More details/abstract: Civil society is a critical arena both for exploring Sustainability itself and for sustaining trajectories towards it through innovation, experimentation and debate. Innovations can be mould breaking and can challenge local institutions. Concurrently, initiatives may be fragile due to the development of new working relationships, reliance on voluntary labour and goodwill, and dependence on grant funding. Here we examine different aspects of what it takes to sustain grassroots trajectories for 'communal growing', given the pressures that groups and intermediary organisations practicing and supporting this activity experience, and the consequential need to build qualities like 'resilience'. Attending carefully to the definition of this otherwise slippery concept, a particular focus is given to how contrasting aspects of temporality and agency lead to divergent constructions of 'resilience' and strategies for sustaining growing. We draw on fieldwork that explores the practice and support of communal growing in East Sussex, England, and directly associated activities at a national level.
We find important interdependencies between communal growing projects and the intermediary organisations supporting them. Additionally there is huge diversity within and between both projects and the organisations that support them, including with respect to the ends to which growing is seen as a means. These ends link growing initiatives - both antagonistically and synergistically - to food, education and health systems. This diversity can be seen positively as: a source of innovation; facilitating the open and bottom up nature of growing; and, enabling the securing of greater financial support for the endeavour. What is less clear is how this plays into framing and configuring communal growing specifically in relation to achieving a more Sustainable and localised food system. We discuss the conceptual and methodological implications of these empirically derived observations with regards future research on grassroots innovations.

Sustaining Trajectories Towards Sustainability: dynamics and diversity in UK Communal Growing activities

Abstract:

Civil society is a critical arena both for exploring Sustainability itself and for sustaining trajectories towards it through innovation, experimentation and debate. Innovations can be mould breaking and can challenge local institutions. Concurrently, initiatives may be fragile due to the development of new working relationships, reliance on voluntary labour and goodwill, and dependence on grant funding. Here we examine different aspects of what it takes to sustain grassroots trajectories for 'communal growing', given the pressures that groups and intermediary organisations practicing and supporting this activity experience, and the consequential need to build qualities like 'resilience'. Attending carefully to the definition of this otherwise slippery concept, a particular focus is given to how contrasting aspects of temporality and agency lead to divergent constructions of 'resilience' and strategies for sustaining growing. We draw on fieldwork that explores the practice and support of communal growing in East Sussex, England, and directly associated activities at a national level.

We find important interdependencies between communal growing projects and the intermediary organisations supporting them. Additionally there is huge diversity within and between both projects and the organisations that support them, including with respect to the ends to which growing is seen as a means. These ends link growing initiatives - both antagonistically and synergistically - to food, education and health systems. This diversity can be seen positively as: a source of innovation; facilitating the open and bottom up nature of growing; and, enabling the securing of greater financial support for the endeavour. What is less clear is how this plays into framing and configuring communal growing specifically in relation to achieving a more Sustainable and localised food system. We discuss the conceptual and methodological implications of these empirically derived observations with regards future research on grassroots innovations.

Key words: Communal growing; diversity; resilience; grassroots innovation

1. Introduction:

Community gardens are found throughout North America and Europe (Holland 2004; Lawson 2005; Federation of City Farms and Community Gardens 2012), and increasingly world-wide (Irvine, Johnson et al. 1999). While the main activity in the UK is growing food, much else is grown in the process – including community, confidence, welfare and skills. These spaces are typically open to the public, but distinct from parks in that stewardship is undertaken by groups of local people rather than by Local Authorities; in place of lawns and climbing frames, can be found vegetable beds, orchards and communal cooking areas. Community gardens, while sometimes found on allotment plots, are also not like traditional allotments which are designated to individuals or families since the space is collectively worked and the produce shared.

