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Retrofit alternatives in five UK cities

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1 Introduction

The purpose of this paper is to explore the ways in which locally-based projects that can be identified as 'alternative retrofit' make use of use city spaces. A review of relevant literature on the use of such spaces frames and conceptualises these alternatives, and the paper argues that examples of alternative retrofit express explicit local and practical priorities that are enacted within governance structures at a local authority level and tend to rely on these and other frameworks and agencies to realise project aims. The paper concludes that the capacity of urban governance regimes to recognise, support and enable local 'alternative retrofit' is critical both for the projects themselves and as part of any wider shaping of sustainable city futures.

The dominant conception of retrofit as a way of transforming the existing fabric and infrastructure of cities is of a 'top down' approach (Hodson et al, 2013) facilitated and fulfilled by city governance frameworks and partner organisations whose shared role in the development of city futures includes assimilation of EU, national and regional policy objectives to achieve some measure of sustainability, usually within financial and time constraints, and framed as a contribution to legally binding CO_2 reduction targets. At the same time, there are those who live in cities who also engage with the sustainability agenda at a personal, domestic or local level and who take purposeful roles in activities that may be labelled as 'retrofit'. This research uses examples of alternative retrofit projects in cities by groups of people who want to make positive changes to local buildings, spaces or networks within a broad sustainability context and uses evidence from these to illuminate the concept of city space from a 'grass roots' perspective. Several potential examples of retrofit projects on buildings, spaces and networks in five UK city-regions were identified using internet research from which thirty were selected and summarised using a pro forma approach. The starting point for analysis is the use of space defined by the projects' aims and priorities, so that alternative retrofit activity, within the wider city-region context of sustainable futures, can include the voices of local people in a meaningful way.

The paper is presented in two parts. Part One reviews relevant literature and considers the context for alternative retrofit (AR) as a use of city space. Secondly, the project pro formas are interrogated to identify the governance of spaces for retrofit, the priorities and motivations around these spaces and their representation, and the conceptions of retrofit as expressed by AR groups. Thirdly, the broader strategic, policy and theoretical implications of AR projects are proposed alongside their local and practical value, and some potential areas for further enquiry are noted. The second part of the paper summarises the methodology and includes project details.

The work for this paper provides an empirical comparator with alternative retrofit projects in Greater Manchester (Burrai, 2014), complemented by a theoretical and conceptual framework (Hodson et al, 2013) as part of the EPSRC-funded Retrofit2050 project[1] and supported by MISTRA Urban Futures[2].

[1] Retrofit 2050: Re-engineering the city 2020-2050 - Urban Foresight and Transition Management, grant number EP/1002162/1.

[2] Mistra Urban Futures: Greater Manchester Local Interaction Platform (GM LIP).

PART ONE

2 Literature review

This review draws together various strands of literature to contextualise the issues raised by the question 'why does alternative retrofit matter?' With the emphasis on 'alternative', this question acts as a lens through which grass roots initiatives are differently conceived from dominant retrofit that re-structures city futures within a capitalist framework as an opportunity for business growth (Hodson et al, 2013). A characterisation of 'city' that is appropriate to this research identifies the growth of capitalism and the expansion of city populations. The development of urban spaces for local people and the potential for such spaces to act as a medium for 'urban commons' is explored as an expression of a 'right to the city'. Finally, literature around community gardens introduces notions of environmental justice and urban political ecology, which further illuminate the idea of cities as places of complex tensions and mediations around the identification, identity and use of space. The review informs and frames an analysis of local AR projects where the negotiation of rights to spaces, critical for achieving their aims, moves such projects away from their 'alternative' roots towards an assimilation within the dominant framework, and starts to suggest how AR projects may influence and shape changes within local governance structures.

2.1 Cities, capitalism and urban populations

Although cities as centres of populations, trade and commerce have existed for centuries, the industrialisation of modern cities begins with Europe's industrial revolution from the late 18th century, the advances of technology, and the organisation of business and commerce to trade in increasing volumes in the emergence of a capitalist framework. The movement of dispossessed and disaggregated rural populations to urban concentrations supported the industrial city within which the notion of 'urban society' within the rapid development of nascent capitalism had not yet evolved. Engel's account of the 'abject poverty' of working people living in the newly-expanding industrial towns and cities depicts extremes of dense, dirty and overcrowded housing with no public provision for sanitation or running water and notes that 'everywhere one finds on the one hand the most barbarous indifference and selfish egotism and on the other the most distressing scenes of misery and poverty. The observer …can only marvel that so crazy a social and economic structure should survive at all' (Engels, 1845). Thus the origin and evolution of the industrial city is characterised in terms of capitalism, by Lefebvre as an instrument and a means, of industrial production and enterprise (Kofman & Lebas, 1996) and by Harvey as a 'geographical and social concentration of a surplus product' (2012, p5), in an account of city growth and urbanisation as a self-perpetuating process of production, profit and the consumption and absorption of surplus within which the roles and rights of local people are effectively submerged. The more recent concept of a 'global city', as an aspiration for cities as centres of competitive trans-national business and finance (Newman, 2012 p225), or a node in a global economic system which controls 'social networks, economic relationships and material infrastructures' (Hodson & Marvin, 2010 p148) extends the history of the growth of cities based on industrialisation, capitalism and population expansion into the 21st century, moving even further away from a scale at which local people may be effective in their own cities.

2.2 Urban space as a social medium

Having briefly described a city as a concentration of capitalism, urbanisation and globalisation, the development of the provision of urban space provided and managed by city governance is noted. The awareness of a city's relationship to the natural environment and to the spiritual values of human community was linked to the function of city planning and the creation of space for social action and interaction, nurturing community values and enriching the potential for social growth (Mumford, 1937). Mumford noted that the 'essential physical means' of a city; its industries, markets and infrastructure should be developed to support its 'essential social needs', and that many urban problems of the early 20th century arose because of the development of physical cities to serve industrial expansion which neglected the social nucleus. There was thus a focus on provision of space for the social lives of city inhabitants as a primary consideration of city planning, though their involvement in the planning itself appears to have been absent. The history of the provision of space by local authorities which, according to Lefebvre, 'commandeer the functions, duties and prerogatives of urban societies' (Kofman & Lebas, 1996 p129) begins in the UK with the creation of municipal parks and gardens as recreational space and evolves into the concept of garden cities and 1950s New Towns in which green space is incorporated within urban planning and design. The deterioration, from the 1970s, of the maintenance of parks and public space was matched with the increase of brownfield areas left by the collapse of various urban industries. The recent improvement in the urban public realm is informed by a recognition of the importance of a multi-functional green infrastructure that involves principles of community, landscape, ecosystems, recreation and local economy, framed within the National Planning Policy Framework (Kazmierczak & Handley, 2013) and enacted at a area level by local authorities which may involve local people through a system of neighbourhood planning. Thus the existence of a green infrastructure as an urban asset both sets a framework for people living in cities and, at the same time, potentially limits their capacity to identify and act upon space that is not already defined by a dominant administrative function. Although this echoes Mumford's provision of space as a social medium, his own definition of a city is derived from John Stow, an inhabitant of 16th century Elizabethan London, who described the congregation and proximity of people in cities as developing the good behaviour called 'urbanitas' (understood here to refer to civilisation, linked to a notion of civic society, rather than the current meaning of an urbane, cultured and sophisticated individual) where people 'by mutual society and companying together, do grow to alliances, commonalities and corporations' (Mumford, 1937). Engels (1845) notes the effective destruction of such 'manners and customs' within the rapid expansion of urban populations as a function of capitalism, and Harvey (2012) argues that the redevelopment and practice by urban inhabitants of ways to co-exist by organising their lives for a shared and common benefit is critical to the transition of the re-creation of sustainable city futures as a vital places of co-existence and potential for their inhabitants.

2.3 Urban commons

The idea of commonalities of purpose, as a shared notion of co-existence, co-produced by groups of people, is linked to Harvey's decisive discussion of 'urban commons' (2012, p67) whose creation (or re-creation) is critical to the emergence of new forms of cities. Harvey defines 'urban commons' as an unstable and malleable social relation between a self-defined group of people and the physical environment, either existing or yet to be created, as a social practice of 'commoning' (p73) which establishes a collective relationship between a group of people and whatever aspect of the environment

that is being treated as shared or common. This potential to build new forms of shared, commons-based social relations is based on an extension of various discourses of urban commons as the shared management of common property as a resource, for example Ostrom (noted by Harvey, 2012 p68) who identified the capacity of people to successfully devise ways of collectively managing shared property for individual and collective benefit. Ostrom's examples are effective at a local level of up to 15,000 people; for comparison, the average population of an electoral ward in England and Wales is 6,600[3], echoing the scale at which AR projects are conceived. Thus the scale of locally-based initiatives can be physically located in space that is meaningful and immediate for groups of people expressing a common purpose.

2.4 The 'right to the city'?

The 'right to the city', summarising a long- and well-established school of thought originated by Lefebvre in 1967 characterises cities and their constitution as complex spatial forms of buildings, spaces and networks, as centres of capitalism developed to support and generate profit (Brenner et al, 2009). Within this isotopy of the rational spatial order there are 'spaces for envisioning and mobilising towards, alternatives to capitalism' (Brenner et al, 2009 p176) in which individuals and groups frame and enact a co-ordinated opposition to assert their rights to the city and create an alternative shared space of social justice, in between the formal spaces provided by city governance. The claims of individuals and groups to the right to city spaces are identified by Marcuse (2009) as the revolutionary demands of those who are dispossessed of urban rights, marginalised and insecure, or as the reformist cries of those who feel alienated, as 'an aspiration for a broader right to what is necessary beyond the material to lead a satisfying life' (p190). Space for enacting urban commons is one of several rights to be claimed for collective rather than individual benefit in a city context that can meet everyone's cries and demands, including the space which inspires or is a focus for AR projects. The notion of such space is described within the context of Lefebvre's account of everyday life as that which is left over after all 'distinct, superior, specialised, structured activities have been singled out' (Whitehead, 2009 p666). Everyday urban life is described as the vacuum between these activities, characterised as shared, commonplace, neglected, spaces of physical interaction with the potential for generating a shared possibility for acting against 'banal forms of disadvantage' (Whitehead, 2009 p668). These can be characterised as the spaces in which reformist cries emerge and develop, as responses which address specific issues in the fragments of urban daily life, accommodated by the inclination of urban administrations to democratise local government and to co-produce this urban daily life with the people who live it in a process of negotiation and engagement. This view tends to weaken the more disruptive and contentious messages of a coherent revolutionary movement – 'thus outrage is eviscerated' (Brenner et al, 2009 p182) and instead engages participants in a 'structurally unequal and exploitative system' (Meyer, 2009) in which neo-liberalism is perpetuated rather than transformed, under the banner of 'the right to the city' used by participatory governance models. However, one of the effects of the inclusive local democracy which is anathema to a Lefebvrian 'right to the city' is to strengthen the networks of civil society, improve their efficiency, promote local growth and encourage the proliferation of local social movements, paradoxically generating the conditions needed for the success of reformist groups.

[3] http://www.ons.gov.uk/ons/rel/sape/ward-mid-year-pop-est-eng-wales-exp/mid-2012/index.html

2.5 Everyday spaces for urban commons

A brief consideration of literature on community gardens, as examples of a specific type of local initiative, is included because it contributes elements of environmental justice and urban political ecology which extend an understanding of asserting rights to the city in the use of remaindered city spaces. There has been recent increased academic interest in the relationship between justice, place and environment, where environmental justice focuses on 'everyday space' as frameworks of action to mitigate against 'banal forms of disadvantage' (Whitehead, 2009 p669) and urban political ecology emphasises the co-dependence of nature and society. Whitehead argues that city structures have appropriated nature into the spatial economics of capitalism, assigning an exchange value and depriving some marginalised groups of the rights to natural spaces. The role of community gardens for environmental justice and urban political ecology is that shared and co-managed garden projects alter the meanings of physical city spaces to create 'new spaces of identity, sociality and empowerment' (Milbourne, 2012 p946). The act of gardening, as an assertion of rights to a city space, is rarely just about the shared growing of plants, but represents a medium through which to address social and environmental injustices. The characterisation of space in the context of community gardening in this literature can be usefully applied to a more general notion of AR as a way of conceptualising assertions of city rights.

2.6 Summary of literature review

The literature review provides a tentative framework for considering examples of alternative retrofit as expressions of a reformist cry for a 'right to the city', but the nature of initiatives as dispersed, pragmatic and focussed on specific local aims suggests that these may be more accurately conceptualised as an emergent development of 'urban commons' within everyday spaces which need to evolve and coalesce within a move forward to revised forms of new democracy. An examination of the narratives of thirty disparate projects across five city-regions aims to extend and refine our understanding.

3 Overview of retrofit alternatives

The thirty alternative retrofit examples are listed in Table 1 and the methodology justifying their selection is summarised in Part Two along with details of the projects themselves reflected in a standard pro forma adapted from Hodson and Marvin, 2009 (Table 3). The pro forma shapes the narratives of diverse AR projects to inform meaningful analysis across local contexts by drawing out background, history, funding, aims and priorities to support analytic reflection on the governance of retrofit space. The portfolio of ten projects about buildings, ten about networks and ten about spaces is not intended to be statistically representative at either a national or city-based level; instead it provides the accounts used to analyse and draw conclusions about the nature of alternative retrofit. Although this overview, as a preface to more detailed analysis, can quantify various attributes across the thirty projects as a way of introducing them, the range is rich and diverse and every project has its own powerful identity, focus, voice, story and outcome.

The projects include six community gardens, six networks based on physical entities, five community buildings, three churches, three community renewable projects, two projects based on housing, and two based on neighbourhood networks. The remaining three (a pub, a festival and low carbon road re-surfacing) are single examples of alternative retrofit projects as evidence of the scope and potential for

innovative ways of making a difference. All of the projects except five can be described as 'bottom up', originated by local individuals or groups. The exceptions, defined as 'top down' and carried out by agencies or national charities, can be justified as alternative retrofit and their inclusion is evidence of the proactive choices that can be made by organisations in the context of innovative integration with local social interests. Fifteen projects were carried out by pre-existing groups and fifteen by groups that were set up specifically to deliver project aims. All projects except five explicitly relied on one or more external grants to fund work, and four of these noted unsuccessful grant applications leading to reviews of original aims. Several projects acknowledge 'support' from other organisations which includes donation of time and materials, knowledge sharing, training and mentoring for volunteers. One of the conditions for external funding is usually the formal constitution of the project group, and the 'bottom up' projects identified have a range of organisational forms including one charity, seven charities registered as companies limited by guarantee, two Industrial and Provident Societies, one Community Interest Company and other not-for-profit structures. These forms of organisation necessarily require some management, and although 'alternative retrofit' activity is commonly characterised as volunteer-led, only seven of the projects are entirely managed by volunteers. Project end-points are generally not defined as dates or points in time; instead projects may achieve their stated aims but continue to benefit from, for example, additional income as a contributor to neighbourhood regeneration.

None of the thirty projects were solely concerned with physical retrofit of buildings, networks or spaces. Projects recognised terminations or reductions in services, or ongoing situations which could be changed by local people as a way of underlining a move away from the past and indicating intentions for the future. Direct responses to national policies are evidenced by two projects set up to measure or reduce CO_2 emissions, of which one set an explicit target of a 60% reduction. Many projects were devised to increase income to improve services, or improve services to increase income. The link between these project priorities is blurred and is explored further in the context of responses to contracting provision of services and funding support. Although every project developed in response to specific issues or concerns, involving groups of people working together for a shared or common purpose, most of the projects needed to raise money or increase revenue as a way of realising project aims. Three projects were explicitly developed to benefit from the Feed-In Tariff and the outcome of two of these was significantly compromised by changes to the government's adjusted timescale for higher payment rates.

Table 1: summary of Alternative Retrofit projects

Ref	City	Type	Name	Short description
1	Birmingham	Building	St Mary's solar panels	Installation of solar panels.
2	Birmingham	Building	Stourbridge Cricket Club	Programme of renovation to upgrade club house, including solar & PV panels.
3	Birmingham	Network	River Stour	Ongoing programme of clean-up days & wider work to restore the river.
4	Birmingham	Network	CoRE50	Partnership of 3 organisations aiming to raise funds via community shares for renewables.
5	Birmingham	Space	Low carbon road re-surfacing	Innovative approach by Dudley MBC to test low carbon road re-surfacing options.
6	Birmingham	Space	Martineau Gardens	Well-established and dynamic community and wildlife garden.
7	Cardiff	Building	Solar-powered brewery	The Cerddin Brewery is powered by 18 solar panels.
8	Cardiff	Building	Cathays Youth & Community Project	Installation of solar panels on community building.
9	Cardiff	Network	Awel Aman Tawe Community Energy	Community energy project. Recent planning permission granted for two wind turbines.
10	Cardiff	Network	Glyncorrwg Ponds Co-operative bike trails	Development of mountain bike trails in Afan Forest Park.
11	Cardiff	Space	Caerau Market Garden	Creation of community market garden in one of the area's most deprived villages.
12	Cardiff	Space	Edwardsville Primary School	Received £100,000 grant funding to develop outdoor classrooms etc.
13	Edinburgh	Building	Rosslyn Chapel	Refurb of historic chapel includes biomass heating system & rainwater recycling.
14	Edinburgh	Building	Bridgend Inspiring Growth	Renovation of derelict farmhouse as community based-centre for sustainable living.
15	Edinburgh	Network	Innertube bike network / map	E Lothian Groundwork Trust & The Bike Station joint project to improve city bike tracks
16	Edinburgh	Network	Ormiston Grows	Village-based environmental project, with shop & café. Two recent grants (total c. £300k).
17	Edinburgh	Space	Polbeth & West Calder Community Garden	Recently-formed group, developing a derelict site into a 'Garden for Life'.
18	Edinburgh	Space	Edinburgh Community Energy Cooperative	Community energy co-operative. Current projects include the Leith Renewable project.
19	London	Building	Mildmay Community Centre	Community centre in Victorian tram shed. First non-domestic Passivhaus retrofit.
20	London	Building	Sanford Housing Co-op	Sanford has recently achieved a 60% CO_2 reduction in its homes.
21	London	Network	Hyde Farm Climate Action Network	c.200 households on the Hyde Farm estate who wanted to reduce environmental impact.
22	London	Network	London Orchard project	Developing a community to plant, care for and harvest fruit trees across London.
23	London	Space	Alara Dream farm	Five strips of land around Kings Cross, planted as orchards, vineyard, garden & allotments.
24	London	Space	BOW ARTS Live/Work Scheme	Collaboration with RSL Poplar HARCA offers artists affordable short life Live/Work spaces.
25	Newcastle	Building	Fenham Swimming Project	Swimming pool closed by Newcastle City Council, re-opened as a charity in 2005.
26	Newcastle	Building	St Albans Church	Installation of biomass to manage energy bills.
27	Newcastle	Network	Lamesley reedbeds	The Coal Authority & DECC's innovative treatment of pollutants in the River Team.
28	Newcastle	Network	Growing Schools Project	Planting 1km of crabapple, hazel & holly hedges round 17 schools to replace fences.
29	Newcastle	Space	Scotswood Natural Community Garden	Est. in 1994 as a permaculture project. Various 'retrofit' additions over the years.
30	Newcastle	Space	Newcastle Community Green Festival	The UK's biggest free annual green event. Held every year except two since 1995.

4 Analysis of retrofit projects

Analysis of the AR projects concentrates on five themes (Hodson et al, 2013) which frame an understanding of how space for retrofit is defined and contested. This supports a perspective on the use of space as a locus for urban commons, and why this alternative matters for urban futures. The five themes are; first, the governance of the space for retrofit, noting how it is defined and by whom to highlight the dynamics and balance between city and alternative priorities; secondly, the project's priorities, defining these as primarily economic, social or ecological or a mix in response to problems or policy issues manifested at a local level; thirdly, the conception of retrofit, identifying how the project's priorities are evident in the retrofit itself; fourthly, how the retrofit space is represented and contested, and finally a comparison of alternative and dominant conceptions of retrofit. The worksheet for this five-theme analysis is attached at Appendix 1.

Analysis is presented within a framework of space being asserted and negotiated as a way of reflecting the real-world, dynamic nature of the alternative retrofit projects, where the problem, original aim, priorities and conception of retrofit assert a right to the use of urban space, and negotiation involves engagement with the various levels of city, regional and national frameworks in order to realise the original aim. This approach, reflected in Table 2, focuses on a better understanding of the dynamic nature of AR projects and the relationships between AR project groups and the multiple and messy governance structures and shared or conflicting local claims that define urban space.

Table 2: framework for analysis of governance of retrofit space

Theme	Progress of AR	
1 Governance	How is space defined?	Assertion of rights to 'ordinary' city space for a common purpose
2 Priorities	Problems and motivations Aims Social, environmental and economic priorities	
3 Conception	What is being retrofitted?	
4 Representation	How is space negotiated?	Negotiation for use of space
5 Comparison	Different retrofit spaces	

An appropriate description of the arena where the complex relationship between grass roots alternative retrofit projects and formal urban governance is played out is 'the fuzzy space between public policy and its delivery', attributed to a volunteer for the London Orchard Project (22)[4]. It accurately and imaginatively captures the space for negotiation between project groups and the multiple and apparently contradictory functions of city and associated structures to define and control, as well as to enable and support, AR projects.

[4] AR projects are referenced by number and project title (e.g. 99, Project) unless referred to in the text. A summary is included at Table 1.

