewable energy infrastructure (e.g. SOLCER<sup>6</sup>) this is still a long way from the natural buildings developed by many low-impact ecovillagers. Building one’s own home may be a central component in some people’s desire to live off the land, yet for others it is a means to affordable low-impact living. In such circumstances then, a low-impact kit house may be more appealing, and a standardised design should in theory make building regulations approval more straightforward and allow quality of life to become more of a focus. Such an approach may also serve to lessen some of the stresses in relation to building that many of our participants described.

One of the challenges that several residents spoke about was community relations, which some felt had been strained by lack of time for one another due to demands of the planning process. In discussion of why they had opted to be part of Lammas, many residents discussed the value of being part of a community with others going through the same experiences, rather than attempting such a difficult undertaking as a lone household. Whilst the official structures of community were seen by some as ‘dysfunctional’, many were positive about the friendships and informal interactions they had with their neighbours, showing that these connections to one another remained important. Balancing the hydroelectricity supply means that residents informally negotiated how they used energy, for example, texting neighbours to ask if they

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<sup>6</sup> [http://www.specific.eu.com/assets/downloads/casestudy/Solcer\\_Case\\_Study.pdf](http://www.specific.eu.com/assets/downloads/casestudy/Solcer_Case_Study.pdf)

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could avoid using high consumption devices for a period in order to run a washing machine cycle. This informal cooperation largely seemed to work well. Plans were underway to develop a smart management system for the hydroelectricity, which would enable households to manage their own electricity usage without the need for negotiation with other householders. Whilst the technical developments were greeted enthusiastically by residents, this raises questions as to what implications it may have for community relations. Despite present challenges, several people were optimistic that community interactions would improve once they had had chance to build their family homes, and thus envisaged having more time to devote to the community.

*Having a Wider Impact*

The focus thus far has been on challenges that residents encountered in their efforts to achieve planning permission, which is otherwise absent from official measures of the project's success. We turn now to some of the more positive outcomes of the project that also may not be easily measured. A significant 'output' that residents described was the impact that their endeavours had had on other people's lives, as DS and RT highlight:

I can be pretty sure that 450 out of 500 [visitors] at least went away more inspired than they came you know? ... the opportunity to come to this place seems to be beneficial to people, just to see what's going on. Yeah, so it is a big and important thing. It's one of, yeah maybe, our most appreciable output by about a hundred-fold really [laughs]. (DS)

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I have always wanted the plot to give back to people in some way, to have people coming through to give back to people and I know it's not 75% or something but if, I am lucky to be doing this ... if I can help input into other people's lives in a really positive way that is, that is really important to me. (RT)

Despite the many challenges that they experienced, residents described themselves as 'lucky' in having an opportunity to live off the land in a relatively affordable way. Some felt that it would not be possible for the majority of people to adopt such a lifestyle because there would be insufficient land for everyone to have enough to sustain their families and livelihoods. The pioneering nature of the project may partly be the reason that they were able to attract a large number of volunteers, many of whom wanted to do something similar themselves (Shirani et al. 2015). This was seen as a mutually beneficial relationship, with volunteers gaining experience in return for labour and was one of the ways in which the moral worth of the low-impact development process was demonstrated (Mason, 2014).

Several residents saw the hardships and struggles that they experienced as being worthwhile by pioneering a permitted low-impact lifestyle. They hoped that their own struggles – such as wrangles over planning permission – would lead to alterations in policy, thus making it easier for others to follow in their footsteps. As such, they could be regarded in some respects as policy entrepreneurs (Lovell, 2009). This rationale then made it easier for them to accept their own present challenges as RH and JH indicate.

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[I]t does have huge amounts of positives, it has, I think we're allowed to moan because we're the first one, we're the sharp point, we've had to push it all apart you know and make room for it and the people who are coming in behind are dead interested and they're doing however way they are you know and it's bouncing off but we are you know we're a spot on the map that's part of the pushing, pushing that thing forward (RH)

I think what Lammas has done has then impacted on the whole of Wales and created OPD and these people are now getting permission on OPD, and I don't mind being a guinea pig for that reason you know we were the first ones to get it and I think that's great that other people are benefitting from that. (JH)

Identifying as pioneers paving the way for an easier experience for others in future was therefore an important way that Lammas residents drew positives from their experience. The apparent centrality of this to their experience raises questions for the possibility of 'scaling up' or replicating this way of living. For example, if such projects were more commonplace, attracting the essential volunteer workforce may become more challenging (Shirani et al., 2015). Seyfang (2010), citing Fine and Leopold, (1993) suggests that there are challenges related specifically to the diffusion of grassroots innovations, namely that their small scale and rootedness makes them difficult to scale up and/or replicate, and their ideological basis can result in value clashes with mainstream settings, leading to difficulty transferring ideas and practices. Alternatively, Lovell (2004) indicates that values may become less central with the standardisation of practices. Therefore, in this case, scaling up/replicating of aspects of

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ecovillage life, or the creation of kit houses, may not lead to an ideological clash and resultant challenges. The relationship between such niche developments and potential application in more mainstream contexts is continually up for negotiation.