A second increasing form of communal engagement with food is Community Supported Agriculture (CSA). CSA is defined as, 'any food, fuel or fibre producing initiative where the community shares the risks and rewards of production, whether through ownership, investment, sharing the costs of production, or provision of labour' (Saltmarsh et al 2011). Albeit arguably on a continuum, CSA is distinct from community gardens in that food is produced on a larger scale, and as such, CSA is more commonly peri-urban or rural. It also often involves more strongly delineated roles between growers and members and usually an exchange relationship whereby members pay an agreed price in advance irrespective of the volume produced, the risks of growing are therefore more equally shared than is the case in a typical producer-consumer relationship. While we do not see community gardens and CSA as the only means through which food can be communally grown, it is on these two forms of 'grassroots innovation' for communal food growing, that this paper focuses.

Grassroots innovations are described by Seyfang and Smith (2007, p.585) as activities undertaken by 'networks of activists and organisations generating novel bottom-up solutions for sustainable development; solutions that respond to the local situation and the interests and values of the communities involved'. These innovations do things differently to the 'mainstream' way of doing things. The particular innovations underlying community gardens and community supported agriculture are the local and communal stewardship of land through jointly growing food, investing in and managing space, and the redistribution of risk between growers and consumers. These involve collective forms of decision making, cooperation and group work to develop a plot, produce food and share risk – representing moves towards more distributed and locally-responsive forms of control over land-use. Furthermore, communal growing offers to address economic, social and environmental pillars of Sustainability (a capital 'S' in Sustainability denotes the normative version of the word as defined by Brundtland. A small case 's' in sustainability denotes the temporal property of whether or not something is being sustained). It often uses organic or low-input methods, and growing is recognised to have the potential for therapeutic benefits for those involved (Twiss, Dickinson et al. 2003; Natural England 2009; Food Matters 2011). It can also enable people to access fresh, healthy produce relatively cheaply where they have more time but less money. Learning to work collectively also develops key social skills (Stocker and Barnett 1998).

Seyfang and Smith (2007) argue that the activities and networks that produce, support and diffuse grassroots innovations (GIs) have not been given due attention and value in either academic or policy debate about Sustainable innovation. If communal growing activities are to contribute meaningfully to broader shifts towards Sustainability, then the projects and the organisations that support them must survive, evolve and thrive. Yet, as innovations are by definition new in their form or (through diffusion) in context, they are often unstable configurations - at least to start with - and so subject to demanding forms of evolution and learning over time (Seyfang and Smith 2007). Furthermore, they can challenge existing legal (such as planning), regulatory (such as land

ownership) and institutional (such as local authority) elements of their operating contexts, presenting the potential for adaptation in these wider networks also.

In this paper we explore the natures of the pressures and responses experienced both by communal growing projects and the intermediary organisations that support them – and through this build an understanding of how they seek to sustain the activity of communal growing. 'Intermediary organisations' do not undertake growing themselves, but support it as an activity through providing advice, training, networking services, representation and advocacy. We collectively term projects and intermediaries the communal growing 'niche', understanding this analytical concept to describe a hypothetical space in which innovations can be tried out and developed, at least initially away from the selective pressures of mainstream systems of provisioning (Schot and Geels 2007). As such, a 'niche' is not objectively empirically fixed in any given setting, but depends heuristically on the purpose and level of analysis. In general however, as patterns of adaptation and wider evolution unfold, survival of any given niche necessarily entails change. What kinds of change this means, has implications for the nature of pathways to Sustainability. Studies of 'conventionalisation' – occurring as innovative activities diffuse, spread and in the process become less challenging to mainstream forms of provisioning, and/or are co-opted by them (Guthman 2004; Hess 2005; Smith 2006) – are one example of why it is crucial to understand these dynamics of pressures and responses in the niche. Furthermore, studies of the particular pressures acting on civil society organisations (Commission of Inquiry into the Future of Civil Society in the UK and Ireland 2010; Vickers 2010), highlight distinctive vulnerabilities to various kinds of 'capture' and 'mission drift'.