4.1 Governance - how is space defined?

The definition of a specific space for the realisation of alternative retrofit initiatives involves an explicit agreement between those involved to engage in activity that changes the space in its current form. The arenas for AR as defined by this research focus on urban buildings, networks and spaces and analysis shows that there are differing forms and functions of governance identifiable for each of these. First, buildings have a visible and physical presence and their governance as such is formal and well-defined in terms of use and occupation. There are often additional layers of governance for older buildings established by, for example listed status (for example 1, St Mary's; 26, St Alban's) and located within local authority-defined conservation areas (for example 1, St Mary's), which exert additional tensions for retrofit aims. Secondly, networks have been defined as physical frameworks that link places together such as rivers (3, River Stour; 27, Lamesley reedbeds) and rail tracks (10, Glynncorrwg bike trails; 15, Innertube). The governance of such networks is less explicit and may involve multiple interests and stewardships which concur with or contradict those of the AR project groups. Networks are also defined as less tangible associations of people with common interests (16, Ormiston Grows; 21, Hyde Farm CAN) where project space is mutually defined and agreed. Thirdly, space, as a locus for alternative retrofit, is generally identified as land. Many AR initiatives take place on derelict or unused land with no apparent existing function or purpose (11, Caerau market garden; 17, Polbeth and West Calder; 23, Alara Dream Farm) for which permissions for use are sought. None of the AR project examples have claimed the use of land without a process of seeking and receiving formal permissions.

Generally, the focus for AR project groups is on space which is not only visible and local, but also invested with, or symbolising, a cultural, historic or social importance and described with pride and affection and a sense of ownership or stewardship. AR narratives express an active responsibility to make a positive change in the absence of, or in opposition to, any intentions expressed by other groups or the local authority. The issue of governance underpins the analysis which draws out the dynamic balances associated with alternative retrofit aims to make changes in urban spaces.

4.2 Priorities - problems and motivations

The problems and motivations that provoke the activities of AR projects have been assumed from project narratives, where a primary condition for the emergence of initiatives is the proximity of groups of people with a shared pre-disposition to engage with a broad sustainability agenda. In addition, this agenda is extended by and specifically situated alongside the effects of the government's 'austerity' model, including significant reductions in departmental and local government budgets. Although these twin contexts may be generated by a complex combination of global, national, regional or local drivers they are manifested at a local level as problems that are both immediate and real to project originators, and powerful enough to motivate a sustained and active response. At the same time, a minority of projects developed primarily as a desire to do something shared and positive with no obvious evidence of a direct response to problems or policy drivers.

Although seven broad issues as provocations for alternative retrofit projects can be identified or confidently assumed from information available, the original concepts for individual projects may be more complex and nuanced, expressing at least one of these drivers. Four external issues that drive AR projects are first, local authority, third sector or other locally-operating agency's direct funding reductions or cuts

(19, Mildmay Community Centre; 25, Fenham Swimming Project), and secondly local authority or other locally-operating agency's budget reductions (3, River Stour; 15, Innertube), resulting in reduced service. For both of these, AR project groups form or re-focus as an opportunity to take on responsibility for continuing and extending an existing service. Thirdly, a non-specific area decline is an important driver, where a group of people responds to spaces that are unused, neglected or derelict and imagines a new, positive and locally beneficial use as a focus for more general area regeneration (9, Awel Aman Tawe; 16, Ormiston Grows). The fourth driver is explicitly associated with responses to CO_2 reduction and the broader sustainability agenda (4, CoRE50; 24, Bow Arts LiveWork). Three further issues are identified as desires expressed within a group rather than as a response to an external drivers. These include a desire primarily defined by a group's own agenda (20, Sanford Housing Co-op; 26, St Albans biomass), a desire to create and share knowledge (14, Bridgend Inspiring Growth; 21, Hyde Farm CAN), and a desire to create and share space, either provoked by remaindered space imagined as a project (23, Alara Dream Farm), or an imagined project for which space is found (17, Polbeth and West Calder).

4.3 Priorities - aims

Aims have been identified as the expression of the desired result for a project arising from priorities. These articulate the change from the status quo that key actors want to achieve through an active engagement with the project space over time. It is possible to distil project aims from information available to identify the vision and driver for those involved. Project aims assert an intention for the transformative use of urban spaces that have been identified as opportunities for change, and an examination of the priorities that inform these opportunities starts to provide a coherent spatial and temporal context for the disparate aims of the alternative retrofit project groups.

4.4 Priorities - social, economic and environmental priorities

Priorities have been deduced from project information and are assessed as social, economic or environmental, from which the nature of the engagement and negotiation within the 'fuzzy space' between grass roots initiatives and the 'top down' urban framework can be identified. Generally, projects have multiple and often overlapping priorities, reflecting a breadth of vision and a capacity to generate innovative and imaginative responses to local and national contexts.

First, every alternative retrofit project in the research portfolio includes a social priority. These are usually locally defined, with a strong sense of neighbourhood limits as boundaries of place and are therefore identified as unique and separate within the five city-regions although similar projects are likely to exist in other cities; or defined by a community of interest where the retrofit project aims to test and experiment with options and share results (e.g. 26, St Albans biomass; 20, Sanford Housing Co-op). Social priorities fall into identifiable areas of the creation and sharing of knowledge for local or community benefit; cohesion around share issue and around local re-investment of profit; the continued provision of a local service, and generation of local pride.

Secondly, many groups define economic priorities expressed as raising funds for local benefit, or as increasing income and diversifying revenue streams to maintain and secure the future of services. Financial need prompts several AR project groups to review the spaces available and make active and innovative use

of them as assets for local benefit. A significant element for many AR groups involves the sale of excess renewable energy generated by solar panels to take advantage of the Feed-In Tariff, part of the national sustainable energy policy which embodies a financial incentive to adopt small-scale renewable technologies from 2010. The use of the tariff is identified both as a way of improving finances by reducing energy costs and as a reduction in energy costs to improve financial health. The difference here is, apparently, negligible but is important in distinguishing the nature and drivers for retrofit projects using PV and solar thermal panels. For example, two projects (18, Edinburgh Community Energy Co-op and 4, CoRE50) were set up with the specific intention of raising income for renewable energy installation through the sale of community shares to use the income for local re-investment, and a third (1, St Mary's) used PV panels explicitly to reduce energy costs. Other projects express a financial priority in terms of continuing services previously provided or funded by public agencies, usually the local council. For example, the renovation of Mildmay Community Centre (19) as the first Passivhaus-accredited non-domestic retrofit was not planned as an iconic and innovative project, but as a way of improving and maximising space to increase rental capacity and therefore income in the face of reduced council subsidies. Similarly, the successful re-positioning of Martineau Gardens (6) as a visitor attraction was part of a strategic plan to mitigate against significant reductions in mental health partner charity's payments.

Thirdly, environmental priorities start to express the notions of space that define an assertion of rights to the city, acting as a visual and powerful focus for project aims for those involved in the group and for the wider population as the project develops over time. For example, the installation of solar panels (e.g. 1, St Mary's; 7, solar-powered brewery; 8, Cathays Community Centre), the creation of a garden on derelict land (e.g. 11, Caerau Market Garden; 17, Polbeth and West Calder) or the ongoing clearing of a river (e.g. 3, River Stour) are visible and physical expressions of a commitment to change. The changes to the environment that project groups aim to make are promoted by them as positive and beneficial both for the area and for the environment, involving re-use of land or existing buildings which may already have a history or purpose and be defined as 'space' by other people or interest groups, for example Awel Aman Tawe wind turbines (9) and St Mary's church roof (1). This is where the concept of negotiation of rights to space 'horizontally' with neighbours and with other 'grass roots' groups is located and enacted formally through local processes for planning permission, and mediated through local news and social media.

4.5 Conception - what is being retrofitted?

The conception of space for alternative retrofit is closely linked to the priorities which manifest project aims. Project groups identify a physical or notional shared space which will be positively changed and improved through the process of the project. Many priorities focus on existing neighbourhood landmarks that already have significant historic and visual impact, not only churches (e.g. and other public buildings (or specific aspects such as roofs), but also rivers, natural surroundings and land remaindered by changing city histories such as railway tracks and cultivated areas. These become the locus of the retrofit projects and can be described as the ordinary shared spaces of the urban environment, and the assertion of the rights of local people to use these to meet alternative retrofit project aims and priorities generates conversations with city-region frameworks within which any prior and competing claims are negotiated, resulting in an assimilation of the project into the loosely-described grass roots of local government and governance structures.

The context for examining the negotiation of rights to city space by alternative retrofit groups is drawn as a four-tier structure with global interest at the top, the national government and its range of Departments, various targets, policies and funding streams as a second tier, local authorities enacting relevant national policies and their own strategies, working with a network of national and local agencies, partners, and businesses to support and manage their areas of responsibility as a third tier, and the grass roots alternative retrofit projects as the fourth tier. In addition, city-regions in Scotland and Wales have a further tier of devolved administrative activity. Thus the immediate conversation for AR project groups takes place within a 'fuzzy space' which is crowded with formal and informal horizontal, vertical, diagonal & overlapping interests, networks, agencies and intermediaries as a maze that needs skilled mapping and expertise in order to realise project aims.

4.6 Representation - how is space negotiated?

The representation of space, as the fourth theme, involves an analysis of the continuation of the identification of space for alternative retrofit to the negotiation for and formalisation of its practical use to achieve project aims. For the AR projects, fourteen were enacted on spaces that were already in use by project groups, although many of these needed negotiation for additional permissions such as planning and diocesan approval. Thirteen groups identified 'ordinary', remaindered, common spaces as project locations and negotiated their rights to use them to meet project aims, and two community energy projects involving installation of solar panels for shared benefit (4, CoRE50 and 18, Edinburgh Community Energy Co-op) added a further layer of negotiation of rights, where potential roof space was identified and occupants approached to take part. The use of 'ordinary' spaces is where the theoretical conceptualisations of a right to the city, or the less revolutionary democratisation of public spaces, are appropriate, however the appropriation and use of space by initiatives identified as Alternative Retrofit is pragmatic and driven by multiple priorities in response to local circumstances, and although the active assertion of rights to ordinary spaces takes place, this is primarily to achieve project aims rather than identifiable as an overt expression of a 'right to the city'.

The governance of space identified for the project defines the negotiation needed to formalise its use for alternative retrofit. This leads to three potential conversations. First, the formal negotiation of the planning permission process is a long-established procedure for making changes that are externally visible, mainly to buildings, which invites and considers comments from local people. This is a powerful expression of the 'checks and balances' needed for the development of, and development on, local space and, given that the priorities of retrofit projects are to make visible changes, planning permission can be critical for achieving these aims. Secondly, paying for the project via grants and loans needs AR project groups to identify potential sources of funding, compete with other applicants and manage plans to meet aims and priorities in a context of uncertainty. Thirdly, the formal structures expected by funding bodies to ensure the transparency and accountability of the management of money received may need groups to register as charities or other forms of business models. These three potential conversations amount to an institutionalisation of alternative retrofit project groups into the structures, language and protocols of 'isotopy as the rationalised spatial order of capitalism' (Harvey 2012, pxviii) as a mirror image of the formal organisations that have the capacity to sanction or endorse the existence and subsequent success of the group.

First, the planning permission system managed across all local authorities is designed to deliver national statutory policies within a local framework. City-regional planning policies define and manage changes in land use and the built environment to improve the city environment and physical landscape, secure sustainable development, make a positive contribution to the city's architecture and protect heritage buildings, and safeguard against inappropriate development in the long term public interest[5]. The policies are used to provide the context for decisions of planning applications, as part of a process that requires significant detail from applicants and invites and considers comments from neighbours and other 'interested parties'. As such, the process has considerable traction within the 'fuzzy space' in terms of negotiating at a local level for AR groups both upwards through the application process and horizontally from local comments. Nine of the AR projects note applications for planning permission, of which seven were granted without apparent issues. The two projects where permission was not initially granted (1, St Marys and 9, Awel Aman Tawe) evidence projects where aims and priorities for use of space conflict with those of other groups who also have an interest in defining the space differently, generating additional conversations within the 'fuzzy space' of negotiation. St Mary's church, a Grade II listed building in a conservation area of Birmingham had planning permission for solar panels refused, also needed approval from the Diocesan Advisory Committee which included members representing English heritage and the Victorian Society, as a coalescence of significant 'alternative' interest in the church roof. The church, in response, successfully appealed against the planning permission decision, with the support of churchgoers, local people, ward councillors, the MP, local societies and SusMo (Sustainable Moseley) groups, as a coalition of opposing interests. Awel Aman Tawe (9) originally applied for permission for five wind turbines in 2004 which was granted in 2009 for a two-turbine farm, following significant local opposition supported and co-ordinated by the Council for the Protection of Rural Wales, Country Guardian, Open Space and a consultant employed by a formal group in one of the nearby villages intended to benefit from the installation. In addition, layers of negotiation were added by a refused application to the Welsh Assembly for the use of common land which was re-submitted and accepted after extensive work with lawyers and local, regional and national walking, cycling, equestrian and disability groups to show that the value of the land for recreation would not be compromised by the wind farm. These AR projects are detailed as evidence of the interests that can be expressed over space already identified as having a purpose by groups with different aims and objectives, and with different, but no less valid, claims for its use and who, in the two examples, have had their claims denied in a formal local democratic process.

Secondly, applications for and management of funds and grants represent an additional element of negotiation within the 'fuzzy space' which further embeds groups originally conceived as 'alternative' into a formal structure, but without which groups would be unlikely to achieve their aims. All of the AR projects except four (developed by business-model organisations – 5, Low carbon road re-surfacing; 23, Alara Dream Farm; 27, Lamesley reedbeds and 24, Bow Arts LiveWork) received external funding and over sixty different sources are noted. These include national and local government energy, enterprise and community-focussed grants, local ward funds, energy providers' 'green' commitments, various lottery pots, local, regional and national philanthropic trusts and organisations managing EU funding streams.

[5] http://www.birmingham.gov.uk/planningpolicy
http://www.cardiff.gov.uk/content.asp?nav=2870,3139&parent_directory_id=2865
http://www.newcastle.gov.uk/planning-and-buildings
http://www.lewisham.gov.uk/myservices/planning/policy/Pages/default.aspx

Thirdly, the forms of project governance which are a condition for groups to apply for, manage and spend grants and funding in ways that are accountable and transparent match or reflect the top-down structures of city governance, described as the institutionalisation required to progress the group's aims involving a common language, protocols and processes which can enable positive exchanges (Seyfang et al, 2013). Project governance models include charity, company limited by guarantee and industrial and provident society. Many groups are both a charity and a company limited by guarantee, as a recommended model for voluntary, charitable, social enterprise or community organisations with income and expenditure, paid staff and owning or occupying premises. Registration as a charity requires the annual submission of a report and audited accounts which are made public in England and Wales. Groups in Scotland may register as an Scottish Charitable Incorporated Organisation (SCIO) as a new legal form for charities registered in Scotland, able to have contracts, employ staff, incur debts, own property and sue or be sued. The format, language and legal expectations defined by these governance structures assimilates 'alternative' groups into more formal arrangements with the 'top down' framework, and the increasing embeddedness within the dominant infrastructure that the processes of planning permission, grant funding and project governance involves may have the capacity to compromise the original 'alternative' conception. However, by initiating and carrying out any or all of these conversations, AR project groups can successfully to meet and achieve the original aims and priorities for the use of urban space.

4.7 Comparison - different retrofit spaces

Finally, the fifth theme compares dominant conceptions of retrofit with AR examples, where both aim to make transformative changes to urban space. A dominant conception, at a city level, is defined as retrofit 'on' where the network of local governance, associated partners and intermediaries develop a framework of initiatives managed by cross-functional groups which aim to enable successful transitions to sustainable city futures. 'Alternative retrofit', at a grass roots, embedded level, is defined as retrofit 'in', with multiple motivations that focus on interests in local contexts by self-reliant and self-determining groups of people (de Laurentis et al, 2012). However, although has been possible to identify references to some national and city policies in the thirty AR projects, there is little evidence to suggest that these are explicitly driven by, or that the groups of people involved are engaged with, a specific retrofit 'on' agenda . Instead, policies are listed to strengthen applications or to meet criteria for funding and planning permission. For example, Polbeth and West Calder Community Garden's (17) 'expression of interest' for their land referred to Scotland National Food and Drink Policy, and Cerddin Brewery (7) made use of Welsh Tourist Board funding. Although there is an apparent disconnect between the retrofit 'on' frameworks and retrofit 'in' activity, this does not specifically compromise the emergence or success of AR projects.

4.8 Summary of analysis

Analysis shows that the AR projects are examples of different kinds of local social movements, with differing and distinct pathways and negotiations with the prevailing contextual policy, funding and frameworks for achieving their specific aims. For example, projects defined as 'community energy' need to engage with the energy infrastructure, including policies for the purchase of excess renewable energy, with a relatively high level of involvement with the structures and hierarchies of local and national governance frameworks; projects defined as 'community gardening' engage at a local level through access to, and rent

of, land; and other AR projects are more loosely defined and have their own conversations to facilitate success. The theme across all the AR projects is a local and practical focus and an explicit expression of change for local benefit, within which an assertion of rights to the governance of space as an exercise of urban commons may be identified.

5 Conclusions

The conclusion to this paper addresses two issues arising from the analysis of thirty examples of alternative retrofit across five UK city-regions, informed by a review of literature that locates initiatives in ordinary urban spaces as expressions of urban commons at a local level by people with shared interests. First, analysis focuses on the governance of such spaces as a framework for understanding the assertion and negotiation for their use to realise project aims, and this understanding can be used to consider 'why alternative retrofit matters?' Secondly, three areas for additional research are proposed, based on the rich details arising from AR project narratives.

5.1 Why alternative retrofit matters?

The importance of alternative approaches to retrofit can be identified across four key arenas; at a local level for the people involved in the projects and for their neighbourhoods; for enabling agencies such as local authorities and funding bodies to develop appropriate frameworks to stimulate and support such initiatives; for influencing and informing relevant debates and national policy around the general sustainability agenda and, specifically, in contributing to reducing CO_2; and to support and extend theoretical perspectives.

At a local level, successful alternative retrofit projects matter because they are examples of small groups of people taking action in urban spaces to make positive changes to local manifestations of situations that would otherwise be unchanged. The benefits add value to neighbourhoods and local environments, and they can inspire or encourage other groups of people to engage in similar or other local projects.

For enabling agencies such as local authorities, successful alternative retrofit projects matter because they evidence the nature of the negotiations that take place from the perspective of people involved, highlighting not only the enabling factors but also barriers and blocks that can arise and may compromise the progress and success of projects and in doing so, they can be used to review and revise the processes involved and generate the potential for co-production of appropriate policies. They also illuminate the extent to which alternative retrofit projects fill some of the gaps generated by recent and ongoing spending reductions as a result of national budget cuts.

At a national policy level, successful AR projects directly involved in energy initiatives are important because they evidence the extent to which the policy expectation of the role of community groups in reducing CO_2 is successful; they show the importance of consistent and long-term policy support evidenced by the impact of unexpected changes to the Feed-In Tariff timetable on already fragile financial planning; and they open up channels of communication for debating the impact of alterations to national grant funding regimes and the (apparent) move to loan-based financial support.

For theoretical perspectives, the study of AR retrofit projects is important because they extend and populate arguments for the assertion of rights to the ordinary spaces in city-regions. The collected AR projects embody elements of this powerful description of the 'right to the city', in making effective and collective local changes in a process that may be a stepping stone to a wider journey to a different type of city than the industrial capitalist istopy described by Marcuse (2009), Brenner (2009), Meyer (2009) and Purcell (2013).

5.2 Additional research

Three key areas for potential future research have arisen from the working paper that are beyond the scope of this analysis but which would extend and substantiate both this piece of work and the broader research field. First, although analysis of thirty projects across five UK cities depicts a broad representation of the motivations, aims and priorities of alternative retrofit initiatives across the UK at a city-region level, the projects themselves provide the basis for additional in-depth case study research within the five specific cities. Secondly, an exploration and conceptualisation of groups' reasons for and attitudes to use of the internet for recording and sharing project information overview of the projects, informed by Couldry's work on voice, social media and 'digital storytelling' and the role of these within a democratic urban future (Couldry, 2008 and 2010), and placed in the context of Seyfang's informed estimation that just 36% of projects defined as 'community energy' have an internet presence (Seyfang et al., 2013). Thirdly, although it has been possible to identify many of the people involved in the projects from the websites and formal reports and accounts and to list their backgrounds and interests, further structured work would be useful, to address the experience and characteristics of key people who generate, co-ordinate and drive retrofit projects and have the skills needed to negotiate and contest spaces with the governance structures that provide a framework for city-based retrofit in the theoretical context of social capital (Meyer, 2003) and local activism (Rutland, 2013). This may be usefully extended with a consideration of the locations of alternative retrofit projects, based on postcode analysis to identify ward deprivation characteristics (in the context of project self-described as in 'the worst…' or 'the most…' urban areas in terms of disadvantage) and assess the extent to which such initiatives can be characterised as the reformist cries of the conflicted middle classes (Marcuse, 2009).