*Negotiating Policy Challenges*

Many Lammas residents recognised that it would not be possible for everyone to live in this way because there would be insufficient land, highlighting the issue of (intergenerational) equity in space (Mason, 2014). This may particularly be the case where separate individual household living arrangements are adopted rather than a more communal way of living. Beyond this, a more widespread adoption of such lifestyles where people were recipients of financial benefits such as working tax credits (at least during the period of establishing businesses), raises questions about their wider financial sustainability. In addition, plot holders had to invest a substantial amount to purchase their plots (£35,000-£40,000), which, although a significantly cheaper option than purchasing a more conventional smallholding, would still put such a venture outside the reaches of many for whom such an initial outlay would be unaffordable. Outside an exact replication of this lifestyle, however, residents felt that there were still beneficial insights to be gained for those in mainstream contexts. For example, DS sees a creative approach to problem-solving, based on efficient use of available resources, as a transferable skill, which is something demonstrated to visitors and volunteers:

[I]t's the same sort of thing, which could happen anywhere so that people could make more use of the resources that are available in their local ecosystem.

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That's what we're doing isn't it and everybody has a local ecosystem if you use that term to encompass human activity as well as wild activity. You know, and the kind of attitudes which are required to make use of those things are transferrable, you know, I think it's about creativity and repurposing things or about redesigning lifestyles to make use of opportunities that are available or, you know we can eat self-sufficiently really easily if we don't mind what we eat [laughs]. ...I think if we did that more, if that was a more practiced way of thinking then people who otherwise might find themselves in positions of lack because they couldn't afford to buy the thing which you know is kind of like the on a plate solution or the most obvious solution, they can't afford to buy that to meet their need, they might be able to meet their need if they're thinking a bit more creatively by you know, looking at what other outputs are available and then, which aren't being used in their local ecosystems... When efficiency is defined as meeting my needs for the least possible cost to myself, in that sort of definition of efficiency then there's a real efficiency available by working out solutions, which are unique to individual circumstances. That's what I see as being one big key to what we're doing here, (DS)

The terms creativity and efficiency may generally be seen as somewhat oppositional, but here DS's understanding of efficiency highlights the importance of a meaningful engagement with local resources according to individual circumstances. Whilst not necessarily offering the perceived convenience of a standard or 'on the plate solution', by utilising available resources

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rather than desiring unattainable ones, this approach could be considered more convenient and affordable, despite requiring greater effort in thinking about how needs can be met, thus a creative approach to efficiency. It is suggested that this way of thinking could be adopted by people in existing communities who otherwise find themselves in ‘positions of lack’. Such an approach could also offer other benefits, such as reducing waste (Henwood et al., 2017). In addition, such effortful and meaningful engagements may have an important role in reconceptualising what convenience may mean (Groves et al., 2016).

Beyond this creative efficiency, Lammas residents were positive that their way of living offered an affordable solution for rural living and wider social equity (Mason, 2014), describing how property ownership in such areas had become an unachievable goal for many low-income workers who had grown up in and wanted to remain in rural communities. Therefore low-impact developments were positioned as a potential solution to rural housing challenges in existing communities. Since starting their development, many similar (but largely individual) low-impact developments had been undertaken in the area, which was partly attributed to the success of Lammas. However, some remained sceptical of the likelihood that low-impact development would happen on a wider scale because of continuing perceptions that the countryside should be protected (going back to the notion of the rural idyll) and only certain people should be allowed to build on it (Shucksmith, 2000; Phillips, 2005).

I’m kind of thinking the countryside really seems to be geared towards an elite you know the wealthy and the affluent and people that went to public school and things like that but if you’re an ordinary person you, your only access to it

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is through like a policy like Policy 52 or One Planet Development and in order to do that you have to live in penury you know for six years and be stressed out of your brain (GR)

Other residents were concerned that the surrounding policy context was not sufficiently supportive in promoting low-impact development, albeit understandably so because of competing financial commitments.