We explore the development of the communal growing niche by first focusing on what it means in general (under contrasting perspectives and contexts) to "sustain" any activity. For this purpose, we use a conceptual framework that builds systematically on the two basic dimensions already implicated in this focus: first, the notion of 'temporality' (that necessarily informs any apprehension of 'change'), for example the development of a pressure; and second 'action' (of a kind that is

necessarily required to sustain any kind of activity), for example in dealing with a pressure. Having been developed by Stirling (Stirling, Leach et al. 2007; Stirling forthcoming) for application to technological development pathways, the framework (described below) is applied here to an activity enacted through civil society. Empirical fieldwork results are analysed so helping to illuminate otherwise obscured variation in the practices and politics of sustaining communal growing. We conclude by reflecting on the implications for general understandings of grassroots innovations.

The paper begins with a discussion of how sustainability is addressed in different ways in 'grassroots innovations' and 'transition theory' approaches. The conceptual framework is then presented, which we use to structure the research. The fieldwork underpinning this study is outlined in the methods section. The results section illustrates the ways in which projects and related intermediary organisations seek to sustain the activity of communal growing, with particular focus on funding and land access. The discussion reflects on what this approach can bring to our understanding of grassroots innovations and the conclusion airs more general implications.

2. Conceptual framework:

Grassroots innovations are a topic of research interest because of their potential to inform more Sustainable ways of living. This is so, whether by: acting as exemplary alternatives; highlighting the unSustainability of current systems; solving local problems in new ways; or experimenting in ways that might inform or integrate with mainstream ways of providing us with the goods and services that we need (hitherto 'provisioning'). Such roles for innovations in 'societal transitions' are conceptualised in change models like the multi-level perspective (MLP) (Geels 2002).Here processes of 'strategic niche management' (SNM) (Schot and Geels 2008) and proactive niche protection (Smith and Raven 2012) are highlighted as strategies for ensuring a niche survives and develops to influence the mainstream form of provisioning, otherwise termed the 'regime'. Whether niches are conceptualised as developing within a regime, or as being external to it, they tend nevertheless equally to be viewed in relation to a single regime which they may influence.

However, understandings of SNM and proactive protection have generally been informed by studies of evolving technological innovations in firms, which operate in markets, or in orchestrated experimental settings. The relatively explicit, codified natures of technologies, firms, markets and 'experiments' all serve to emphasise structured processes in SNM of vision building, experimentation, and expectation development, which in turn direct learning processes, aggregation of results and diffusion of the innovation (Kemp 1998, Hoogma 2002). The present focus on contrasting – and less structured – organisational innovations and civil society settings, however, raises questions about how, in the absence of these structuring elements and potentially the presence of others, these conventionally-recognised processes are negotiated, if at all.

Often described as existing between the state, business and the family (Pearce 2003), civil society is characterised by diversity. Here, we refer to diversity as a general quality comprising constituent properties of 'variety' (number of elements), 'balance' (distribution of elements) and 'disparity' (differences between elements) (cf. Stirling 2007). In civil society such diversity is found at many levels, with institutional pluralism allowing multiple interests to be represented, disparate functions to be enacted both within and across the formal and informal forms of organisation that exist, and a variety of capacities developed as a result (Edwards 2004). In particular, we focus here mostly on the variety of distinct ends to which a single 'activity' (like communal growing) can be seen as a means. This raises queries, about relatively determinate notions of an ostensibly *singular* 'transition' to 'Sustainability', rather than more indeterminate and *potentially multiple* kinds of 'transformation' (Stirling 2011).

SNM in particular describes 'ideal-typical' practices that are consistently directed, pro-active and managerial in nature. A level of reflexivity is assumed whereby system actors have the capacity to stand back and collectively discern – deliberately, synoptically and self-aware – the most tractable orientations for these processes (Smith and Stirling 2006; Stirling 2006). A number of authors question the realism of assuming this (Smith, Stirling et al. 2005; Shove and Walker 2007; Smith,

Voss et al. 2010). It is emblematic of civil society that the associated diversity of relations, values, motivations and interests reduce the potential for structured 'outsider' governance focused on sustaining a given activity. Instead of idealised general notions of niche 'management' or 'protection' then, this favours attention to the range of ways in which disparate actors respond to their own heterogeneous and 'insider' understandings of the challenges, and how sustainability then emerges as an outcome of this.