5.3 Summary

The paper has argued that, in setting out to achieve AR project aims, there is an immediate and pragmatic need to engage with governance structures to identify, negotiate and rent appropriate space, to apply for and manage grants and loans in a way that is transparent and accountable and, generally, to access the knowledge, advice and support provided by local government and its intermediaries to complement and extend project group experience. This messy patchwork of individuals and groups involve themselves with the political and governance structures and funding streams of the dominant framework in order to deliver, or attempt to deliver, a wide range of distinctive projects that are imaginative, innovative and determined. These dynamic and often precarious projects provide a rich and compelling narrative of activities that take place at the 'grass roots' level of a city's functions and can make a critical contribution to transition to a more sustainable urban future, both by exploring what is possible outside, or underneath, the dominant urban framework, and by reframing use of urban spaces by local people. The 'space' for voices to be raised

and heard is within the negotiations for reclamation of city space that enables project groups to be effective, as a pragmatic conversation that supports the realisation of project aims.

PART TWO

6 Introduction

The methodology for the identification and selection of AR projects was based on internet research, and its process is summarised here. Issues on the use of 'alternative' and 'retrofit' as descriptors for projects, and the definitions of 'building', 'network' and 'space' are noted, and the limitations of the internet for data collection are acknowledged.

7 Methodology

The identification of examples of alternative retrofit was generated by a two-stage process of internet searches for potential projects, followed by focussed searches for information on selected projects.

This research is designed as a comparator for AR projects within Greater Manchester (Burrai, 2014) and five city-regions were selected to reflect administrative areas with different governance arrangements, population demographics, industrial histories and geographical characteristics.

- Birmingham is defined as the metropolitan county of the West Midlands which covers seven local authorities[6].
- Cardiff, as Wales' capital city, identifies the South West Wales Capital Region, as defined for the Retrofit 2050 project (Hunt, 2011). It includes the seven local authorities in the area[7]. The governance of this region is by the National Assembly for Wales via the Welsh Government.
- Edinburgh, as Scotland's capital city, identifies the traditional Lothian region to the south of the Firth of Forth and covers East Lothian, Mid Lothian and West Lothian councils and Edinburgh City Council.
- London, as the UK's capital city and defined as a 'world city' (Newman, 2012 p225) includes the 32 London boroughs and the City of London. The Greater London Authority (GLA) has an elected Mayor and assembly, responsible for providing a single, top-level tier of governance for the region's strategic functions (including the environment, transport and air quality).
- Newcastle defines the metropolitan county of Tyne and Wear, which includes the five metropolitan boroughs of North Tyneside, South Tyneside, Sunderland, Gateshead and Newcastle-upon-Tyne.

The use of areas that extend from the central cities to cover conurbations, peri-urban areas, suburbs, semi-rural and rural regions means that many AR projects selected are located outside the 'city' of urban sustainability, but within wider geographical limits of local authority and administrative boundaries.

The first stage of the data collection was an intensive internet search which identified 56 potential examples of alternative retrofit in the five comparator cities. 'Alternative' is defined as a local or neighbourhood project, conceived of and driven by an individual or group of people with a shared interest.

[6] City of Birmingham, City of Coventry, City of Wolverhampton, Dudley, Sandwell, Solihull and Walsall.
[7] Blaenau Gwent, Bridgend, Caerphilly, Cardiff, Merthyr Tydfil, Neath Port Talbot, Newport, Rhondda, Swansea, Torfaen and Vale of Glamorgan.

This is refined by a definition of 'community energy' projects as communities of place or interest with a high degree of project ownership and collective benefit from the outcomes (Walker & Devine-Wright, 2008). In practice, some examples were initiated and carried out by regional or national organisations and these have been considered and included because their approaches were innovative rather than conventional, and carried out with an explicit aim of a sustainable outcome. 'Retrofit', in relation to buildings, is defined as a transformative piece of work that includes a sustainable focus, in contrast to day-to-day repairs and planned maintenance, was also judiciously applied to the identification of projects about networks and spaces. In practice, the definition of 'retrofit' extended to the transformation of project groups' plans and objectives as a way of managing and securing their futures. 'Retrofit' as a descriptor is not commonly used (with the exception of references to this Retrofit 2050 project and other academic research) and is therefore only useful as an abstract term to reflect the nature of the projects.

The timescale for AR work was loosely defined as within the last 5 years (i.e. since 2008-09) during which a project had been planned, carried out and completed. However, internet searches generated some projects with longer planning and development phases because of the nature of their aims and priorities, and some well-established projects with recent and purposeful activity that can be defined as 'alternative retrofit' as a response to recent external circumstances.

AR examples are based on buildings, networks and spaces, and each of these generated issues for reflection that informed the progress of the internet search.

- 'Building' is the obvious physical entity that can be retrofitted. However, as the subject of alternative retrofit in which local people have a voice and some control, this excludes the majority of commercial and public buildings. Those buildings where there is some capacity for local influence include state schools, places of worship and community halls.
- There are two broad concepts of 'network' that have been used to indentify alternative retrofit examples. First, a network is characterised as a physical framework of the urban infrastructure that can be said to link buildings, or places, together. The second use of 'network' is less tangible and describes a group or network of people with a shared interest, for example in setting up a community energy project.
- Although 'space' is defined as the gap or void between buildings the internet search found that space for alternative retrofit is generally land, for example school or community gardens or orchards, and space on roofs for community–owned solar panels.

The list of 56 alternative retrofit examples was critically reviewed by a three-person research team (including the researcher) and two buildings, networks and spaces for each city were selected, a total of six examples for each of the five cities and thirty project overall.

These thirty examples were researched for the second stage of the data collection process, using an exhaustive search of information on the internet which, to some extent, triangulated information on project websites and a short retrofit alternatives pro forma (adapted from Hodson & Marvin, 2009) was completed for each project as a basis for analysis, included in Table 3.

8 Conclusions

As a method of data collection, the use of internet research has generated thirty rich and engaging profiles whose details have been used to generate a perspective on alternative retrofit, however there are three critical issues that represent the limitations of this approach. First, project identification by the researcher is, to some extent, serendipitous and shaped by the combination of search terms entered, and restricted to the groups that choose to set up and maintain an internet and social media presence. Secondly, data generated by project websites is limited to the quantity and quality of information that groups choose to post online which may be inconsistent and incomplete. Thirdly, there are likely to be projects that may be defined as 'alternative retrofit' and are similarly resourceful and determined that do not use web pages or social media and may present different conceptions of retrofit space.

Table 3: Alternative Retrofit project pro formas

PROJECT 1:	**ST MARY'S SOLAR PANELS BIRMINGHAM BUILDING**
SUMMARY:	Solar panels were installed on the roof of St Mary's in 2011.

WHY DOES THE RETROFIT PROJECT EXIST?

St Mary's, a Grade II listed parish church in the Moseley Conservation Area, dating back to the 14th century and the oldest building in Moseley, was extended during the 19th century.

The idea of reducing CO_2 was raised by Parish Church Council members in 2008. Solar panels were the obvious choice as the church has a long, south-facing, unshaded roof. Panels generate electricity whenever the sun is shining, and as the building tends to be used at the weekend, surplus energy during the week would give Feed-In Tariff income that contributes to the upkeep of the church. The PCC applied for planning permission in October 2009. Objections were raised by the city's planning team and the Diocesan Advisory Committee which included members representing English Heritage and the Victorian Society. St Mary's joined Sustainable Mosley (SusMo), a local organization[8] that won a British Gas Green Streets II competition (valued at £140k in total) and this, along with support from churchgoers, local residents, local MPs, councillors, the Moseley Forum and Moseley Society, helped to overcome the objections. Approval was finally granted by the Council in September 2010 and the Diocese in March 2011, 42 panels were installed and started generating electricity in July 2011.

The installation cost of £50k was funded by £34k from the Green Streets award and £16k from a church fund that will be repaid from Feed In Tariff the income, estimated at £3k per annum. A proportion of this will be used to promote other local renewable energy projects via SusMo.

Weekly readings are taken from a display meter inside the church, showing current power levels, energy generated to date and CO_2 savings. These are logged and shared via the church's website. During the first year (to July 2012) generation exceeded estimates with 7,700kWh and CO_2 savings of 4.4 tonnes. The aim for the church is to be carbon neutral within 5 years of insulation (from 2016).

UNDERSTANDING RETROFIT ACTIVITY

Although this is not explicit in the internet evidence available, the cost of heating churches is high and this, coupled with general awareness and church promotion of sustainability, is likely to have provoked the initial debate.

Use of the south facing roof for solar panels presented an ideal way to reduce energy costs and make an effective contribution to the local area's focus on sustainability.

QUESTIONS & REFLECTION

The installation of solar panels is a practical way for St Marys to reduce church costs and at the same time be an active partner in SusMo, by demonstrating a willingness to adopt new technology and to persist with city and diocese objections. The church accessed a wider network of interest in and support for their refused application by affiliating themselves to SusMo, and benefit from the Green Streets award which included panels installed by a British Gas contractor.

[8] SusMo is a community initiative with Hamza Mosque, Moseley Allotments Pavilion, Moseley Church of England School and 20 households. SusMo is part of Birmingham Cutting CO_2 group, which is part of Be Birmingham, in turn part of the national C Red (Carbon Reduction) initiative.

PROJECT 2:	STOURBRIDGE CRICKET CLUB BIRMINGHAM BUILDING
SUMMARY:	Part of the cricket club's five-year strategy, completed in 2011, was to improve the club house as a basis for increasing local profile and cricket performance.

WHY DOES THE RETROFIT PROJECT EXIST?

The cricket club was established in 1842, and currently has 6 adult and a range of junior teams. Following a series of poor seasons and relegations, the cricket club developed a five year strategy and annual development plan from 2007, to improve the club both on and off the pitch, including the refurbishment of the 1923 pavilion which also hosts over 30 local and community groups.

The first stage for the clubhouse restoration was a feasibility study by the Marches Energy Agency to identify options for energy efficiency and generation, funded by a BRE Community Sustainable Energy Programme (CSEP) grant. The recommendations were accepted by the club's committee, funding identified and contractors selected. There are five main elements to the building's sustainable retrofit carried out over 10 weeks during 2011:

- Installation of 250mm of insulation based on shredded newspaper, financed by the cricket club with an expected payback of four years.
- Replacement of strip lighting with an adaptor and more efficient tubes, again financed by the club and with an expected payback of six years.
- Repair of the original roof, re-using many of the original materials, as a preparation for PV and solar thermal panels. This was funded by a CETB grant of £25,000.
- Installation of 16m^2 of PV panels, generating 1,850kWh a year to provide 40% of the building's energy and a feed-in tariff income.
- Installation of 2 solar thermal panels and a new cylinder and pipes, providing 90% of the building's hot water. The cost of the PV and solar thermal panel installations was £45,000, funded by an additional grant from CSEP.

The five year improvement strategy is assessed as successful, with successive promotions to the Birmingham and District Premier Cricket League, and a regionally-recognised clubhouse and facilities as building blocks for the future. The solar and PV panels are highly visible on the pavilion roof and act as a prominent statement of the club's 'green' credentials. Overall, the five elements are expected to reduce the building' annual s CO_2 emissions by 5.5 tonnes. The reduction in energy costs and the modest contribution from the feed-in tariff enable the club to invest in different activities for the cricket teams and the community. Stourbridge Cricket Club won an annual Dudley MBC Climate Change Group Energy Heroes Award in June 2012 in the community category as a local example of an energy saving practice.

UNDERSTANDING RETROFIT ACTIVITY

One of the issues for the club was the run-down pavilion, which needed significant investment rather than ongoing repairs and maintenance.

Part of the five year improvement strategy for the club was an active commitment to reduce its environmental impact. This meant that grants were available to fund the feasibility study and any subsequent work.

Key actors have been identifies in press reports as the energetic parents of young cricketers. In addition, the club's Grants and Sponsorship Officer is a funding consultant and fundraiser for a community radio station and a local arts festival.

QUESTIONS & REFLECTION

This is an example of a local group planning to reverse a decline with a long-term strategy and annual plan, by dealing with a range of issues including the club's building. The club's website focuses on cricket and does not mention the retrofit, however Dudley MBC's case study and various news items are evidence that the club was determined to consider sustainable options for the building, and to generate grants to pay for the work.

PROJECT 3:	RIVER STOUR BIRMINGHAM NETWORK
SUMMARY:	Transition Stourbridge programme of co-ordinated volunteer work to restore the river by dealing with pollutants and clearing debris.

WHY DOES THE RETROFIT PROJECT EXIST?

The River Stour is a 40km tributary of the River Severn. Over the years the river has been dammed to form mill ponds and fishing pools, and more recently had its course altered and culverted for the construction of roads and buildings. Although the river was cleaned up after being severely polluted by chemical effluent from various industries along its banks in the late 20th century, the Environment Agency's infrequent testing of water quality shows pollution and low oxygen levels. Pollution sources are assessed as 'diffuse' and only pollution-tolerant invertebrates have been found. Branches and rubbish are only moved if there is a flood risk.

Transition Stourbridge was set up in January 2009 as part of the Transition movement, and cleaning up the river is one of two current projects. The first riverbank walk and litter-pick was held in March 2012, and the first formal river cleaning event was in April 2012, led by Waterside Care[9] who provided introductory training, insurance, first aid and equipment. Clean-up days are held every month, involving up to 25 people. People from Transition Stourbridge pre-visit potential sites to consider and then publicise transport, access and work to be done. Work includes clearing debris from the river, and litter and invasive weeds from the river banks. The Environment Agency has helped to define the seven aims of the River Stour project and to develop a seasonal action plan which takes riverbank growth and water levels into account to focus activity and include the river's tributaries. The EA has also provided training and equipment for testing pollution at various identified locations along the river, and for identifying invertebrates which give an indication of pollution levels.

Clearing the Stour is a low-cost activity. Low-value items such as grappling hooks and ropes have been bought, and waders provided with funds raised at a local school. Support 'in kind' has been given by Kingswinford and Stourbridge Lions. In 2012 the Environment Agency advised on Transition Stourbridge's application for a grant of up to £50k their Catchment Restoration Fund by September 2012, however although help was invited for the work involved, this application does not appear to have been made. Informal project partners are referred to by Transition Stourbridge as Tidy Stourbridge, Stourbridge Canoe Club and the Birmingham and Black Country Wildlife Trust.

The programme of clean-up days continues to be locally publicized and well-attended, and the action plan provides a framework for assessing progress. Trout and a nesting kingfisher have been seen. The ongoing (and frustrating) issue for Transition Stourbridge is the volume of recent litter on riverbanks and debris in the river and recent publicity has focussed on the river as a potential source of pride for the area. A photograph competition for a 2014 calendar, 'The Invisible River' aims to increase local interest in the river and highlight issues of litter and fly-tipping. There are also plans to involve people to monitor and clear the river in three places upstream.

UNDERSTANDING RETROFIT ACTIVITY

One of the 13 aims of the Stourbridge Area Action Plan (2012) is to regenerate the river, creating pathways and bridges for walking and cycling and riverbank green space in the town. This plan provides a context for the work and is also used to engage the council to provide practical help with removing rubbish collected in the area.

QUESTIONS & REFLECTION

This example addresses two linked issues; the appearance of the river and the quality of the water. Improving the quality of the water is part of a long-term process and appears to be having some success, moving on from the clean-up of industrial effluent and now needing to address diffused and minor ongoing sources of pollution, few of which appear to have been identified. The appearance of the river, which may have seemed to be an easier, cosmetic problem, has been

[9] Waterside Care is a shared initiative between Keep Britain Tidy, the Environment Agency, Canal and River Trust and Severn Trent Water to support local groups to adopt and improve local waterways with practical advice and guidance.

a challenge with ongoing litter and fly-tipping, presumably generated by local people.

PROJECT 4:	CORE50 BIRMINGHAM NETWORK
SUMMARY:	CoRE50 is a shared initiative by three Birmingham groups for community-funded installation of solar panels on public buildings.

WHY DOES THE RETROFIT PROJECT EXIST?

CoRE50 was set up as an Industrial and Provident Society in 2011 to raise money by issuing shares to fund community-owned renewable energy. It is a member of the CoRE (Carbon Reduction) federation of organisations in England which provide groups with support, finance and expertise. CoRE50 is a partnership between three neighbouring community groups: (50 refers to the #50 bus that travels between the three areas)

- Balsall Heath Is Our Planet aims to cut the carbon emissions of Balsall Heath, an inner city neighbourhood, in partnership with a range of community-based organisations.
- Kings Heath Transition Initiative (KHTI) is a local group set up in 2009 and aligned to the transition network.
- Sustainable Moseley (SusMo), set up in 2007, aims to support Moseley to become a more sustainable community.

The idea for CoRE50 arose from three initiatives from the groups involved. Community-funded solar power was a recommendation in a report commissioned by KHTI and funded by the Energy Savings Trust which identified three options for carbon reduction. This coincided with BHIOP's 2011 Neighbourhood Energy Plan financed by Energy Savings Trust LEAF funding, and the development of SusMo's future plans following completion of their British Gas Green Streets projects. KHTI's report was presented at a public meeting in May 2011 and the idea of working together to realize community-funded renewable energy emerged.

The history of CoRE50 is not well-documented or easy to follow from the website, however it appears that the first call for funds was made in June 2011 to take advantage of the higher rate feed-in tariff for energy generated by solar panels which ended in December 2011. The supplier's advice was that this was too short a timeframe to guarantee registration of the panels at the higher rate, so CoRE50's first project was part-funded by £20,000 from E.ON's Sustainable Energy Fund. CoRE50 installed 10kw of solar panels on the Ackers Adventure activity centre roof in summer 2012. Ackers Adventure is a charitable organization that provides people with opportunities for dynamic and adventure activities, and one of their goals is to become carbon neutral. The solar panels will reduce their energy bill by £400 and give CoRE50 an income to fund future projects. Clearing undergrowth around the centre before the installation was carried out by local people, and the official opening ceremony, in November 2012, included sessions on energy advice.

CoRE50 were highly commended in the Social Enterprise West Midlands awards in the Planet category in November 2011. Current projects and future plans are not evident from the website.

UNDERSTANDING RETROFIT ACTIVITY

CoRE50 is active in an area of south Birmingham with a range of active and dynamic local groups with similar and converging aims and objectives for sustainable living. Share-issue funding means that CoRE50 can develop to support new renewable energy projects.

The chair of CoRE50 and SusMo, described as a popular local environmental campaigner and community activist, has just been selected as a Labour candidate for Moseley and Kings Heath for the 2014 Birmingham City Council elections. Other key actors are likely to be the Development Officer at BHIOP, the Secretary at KHTI and a blogger at SusMo although none of these (including the Labour candidate) have prominent profiles.

PROJECT 5:	LOW CARBON ROAD RE-SURFACING BIRMINGHAM NETWORK
SUMMARY:	Innovative ongoing approach by Dudley MBC to test, assess & measure low carbon road re-surfacing options.

WHY DOES THE RETROFIT PROJECT EXIST?

The aim of the project for Dudley MBC's Works Management Team was to explore and measure the energy needed and the embedded CO_2 emissions in road resurfacing work by testing innovative techniques and materials and using these when it is appropriate. There are two main options, retread insitu recycling and the use of low energy asphalt.

- Retread was piloted in 2007 and the resurfaced road monitored for 3 years. The process involves breaking up and reshaping existing road surfaces to a depth of 30mm and adding new bitumen. This compares to 100mm of digging, excavation and resurfacing for more traditional resurfacing. Because the existing surface is re-used there are several benefits; less material goes to landfill; the lifespan of rock and mineral reserves is extended, and there are fewer materials brought on site. The combined CO_2 emissions generated by the retread process are assessed as 40% less than traditional methods. Additionally, costs are lower and there is less noise and disruption for local people during the process. It is suitable for lightly-traffic roads on (e.g.) estates, and has been used on 6 sites around Dudley (to 2011).
- Low energy asphalt was first used in Dudley in 2011. This uses the same materials as conventional asphalt resurfacing but these are mixed at 95^{o}C compared to 160^{o} to 180^{o} for traditional 'hot mix' surfaces, giving a reduction in fuel consumption of up to 50%. The process is faster and less disruptive than a 'hot mix' project. CO_2 reduction measured at the first site in 2011 was 9.9 tonnes, equivalent to 57,000 car miles. This process is suitable for all roads that need resurfacing, and has been used on two sites, with more under consideration.

Online research shows that both processes are emerging nationally as innovative treatments for road resurfacing, and Dudley is an early tester and adopter of both methods.

The project did not need specific funding, and work is carried out under Dudley MBC's normal tendering process for external contractors.

UNDERSTANDING RETROFIT ACTIVITY

The project is set within the context of a CO_2 reduction aim across the national transport network and its ongoing maintenance.

Dudley's team worked with contractors to measure CO_2 emissions from 2 emerging techniques for road resurfacing.

The key actor is identified as the Works Management Manager at Dudley MBC who is responsible for the procurement and management of highway maintenance works.

QUESTIONS AND REFLECTION

This project has been included because it is an example of a local council department responding to national policy drivers for change by working with contractors to see what can be done to reduce CO_2 emissions generated by road resurfacing. It is included in Dudley MBC's Climate Change Group's list of 31 diverse case studies of initiatives engaging with issues around climate change, and these are accessible and easy to read.

This example is justified as an 'alternative' because the status quo would have been to continue using traditional, established methods of road resurfacing in which CO_2 emissions has not been a factor. It is 'retrofit' because, even though the final result of a well-maintained road is achieved in either resurfacing scenario, the process has been designed to be as sustainable as possible. Urban futures will need, or inherit, road networks and this example demonstrates a responsibility for the future.