I'm not surprised there's a lag in the Local Authority, I can see it's a completely small priority for them. They've got like services for elderly people and stuff to maintain, they completely don't have budgets for anything like that, so for them this like load of idea that you could regenerate patches of countryside, it's just like "oh come on" ... And the Welsh Assembly thing, well, yeah that's an anomaly isn't it? So they introduce a massive policy and then that's it. ... I can't see that there is any policy support. ... I just can only see it more like a ten year come generational thing, the 75 % is met but it's like, the potential of this as a piece of land to produce goods for society has not even started to begin, ... I still feel like the maturity of, if you go to a traditional smallholding that's hundreds of years old, it's so much more mature and established and it's that much more viable. And so in that sense, um, that's where I think it could be, the results of something like this will be many years down the line, if any. (RP)

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Here RP returns to the incompatibility of policy timescales with those of permaculture smallholding developments. With it being likely to take many years for the site to reach its full potential, RP recognises the challenges in trying to convince local authorities to support such developments in the context of more immediate demands on resources. In this case it could be argued that RP's definition of success, linked to the potential of land to produce goods for wider society, would not be fully achieved for several years or even decades to come. The need and expectation of policymakers to have quick results may be difficult to align with many initiatives designed to address environmental concerns, which may be seen as having a longer-term rather than immediate impact (Shirani et al., 2013). How to reconcile these timeframes remains an important consideration, as we consider further below.

## **Discussion**

There are four main themes that we seek to highlight in drawing out wider conclusions from our analysis. The first, which interweaves with all the subsequent themes, is the possibility of 'scaling up'. As noted by Lammas residents themselves, there are some significant barriers to the widespread uptake of low-impact ecovillage lifestyles; the availability of land; the impact on volunteer labour should such developments become more ubiquitous; and issues of wider affordability if people are (at least initially) relying on some state benefits to achieve their lifestyle. Therefore whilst the mainstreaming of sustainable lifestyles could be seen as beneficial, it may also prove a challenge to these lifestyles as they are currently formulated. Conversely, there are several possible benefits of such an approach; as a potential avenue for affordable rural housing; as direct action to address unsustainable resource use and

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environmental degradation; and, by people having a direct relationship to their energy and resource use, less pressure on mainstream services and infrastructure to provide these. With concerns about the inefficiencies of current grid infrastructure and energy production, decentralised energy generation from renewable resources is seen as a component of the future energy system (IET, 2016).

The lifestyles adopted by Lammas residents have been seen as quite distinct from unsustainable mainstream ways of living, with environmental consciousness at the forefront of everyday life (Shirani et al., 2016a). Many residents described an assumption that mainstream lifestyles would become increasingly unsustainable, yet given efforts to convert services which currently run on fossil fuels to renewable alternatives is a pressing concern, this assumption may be called into question. Whilst any technological solution to improve sustainability is likely to be viewed as positive, the rationale behind a technical fix is quite distinct from the motivation for deep green low-impact living. As discussed earlier, Dobson's (2007) definitions of environmentalism and ecologism highlights this distinction. Whilst a technological fix may fall under environmentalism, the low-impact lifestyles adopted by Lammas residents show more affinity with ecologism. Therefore, whilst technical solutions are certainly likely to impact on the sustainability of mainstream lifestyles, it is also likely that ecovillages like Lammas will continue to be established by those who see sustainability as requiring radically different ways of living rather than technological solutions to mainstream lifestyles.

Related to scaling up are the issues concerning building a low-impact home. Lammas residents were supportive of the need for building regulations to ensure that homes were safe, and some

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felt that criteria that they had been obliged to meet (such as ensuring disabled access) could help to ensure that they could live in their homes for a long time. Yet despite calls for building regulations that recognise the different demands of low-impact building in comparison to mainstream contexts, this has not yet emerged. If increasing numbers of OPD applications are made then it seems likely that regulators will gain a better understanding of these kinds of buildings, whilst experienced low-impact developers could potentially advise new applicants, which could create a smoother process to achieve compliance. However, to remain an option open to those on very low incomes, this would need to avoid extensive fees. Whilst building is an important part of the low-impact lifestyle for some, for others it is a means of an affordable rural lifestyle. An alternative solution, as suggested by some Lammas residents, may be the development of a sustainable ‘kit house’ to enable residents to have homes quickly in order to prioritise establishing land-based livelihoods. In view of potential ‘scaling up’, a kit house may also be more appealing to those used to more mainstream housing in comparison to traditional low-impact designs such as roundhouses. The level of standardisation required would also potentially make compliance with regulations more straightforward. In addition, by having adequate family housing early on in the process, the pressures related to a mismatch between policy and permaculture timescales, and the resultant impact on the quality of family life that some of our participants spoke about would be alleviated. However, the challenge for this approach would be in reconciling the criteria for low-impact development with a standardised building model, whilst also ensuring that kit homes could remain sustainable if developed on a wider scale.