The diagnostic diversity of civil society perspectives also requires emphasis on the ambiguities associated with Sustainability itself. Sustainability is not a determinate, technical and managerial puzzle, but an ambiguous, emergent, and irreducible political challenge (Smith and Stirling 2006). This further normative heterogeneity reinforces the case for adopting an 'insider' perspective (Smith and Stirling 2006; Garud, Kumaraswamy et al. 2010). In particular, this involves eschewing prior singular external notions of 'Sustainability', 'transition', 'niche' or 'management' ends or means.

This said, it is also obvious that no external appreciation of 'insider' perspectives of others can be purely inductive. The challenge lies in being parsimonious, rigorous and transparent about one's own prior frameworks, whilst retaining sensitivity and symmetry with regard to key differences in how the people most directly involved ***themselves*** understand the processes of sustaining an activity (in this case communal growing). It was described above how the two basic parameters of temporality and action can be seen to constitute two intrinsic dimensions in the 'sustaining' of any 'activity'. A starting point then becomes one of exploring the implications of some crucial contrasts in how these two key parameters are themselves understood under divergent insider perspectives. For this purpose, we use a conceptual framework specifically developed to link exactly these two parameters to wider notions of sustainability (Stirling, 2008; Stirling, forthcoming) and apply these to understanding divergent social and political framings (Leach et al, 2010).

Here, 'temporality' prompts attention to the contrasting ways in which dynamic pressures are seen by insiders to play out over time. In short, do these present as episodic 'shocks' to otherwise stable trajectories? As a temporary blip that will not last long, this presents a challenge of persistence through a period of adversity. Or it may be seen as cumulative, lasting 'stress' – suggesting longer-term change with potentially more radical and enduring implications for the conditions under which action must be taken (Dawson et al, 2010). For its part, 'styles of action' refers to how actors themselves conceive the nature of, and constraints on, their own agency and priorities in addressing these pressures. In short, do actors seek in some way causally to 'control' sources of disturbance, or do they instead aim more modestly to 'respond' in taking opportunities and mitigating adverse effects? The resulting contrasting modes of change are shown schematically in Figure 1. Examples are given in Figure 3 below.

This framework provides a relatively neutral basis for apprehending the diversity of interpretations of what instantiates 'shock' or 'stress', 'control' or 'response', in any given setting or perspective. Rather than being viewed as a definitive representation of how pressures and actions can be understood and undertaken, then, this framework aims instead simply to illuminate important dimensions of whatever actors themselves see as the most salient dynamics. It is for this reason that the action/temporality framework offers a fruitful starting point for exploring insider ontologies in this field. Its value lies not in asserting as ubiquitous, the general distinction between action and temporality, but in using this to help reveal more fine-grain possible diversity and dynamism in contexts and perspectives, where this might otherwise be missed.