PROJECT 6:	MARTINEAU GARDENS BIRMINGHAM SPACE
SUMMARY:	Martineau Gardens is a well-established and dynamic community and wildlife garden responding to the need to generate more income to secure its future.

WHY DOES THE RETROFIT PROJECT EXIST?

Martineau Gardens was originally established as a teachers' centre to attract and retain teachers in inner-city Birmingham after the war. It evolved into an Environmental Studies Centre and is now a registered charity (1092364, from 2002) and company limited by guarantee (4273209). The charity aims to manage the2.5 acre community garden to inspire people about the natural environment through a programme of events and educational activities. It has six staff, six advisors (including biodiversity, bee-keeping, wildlife recorder and accounts), seven trustees and a team of local volunteers. One of the Garden's main activities, and sources of income, is a Therapeutic Horticulture programme, managed for many of its regular volunteers who have mental health or associated issues, such as addiction recovery, physical or learning disabilities, autism / Asperger's syndrome or old-age related dementia.

The garden was designated as a Site of Local Importance for Nature Conservation (SLINC)[10] in 2010 and has Green Flag awards[11] for 2010, 2011, 2012 and 2013. Planning permission for a new single storey 'eco-building' with a cafe, to replace a series of wooden sheds that are hard to heat, expensive to maintain and increasingly not fit for purpose for the number of events and visitors needed to generate more interest and income, was granted in June 2012. Following planning permission, plans for the new building were scaled back to one third of the original size, to present a more modest and manageable finance plan to secure a 50 year lease. One of the aims for 2012-13 is to raise more funds to finance its construction.

The garden relies on two main sources of income from Birmingham City Council and charitable trust grants for therapeutic gardening and from Birmingham and Solihull Mental Health Foundation Trust. Other income is from sales of plants, produce and other garden-related items, garden hire for events and charitable donations (reduced by 20% in 2011).

The garden trustees recognized a need to diversify and increase income streams and the Working In Neighbourhoods fund[12] supported a marketing project with the employment of a part-time marketing professional in 2010, leading to improved signage, a website, promotional literature and 'positive media coverage'. As more people visit the Gardens, there has been a notable increase in plants sales and produce, and hire of the garden for events. The 2012 report notes that Martineau Gardens is 'weathering the storm' of the recent financial climate and continues to provide the services for which it is recognized and valued.

UNDERSTANDING RETROFIT ACTIVITY

The recent development of the garden has been partly driven by the need to diversify and extend income streams.

The ongoing employment of a marketing and communication member of staff has generated 'positive media coverage' (valued at £32,000, Accounts 2011) for the garden by publicising existing projects and new initiatives to a wider audience. In particular, the promotion of the garden as a tourist / visitor attraction from 2011 has been successful.

QUESTIONS & REFLECTION

Although Martineau Gardens has been established for several years, it is an example of how a community garden has evolved and adapted by developing the garden's areas to attract new visitors via an imaginative series of events and

[10] These sites are selected within the local authority area in association with local Wildlife Trust and Natural England. They support local and nationally-threatened wildlife and include habitats and species that are priorities under the county or UK Biodiversity Action Plans.
[11] A national award that recognises high quality green spaces run by voluntary or community groups.
[12] It is not clear if Martineau Garden's Working In Neighbourhoods fund is part of 'Working Neighbourhoods', a DCLG fund for local authorities and communities to develop community-led approaches for increasing work chances for people in deprived areas, or a local initiative.

programmes, using well-designed and current social media and listings on local and 'community garden' websites.

PROJECT 7:	**SOLAR POWERED BREWERY CARDIFF BUILDING**
SUMMARY:	The Cerddin Brewery is powered by 18 solar panels, established in a converted pub garage.

WHY DOES THE RETROFIT PROJECT EXIST?

The landlords of the Cross Inn pub in Maesteg wanted to diversify the business and the idea, to set up a solar-powered brewery as an extension of the pub, was raised during a dog walk. The brewery would be located in an extended existing garage which needed planning permission (P/09/956/FUL – granted in January 2010). They applied for grants to support the building and equipment, and the landlord went on a brewing course.

18 solar panels, generating an estimated 3400kWh of energy a year and linked to a Feed-In Tariff, were installed on the garage roof by local Llynfi Valley company Free Green Energy Wales. The brewery produces five beers (including Solar) and a range of seasonal ales for the pub, in 4.5 gallon brews up to 4 times a week.

The brewery's website lists support by reach, Bridgend County Borough Council and The European Agricultural Fund For Rural Development. Reach is Bridgend council's rural development project which receives funding from Rural Development Plan for Wales 2007-2013. This is funded by the Welsh Government and the European Agricultural Fund for Rural Development. Reach's case study page for the brewery notes a project cost of £20,000 funded by £10,000 from Reach's Rural Tourism Development Fund and £10,000 match funding. The project was completed quickly with local trades firms as contractors and this is noted by Reach as a project 'high'.

Cerddin Brewery is the first new brewery in the area for 112 years, and the only carbon neutral one in Wales. The pub holds two beer festivals a year. It has won the CAMRA (Campaign for Real Ale) regional Vale of Glamorgan pub of the year award for 2013, and one of the beers won a SIBA (Society of Independent Brewers) regional bronze award. The bar has a new handpump and there are bigger casks in the cellar to accommodate increasing demand. The brewery operation has recently expanded, with the addition of a malting and conditioning / grain room, plans for a bottling process and a hop garden. The used grain is given to a local farmer as animal feed and the used hops are utilised as compost for local allotments free of charge. There is a brewery tour and increasing interest in the pub and brewery for visiting walkers and cyclists, which extends the area's 'tourism offer'.

UNDERSTANDING RETROFIT ACTIVITY

The landlords realised that the pub's business needed to diversify to refresh the business plan and increase trade and profit. By brewing their own beer, the pub could significantly reduce the cost of wholesale purchase. Investigation of the potential for a microbrewery included a consideration of investment and ongoing costs, and generating their own electricity would be a solution. However, available grant funding from Reach was linked to the rural tourism agenda and the focus of the brewery as a visitor attraction was successfully developed and realised, along with a reinforced positioning as a centre for the local community.

QUESTIONS & REFLECTION

This is a small local pub (probably not doing very well) where the landlord has recognised the opportunity to diversify and expand by combining a growing interest in micro-brewing and market for 'real ale' with the use of solar panels as a good business investment (for which grants would be available) and as a Unique Selling Point, generating CAMRA and other brewing community interest and extending the local 'tourism offer'.

£20,000 for project costs seems to be low, although there are no references to other costs or grants.

The key message from the website is a passion for brewing ale and a delight in the use of 'green' energy to do it.

PROJECT 8:	CATHAYS YOUTH AND COMMUNITY PROJECT CARDIFF BUILDING
SUMMARY:	Cathays & Central Youth & Community Project is a volunteer-led community centre providing services, events, projects & clubs. Solar panels were installed in early 2013.

WHY DOES THE RETROFIT PROJECT EXIST?

Cathays and Central Youth and Community Project (CCYCP) was established in 1979. It was registered as a charity (1122532) and company limited by guarantee in Wales (6141902) in 2007. Cathays Community Centre, leased from Cardiff City Council, provides an office for the charity and a base for community and youth facilities, social informal education and other non-profit activities. CCYP provides projects aimed at young people mainly in partnership with the council, including youth clubs, sports training and a music and arts project. CCYCP is managed by voluntary trustees and run by a small team of staff and a large number of volunteers. The Centre is used by various local organisations including dance and exercise groups and parent and toddler sessions. The site includes a café, meeting rooms and halls, two recording studios, a garden and the potential to double the Centre's space by renovating part of a currently derelict adjoining building. CCYCP are always 'striving to raise funds for developing the physical space' at the Centre, and have applied for a £2m Big Lottery bid for redevelopment based on a community-led design process in late 2012, with a decision due in Autumn 2013.

21 solar panels were installed on the roof of the building in March 2013 as part of the improvement project. The solar panels were funded by the Waterloo Foundation[13] and a Cardiff City Council Community Buildings Grant. Energy production and use will be monitored, and it is estimated that the panels will reduce costs by £1,000 a year which can be used for additional projects with local people. The aim is to assess the repairs needed for the remainder of the building's roof and consider more panels, with the eventual aim of creating a community energy co-operative. Information about when and why the decision was made and the costs and grants involved is not available from the website, or included in the most recent annual report and accounts to 2012.

UNDERSTANDING RETROFIT ACTIVITY

CCYCP is based in a building that is increasingly run down, unattractive and not able to accommodate the various projects and local groups.

The installation of solar panels on one of the roofs was a quick way to reduce energy costs as a forerunner to the wider regeneration of the site.

One of the trustees is a member of the local Green Party, a blogger and an activist for local insulation to reduce both energy bills and CO_2. There is no reliable information about other staff or trustees as actors and interests involved at CCYCP.

QUESTIONS & REFLECTION

Although the installation of solar panels on CCYCP is an excellent example of alternative retrofit it has not been possible, from the information available, to link this to the wider ongoing project to improve and extend the community building.

[13] http://www.waterloofoundation.org.uk/index.html This is an independent grant-making foundation based in Cardiff.

PROJECT 9:	AWEL AMAN TAWE COMMUNITY WIND TURBINES CARDIFF NETWORK
SUMMARY:	Community energy project, recently granted planning permission for wind turbines.

WHY DOES THE RETROFIT PROJECT EXIST?

Awel Aman Tawe (roughly translated as a calm breeze in the Amman valley) is a dynamic and successful community energy project established in 1998, aiming to make a difference in the fourteen villages (total population 13,000) at the top of the Swansea and Amman valleys, with local staff including a qualified Green Deal Assessor and Energy Efficiency Advisors, and an active volunteer group. AAT was given planning permission in May 2009 to build a two-turbine wind farm, the first community wind farm in the UK, and this huge, determined and ambitious vision is the focus of the retrofit example. The 10 acre site for the windfarm is on isolated, upland moor, with the Brecon Beacons National Park about 3km to the north. AAT delivers the ERDF and Welsh Government Ynni'r Fro programme in the South Wales valleys. This enables the employment of two full-time staff trained to provide advice and support on energy technologies, community engagement and finance.

AAT was constituted as a company limited by guarantee[14] in March 2000 (03958840). It has 4 current members and a company secretary (August 2013). It was registered as a charity in 2006 (1114492). The wind farm will be a trading subsidiary of the charity, gift-aiding profits back for the charity to support local low carbon regeneration projects.

The idea for a windfarm was originally raised during a Local Agenda 21 meeting organised by Neath Port Talbot in 1998 to discuss local social and economic problems. A group of volunteers and 'experienced community practitioners' (Hinshelwood & McCallum, 2001, pi) secured DTI funding for a 12 month consultation to March 2001. The funding was given to AAT to develop practical guidance for a Participatory Assessment Process to involve communities in renewable energy scheme consultation. Following the consultation, AAT commissioned the Electoral Reform Society to carry out an independent referendum for which 48.5% (4,252 people) voted. Of these, 57.5% were in favour of the wind farm and 42.5% against.

Having secured local support, AAT commissioned Dulas[15], a Welsh renewable energy consultancy, to carry out a detailed and comprehensive Environmental Impact Assessment as part of the planning submission. Where possible, local interest groups and schools were involved, for example in archaeological surveys which identified Bronze Age burial cairns close to the proposed site. Progress was shared via regular Energy Open Days and visits to community groups and homes.

The business plan for AAT's wind farm was developed through a two year Participatory Planning Process using the Department for International Development's Sustainable Livelihoods Framework which supports the involvement of local people in planning and decision-making processes. AAT worked with local people in conjunction with West Wales Eco Centre, Amman Valley Enterprise, the Centre for Development Studies at the University of Wales Swansea and the University of Wales Cardiff to develop the business plan.

The original planning application for a wind farm with five turbines was submitted in October 2004 and turned down. Organised opposition to the project has been sustained by local people supported by the Council for the Protection of Rural Wales, Country Guardian and Open Space, and a village close to the proposed site set up a formal opposition group. AAT felt that there was lack of explicit support from local MPs and AMs (Welsh Assembly Members).

Following an unsuccessful appeal to the Planning Inspectorate, the project was re-scaled to two turbines and re-submitted to Neath Port Talbot council for planning permission. Full permission was granted in May 2009 for a two turbine development.

[15] Dulas is a co-operative company who were also commissioned to prepare AAT's P90 wind analysis certificate (based on data collected, this evidences a 90% chance that wind in any one year in ten will match or exceed the predicted wind, as part of the due diligence process for bank investment). This was Dulas's first P90 which supported their own business and finance plan, as the first Welsh consultancy to offer a bankable P90 certificate.

Additionally, AAT were required to make a Section 194 common land application to the Welsh Assembly Government but this was refused ('I consider that the proposed access road and wind turbine would not, because of their adverse effect on the open character of the land and its value for recreation and public enjoyment, be of benefit to the neighbourhood' Open Spaces Society, 2012) and successfully re-submitted in December 2011, following extensive work with lawyers and consulting local and national walking, cycling, equestrian and disability groups to emphasise improved public access to the land.

During the year to March 2011 AAT secured a grid connection with Western Power Distribution and selected Repower MM82 turbines, manufactured in Chepstow by Mabey Bridge Engineering at a new turbine tower factory creating 200 local jobs.

AAT has received funding from a wide range of organisations, and key stages of the wind farm have been funded as follows:

- ERDF Objective One grant - £94,072 to support project development including the EIA (see above), planning application and a two year Participatory Planning process (see above).
- Low Carbon Community Challenge Fund (DECC) - £400k 'of funding towards the wind farm' (Accounts to March 2010, p2)
- Community Generation Fund loan - £125k for reports to inform a due diligence process with the Co-op Bank for 80% of the £6m capital cost.

The wind farm will have an annual turnover of £1m and an income stream of £200,000 which will contribute to local projects. Benefits for the area include a supply of clean, sustainable electricity for the equivalent of 2,000 homes, construction and supply jobs, 7 new full-time posts and associated outcomes from local regeneration.

AAT is a regular recipient of awards, recognition and research interest for its work. For example, the wind turbine project was selected as a case study for the World Summit on Sustainable Development in Johannesburg in 2002, and included in new planning guidance on wind energy published by the ODPM in 2005. AAT is one of five case studies for Oxford Brookes University's Low Carbon Communities research and is the focus of a PhD on local opinions of community wind farms.

UNDERSTANDING RETROFIT ACTIVITY

The area is one of the Welsh valleys affected by the loss of the mining industry and is one the most deprived in Wales. Many villages are not connected to mains gas.

A community wind farm would be innovative and effective, generating income and profit for the area. It would fit into the context of National Assembly for Wales' constitutional duty to pursue sustainability, Local Agenda 21's requirement to consider the environment and local quality of life in sustainable development, and Neath Port Talbot's Community Plan 2002-20012 and Unitary Development Plan. The history of the project since 1998 has been parallel to the Welsh Government's recognition of the need for support for community renewable energy projects, and the development of a enabling framework, and the Welsh Assembly Planning Inspector's decision uphold the 2009 appeal noted legislation that commits the UK to scaling up renewable energy schemes and that there would be an increasing demand for energy from renewable resources and 'existing moves in this direction have been slow to materialise. Hence I consider the need for such energy projects should be afforded significant weight' (This is South Wales, May 2009). In spite of this shift in the political landscape the Section 194 application for the use of common land was turned down in 2010.

QUESTIONS & REFLECTION

Piecing together a coherent narrative for this research from a range of sources has been complex, and the details of the planning and appeal process are still unclear. The most recent update on the AAT website is dated January 12th 2012, though the Welsh Government statement of July 2013 notes that the scheme 'will shortly be moving into its construction phase'. It would be interesting to know why, after so many set-backs, AAT were determined to continue with the wind turbine. AAT is a successful community-based enterprise working to improve energy efficiency and to lead innovative

projects, with access to funding sources & mechanisms to enable this to happen for themselves & for other groups.

PROJECT 10:	**GLYNCORRWG PONDS CO-OPERATIVE BIKE TRAILS CARDIFF NETWORK**
SUMMARY:	Co-operative development of ponds and mountain bike trails in Afan Forest Park using derelict mining tracks and railways as part of area regeneration.

WHY DOES THE RETROFIT PROJECT EXIST?

The Glyncorrwg Ponds Co-operative (registered as a community co-operative and industrial provident society in 1991 - IP**27278R)** developed man-made fishing ponds and, more recently, three world class mountain bike trails and a visitor centre with café, bike shop and camp site at Glyncorrwg as part of the 102km^2 Afan Forest Park in Neath and Port Talbot local authority. The bike trails and their operation are managed via a franchise by Skyline Cycles, a commercial organisation.

During the mining era Glyncorrwg, the only village in the valley, had three pits and several levels. When the mines were closed in 1970 people moved away and the area became neglected. In 1991 villagers decided to take advantage of the natural scenery and volume of rain and formed a co-operative to develop two two-acre lakes in the narrow valley bottom for fishing and as a base for walking.

Original funding was raised by £2,000 of £1 community shares and this, with the Welsh Development Agency's Community Enterprise Fund, paid for a feasibility study. The project was nominated as one of five Community Revival Strategy areas in 1992, and was given a grant of £477,500 to develop the ponds. Subsequent Wales Tourist Board and Welsh Assembly Government funds have amounted to several million pounds' investment to further develop the area, including the bike trails. The funds included £.5m in 2002 from the £4m EU-funded CydCoed Woods for All project[16].

The bike trails are the key focus for visitors to Glyncorrwg, and the area has been recognised internationally as 'one of the ten places to ride before you die' (other locations include Whistler and the Himalayas). The trails attracted 20,000 visitors in 2011 and the village economy has been extended with bed and breakfast accommodation and a hotel. 26 staff were employed in 2010 (Winckler, 2010), and 7 directly with 23 indirectly in 2012 (Wales Co-operative Centre, 2012) in an area where nearly one third of working-age people receive out-of-work benefit.

The Glyncorrwg Ponds Co-operative's website is current, fresh and appealing and the organisation continues to submit annual accounts (not freely available) to the Financial Conduct Authority's mutuals public register. It has diversified its focus as a Dark Sky Discovery Site, with an outdoor gym (planning permission granted in March 2012 - P2012/0040) and a family walking trail opened in summer 2013. The Co-operative is included in two recent publications as an example of community-based regeneration.

UNDERSTANDING RETROFIT ACTIVITY

The area was in need of regeneration following the decline of the mining sector. The Upper Afan Valley had been one of 12 UK Community Development Regeneration areas from 1969 to the mid-1970s. However, this was assessed locally as not successful largely as a result of poor delivery. Subsequent regeneration strategies did not focus directly on the Upper Afan and during the 1990s five key community initiatives emerged, including Glyncorrwg Ponds (Winckler, 2010).

The key original key actor was the local GP and current president of the Socialist Health Association, described as a 'political activist'. The current manager is a 4th generation local who remembers 900 men employed at the mines.

QUESTIONS & REFLECTION

This example has been included because, although it was set up in 1991, its purpose and focus have evolved over time in response to changing preferences for outdoor pursuits. By capitalising on mountain biking and creating a world class centre by franchising this part of the business to experts, the Co-operative has continued to flourish and diversify as a

[16]This was part of EU Objective 1 funding, aiming to reduce differences in social and economic conditions where prosperity, measured as GDP, was 75% or less than the European average. In Wales, Objective 1 covered West Wales and the Valleys (i.e. 15 local authority areas) with funds of £3.2billion. http://wefo.wales.gov.uk/programmes/20002006/objective1/?lang=en

local community business. Its inclusion in two publications evidences the success of its operation.

Winckler, V (2010), *Forty years of Regeneration in the Upper Afan Valley* http://www.bevanfoundation.org/wordpress-content/uploads/2011/10/Regeneration-in-the-Upper-Afan-Valley.pdf - accessed 21st August 2013.
Wales Co-operative Centre (2012), *Community Co-operatives in Wales* http://walescooperative.wordpress.com/2012/11/ - accessed 21st August 2013. See pp 6 & 7.

Project 11:	**Caerau Market Garden Cardiff Space**
Summary:	Creation of community market garden to grow local food in one of the area's most deprived villages.

WHY DOES THE RETROFIT PROJECT EXIST?

The village of Caerau is in one of the most deprived wards in the Valleys area of south Wales and identified as the most deprived in Bridgend local authority area by the Welsh Index of Multiple Derivation (2005).

The Caerau Market Garden project started in 2009 as a partnership led by Groundwork BNPT, with Valleys To Coast Housing Association (the landowners), Caerau Development Trust and Bridgend CBC, who developed proposals. The aims of the project were to set up a community market garden to promote a culture of local food growing and related dietary benefits, alleviate local flooding and to provide employment, volunteering and training opportunities on 1.4 hectares of brownfield land owned by V2C Housing Association, previously the site of allotments abandoned in the 1970s and a housing estate demolished in 2001. The original planning application (ref P/10/857) to Bridgend CBC for the market garden project, including proposed plans for a straw bale shop, was submitted in November 2010 by Caerau Development Trust and granted in March 2011.

The project is funded via WECAN, an Interreg IVB European initiative to support communities across 5 similar post-industrial regions. The total WECAN project budget is €4.1m, and 50% of this is funded by Interreg IVB. The major source of match funding is the Welsh government, as the lead partner for the Valleys Regional Park initiative (VRP is a voluntary partnership of over 40 organisations delivering environmental and heritage-based regeneration across the south Wales valleys.) The WECAN initiative in Wales is hosted and administered by Groundwork NPT, including the Caerau project, until December 2013. There is a network of seven partner organisations listed on the Groundwork NPT blog for the project.