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The third theme concerns timescales and the challenges of reconciling the desire for policy to yield quick results with longer-term actions to address sustainability. Residents negotiated the initial planning term up from three to five years and, as they achieved 75% within this timeframe, it could be claimed that it was appropriate. However, many residents argued that the full productivity of the land would not be realised for several years (e.g. established trees cannot be grown in this time). Longer-term timescales for planning may enable residents to feel less pressurised, have greater opportunity for work on their family homes, and have more time to devote to community, which in turn could improve relations. Thus, a longer timescale may mean residents feel that they are able to achieve their subjective understanding of successful low-impact living. It could be suggested that the planning targets may have encouraged residents to build up their land-based livelihoods more rapidly than they would have done otherwise. However, residents have their own impetus for prioritising the establishment of their livelihoods in order to support themselves, so it is likely that this would have been the focus regardless of planning requirements. Yet it is the pace rather than the targets of planning permission that seemed to be problematic for some. As more people undertake low-impact developments and the process becomes further established, it may alleviate the pressure to produce quick results in favour of longer-term measures of success. Pickerill (2016) suggests that self-building can mask the actual costs of development, which not only involves labour but taking time away from other activities (such as earning an income or childcare), as well as the time needed to learn what to do. In a similar vein, objective measures of the success of low-impact developments can mask the impact that achieving this may have on individuals and upon community relations.

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Finally, the legacy of inspiring others is a powerful ‘output’ from the Lammas ecovillage and one way in which the impact of the project could be seen as ‘scaled up’; having an influence far beyond its apparent remit (Seyfang, 2010). Whilst there may be challenges to widespread replication of low-impact living, insights into relevant aspects and concepts of ecovillage life – such as creative efficiency – could have wider application for those living with limited resources in more mainstream contexts and within existing communities. This understanding of efficiency is quite distinct from ideals of efficiency encapsulated within the smart agenda, associated with a technologically enabled and mediated environment (Strengers, 2013). In particular, the term, as our participant DS articulates it, is centred on addressing individual needs, rather than a standardised solution. We suggest that creative efficiency is a relevant concept for thinking about the role of low-impact approaches in relation to energy transitions beyond low-impact lifestyles, in respect of individually tailored rather than standardised solutions. Residents saw inspiring others as a key aspect of the ecovillage development and beyond volunteers, people were attracted to visit through site tours, educational visits and courses. Creating more formalised arrangements for such visits and learning opportunities to be part of educational curricula could be one way in which the impact and influence of the ecovillage is expanded to a wider context. However the demands of doing this wider outreach would need to be balanced against the demands of establishing the ecovillage and everyday life there.

**Conclusions**

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In concluding this paper we re-iterate our statement that in highlighting challenges it is not our intention to be critical of Lammas ecovillage residents, who have made significant achievements in difficult circumstances. Rather, we hope that by elucidating issues not otherwise encompassed by official assessments of the project, we can illustrate areas that would benefit from further attention by policymakers in an effort to aid the progress of those making applications under OPD or similar policies. We have highlighted difficulties that residents encountered, particularly in relation to building homes, but, despite these being considerable, all original households remained (albeit with some composition changes), suggesting that there were still positive elements to ecovillage life that made this a meaningful lifestyle. Indeed, it could be argued that the hard work required by this lifestyle is associated with positive values, such as industriousness and resilience, which feed into identity and a sense of what makes the lifestyle worth living.

In discussion, we have illustrated how the Lammas case site can elucidate four themes that have wider relevance: scaling up; building regulations; the challenges of competing timescales of policy and permaculture; and a legacy of inspiring others. This supports the earlier contention that these small scale examples of alternative living often connect and have influence far beyond their apparent remit (Seyfang, 2010; Pickerill, 2015), with wider implications for policy change (Lovell, 2009). Beyond these substantive insights, we highlight the methodological contribution of exploring communities like Lammas longitudinally. Although data presented here are from one wave of interviews, interview questions and interpretation of data has been informed by knowledge of the qualitative longitudinal dataset. Longitudinal interviews give participants a chance to re-visit their previous account and

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anticipated trajectories to see whether these have been realised. For example, despite many Lammas residents at interview three anticipating the completion of building projects, by interview four this had not been achieved. Thus by revisiting at this later stage we get a different picture of ecovillage life to the one we had concluded with several years earlier. Qualitative longitudinal interviews therefore capture a more dynamic view of lives over time, meaning they are uniquely placed to provide insight into the longer-term implications of policy decisions.

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