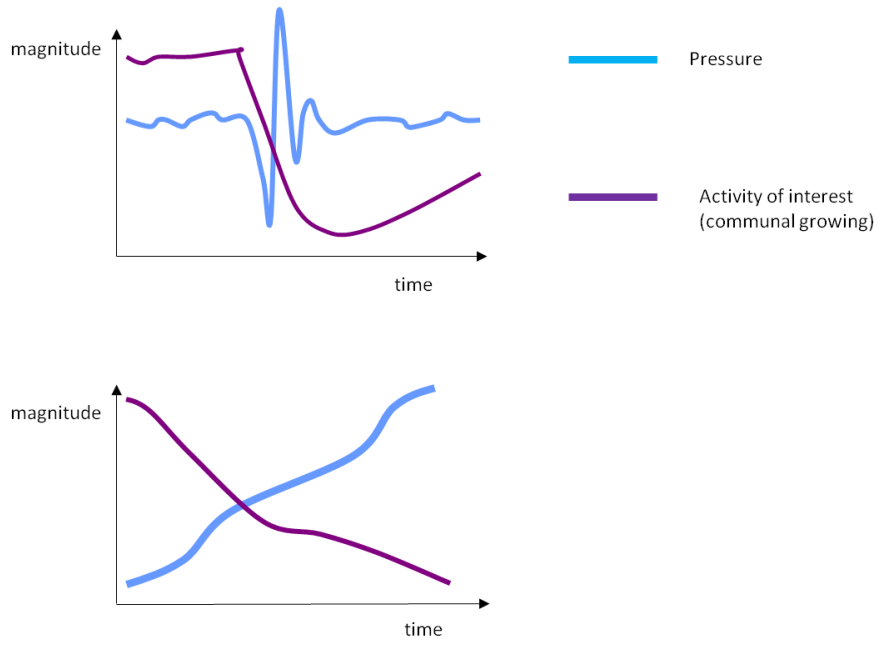

Figure 1: Contrasting pressure dynamics, with consequent changes in the activity of interest (i.e. the activity of communal growing) (Stirling, forthcoming)

When pressures are framed (by whatever name, in whatever way) as '*shocks*' the implication is that reactions aim at sustaining the communal growing activity in its continuing form, in the expectation that conditions preceding the shock will be restored. When pressures are framed as '*stress'*, the implication is that the activity be sustained in the face of what might be fundamentally changing circumstances, of a kind probably requiring some change in the activity itself. The implications of framing a pressure as a shock or a stress can thus hold radically divergent implications. Crucially, this is irrespective of any 'outside' judgement as to whether this is actually so.

The second parameter is about whether a given action is framed by 'insiders' as aiming at '*controlling'* the source of the pressure or more as a '*response*' aiming only at reacting to the effects. In either case, the framing of the action will, like the framing of the pressure, hold significant practical implications. Notions of control require that the drivers of the change in question are perceived as tractable – with some requisite degree of understanding and opportunity and means for intervention in some relevant part of the causal chain behind the pressure. A response strategy, by contrast, is predicated on the drivers of the pressure being (framed as) intractable, "this may be

because the drivers themselves are seen to be inherently indeterminate or unpredictable. Or it may be judged that the necessary time, resources, moments, modes or loci for manageable interventions do not exist. Or there may be concern that efforts at control would be prohibitive in their collateral effects" (Stirling forthcoming, p.9). Again, like control actions, response actions may be framed, conceived, motivated and implemented in a wide variety of different ways and contexts – and towards a diversity of contrasting ends.

The straightforward result of these interacting dimensions, then, is a simple two-by-two ordering of four ideal-typical dynamic qualities that might be presented by (or aimed at) in the trajectories of communal growing activities over time. Stirling terms these: stability, resilience, robustness and durability (Figure 2). '*Resilience'* is thus defined as a dynamic property which a quality is sustained by effective responses to shock. The property of '*stability'* applies where the focal quality (for instance the desired outputs of communal growing) is sustained by actions that control relevant possible causes of shock. A property of '*durability*' applies where this is sustained by actions that control possible sources of stress. 'R*obustness*' arises where the quality is sustained by effective responses to stress. In reality of course (both as actualities and perceptions), axes from 'shock' to 'stress, and 'control' to 'response', are each best understood as continua, not as dichotomies. Taken together, they present four collectively sufficient and individually necessary dynamic conditions for the sustaining of any kind of activity.