A consultant was appointed to engage the community from December 2011 to August 2012. Her process included the development of an engagement strategy, involving planning and delivering a launch event and ongoing networking with existing community groups.

Groundwork NPT hosted the launch event in February 2012 to introduce the project to local residents. Construction of Phase 1 started with the installation of a sustainable drainage system, followed by construction of raised beds, placement of polytunnels and on-site car parking. Groundwork's Intermediate Labour Market Scheme, Caerau Construction Training, and the Community Payback and Youth Offending Bridgend team cleared the site and growing areas. There was an Open Day in July 2012, part-funded by Marks & Spencer as part of their @myurbangreen initiative and related Community Green Flag award. Phase 2 includes, potentially, the construction of a straw bale shop (as detailed in the planning application in 2010) when the market garden is established and productive, and the final phase involves the regeneration and use of the adjacent allotments.

The consultant notes that the project has been awarded "several grants" with different criteria and outcomes, which will need ongoing co-ordination. These include an ERDF grant (the Welsh government's Ecosystem Resilience and Diversity Fund) to fund the planting of a productive hedge during November 2012.

The consultant noted (in summer 2012) that around 12 volunteers have shown consistent interest and refer to "our project", and 30 people have asked for individual growing areas. The garden is now established and appears to be productive from the most recent entry Groundwork's Caerau Market Garden in January 2013 which includes a note of some local residents completing an OCN (Open College Network) accredited Community Gardening course in December, equipping them with the practical and technical skills to maintain the garden. Additionally, a weekly gardening club has been set up and local groups have been invited to take over the raised beds and a series of six cookery events was

delivered in early 2013. However, there is no evidence of internet-based updates since the January 2013 Groundwork newsletter and the key staff member left Groundwork NPT in June 2013.

UNDERSTANDING RETROFIT ACTIVITY

WECAN funding is focussed on 5 territories (3 in North East France, 1 in Belgium, and this one in Wales) in post-industrial, densely populated regions. They have all suffered a massive decline in heavy industry, specifically the closure of coalmines and related activities which have left a legacy of often degraded landscapes, socio-economic deprivation, high levels of economic inactivity and social exclusion.

The Market Garden project meets the Welsh Assembly Government Community Grown Food Action Plan (2010) which recognised that many community growing projects are compromised by lack of suitable, available land. Additionally, the project meets a range of regional policy drivers, including environment and sustainability, health and well-being, education and training and community development.

Bridgend CBC, in supporting (& granting planning permission) for the garden, recognised the importance of the growing trend towards more 'localised' economies where people are employed to produce locally-sourced goods in key markets such as food. The garden would create a social enterprise based around food production at a market garden business (although so far the project is not in a position to employ anyone). The project links to tourism networks in the nearby Afan Forest, the local primary school, local employment and vocational training initiatives and the network of community based horticultural enterprises that are developing across Wales.

Two key actors have been identified. These are the consultant, who reviewed her community engagement in a case study and apparently was appointed to carry on her work from summer 2012, and a member of staff at Groundwork NPT. Her name was the contact on all community-facing posters, flyers, Facebook & blog. The consultant's website does not refer to any work carried out since summer 2012 (either at Caerau or anywhere else).

QUESTIONS & REFLECTION

Caerau Market Garden was originally identified as an example from a simple search on Maesteg + community allotment, generating the garden as a short case study on the We Fund The Valleys site. Further work for this pro forma has demonstrated the extent of European and Welsh Government funding for the garden and this, coupled with very little of evidence of community involvement, would suggest that this it does not fully meet the research criteria for alternative retrofit. However, by summer 2014, Caerau Market Garden may be a thriving, community volunteer-led project, showing that the major funding in line with strategic and policy objectives has been both necessary and successful.

PROJECT 12:	EDWARDSVILLE PRIMARY SCHOOL CARDIFF SPACE
SUMMARY:	The school received c.£100,000 grant funding to develop outdoor classrooms.

WHY DOES THE RETROFIT PROJECT EXIST?

Edwardsville Primary School is in Treharris village near Merthyr, with 318 pupils aged between 4 and 11. Between 2007 and 2010 the school developed its 8 acre grounds as part of a comprehensive ecological and sustainability review of the school buildings, grounds, activities and teaching, as evidenced by their detailed 6 page application for Eco Primary School of the Year award in 2008. The aim is to extend teaching and learning for the school and local community and as a role model and focus for other schools. The project was actively led by the Deputy Head, who left in 2010.

Information on the internet suggests a complex project across the school grounds with different elements. It has a cob shelter, a 5m diameter outdoor classroom with a sedum roof, eco play area, permaculture garden for fruit and vegetables, polytunnel and orchard. There are willow fences, an area of natural grass to encourage biodiversity and wild flowers, a birdtable and owl nestbox with webcams and an orienteering course developed by and for year 6 pupils.

The permaculture garden was designed and developed by Edible Landscaping after consultation with pupils, staff, parents and governors. The school landscape had considerable scope for visual and aesthetic improvement and extended use as a learning resource with space for playing and for growing food. The plan, covering 8 acres, is the largest permaculture school landscape design. The permaculture show garden was an award-winning exhibit at Cardiff's RHS spring flower show in 2009 before being moved to Edwardsville.

The project for the school grounds received support and c.£100,000 of grant funding from two main sources (listed by the permaculture designer's case study):

- Aggregates Levy Sustainability Fund. This is a huge international fund to address the environmental costs of aggregate quarrying. ASLF grant amounts are significant (a total of £152m over 2,900 projects listed) and it is likely that Edwardsville received the majority of its school grounds and broader eco-makeover project funding from here.
- Department for International Development's Development Awareness Fund Mini Grant. This fund is designed to support educational 1 to 3 year projects that aim to raise understanding of international development issues and global interdependence. Edwardsville competed for, and was awarded, a maximum grant of £10,000 in 2007-8 for three years to learn about informal and rural housing in Southern countries, combined with practical earth-building and gardening activities. The fund, which had an additional £5,000 donated by Merthyr School Improvement Group of headteachers, paid for pupils to work with the Down to Earth project and community members to design and build a cob shelter (made from local clay and soil) during 2008.
- Additionally, in 2006 the Forest Schools developed 2 log circles as outdoor learning spaces in the wooded area of the grounds, and a £1,100 Communities First grant funded a glasshouse for growing peppers and tomatoes in the quadrangle to support the community food co-op set up in November 2007 to sell produce to staff.

UNDERSTANDING RETROFIT ACTIVITY

Information on the internet suggests a project with many different components addressing a range of curriculum needs. The Welsh curriculum recognises the provision of 'rich experiences' for effective learning, and the recommendation is that infants in schools spend 50% of their time outside.

The key actor is the Deputy Head (who was recognised in the NHS Wales annual Health Awards list in 2009 for his work at Edwardsville, and is active in the Cyfanfyd organisation promoting education for sustainable development and global citizenship (ESDGC) in Wales.)

QUESTIONS AND REFLECTIONS

There is nothing currently on the school's website that mentions the project, either as part of the school grounds, as a resource for the school and community, or in supporting lessons. It may be that the school website has been tidied up for the start of the new school year in September 2013 as there are no newsletter links. Alternatively, the project has become integrated as a normal part of everyday school life, or the Deputy Head at the time was the real driving force

and the project has lost its impact.

PROJECT 13:	**ROSSLYN CHAPEL EDINBURGH BUILDING**
SUMMARY:	The extensive restoration of the building fabric of a unique historic chapel includes a biomass heating system with rainwater recycling.

WHY DOES THE RETROFIT PROJECT EXIST?

Rosslyn Chapel was founded in 1446 by William St Clair as a place of worship, and services are held every week as part of the Scottish Episcopal Church. In addition, it is a popular visitor attraction in Edinburgh, with 130,000 visitors a year. The chapel continues to be privately owned by the St Clair family, and the Rosslyn Chapel Trust (charity SCO 24324 and company SCO 161958) was set up in 1995 to care for the chapel by overseeing its maintenance and managing its visitor access. A conservation report in the early 1990s confirmed that the 1915 asphalt roof covering and 1950's protective coating for the wooden carvings had led to water being trapped, causing significant algae growth and stone damage. Restoration work included a scaffold and canopy covering the roof from 1997 to 2010, enabling the roof and stonework to dry out gradually and naturally before conservation and repair. Other elements to the project included a new visitors' centre, conservation of internal stone and woodwork, renovation of the Victorian organ and stained glass windows, and improved lighting.

The plans for extensive refurbishment included a new heating system to replace the old, electric heaters, to provide heat and hot water for the chapel and visitors' centre that could be controlled for both humidity and heat which can adversely affect the internal fabric of old buildings. The Trust took advice from their local Community Energy Scotland's Development Officer who provided information and guidance, from which the Trust decided on a biomass system with a boiler located in a new boiler house by the visitors' centre, using woodchip fuel and pumping water for heating and hot water via underground pipes. The system includes rainwater recycling. Planning permission for the boiler house (07/00822/FUL) in the main car park was granted in February 2008 as part of a series of planning applications covering the restoration project . The heating system was installed during 2011 and turned on in December 2011.

The biomass installation was funded by a Scottish Government's CARES (Community and Renewable Energy Scheme) grant of £150,000 for 44% of the project cost of £344,000, and the balance (£194,000) was paid by the Trust. The entire cost of the restoration project was £9.5m, funded by grants from the Heritage Lottery Fund and Historic Scotland and other sources, with additional funding from the Rosslyn Chapel Trust.

The entire restoration project has taken several years, from March 1997 and was finally completed in summer 2013.

The visitors' centre includes a meter to show CO_2 emissions, estimated at a saving of 15.9 tonnes a year. The total electricity bill for the chapel was £6,900 in 2008 and £8,000 in 2009 and the reduction in annual heating costs makes it possible for the Trust to continue to give free admission for local people and provide a free venue for the weekly Sunday School. The conservation project and visitors' centre were commended at the 2013 Scottish Design Awards and the chapel was highly commended by the Royal Incorporation of Architects in Scotland at their 2013 awards in Edinburgh on 12 June.

UNDERSTANDING RETROFIT ACTIVITY

Rosslyn Chapel is privately owned by the St Clair family who recognise their responsibility for preserving the building as a unique heritage asset. This has involved repairs and maintenance in the past, but ongoing and projected expense associated with damage caused by earlier work, and the 'wear and tear' of increased visitor numbers in a chapel where regular services are held provoked a more innovative approach, including the opportunity to replace the old and expensive heating system.

QUESTIONS & REFLECTION

The driver for the use of biomass as part of the chapel's renovation project was to take the opportunity to update an old, expensive and damaging heating system. The sustainability of the system did not appear to be a key consideration here. The biomass system is transformative in that it provides the right kind of controllable heat at a reduced cost (for which a

partial grant was available) and alternative in that it is not a conventional heating system using mains gas.

PROJECT 14:	BRIDGEND INSPIRING GROWTH
SUMMARY:	Bridgend Inspiring Growth is a project to renovate a derelict farmhouse as a community based-centre for sustainable living.

WHY DOES THE RETROFIT PROJECT EXIST?

Bridgend Inspiring Growth (BIG) is a local organization, registered as a charity (SCIO42769) in 2011, working towards the renovation of the derelict and run-down farmhouse and surrounding outbuildings in Bridgend on the main A7 road south of Edinburgh. The farmhouse was built in 1630 and was part of a working farm until it was bought by Edinburgh Council with surrounding parkland as part of the Jubilee Urban Forest programme. Various plans for the farm and its outbuildings as a centre and offices for local charities have been proposed, and funds for the building have been diverted into a successful adjoining community allotment site. Some allotment users saw the empty farmhouse, which is structurally sound but needs significant interior work and some roof repairs, as an opportunity for a community-owned and led centre for sustainable living. The first public meeting was in June 2010, and the ongoing aim is to involve and consult with as many local people and groups as possible through meetings and events. BIG notes 154 members, 22 organisational supporters and a committee of 7 local people.

The main funding for the project so far has been £9,990 from the Big Lottery's Investing In Ideas fund, awarded in March 2013. This will be used to pay for a social enterprise and community capacity consultant[17] to carry out a two-stage feasibility study; an options appraisal over summer 2013 to consult on three potential alternatives for the farmhouse renovation, with Social Return on Investment assessments, followed by a detailed development of financial and business plans to December 2013. Other organizations who have awarded grants to BIG are noted as Forward Scotland, City of Edinburgh Council, Just Enterprise Scotland and Royal Institute of Architects. In addition, donations of £500 raised in a month paid for an early environmental report on the building's foundations, showing that these are in good condition.

BIG continues to attract and sustain a wide range of members, partners, funding and research leading up to building work, anticipated for 2014. Their website is open, inviting and accessible, and includes links to all meeting notes. The steering group has met councillors, MPs and MSPs, other charities and organisations for support, and has discussed conditions of ownership and purchase with the city council who own the building and Fields in Trust who manage the land. The next phase, following the options appraisal results will consolidate the work of the last few years

BIG has also established itself as a key local organisation away from the farmhouse, leading and taking part in events such as an annual Potato Day, Winter festival and Apple Day, summer and volunteer fairs, school health weeks, a 'living memory' project with a local school and care home, and as an active community sustainability group in Edinburgh.

UNDERSTANDING RETROFIT ACTIVITY

The immediate issue for allotment users, and local people, was concern that the building, a visible and eyecatching structure on the main road from Edinburgh through Bridgwater, was falling in to disrepair and becoming a target for vandalism. This was coupled with an idea to set up a community-owned and led centre for sustainability. Development of a community sustainability centre would bring the farmhouse back into use, by people who were already involved in the farm's allotments. BIG's current Board of 7 local people that has evolved and coalesced since 2011 includes a range of skills and interests, including community environmental educator; local Liberal Democrat candidate, community activist and local champion; community food and health worker. The chair is a member of Fiery Spirits, a community of practice for 'activists and professionals building vibrant and resilient rural communities'.

QUESTIONS & REFLECTION

The three options in the appraisal for renovation will include variations of on-site sustainable energy production, both as a low CO_2 choice and an exemplar for local learning. BIG's progress to this point has been steady and inclusive, so that

[17] CaskieCo: http://www.caskieco.com/index.php?option=com_frontpage&Itemid=1

the end result will be a resource that local people want and will use.

PROJECT 15:	INNERTUBE BIKE NETWORK EDINBURGH NETWORK
SUMMARY:	Edinburgh's physical and online cycling network pioneered two organisations who led the clearance and regeneration of the off-road bike network and developed an online map and Innertube community

WHY DOES THE RETROFIT PROJECT EXIST?

Edinburgh & the Lothians Greenspace Trust (ELGT) is a charity and social enterprise which aims to improve communities' quality of life by connecting them to green spaces, & The Bike Station is a charity which promotes cycling through a range of activities. The two organisations have a history of successful partnership working.

Edinburgh had an existing and extensive 75k network of paths, many on disused railway lines. Although a few areas were maintained by private owners or the council, generally the tracks were overgrown, badly-lit, with litter, fly-tipping and graffiti, unconnected and unappealing as footpaths or cycle routes.

The original idea for the Innertube map was developed by The Bike Station as part of the Better Way to Work project which promoted cycling as a way of commuting to & from work which included printing 30,000 copies of the map.

The Bike Station and ELGT were awarded £98,000 in January 2011 by The People's Postcode Lottery Dream Fund (1 of 4 awards for 2011) for 'Inflating the Innertube', to further develop the project by promoting the cycle network through innovative use of social media (phase 1, led by The Bike Station) and by carrying out extensive environmental improvement work on North Edinburgh's paths and a programme of community engagement (phase 2, led by ELGT). This phase of the work was extended with 2 grants from Central Scotland Green Network (CSGN) Development Fund In £24,725 in 2011 and £38,079 in 2013) to survey and improve the wildlife habitats along the track, involving local schools and volunteers.

ELGT's work on the track aimed to improving accessibility, visibility and safety for path users through a programme of capital work carried out by tree management and path repair contractors. This ran alongside an extensive, regular and ongoing programme of conservation activities along the routes, involving local volunteers in litter-picking, clearing fly-tipping, tree, bulb and seed planting, litter-picking, and general maintenance run by ELGT, Innertube, Sustrans, residents' associations and other groups. In addition, ELGT has hosted key events included two major Postcode Challenge days (these are summer treasure hunts around the cycle track, with versions for non-cyclists), an Art of the Path day, and a series of five sessions for a graffiti artist and youth group to create a mural for a tunnel.

A student edition of the Innertube map was published in February 2012, and a Greenspace edition, showing parks and green spaces, in summer 2013. A 26% increase in the number of cyclists using the network was measured in November 2011, compared to a 13% increase in the city centre.

The work of The Bike Station and ELGT takes place in Edinburgh council's Active Travel Action Plan, which includes a 62 point Cycling Action Plan, of which point C23 is to 'Increase priority of maintenance of surfaces, vegetation and lighting on off-road routes including non-adopted paths and winter maintenance', and there are several other actions relevant to the off-road network.

UNDERSTANDING RETROFIT ACTIVITY

The original problem addressed by the Better Way to Work project for The Bike Station was to reduce the number of people driving to work in Edinburgh, coupled with an existing network of overgrown, derelict city rail tracks that could be used to improve safety for 150,000 city cyclists. The problems were initially addressed by The Bike Station mapping the track network and promoting cycling to work as a commuting option as part of the Better Way project. This was extended by involving ELGT to improve the tracks, which needed additional and specific funding. Both organisations are local, community and 'outside' focused with specific and established expertise in Edinburgh, with a history of successful partnership working so that ways of working together are established and shared links to other groups already exist.

QUESTIONS & REFLECTION

This is a project and solution with messy edges relating to ongoing community engagement in conjunction with a range of local, environmental & educational groups and networks, reflecting the shared nature of the track and its verges, in their entirety and in discrete sections, by its community of users and statutory and charitable stewards. This is balanced by a parallel online presence which takes advantage of social media to connect users in a community of interest.

PROJECT 16:	**ORMISTON GROWS EDINBURGH NETWORK**
SUMMARY:	Village-based CO_2 footprint reduction project, including a community shop, café and garden.

WHY DOES THE RETROFIT PROJECT EXIST?

Ormiston is a rural village in East Lothian with 3,000 residents on the north bank of the River Tyne about 10 miles south east of Edinburgh. The idea for a community garden has been around for several years, and in September 2011 Ormiston Grows was formed as a social enterprise and company limited by guarantee (SC407227) with 5 directors. It aims to generate income by running a community shop and café, growing organic vegetables and fruits for sale on a plot of land in the village, developing environmental projects based on ideas from people in the village and running classes and social events, with profits reinvested in Ormiston Grows for the benefit of the village.

Identifying land for the garden was an ongoing challenge, and in the meantime the group used Lottery Village SOS funding (designed to help rural communities with fewer than 3,000 residents to answer a local need or improve local services) of £29,000 to help open a shop in June 2012 as a way of providing a village focus for the project. The grant covered renovation of a vacant shop, and 6 months' rent and staff wages. Ormiston Grows used the shop to identify and investigate shopping patterns and assess village interest in involvement. Results would be used to direct what to grow and sell, and how to engage people in the project. The Sundial Café (the only café in the village) was opened next to the shop, using Lloyds TSB social entrepreneur support (for the Chair of the Board of Directors) in February 2013.

After a long search and difficult search for land, a garden plot was identified in the village. Ormiston Grows was awarded £281,290 in March 2013 as one of the first of 13 revenue-generating project awards from the Scottish Government's £2.1m Climate Challenge Fund. The award paid for clearing the land and creating an infrastructure of fencing, paths and raised beds. Local people are invited to help with the garden and grow their own produce. The garden project has also been awarded a £9,980 Awards for All grant[18].

Ormiston Grows has an overall aim to reduce the village's carbon footprint, including reducing food miles, encouraging local cycling and walking, and educating on food waste, using the shop, café and garden as a hub for these activities. There is a comprehensive Survey Monkey Ormiston Grows Green online survey (July 2013) asking about these subjects to inform future plans. There was a garden Open Day in May 2013, the group has a current and active Facebook and web pages, and there is a link to the project from the village's Wikipedia page.

UNDERSTANDING RETROFIT ACTIVITY

Ormiston used to have 15 shops, now there are only two or three, indicating a decrease in local vitality.

The original idea, of a community garden, was the basis for the project. Ormiston Grows aims to revive community spirit and contribute to economic regeneration by increasing footfall in the village, increase the number and choice of shops, offer training, work placements and volunteering opportunities, improve access to physical activity and healthy eating , and support and develop other new small local businesses.

The key actor is Chair of the Board of the Directors, who is also a Vice-Chair of Edinburgh Peoples' Festival for 2013, has recently managed West Craigie Local Food Project (a social enterprise established to supply high quality vegetables to local outlets) and has a professional and academic public health background.

QUESTIONS & REFLECTION

Ormiston Grows is a good example of an alternative retrofit of a village network, drawing together a shop, café and

[18] Awards for All – Scotland provides a quick and easy way to apply for small grants of £500 to £10,000 to enable people to become actively involved in projects that change communities.

garden to revitalize the village. It has received a range of grants and appears to be a successful and ongoing project. However, it may be that its success is only possible with the leadership of the Chair of the Board. It is not clear from information available if she generated the idea or organised people who were uncertain how to make progress with the community garden.

PROJECT 17:	**POLBETH AND WEST CALDER COMMUNITY GARDEN EDINBURGH SPACE**
SUMMARY:	This is a recently-formed group is developing a derelict five-acre site into a local community garden under an 5 year lease from West Lothian Council.

WHY DOES THE RETROFIT PROJECT EXIST?

The idea for a community garden was raised in 2011 by parents who saw their children growing seeds at nursery. 12 volunteers identified a potential five-acre site that had been derelict since the mid 2000s following the failure of a charitable market garden. A formal group was established in June 2011, plans were developed in consultation with local people at various summer events and the aim for the garden was defined as giving local people, schools and community groups an opportunity to grow fruit and vegetables and to take part in other outdoor activities.

PWCCG successfully applied to the Scottish Community Foundation for the mentoring programme ' Our Community Our Future'. This gave 18 months of support to strengthen the group, access training and resources. This included various visits to community gardening events and similar gardens to increase networking and knowledge sharing. The group also joined the Federation of Community Gardens to benefit from their advice and support. The business plan was developed and submitted to the council in March 2012 as one of two proposals for the site. Although the opposing plan would generate an income of £4,000 pa for the council, a decision was made in favour of PWCCG because of the potential for regenerating and tending the ecologically diverse site over time. The social, environmental and economic benefits for the community were assessed as more than £4,000 a year. A three-year lease was agreed from June 2012, at a nominal £1 a year and this was extended by a further two years in January 2013. The lease was formally signed following PWCCG's registration as a charity (SCO43818) and SCIO[19] in March 2013. The extension of the lease and the SCIO registration means that PWCCG meet the criteria for applying for various Big Lottery grants.

External funding is modest, for example an award of £1,000 by Sport Relief to fund the design of the garden by HND students from the Scottish Agricultural College, including a children's area designed and named Garden for Life following a primary school competition. Support for the garden includes two years of training for four volunteer Green Gym leaders as part of West Lothian's Green Gym network to provide a programme of regular outdoor activity for local people.

The garden holds weekly gardening sessions for path clearing, maintenance and planting. Some areas of the garden continue to be intentionally wild and overgrown, and in August 2013 deer, foxes, frogs and buzzards have been sighted. The group is aware that there may be an intention by the council to use the site for housing at some point in the future, and that this is a 'meanwhile', temporary garden.

UNDERSTANDING RETROFIT ACTIVITY

This is a small and local project, generated by the idea of working the garden for the benefit of the community. The group's 'expression of interest' in the site to West Lothian Council referred to Scotland's National Food and Drink Policy's strategic support for 'grow your own' projects, and to "PAN 65 5.34 and PAN 65 5.44" stating that a community's open spaces should be established and local people be involved in their design, management and maintenance to engender pride in ownership and reduction of vandalism. These were not the explicit policy drivers for the group, but used to support their expression of interest. The two key actors have backgrounds are in the medical and community sector and there is professional involvement in West Lothian Food Initiatives Partnership.

[19] The Scottish Charitable Incorporated Organisation (SCIO) is a new legal form for registered Scottish charities, able to enter into contracts, employ staff, incur debts, own property, sue and be sued.

QUESTIONS & REFLECTION	
This project's sustained momentum is partly due to membership of the Federation of City Farms and Community Gardens, giving access to information and guidance from other, similar established groups, extended by formal 'Our Community Our Future' support.	
PROJECT 18:	**EDINBURGH COMMUNITY ENERGY CO-OPERATIVE EDINBURGH SPACE**
SUMMARY:	Edinburgh Community Energy Co-operative was awarded Scottish Climate Challenge funding for its Leith Community Renewables Project, including the investigation of community-owned solar panels.

WHY DOES THE RETROFIT PROJECT EXIST?

Edinburgh Community Energy Co-operative Ltd (ECEC) was set up in 2007 as a company limited by guarantee aiming to give Edinburgh residents local control and retention of economic benefits from renewable and low carbon energy after the local MP (who chairs the Co-operative) raised concerns that the re-development of Edinburgh's waterfront did not include renewable energy.

In 2010 ECEC secured £50,145 from the Scottish Climate Challenge Fund[20] (round 8, 2011-12) for the Leith Community Renewables Project to promote a low cost insulation scheme through marketing and community events and to investigate the potential for installing community-financed PV panels on public buildings in Leith. ECEC commissioned Changeworks[21] to manage the project with Edinburgh Energy and Environment Consultancy[22] and On-Site Generation[23], with work taking place over summer 2011. 38 community buildings were identified and those with suitable roofs were contacted.

However, the government's changes to the feed-in tariff rate in October 2011, to take effect from mid-December 2011 rather than April 2012 had a big impact on the financial model for the project. Returns from a community-financed installation would be reduced, increasing the challenge of raising sufficient funds. Only self-funded or interest-free community-based finance would fit a medium-term investment model based on low installation cost which would compromise more complex projects. This delayed and undermined engagement with community buildings and effectively cancelled the potential for a network of community-funding solar panels. ECEC re-focussed the project on energy saving for the four months of remaining funding and continued to work separately with the five community buildings who expressed an interest in solar energy. Of these, South Leith Parish Church Halls is the only one likely to proceed, although this depends on roof strengthening, panel security issues, planning permission within a conservation area and a decrease in the feed-in tariff rates from July 2012. Their website does not refer to the proposal.

Although amendments to the feed-in tariff framework changed the focus of this project, six community buildings has energy saving audits facilitated by ECEC to identify ways to reduce energy consumption, and three of these held staff and user training sessions to promote behavioural changes. One of the outcomes of the project was identified as a raised awareness of community-owned renewable schemes, and a local community wind turbine[24] will benefit from this.

Board minutes from May 2013 note that that ECEC is working with the council to consider using roofs of council-owned buildings and schools for co-operative solar panels, where economies of scale and viable payback can be achieved.

UNDERSTANDING RETROFIT ACTIVITY

ECEC recognised an opportunity to take advantage of the feed-in tariff as part of a community-owned solar energy network. It is unfortunate that the project's timing coincided with government policy changes.
ECEC's chair is Labour and Co-Operative MP for Edinburgh North and Leith, and a member of the House of Commons Environmental Audit Committee and the Socialist Environment & Resources Association (SERA) Parliamentary group, also member of the Co-operative movement, Fabian Society and Friends of the Earth, so is well-placed to manage the

[20] The Scottish Government's Climate Challenge Fund has funded 394 community projects with £37.7m from 2008 to 2012.
[21] http://www.changeworks.org.uk/local-authorities/project-management/662/
[22] http://www.eee-consultancy.co.uk/index.php
[23] http://www.onsitegeneration.co.uk/index.php
[24] http://www.pedal-porty.org.uk/category/wind-turbine/

challenges for Edinburgh's emerging co-operative energy.

QUESTIONS & REFLECTION

This project, led by sector practitioners and experts in Edinburgh, is an important part of the community-owned energy landscape which needs experience and determination to succeed within national and local policy frameworks.

PROJECT 19:	**MILDMAY COMMUNITY CENTRE LONDON BUILDING**
SUMMARY:	Mildmay Community Centre is the UK's first non-domestic Passivhaus retrofit.

WHY DOES THE RETROFIT PROJECT EXIST?

Mildmay is a ward in the London Borough of Islington, ranked in the top 10% of the most deprived areas in the UK. The Mildmay Community Centre was originally a generating station for London's tram network, built c. 1890. In 1975 residents of the Mayville estate petitioned Islington Council to convert the derelict shed into a community centre. In 2004 Mildmay Community Partnership (MCP) was formed as a community regeneration company registered as a charity (1103999) and company limited by guarantee (5080555). MCP took over the ownership (on a 99 year lease) and management of the centre from the council in 2006 with the intention of making the centre 'fit for purpose' for several active and dynamic community groups, volunteers, local partnerships and projects in the area. At the time the building was energy inefficient with no insulation, access for people with disabilities was poor and there was a lot of wasted space.

In 2006 MCP asked Bere Architects[25], as a local practice, to develop plans to refurbish and extend the rundown building. By using Passivhaus principles, renewable energy and efficient internal changes, the community centre could achieve all the aims for its refurbishment (lower costs and more space for rent in a contemporary building) and MCP agreed. Plans were completed in 2009 by the architects, providing 35% more usable space within the existing building and improving the building fabric with excellent levels of insulation, draught free construction and triple glazed windows. Energy use was predicted as 90-94% less than before refurbishment.

Fund raising for the £2.2m redevelopment began in 2007-08, including the only grant to a community centre the Energy Savings Trust Low Carbon Building Programme. MCP was also 1 of 4 London organizations invited to apply for Big Lottery's Community Building Fund. The target was achieved in 2011 from 8 sources. The Passivhaus project cost was calculated as 3% more than a conventional retrofit meeting usual Building Regulations.

Building started in May 2010 and finished in June 2011. Three issues affected the progress, a cut of £100,000 in the funding portfolio, the coldest winter in 100 years and the discovery of lead paint in the ceiling trusses. These increased delivery time and costs, needing a reduction in the project specification. Energy is provided by 126m^2 of PV panels for electricity, 3m^2 of solar thermal panels for hot water and a ground source heat pump for space heating. Annual energy costs have been reduced from £10,000 to £800. The community centre is the first non-domestic building to exceed the EnerPHit standard for retrofit and achieve full Passivhaus accreditation and although it has won several awards the MCP website just notes that the centre is 'award winning'.

UNDERSTANDING RETROFIT ACTIVITY

The Board recognised that MCP was too dependent on funding from the London Borough of Islington, that the future and amount of this was uncertain and that it needed to diversify and strengthen its income streams, primarily from renting the community centre as a venue. Additionally, the centre was in poor condition, expensive to heat and light, and needed ongoing and increasing repairs and maintenance to continue its successful function as a much-used venue for community groups and activities. Redevelopment of the building as an iconic, contemporary and accessible centre as a focus for MCP's community and neighbourhood activities would attract new revenue and reduce ongoing costs and maintenance as part of MCP's business plan. The extended internal space was split between community use and rent to businesses (including Bere Architects from July 2012).

[25] Bere Architects are also the UK's leading designer for Passivhaus buildings.

QUESTIONS & REFLECTION
The primary aim for this retrofit was to improve and increase space in the building for rent, to offset reductions on council funding.

PROJECT 20:	SANFORD HOUSING CO-OP LONDON BUILDING
SUMMARY:	Sanford Housing Co-op completed a major project in 2008 to reduce its CO_2 emissions by 60%.

WHY DOES THE RETROFIT PROJECT EXIST?

Sanford Housing Co-op, founded in 1973, is the oldest purpose-built housing co-operative in London and is home to 125 tenants, living in 14 houses and 6 flats. As a co-operative the tenants are the landlord and are collectively responsible for landlord functions. The street was built on derelict industrial land between railway lines and close to one of London's giant incinerators, however it is a green environment with an organic vegetable garden, a system of six ponds built by co-op members, trees and lawns and a permaculture project. In 2001 the co-op needed to do more than repair their deteriorating 30-year-old homes and reviewed their long-term maintenance issues, deciding to be as ambitious as possible by addressing global environmental issues in their plans. Eight tenants went to the Centre for Alternative Technology for an intensive 2 day environmental technologies course, which equipped the co-op with knowledge and confidence, and the Energy Saving Trust part-funded an initial £5,000 feasibility study.

After months of consultations and meetings, tenants decided to replace their gas heating with wood pellet biomass boilers and solar hot water systems. Other renewable options were discarded; there was poor orientation for solar panels so payback times would be impractical, there was minimal wind for turbines, and biomass district heating was too big in terms of scale and concept. Other building work included extensive roof and wall insulation, double glazing, new ventilation and new kitchens. The project also had details such as energy-efficient light bulbs, use of eco-paints, rainwater collection, green training for tenants and household energy monitors to promote competition. These extended the main building retrofit (biomass, solar thermal and insulation) with the basis of a day-to-day culture that enables and promotes a 'greener' way of life to complement the co-op's traditions.

Planning permission was granted in 2005, building work started in 2006, with the boilers and solar water heating system installed during 2008, and work was completed during 2009. Tenants volunteered to be involved in the management of the project, reporting every month to the management committee, with a weekly project meeting.

The project budget was £850,000, funded by £600,000 from the co-op's major refurbishment reserves and a £5 a week rent increase to raise a new mortgage with an ethical bank. Other grants were from:

- Lewisham Council and the government's Low Carbon Buildings Programme - £40,000 for solar hot water system
- EDF's Green Fund - £37,000 for biomass boilers (£125,000 total)
- Energy Saving Trust - £48,000

The co-op's carbon emissions, calculated at 228 tonnes in 2003, reduced by 59.1% to 91 tonnes in 2008, and energy bills have decreased. Rent, including council tax and energy bills, is currently set at £65 a week.
Sanford's C60 project was the UK's first whole-street sustainable energy retrofit. The co-op's project won Inside Housing's prestigious national award for the most sustainable affordable housing refurbishment project in 2008 and was the subject of a Guardian article in 2009.

UNDERSTANDING RETROFIT ACTIVITY

The project had two main, linked drivers; the need to carry out significant renovation to their homes, and a desire to respond to the global imperative to reduce CO_2 emissions, specifically to recognise that the government's policy (at the time) was to reduce CO_2 by 60% from 2050 and that 25% of current emissions come from housing. Another driver is noted as 'wild optimism'. The co-operative ethos tends to attract, and self-select, tenants with similar values and views, where decisions are made by discussion and consultation.

QUESTIONS & REFLECTION

Sanford Housing Co-op was included as an example of shared housing even though the project was completed in 2008, because information on more recent major retrofit in housing co-operatives has not been identified in the research city-regions and the evolving model for co-housing has not yet needed to retrofit existing buildings.

PROJECT 21:	HYDE FARM CLIMATE ACTION NETWORK LONDON NETWORK
SUMMARY:	This is a network of c.200 households who live on or near the Hyde Farm estate and want to do more to reduce their impact on the environment.

WHY DOES THE RETROFIT PROJECT EXIST?

The Hyde Farm Estate in Balham (London Borough of Lambeth) has c. 1,800 homes built between 1896 and 1916, privately owned or rented, or managed by a range of housing associations. Part of the estate was designated as a Conservation Area in 1996. Around 250 of the 4,000 residents are members of the Hyde Farm Climate Action Network, and it reaches a further 1,600 households through work with the 2 primary schools on the estate.

One of the residents went to Lambeth Climate Action Group (the forerunner of Transition Town Brixton) to follow up her interests in energy reduction at home, and invited neighbours, who also lived in cold, draughty homes with single brick walls and single-glazed sash windows, to share ideas. In 2007 a group of 4 residents set up the Hyde Farm Climate Action Network as an informal social group. The group started running unstructured Eco Open Evenings and Draughtbusting Saturdays in the church hall, school hall or local pub. These events, and ideas for future plans, evolved into projects needing external funding, and this required the group to be formally constituted as a community group from July 2007.

Various grants and support were accessed:

- 2007 European Energy Programme's ECHO (Energy Conscious Households in Action) funded 10 groups across London via Carbon Descent Consultancy who provided Hyde Farm CAN with support for 25 homes in a 12 month scheme to reduce CO_2 emissions by 10-20%;
- 2008 Energy Savings Trust's Green Communities local support programme. This included practical advice and help on draught-proofing, insulation, Home Energy Checks and support for a 'street leader' scheme.
- 2008 Awards for All lottery funding for City & Guilds energy advice training.
- 2010 Green Streets II grant to fund £100,000 of British Gas services for a year. This was used to install solar thermal water heating in 3 homes; fit loft insulation in 6 homes; replace boilers in 9 homes; pay for materials to draught-proof 60 homes, and to contribute to a local school's PV panels.
- 2012 Energy Saving Trust's LEAF (Local Energy Assessment Fund) funding for a feasibility study into CHP and district heating, commissioned from Carbon Descent Consultancy. As a result of this the group was invited to take part in a European project 'End users investing in renewable energy solutions, led by VU University,Amsterdam.

Wider social benefits of Hyde Farm CAN are noted as an increased feeling of community and local safety, increased recycling and a positive 'buzz' from sharing information on reduced energy bills.

From an original interest in reducing energy use at home in 2007, Hyde Farm CAN hosted a linked forum for the national Low Carbon Communities Network conference in Wales in October 2008. The continued unavailability of the Hyde Farm website (www.hydefarm.org.uk) and the increasing responsibilities of the group's originator in wider sustainability issues (and employment) suggest that the Hyde Farm CAN in its original format as a draughtproofing neighbourhood group has come to a natural close.

UNDERSTANDING RETROFIT ACTIVITY

The original issue, and main driver, for the Hyde Farm members was to deal with cold, draughty homes within a broader context of climate change. Practical, self-installed measures generated a community of interest which evolved into an informal group on the Hyde Farm Estate. Alongside the success of the Hyde Farm CAN, the key actor and driving force is a founding member of Transition Town Brixton, a Green Ambassador for the Energy Saving Trust, and a London Leader for the London Sustainable Development Commission, from which she co-founded the London Low Carbon Communities Network in 2009.

QUESTIONS & REFLECTION

This example describes an evolving, dynamic process that outlives its original purpose, where its key actors have moved

on to engage with broader sustainability issues.

PROJECT 22:	LONDON ORCHARD PROJECT LONDON NETWORK
SUMMARY:	Aims to develop *a skilled community of Londoners to plant, care for and harvest fruit trees, connecting urban communities and increasing access to fruit. This includes on-line mapping of London's new, existing and heritage orchards.*

WHY DOES THE RETROFIT PROJECT EXIST?

The London Orchard[26] Project (LOP) was established in January 2009 by two people who had been on the same sustainable development course in 2005. A Transition Town Brixton meeting in December 2008, attended by one of them, discussed growing local food but no-one knew about fruit trees and orchards or had been able to find a knowledgeable organization, so the idea to become the experts developed. The London Orchard Project was registered as a not-for-profit company (06902160) in 2009 and as a charity (1139952) in 2010. There is a management committee of four trustees and a part-time staff of four. LOP works with volunteers, specialists and partner organisations including (in August 2013) the mayor, eight local authorities, nine park users and residents' groups, universities, schools, primary care trusts, transition town groups and numerous others to plant, restore, and harvest fruit trees.

One of the functions of LOP is to map London's orchards as a resource for local food. There are three maps being developed:

- Historic orchards, showing the extent and concentration of orchards in the 1890s based on a review of Ordnance Survey maps. One of the aims for this map is to identify orchards that may need restoring by LOP and their partners.
- Orchards planted, restored or harvested by LOP. This includes the 60 new orchards planted since 2009.
- Current orchards, showing those in use and being harvested.

LOP's historic orchard mapping is part-funded by the Heritage Lottery Fund (£50,000). The current mapping project is supported by Re:Leaf[27],and though the accounts note a grant in 20910-11 of £8,240 from the Forestry Commission who administer the Community Grant Scheme for Re:Leaf, it is not clear that this relates specifically to the mapping project.

Development of the maps is ongoing and interactive, and LOP uses the uncertainty of current information and unclear aerial photography to their advantage by engaging people in their work. Website users are invited to volunteer as Orchard Discoverers in their local areas to check the existence of orchards listed on LOP's database, to survey orchards for a national biodiversity project started by The People's Trust for Endangered Species, and to populate and improve the maps by creating a user account to add and amend details about location, trees, condition, fruit etc.

UNDERSTANDING RETROFIT ACTIVITY

The originators of LOP responded to a perceived lack of knowledge on local food with a plan to link orchards and their growers in London's wards and boroughs in a cross-London network, using a mix of events, volunteers and training 'on the ground' and a virtual, on-line network to share news, information and ideas. The originators, trustees and part-time staff have a range of related skills, interests and jobs, including permaculture, sustainable consultancy, green politics, eco-business, charity management, community worker, environmental activist, social justice activist, community kitchen developer, 'in the fuzzy space between public policy and its delivery', poet, climate change activist, Gaia theorist.

QUESTIONS & REFLECTION

The London Orchard Project is an accessible network across London that appears to be successful with only four part-time staff. The skills and experience of the trustees and staff characterise an urban response to the issues of the 21st century. It can be justified as retrofit because it increases and potentially transforms the network of orchards across London as sources of fruit and skills, and it is alternative because it is run by a determined and imaginative group of community-focussed people for the benefit of the capital's inner city neighbourhoods.

[26] An orchard is defined as five or more fruit or nut trees with crown edges of not less than 20m apart. Fruit includes apples, pears, plums, cherries, peaches, damsons, apricots, and other rare or experimental varieties. Nuts include walnuts and hazelnuts.
[27] Re:Leaf is the mayor's initiative to ensure that there is a tree for everyone currently in London and aims to keep pace with the growing population.

PROJECT 23:	ALARA DREAM FARM LONDON SPACE
SUMMARY:	The farm is five strips of land around Kings Cross station, planted as orchards, a vineyard, garden and community allotment as part of the Alara project.

WHY DOES THE RETROFIT PROJECT EXIST?

The Alara wholefood enterprise was started in 1975 by its founder with two £1 notes found in the street whilst living in a squat without money as a protest against demolition of a unique Victorian square and redevelopment as an office block. £2 was the cost for a day's vehicle access to new Covent Garden, where he picked up discarded fruit and vegetables to re-sell from the square's old diary. The business evolved, grew, re-located and became successful making various mixes of muesli, registering as a limited company (Alara Wholefoods Ltd) in 1984. Alara achieved Soil Association accreditation as the first producer of organic muesli in 1988, BRC (British Retail Consortium) food certification in 2000, and is the only Fair Trade cereal manufacturer in the world. The company now produces almost 200 varieties for export, wholesale and retail, and supplies various major retailers, employing 48 people with a turnover of £4.2m (2009) from a factory and warehouse by Kings Cross station. The business, where its founder is still owner and senior manager, has always maintained its ethical ideals and aims to be socially responsible and environmentally friendly. Alara continues to be recognized and commended in various local, environmental and sustainable business awards and its founder was nominated as a London Leader for Sustainability in 2009.

Alongside the recent growth of the business, Alara has developed a series of strips of land near Kings Cross as five distinct gardens, collectively called the Alara Dream Farm and worked as a productive urban smallholding as an example of what can be achieved on the derelict land that exists around most industrial estates across the UK. The five gardens are:

- Permaculture forest garden for fruit and vegetables, planted in December 2006. It grows a variety of food and includes beehives, a wormery, and a shed with energy-generating windmill.
- Orchard, planted in 2009, of about forty fruit trees including apple, cherry, plum, pears, damson, quince and medlar.
- Vineyard of 20 vines planted in 2009 with help from the Urban Wine Company, with the first harvest in 2011making c.100 bottles of red wine for a local eco-restaurant.
- Allotments and raised beds funded by Camden council, planted in 2009 in conjunction with London Irish Centre, Camden Chinese Community and the Hopscotch Asian Women's Centre. The aim is to extend the raised bed model to other bits of land around the area for community groups.
- New land coming into use, planted with apricot trees and Japanese wine berries.

Although Alara does not list funding amounts and notes that the Dream Farm is a low-cost project, it recognizes support from London Community Resource Network, the London Permaculture Network, Argent, RailTrack, BCTV, Camden council, Capital Growth , Transition Networks, Camley Street Natural Park, Camden Garden centre and Camden Composting. Alara contributes to local projects through garden events and grants to groups via BCTV.

The next stage for Alara is the development of a community biogas digester as a waste hub for the neighbourhood providing local benefits such as employment and training, on land next to the main garden as a continuation of the permaculture framework. Plans are in place with Camden council who own the land identified for the project and although planning permission was granted in 2010 (2009/5679/P) there is no evidence of progress for Alara although a neighbouring site has installed a micro digester as part of a new community network.

UNDERSTANDING RETROFIT ACTIVITY

The main motivation was to understand, value and support locally all the other smallholdings that provide work and food for billions of people globally Alara's founder is passionate about food, gardening and sustainability, and is an active member of various organisations that support these.

QUESTIONS & REFLECTION

It is not entirely clear who uses the produce from the vineyard and gardens not tended by local people (i.e. the original permaculture garden, orchard and new gardens).

PROJECT 24:	BOW ARTS LIVEWORK LONDON SPACE
SUMMARY:	Bow Arts LiveWork is a collaboration with social landlord Poplar HARCA. It offers artists and creative practitioners affordable short life live/work spaces in flats due for major refurbishment or demolition.

WHY DOES THE RETROFIT PROJECT EXIST?

Bow Arts Trust, established in 1995, supports community renewal in East London by delivering arts and creative services through a financially sustainable model (charity 1046958 and company 03031923). It has 12 staff, (including three dedicated to the LiveWork scheme), a board of trustees and over 300 affiliated artists. Poplar HARCA[28] is a social landlord who own and manage flats that were becoming redundant as residents were moved out before demolition or redevelopment as part of a major neighbourhood regeneration strategy. The flats were expensive to manage as empty properties, and attracted vandals, squatters and anti-social behaviour. LiveWork is a unique initiative that supports artists and promotes culture in communities by short-term renting of empty flats as living and studio space.

The project was established in 2007 when Bow Arts, looking to extend the volume of studio space as a way of generating and embedding an art culture in the area, suggested that that Poplar HARCA give them the use of redundant flats. Poplar HARCA agreed to the scheme across their entire district, understanding that artists form a natural community who would improve the immediate environment and contribute to wider regeneration. Over four years there have been 100 artists living and working in over 70 flats. Bow Arts carries out gas and electrical certification of the flats and fixes doors, windows and basic plumbing before occupation. Everything else, including repairs, is paid for by, and is the responsibility of, the artist.

The project is self-funding. Bow Arts acts as the landlord and collects a rent based on affordable social housing rates. Artists have to be financially self-sufficient as payment via housing benefit is not an option, but the rent covers both living and studio space which may otherwise be prohibitive in central London. Two-thirds of the rent funds the running costs of the scheme and a third (c. £50,000 a year) goes into a Community Arts Chest that delivers a programme of high quality, sustainable community art projects for local people. Poplar HARCA does not have to finance rates, maintenance, anti-squatting measures and policing for the properties and there are no indirect costs for other residents.

Artists for LiveWork are selected on a number of criteria and need to be 'practical, responsible and community-minded'. They are very visible as a group, are active on resident and community groups and are involved in or are the instigators of community events. For example, one artist set up workshops for local young Bengali women who found integration hard. The workshops taught printing techniques on fabrics that were then made into bedspreads, cushions and other textiles and sold locally in an empty shop unit also managed by Poplar HARCA.

Benefits for communities living in previously emptying, run-down areas are evident in increased involvement in creative opportunities and a general feeling of greater safety and belonging in a newly vibrant community. LiveWork maintains and builds on community cohesion as a sound basis for Poplar HARCA's regeneration strategy**.**

UNDERSTANDING RETROFIT ACTIVITY

Poplar, in Tower Hamlets, is one of the poorest wards in the country. The area has huge targets and funding for regeneration but, short-term, this can leave neighbourhoods vulnerable to disruption as decanting (moving people whose homes are to be redeveloped) can be a lengthy process.

Short-life housing can bridge the gap between decanting and regeneration. By renting through Bow Arts to artists, this would bring empty properties back into use at no cost to Poplar HARCA, contribute to area regeneration and provide artists with places to live and work.

The leading social interests are Bow Arts' ongoing aim to support and sustain a thriving artist community in East London, and Poplar HARCA's responsibility, as a social landlord, to deliver neighbourhood regeneration. The two interests coincided with the desire of Bow Arts to provide local space for artists and Poplar HARCA's issues with empty homes.

[28] HARCA - Housing and Regeneration Community Association

PROJECT 25:	FENHAM SWIMMING PROJECT NEWCASTLE BUILDING
SUMMARY:	Fenham swimming pool was closed by Newcastle City Council and re-opened as a charity in 2005. The pool has recently had solar thermal panels installed to provide heating for the water.

WHY DOES THE RETROFIT PROJECT EXIST?

Fenham's swimming pool was opened in 1938 and managed by Newcastle City Council until 2003 when it closed, despite fierce local opposition. A community group was established (The Friends of Fenham Pool) who set up the Fenham Swimming Project as a charity (1099410) and a charitable company limited by guarantee (4826496) to lease the building and extend and improve the service. The pool reopened in June 2005. There are now 5 full time and 10 part time staff, an extensive range of swimming sessions and lessons, first aid and lifeguard training, a sauna and steamroom and the annual target of 60,000 users is regularly exceeded.

There were three phases to the pool refurbishment. First, the Project won £80,000 from the Big Lottery through Tyne Tees ' The Peoples Millions' in 2007 and this was used to improve the changing facilities. Secondly, the building was refurbished in 2009 by Frank Haslam Milan in partnership with Your Home Newcastle as part of their community regeneration strategy. This included replacement doors and windows. The third phase in late 2009 was funded by Ward Committee Grant Aid payments from Fenham, Blakelaw and Wingrove wards and Newcastle City Council's Art and Leisure Trust. The intention was to install solar panels during this phase using funding from The Carbon Trust but this application was unsuccessful. However, the pool area was refurbished, pool heating upgraded including automatic controls and the pool itself was retiled and repainted.

In 2011 the Project was selected as a pilot programme for British Airways One Destination Carbon Fund (based on voluntary donations from passengers), administered by PURE. As a result, during 2012 the Project installed a 53kW (76m2) flat plate solar thermal system to provide direct heating for the swimming pool in conjunction with the heating controls already installed in 2009. The Project had intended including solar panels during the third phase of its refurbishment to use a renewable source of energy as part of its business strategy, however, the application to the Carbon Trust had been unsuccessful.

This is predicted to deliver almost 30,000kWh solar heat energy per year, equivalent to over 60% of the energy required to heat the pool. The capital cost of the installation was £55,000. The loan of £16,000 is repayable over 7 years at 4% APR, with a year 1 payment of £2,600. Over 25 years, there is a projected carbon saving of 122 tonnes and an 'undiscounted net benefit' (calculated using BRE's Carbon Reduction Framework methodology, used by PURE) of £49,200. In addition, the installation provides an opportunity for education in renewable energy for schools and the local community.

The installation was officially unveiled by Linford Christie OBE in July 2012 on the same day as the Olympic torch arrived in Newcastle. The Project was highlighted as an example of community involvement by David Cameron as he relaunched The Big Society in June 2013 with a £250m fund to help local people rescue shops, bars and swimming pools.

UNDERSTANDING RETROFIT ACTIVITY

The ongoing and projected cost of heating pool water was an issue that the Fenham Swimming Project could address by identifying other funding sources and income streams.

The solar thermal panels contribute 60% a year of the energy needed to heat the water, reducing electricity costs by an estimated £890. Annual Renewable Heat Incentive (RHI) payments of an estimated £2,700 also contribute to the financial viability of the installation.

There are no named key actors emerging from the narrative. The main focus from information available on the internet is the Swimming Project itself, which has 6 trustees who are also directors of the company. The 'social interests' are the charity's objectives; to operate the swimming pool 'so that residents in Newcastle, particularly people living in Fenham and the West End of the City, can have access to opportunities to swim, to learn to swim, to take part in club and group activities in the pool'

PROJECT 26:	ST ALBAN'S CHURCH NEWCASTLE BUILDING
SUMMARY:	Installation of biomass boiler

WHY DOES THE RETROFIT PROJECT EXIST?

St Alban's Parish Church in Earsdon is Grade II listed, built in 1837. The site includes Edward Eccles Hall community building, also Grade II listed. St Alban's is the first church in the Newcastle Diocese to install a biomass heating system.

The church consulted English Heritage in 2009 as a preliminary exercise for heating upgrade options for a Grade II listed building. The Earsdon Renewable Energy project was established through the Parish Church Council (PCC) which enabled the church to raise funds and commission a feasibility study for the various options. Although solar panels would have been ideal on the south-facing slope of the church roof their installation in the village's conservation area may have been problematic, and a biomass solution for both buildings was assessed as the most viable in terms of cost and CO_2 reduction.

Although the resulting cost savings for the church would be significant, as energy from woodchip (at prices current at the time) was half the cost of gas, the practical issue of funding the initial investment, originally estimated at £100,000, was a challenge. The eventual project cost was £150,000, which was part funded by a £43,000 lottery grant, OfGem RHI (Renewable Heat Incentive) and CESP (Community Energy Saving Programme) grants and a five year £60,000 loan for which fundraising is ongoing. The work included the construction of a boiler house behind the Hall and the installation of a biomass heating system, fuel store and 80m underground pipe along a lane and through the graveyard into the church. The boiler can run on various types of biomass fuel, giving flexibility over sources and cost. The installation was carried out in early 2012.

St Alban's commissioned a 10 minute film from Arpeggio Films in early 2013 to help share their experience of biomass installation, funded by a DECC LEAF (Local Energy Assessment Fund) programme grant of £11,000. The film is on the church website, and has been publicised in the Newcastle Chronicle, and on the national Church Care website as a focus for the Shrinking the Carbon Footprint initiative.

The church and community hall will continue to benefit from the project, with warm buildings, reduced energy costs and an increase in embedded heat of the church, reducing possible dampness as a 'positive heritage outcome'. A second legacy is the benefit of the project as an example for other buildings and organisations and the potential as a tool for education, already started by the 10 minute film. Thirdly, the vicar expressed an early wish to complete the process with some land to achieve a carbon-neutral position, where growing trees balances the carbon generated from burning wood.

The biomass heating system will save around 400 tonnes of CO_2 over 20 years, and annual gas savings of £2,500 for the two buildings that are largely funded by charitable donations.

UNDERSTANDING RETROFIT ACTIVITY

The biomass project was set up to address issues of increasing costs for heating the church and hall using an old gas boiler that needed replacing. This is in the context of ongoing concern for long-term maintenance costs of the building fabric as a result of using hot air heating which damages paint and plaster. There was also a wish for a renewable energy solution to reflect a responsibility for CO_2 reduction both for St Alban's and for the wider regional and national church community. This responsibility is reflected in, for example, Eco Congregation, a global umbrella organisation that supports churches in examining their commitment to the environmental in their spiritual, practical and mission work, and Shrinking the Carbon Footprint, the church of England's national campaign to reduce CO_2 from church buildings. Within this agenda, the vicar of St Albans originally felt that 'it would be wrong not to consider a greener option'.

The new boiler house behind Eccles Hall needed planning permission from North Tyneside Council (11/01392/LBC). The planning permission process included a heritage statement in summer 2011 carried out by the Archaeological Practice Ltd which highlighted evidence of a medieval village site through which the pipework would be laid. This required an 'archaeological watching brief' over the excavations, finding that there were significant archaeological remains and that the installation had 'no negative impact on the surviving cultural heritage of the village'.

PROJECT 27:	LAMESLEY REEDBEDS NEWCASTLE NETWORK
SUMMARY:	The Coal Authority & Northumbria Water's shared innovative treatment of mine water and sewage effluent flowing into the River Team, previously one of the UK's most polluted urban rivers.

WHY DOES THE RETROFIT PROJECT EXIST?

In 1999 the River Team Revival Project was established as a partnership between a range of stakeholders including the Environment Agency, local authorities, local communities and interest groups to accelerate environmental improvements in the Team catchment area in a sustainable and holistic manner. Two main pollutants were identified. First, untreated water from Kibblesworth Colliery continued to be pumped into the river following its closure in 1974 to keep active coastal mines dry and to prevent surface discharge and flooding of nearby land. Secondly, controlled effluent from Northumbrian Water's sewage treatment plant at Birtley had high concentrations of residual pollutants. These two discharges flowed into the River Team at 200m apart. The Coal Authority and Northumbrian Water developed an innovative scheme to address these two main pollutants as the first step in the River Team Revival Project, which acted as a flagship for subsequent joint work within the project. By working closely with Newcastle University (another stakeholder in the River Team Revival project) a sustainable solution for the two discharges was developed and tested, based on the chemical affinity of iron in the minewater for pollutants in the sewage discharge. These neutralise each-other in a 5.5 hectare reedbed system as part of a sustainable and biodiverse 12 hectare environment of open water and wetland. The final mix of two reed types in an 80:20 ratio was specified following input from Gateshead Council Planning Authority, Durham Wildlife Trust and Northumbrian Water's Environmental Department to change the mix from a standard for treating minewater to one where the predominant species is local to the area, to provide a more desirable biodiverse habitat in line with the council's Biodiversity Action Plan. Major preparatory work was completed in March 2005, the reedbeds were planted with 200,000 plants from May 2005 and effluent flows were turned on in July 2005.

The River Team Revival Project, led by the Environment Agency, is part of the European PURE (Planning for Urban-rural River Environments) funded project in association with three similar projects in the North East to 2006. Various additional funding streams have been identified[29], although none are directly associated with the reedbed project.

The reedbeds were constructed on land bisected by a public right of way which has raised sections for unrestricted views across the wetland area. The project increases access to the River Team's natural, historic and cultural heritage. An example of the reedbeds' contribution to reduced pollution is evidenced by the Environment Agency, which released 6,000 dace fish into the river in 2007, and by thriving populations of watervoles and mink (Durham Wildlife Trust).

UNDERSTANDING RETROFIT ACTIVITY

Northumbrian Water's 4 year asset management plan (a formal and binding financial agreement with government) included work at Birtley to reduce concentrations of biological oxygen demand, ammonical nitrogen and suspended solids in their effluent by March 2005. Generally, a shared aim for the Coal Authority and Environment Agency is to reduce pollution by mine water discharge. For the River Team, untreated water pumped into the river from the disused colliery was significantly discoloured, particularly in summer and improving this would help achieve a higher Environmental Quality Standard for the river as measured by the Environment Agency.

QUESTIONS AND REFLECTION

Although this is not a community-driven project, and stretches the definitions of the research criteria, it is included because it demonstrates the capacity of large, infrastructure organizations working together to address their responsibilities with an innovative, sustainable solution. Although the reedbed project was completed in 2005, it was planned and researched as part of a long-term and ongoing river improvement project, currently in its 14th year.

[29] Funding from March 2000 from Derwentside, Durham and Gateshead Councils, Great North Forest, Beamish Museum, SITA Landfill Trust and the Environment Agency's 'Make A Difference' fund.

PROJECT 28:	GROWING SCHOOLS NEWCASTLE NETWORK
SUMMARY:	The Durham Wildlife Trust planted 1km of mixed native crabapple, hazel & holly hedges round 17 primary schools across Sunderland to part-replace fences.

WHY DOES THE RETROFIT PROJECT EXIST?

Durham Wildlife Trust's Growing Schools project was designed to replace school boundary fences with native hedges to provide wild life habitats, improve appearance and give children opportunities to get closer to nature as part of the school curriculum and playground activity. The hedges are sited so that they contribute to a natural corridor for urban wildlife and extend the national hedging network, described as Britain's largest nature reserve, hosting animals, birds, insects and plants.

None of the schools which took part include any information about the project on their websites. If information is shared it is likely to be via pre-May 2012 newsletters. Many school sites do not include newsletters, or do not archive them.

The project, described as an ambitious scheme, was funded by £40,000 as part of Northern Gas Networks' Northern Green Networks programme which has given £240,000 over 4 years to over 70 regional wildlife conservation projects. Additional grants were given by the Hadrian Trust, who administer a modest fund and list examples of funding from 2012, and the Yorkshire and Clydesdale Bank Foundation. A local branch of a national garden centre donated spring flowering bulbs and tree guards to support the project.

Although the planting project was completed in May 2012 the hedges will continue to grow and develop as intended.

UNDERSTANDING RETROFIT ACTIVITY

Sunderland has more than 70 primary schools surrounded by fencing that is dull and sterile. By replacing part of the fencing with hedges, a new natural environment is created which engages school children. The project was initiated by Durham Wildlife Trust.

QUESTIONS & REFLECTION

The example has been generated from just two news items on Durham Wildlife Trust's website and one on the Northern Gas Network site. However, in spite of limited information, the project is transformative in that it retrofits parts of school boundaries by replacing fencing with biodiverse native hedging.

PROJECT 29:	SCOTSWOOD NATURAL COMMUNITY GARDEN NEWCASTLE SPACE
SUMMARY:	The garden was established in 1995 on derelict land as a permaculture project. Various 'retrofit' additions have included greywater recycling and a reedbed system, funded by ongoing bids.

WHY DOES THE RETROFIT PROJECT EXIST?

Scotswood Natural Community Garden was established as a permaculture garden in 1995 on an acre of land, formerly the site of a drift mine[30]. The garden is organic, with ponds, meadows woodland, orchards, fruit and vegetable plots. It hosts a range of wildlife, included rare great-crested newts and three bee colonies. The original garden was established between 1994 and 1997 as a permaculture project by an agriculture graduate from Newcastle University. Newcastle City Council's 'Participation in leisure' team who worked at a grassroots level with disadvantaged people to use local green spaces were particularly helpful and identified three potential sites. Scotswood was selected because it had well-defined boundaries, the potential to double its size to two acres, and neighboured Newcastle College's John Marley Centre (teaching agricultural subjects) and the Drift Garden Centre, a local charity (which eventually closed). The designer recognised the value of four resources: local neighbouring people; the council and its access to trucks, leaf mould, timber, trees and manure; the college, providing part-time work 'on site' and the gardening expertise of the Drift Garden Centre staff. A planned five year 'rolling' implementation accessed grants for landscaping, a forest garden, a series of ponds (extended with funding for a greywater recycling system using rainwater from the college roof), wildlife areas, beehives and the development of a porter's lodge as office and activity centre. Developments were in conjunction or partnership with local organisations, and ongoing links were formed with local schools, community workers, mental health teams, faith groups, Newcastle's City Farm and the Permaculture Association. At the same time, the organisation of the garden's day-to-day management evolved with a committee and volunteer structure, and was registered as a charity (1080924 – the Drift Permaculture Project) from 2000.

A bid to the National Lottery in 2000 funded a Development Plan, identifying a strategy to extend the garden and grow the organisation to employ more staff to support volunteers and local groups to use and enjoy the garden. The garden was registered as a new charity (1144976) and private company limited by guarantee (7523792) in 2012 and is managed by a board of five voluntary trustees. The garden is run by eight paid staff including a Project Manager and a group of volunteers including people who are long term unemployed, with learning difficulties, ex-offenders, asylum seekers and from the black and minority ethnic groups. It runs a range of events, workshops and projects, a schools programme and youth group and is developing neighbouring community space and regenerating a nearby allotment site.

UNDERSTANDING RETROFIT ACTIVITY

The original 'big idea' for the garden was partly in response to the Agenda 21 concept defined by the Rio Earth Summit 1992, concluding that sustainability could only develop at a devolved and local level. The UK was amongst many countries who agreed to deliver this aim and local authorities were empowered to appoint Agenda 21 teams to work with local people. At the time, a permaculture garden in the middle of Newcastle was a vision for a productive and bio-diverse community resource, in line with Agenda 21 concepts.

The person who designed and developed the garden had been an agriculture student and studied permaculture with an influential practitioner. His involvement as a trustee lasted until 2001 and he is now a permaculture teacher and (self described) community activist. The current Project Director has been a local authority climate change officer and a manager for a Wildfowl and Wetlands Trust centre.

QUESTIONS & REFLECTION

The garden was identified as an example in early June 2013, and its website included a full history of the garden and its various projects and their funding over the years. The garden's website was updated and re-launched at the end of June and some previously accessible details of the history have been lost. However, the new website and re-registration as a

[30] Horizontal mining of coal seam.

charity are evidence of the dynamic nature of the garden and its ongoing organisation as a community resource.

PROJECT 30:	**NEWCASTLE COMMUNITY GREEN FESTIVAL NEWCASTLE SPACE**
SUMMARY:	The Festival is the UK's biggest free annual green event, held every year except two since 1995, to 'spread a message of environmental protection and social justice'.

WHY DOES THE RETROFIT PROJECT EXIST?

Newcastle Community Green Festival is the UK's biggest green free event, running over two days every summer except two in Leazes Park in the centre of Newcastle since 1995. It aims to 'spread a message of environmental protection and social justice' by 'promoting positive solutions to environmental problems and raise awareness of green and ethical issues'. The festival is run by a well-organised group of volunteers and was registered as a Community Interest Company (8055399) in 2012 with 8 directors who have the experience and skills to raise and spend funds, manage the festival safely and co-ordinate the various volunteers groups who organize the stalls, music and events, manage the site, recruit stewards, maintain the website and generate publicity.

In 1995 the Friends of Leazes Park invited Newcastle University's Green Society to organize an event as a demonstration against the construction of blocks of flats in the park. It included a music stage, direct action workshops and craft, community and local business stalls. This expanded in 1996 to three stages, a bar and many more 'green' activities. In 1998 the festival extended to two days, the first as a more traditional, alcohol-free day for families, and the second with more music stages and licensed bar areas. The festival is now a 'flagship environmental' event and is committed to its green credentials, commissioning an environmental audit to assess the festival against its own and European standards. Many of the tents and marquees are powered by solar panels, mains electricity uses a green tariff, there is a strict environmental and ethical policy for traders, stalls and information tents which means that many potential sources of income are turned down, and the festival no longer uses thousands of plastic, single-use cable ties. The festival attracted over 12,000 visitors in 2005 and 15,000 in 2008.

The overall cost of the festival is not known and the registration as a CIC rather than a charity means that future accounts will not be available. , however the size of grants over the years indicates the level of investment. For example, in 2003 Northern Rock Foundation donated £47,000 and an application to the council in 2005 notes a minimum overall festival cost of £29,000, of which £15,000 had been agreed by the council. The main sponsor and funder for the festival is Newcastle City Council, and their reduction in spending in 2012-13 meant that there was just one music stage this year. The festival website home page acknowledges support from 12 organisations in 2013, including Comic Relief who gave £1,000 and a crowd funding appeal for £1,000 which raised £156 from 11 donors. Newcastle City Council's Newcastle Fund Round 3 applications list notes £12,000 for the three years to 2013-14, and it may be that other sources of funding have been received from other council pots. The festival was assessed as successful in 2013, the website invites its visitors to the 2014 event and Facebook is asking for volunteers.

UNDERSTANDING RETROFIT ACTIVITY

The original aim in 1995 was a demonstration against the construction of flats in the park.

The first 'green fair' aimed to show that the park was a valued piece of green space in the city centre, by having community stalls and workshops and attracting interest with free entry, and this has evolved into its current format as a community green festival.

The current directors of Newcastle Community Green Festival have the experience and skills to organise and manage the festival. These include a Newcastle University lecturer and guitar player; an events manager, fundraiser and creative thinker; and a co-housing, housing co-op and low impact development practitioner.

QUESTIONS & REFLECTION

The festival is justified as alternative because it is volunteer-led and organised, and continues to transform the park into an annual two-day focus for local people to raise awareness of environmental issues.

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Appendix 1: analytical table

	PROJECT	1 GOVERNANCE OF SPACE	2 PRIORITIES	3 CONCEPTION OF RETROFIT	4 REPRESENTATION OF SPACE	5 COMPARING SPACE
1	St Mary's solar panels Birmingham Building	Defined by church history & (apparently) entrenched diocesan tradition & guidelines. Grade II listed, in conservation area defined by council.	2008 project by PCC for solar panels to - generate electricity, use FIT to contribute to church funds (& reduce CO2 as part of SusMo). Economic (cost reduction), environmental (use of LZC) (& social as part of SusMo).	Retrofit of church building. 'Test case' for Diocese and wider church network.	Church building as a focus for, and visible statement of, commitment.	Idea generated by PCC to generate income for church via FIT, and to (secondly) reduce CO2.
2	Stourbridge Cricket Club Birmingham Building	Defined by club as a centre & focus for cricket club (& space for other local group activities). Defined by 'history' as a 1923 historic local building - reputation. Ownership uncertain, club is self-determining.	1923 pavilion needed significant investment, as part of five-year plan to improve club. Priorities are social (restoration of club's reputation), environmental (restoration of historic local building) and economic (reduction of costs).	Retrofit of pavilion, which was run-down and increasingly not fit for purpose. Retrofit included reputation of and pride in the club.	Building represents a visible expression of club's success locally and within local/ regional cricket leagues.	Plan generated by existing club committee with specific focussed aim.
3	River Stour Birmingham Network	Defined by residents / Transition Stourbride as local & visible green space. Council & EA - decreasing maintenance.	Ongoing river clearance events to deal with litter, debris & pollution. Social - community cohesion / pride, economic - use of volunteer labour, environmental - transformation of river.	Retrofit is the river, as part of improving town's pride & image / litter reduction.	The river is significant visible open space, owned by no-one and with ad-hoc EA & LA maintenance.	Response of voluntary local group to involve local people in replacing & extending service no longer provided by council.
4	CoRE50 Birmingham Network	Defined by occupying organisations as potential for PV installation.	Aim to raise funds via community share-issue for PV on community building roofs. Income funds future CoRE50 projects. Social & economic - share of costs & local re-use of benefits. Environmental - use of renewable energies.	CoRE50 is one of a range of south Birmingham's sustainability / transition groups, so building retrofit supports, extends and consolidates this local focus.	Use of 'community building' roofs implies a shared ownership of or interest in buildings that are the responsibility of the occupants (or the council).	Alliance of local groups for community-owned panels & income to support programme of projects.

	PROJECT	1 GOVERNANCE OF SPACE	2 PRIORITIES	3 CONCEPTION OF RETROFIT	4 REPRESENTATION OF SPACE	5 COMPARING SPACE
5	Low carbon road re-surfacing Birmingham Space	Defined & maintained by council / used by road users / pedestrians etc. Visible and necessary.	From 2007 - to explore & quantify CO2 emissions from road resurfacing, in the context of local and national transport management plans. Social - creation of shared, accessible knowledge.	Retrofit is roads, using techniques for low CO2 resurfacing as an integral part of city transport. Explicit CO2 reductions, and other benefits, shared via council's Climate Change Group web page. May also extend to council's reputation .	Road space as local infrastructure for users and residents, as the responsibility of the council / Highway Agency.	Alternative is continued and unquestioning use of conventional techniques in which CO2 emissions are not a significant factor.
6	Martineau Gardens Birmingham Space	Defined & managed by trustees & staff.	Aim to increase & diversify income to mitigate reductions from council for therapeutic gardening programme. Social - inclusion & accessibility, knowledge creation & sharing.	Retrofit is the focussed aim to advertise & market the garden to generates income from plant & associated garden sales & garden hire to support ongoing community programmes.	Garden space managed and promoted as a local, shared asset.	Specific action by established centre to use assets to balance reductions in public funding for community mental health programmes.
7	Cerddin Brewery Cardiff Building	Defined by landlord as a village pub & associated outbuildings & yard/garden. (Not clear if landlord is owner or tenant?)	Original retrofit aim was to increase trade and profit, although impact has been wider. Economic - costs reduction, for production Environmental - transformation of building	18 solar panels generate electricity for the new micro-brewery. Pub business is transformed as a focus for village.	The space retrofitted is the pub and its surrounding land. Village benefits from interest from CAMRA and as the only CO2-neutral pub in Wales.	A traditional micro-brewery would have higher set-up & production costs and may not have been financially viable.
8	Cathays Youth & Community Project Cardiff Building	Defined by charity for benefit of Youth & Community Project.	Aim - to improve building. Prities are social - to improve & extend building as a focus for the Project, and financial - to improve financial position to share & re-use income.	21 solar panels installed as first part of wider improvement. Potential to reduce costs by £1,000 pa that can be re-invented in community projects.	Panels on buildings as a visible statement of intention before major community-led redesign, redevelopment and extension (dependent on lottery bid).	Response of volunteer group to recognise & address recent contracting finance streams & unsuccessful funding bids.
9	Awel Aman Tawe Cardiff Network	Defined by local people as open space for everyone(& by Welsh Assembly as being valuable for recreation & public enjoyment).	Development of 2-turbine wind farm. Multiple priorities: environmental - use of land for turbines - to generate social inclusion & community cohesion, and economic - fuel cost reduction & local infrastructure benefits.	Retrofit is transformative use of land for direct area benefits	10 acre site is on isolated, upland moors. Space is contested by several interests represented by council planners, some Welsh. Assembly govt. wildlife groups, CPRW and local people.	Determined and long-term aim to regenerate area with ambitious, high-value project by local community practitioners.

	PROJECT	1 GOVERNANCE OF SPACE	2 PRIORITIES	3 CONCEPTION OF RETROFIT	4 REPRESENTATION OF SPACE	5 COMPARING SPACE
10	Glyncorrwg Ponds Co-operative Cardiff Network	Defined by local people as natural open spaces.	Aim to use existing resources to regenerate area in decline following pit closure. Priorities are environmental (use of existing resources hills, woods, water, mine tracks & railways) & social - community cohesion around share issue as the basis for area generation.	Original retrofit of valley bottom transformed as fishing ponds. Extended to development of mountain bike trails, now a world destination	Space defined as a local network of man-made ponds & mountain bike trails. (One of the trails is on land to be developed for wind turbines - S106 payments will fund alternative).	Original co-op set up by local people with community shares. Co-operative retains ownership & is diversifying its focus.
11	Caerau Market Garden Cardiff Space	Defined by HA landowners as brownfield and by villagers as an eyesore, attracting vandalism etc.	Project started to promote local food growing & provide gardening & volunteer opportunities. Priorities are social - knowledge creation, share & re-use, inclusion & accessibility and economic - food production.	Retrofit of derelict ex-housing land as a garden to encourage local social enterprise and contribute to regeneration.	This is developmental space, and the project aims to transform it as shared space for local people.	This is a top-down project with significant funding. A community-driven alternative may emerge over time.
12	Edwardsville Primary School Cardiff Space	Defined by school governors / staff / pupils.	Development of school grounds to support global citizenship & other curriculum requirements. Priority is social - knowledge creation & sharing - aimed to be a role model & focus for local area & other schools.	Retrofit is school ground, as part of comprehensive sustainability & ecological review of buildings, grounds, teaching & activities.	School grounds - developmental space, with relative independence from local authority / national curriculum in terms of design (but need to meet all H & S etc. requirements).	School-based motivation to use its grounds effectively.
13	Rosslyn Chapel Edinburgh Building	Defined by Rosslyn Chapel Trust - privately owned by St Clair family. History & responsibility.	Chapel needed extensive restoration, including new heating. Priority for heating retrofit is environmental - a 'positive heritage outcome'.	Retrofit of building as a unique piece of history using biomass as appropriate heating source.	Restoration of chapel as part of wider project including planning for & management of increasing number of visitors - impact on local area.	Trust is responsible for chapel's maintenance & visitor management.
14	Bridgend Inspiring Growth Edinburgh Building	Defined by council & managed by council organisation. Also defined as derelict by local people & community allotment users.	Aim to restore building as a community-owned centre for sustainable living. Priorities are environmental - building restoration and social - knowledge sharing, community cohesion.	The building needs interior work & roof repair. By the side of the main road from Edinburgh and a poor/ embarrassing showcase for the village.	Space is the farmhouse and derelict outbuildings, for which earlier council plans have not materialised.	Local group of volunteers involved in adjoining community allotments, with significant village consultation.

	PROJECT	1 GOVERNANCE OF SPACE	2 PRIORITIES	3 CONCEPTION OF RETROFIT	4 REPRESENTATION OF SPACE	5 COMPARING SPACE
15	Innertube bike network Edinburgh Network	Already defined as bike track by council & local people. Links to Edinburgh council's Active Travekl Action Plan	Reclamation of existing bike track by co-ordinated clearing, maintenance & improvement, and development of on-line identity & community. Priority is social - knowledge creation & sharing, inclusion.	Retrofit is maintenance & extension of bike network, and development of cross-city identity of physical and on-line network.	Space is network of existing tracks in the city, with previous patchwork of uncoordinated ad hoc tidying up.	Initiative led and managed by local environmental organisations, involving local groups / schools / volunteers / council.
16	Ormiston Grows Edinburgh Network	Defined as empty buildings & unused land in village.	Long-held aim for garden, re-thought as a project to reduce village carbon footprint. Priority is social & complex - community focus on a shared goal to revive community spirit, increase village footfall, number of shops, work, volunteer & training opportunities.	Retrofit of shop & café & selling community garden & local produce to support environmental projects.	Space is the garden and café / shop as the location for, and focus of, for the village project.	Alternative because it is a village-driven enterprise with a range of potential local benefits.
17	Polbeth & West Calder Community Garden Edinburgh Space	Defined as ex-market garden space, currently unused.	Aim to develop a shared fruit and veg. garden for local people, schools and groups. Priority is mainly social, knowledge sharing and inclusion.	Retrofit is land, as a way of developing local cohesion.	This is developmental space, earmarked for housing development from 2015. Competing application was for new housing, but council recognised local value of social, environmental and economic benefits (assessed as >£4,000 pa).	Realises a desire for a shared garden by group of local people.
18	Edinburgh Community Energy Co-operative Edinburgh Space	Defined by occupants / council	Aim for community-funded PV on Leith public buildings. Changes to FIT meant that investment & payback model was unworkable. Priorities are environmental - use of PV and social - cohesion around community funding.	Retrofit would have been use of roof space for PV, with income supporting local projects.	Space would have been community-building roofs as a neighbourhood space, local and connected within, and identified as, Leith.	Income from locally-funded PV would be controlled & retained by local people.

	PROJECT	1 GOVERNANCE OF SPACE	2 PRIORITIES	3 CONCEPTION OF RETROFIT	4 REPRESENTATION OF SPACE	5 COMPARING SPACE
19	Mildmay Community Centre London Building	Defined as a community centre. Building leased from council by community regeneration company.	Aim to diversify and increase income to sustain community centre in face of uncertain future council funding. Priority is social - to ensure future community inclusion, and method is transformation of building.	Retrofit of old building as an iconic building and the first non-domestic Passivhaus, gives significant community focus.	Space is building, as a neighbourhood focus. Also acts as local / leading Passivhaus architect showcase & relocated office.	Charity & CLG formed with purpose of taking over the building from the council.
20	Sanford Housing Co-op London Building	Defined by co-operative practices & principles. Owned by the Co-op.	Aim of project to do something radical, rather than cyclical repair of deteriorating homes, evolved into ambition to reduce CO2 by 60%. Priorities are environmental - co-op homes/buildings and social - extension of community cohesion, inclusion (which already exist as part of the co-op).	Use of technologies in buildings to achieve 60% reduction target, using insulation / biomass / solar thermal. Also evidences the co-op, and the housing co-op movement, as an exemplar of what can be achieved with housing retrofit.	Space is co-op homes / buildings as the homes of the people who live there.	The co-op is identified as an alternative form of home ownership, who have chosen to address CO2 reduction as part of home maintenance to combat increasing energy costs.
21	Hyde Farm Climate Action network London Network	Already defined with a coherent estate identity.	Original aim to improve warmth in cold, draughty homes. Priority was social - knowledge creation & re-use around warm homes, and economic - cost reduction.	Original limited retrofit (mainly draught-proofing) of 200 neighbouring homes, as part of identity of Hyde Farm estate.	Space represented as homes within a neighbourhood, already clearly defined as an estate. Evolved into broader CHP feasibility with links to Repowering South London & Brixton Energy.	Origins of the project driven by occupants as practical and home-based.
22	London Orchard Project London Network	Defined by local people as green space / orchards / unused land.	Aim to develop a community across London linking existing & new orchards. Priority is mainly social - sharing of knowledge, and secondary priority is local food growing.	Retrofit is the mapping function, engaging local people to identify & verify orchards as a basis for sharing knowledge.	Projects focuses on the network of London orchards for local people.	Reclaims network of orchards by dedicated specialists.
23	Alara Dream Farm London Space	Defined & managed by Alara as part of council lease.	Aim to create series of gardens as an urban smallholding. Priority is social - cohesion, inclusion, accessibility, knowledge, linked o economic priority of growing food.	Retrofit is of unused local land, to extend and consolidate ethos of Alara Wholefoods.	This is a series of 5 awkwardly-shaped plots around an industrial estate, included in Alara's factory lease. Linked to area's range of 'alternative' garden spaces.	These spaces would otherwise be waste ground, not big enough to be of any commercial use.

	PROJECT	1 GOVERNANCE OF SPACE	2 PRIORITIES	3 CONCEPTION OF RETROFIT	4 REPRESENTATION OF SPACE	5 COMPARING SPACE
24	Bow Arts LiveWork London Space	Estates defined by Poplar Harca HA.	Aim to let empty flats at low cost to artists as short-life studio space as part of local regeneration responsibility. Priority for area is social - promotes community cohesion through new, socially active neighbours.	Retrofit is re-use of empty, pre-redevelopment flats, which re-populates & revives area.	Neighbourhood reputation as an artist quarter is developed & consolidated.	Bow Arts supports and links local artists, and Poplar Harca has regeneration and tenant satisfaction responsibility.
25	Fenham Swimming Project Newcastle Building	Defined as a swimming pool by charity & local people.	Aim is phased refurbishment of pool & building.	Retrofit is building repairs & solar thermal system to reduce current & projected costs of heating pool water as part of financial management of well-loved local amenity.	Space is a community building managed by council until 2003, as part of neighbourhood fabric. Fierce opposition to proposed closure.	Local group formed to continue & extend service formerly provided by council.
26	St Alban's church Newcastle Building	Defined by church history & local congregation. Grade II listed.	Aim to install new heating system for church & its hall. Priorities are mixed & linked: social - knowledge share & re-use, economic - increased use / reduced cost & environmental - transformation of buildings.	Retrofit is installation of biomass & resulting increased focus on church.	Space is the church & hall, and extends plans for local land ownership for trees for woodchip to complete the process.	Church takes responsibility for heating, for managing its budget and for active stewardship of the building.
27	Lamesley reedbeds Newcastle Network	Defined as a polluted river by EA & understood by local groups, agencies & people.	Aim to reduce two main sources. Priority is environmental - transformation of river and social - creating shared knowledge, and contribution to collaborative clean-up. Part of long-term project now in its 14th year.	Retrofit is one of UK's most polluted urban rivers. Innovative, sustainable joint solution with substantial benefits for area, without which wider project would not be successful.	Polluting installations, reedbeds, river & surrounding area are a linked network with a range of interests focussed on regenerating the Team.	Dominant approach would have been 2 conventional treatment plants, with no added benefits of reed beds as a biodiverse habitat / visitors area, and minimal or no engagement with wider local project groups.
28	Growing Schools project Newcastle Network	Defined by fences as school boundaries / markers of 'defensible space'	Aim to replace 1km of school fencing across 17 primary schools in LA area with native hedging. Priority is environmental - to create biodiverse network, and social - across schools & in local areas.	Retrofit is lengths of school boundaries, as a linked (via the project, not physical) wildlife habitat & to encourage interest by children / schools & local people.	Space represented by school boundaries / fences. Some schools may have chosen not to take part.	Project co-ordination with schools by Wildlife Trust implies involvement of pupils / staff / pupils / governors.

	PROJECT	1 GOVERNANCE OF SPACE	2 PRIORITIES	3 CONCEPTION OF RETROFIT	4 REPRESENTATION OF SPACE	5 COMPARING SPACE
29	Scotswood Natural Community Garden Newcastle Space	Defined & managed by charity trustees, staff & volunteers.	Aim to set up permaculture garden as a productive community resource. Priority is primarily social - to share & re-use knowledge.	Retrofit is land, as a way of realising a permaculture vision for local people.	This is developmental space on site of drift mine. Pragmatic location with physical boundaries and within grounds of agricultural college.	Involvement of college, neighbours, council, schools, community workers.
30	Newcastle Community Green Festival Newcastle Space	Defined as a park by users & council, transformed into an annual free green festival.	Aims to 'spread a message of environmental protection & social justice' with 2 day annual festival in city-centre park. Priority is social - knowledge sharing on sustainability & social justice.	Retrofit is transformation of the park into a free green festival to raise awareness locally & across the city of green & ethical issues.	Space is the park, centrally located in Newcastle, accessible to people who may not otherwise go to festivals or be interested in sustainability / social justice.	Identification of park as a shared city space for articulating its protection as such, evolving into use of space big enough for annual event.