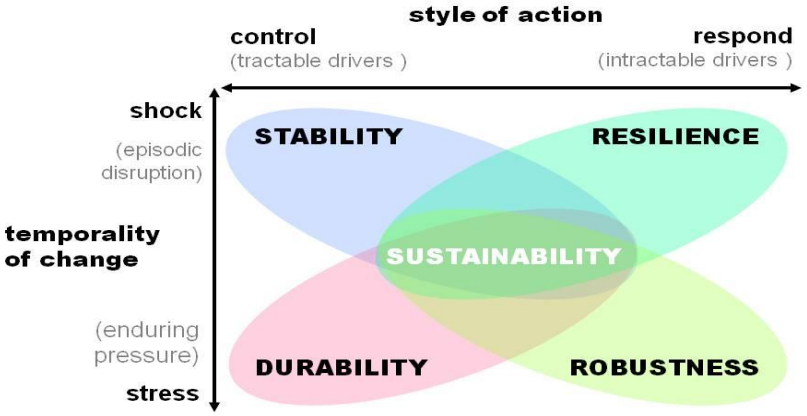

Figure 2: Four constitutive properties of sustainability (Stirling, Leach et al. 2007; Stirling forthcoming)

A hypothetical example is worked through in Figure 3, whereby an intermediary organisation is faced with falling membership of community supported agriculture schemes. It illustrates some specific instances of the different ways in which the same pressure acting on a niche activity can yield very different sorts of responses. Of course, neither as ideal types, nor as real-world conditions, are these kinds of pressure, action and dynamic quality mutually exclusive. It may be the case that strategies might seek to pursue all four qualities together, but in the context of varying values, capabilities and limited resources, a subset may be realised. Each of these will in turn have their own path dependencies and knock on implications for how a farm (and perhaps the niche) are sustained over time.

	CONTROL	RESPONSE
SHOCK	Suggest mitigating interrupted revenue streams by increasing pre-payment periods for farm scheme subscriptions from monthly to quarterly	Capacity to support farm festivals or availability of bridging support, helps address short term interruptions
STRESS	Awareness raising measures to mitigate falling support for CSAs in particular towns or cities	Shift practice by linking with health care providers to ascertain the potential demand for therapeutic growing operations on farms

Figure 3: a hypothetical example of contrasting dynamics of pressure and action playing out with regard to an intermediary organisation faced with falling membership amongst CSA Schemes.

3. Research Context and Methods:

3.1 The communal growing niche:

The Federation of City Farms and Community Gardens (FCFCG) has seen particular growth in communal growing initiatives over the last three years and now estimates that they support up to 1000 community gardens in the UK (Federation of City Farms and Community Gardens 2012). The Capital Growth project in London has also developed 1962 new communal growing spaces in London since 2009. The economic downturn, awareness of food and health links, limited allotment availability, increasingly busy lives and an awareness of food production externalities are all thought to have contributed to this trend (Federation of City Farms and Community Gardens 2012; Sustain n.d.). There are also now 80 active CSA schemes in the UK, grown from only a handful five years ago, with the median number of individuals receiving produce from these schemes being 40 (Saltmarsh, Meldrum et al. 2011). Here, motivations for engagement are driven mainly by a desire for access to Sustainably sourced produce, offering healthier, higher quality food at the same time as supporting associated farmers (*ibid*).

Over the past seven years, communal growing has also been boosted by considerable grant funding from the Big Lottery Fund. This has been administered through three major funding streams, which were leveraged through multi-NGO partnerships. The funding streams are: the Local Food Fund – a £59.8 million fund aiming to make locally grown food accessible and affordable to local communities; Making Local Food Work – a £10m fund that has provided advice and support to community food enterprises (including CSA) across England; and Food for Life – a programme aimed at delivering whole school food reform to schools in England, part of which was the encouragement of food growing in schools. The partnership organisations mobilising these large funds are the: Black Environment Network, British Trust for Conservation Volunteers, Community Composting Network, FCFCG, Fareshare, Garden Organic, Groundwork, Greenspace, Learning through Landscapes, NAG Trust, Permaculture Association, Soil Association, Sustain, Thrive and the Women's Environment Network, Campaign for the Protection of Rural England; Cooperatives UK; Country Markets Ltd, The National Farmers' Retail and Markets Association; The Plunkett Foundation; Focus on Food Campaign and the Health Education Trust. They are an institutional reflection of the range of normative perspectives and practices towards which growing initiatives can contribute – health, education, community building, disability support, training, therapy, Sustainable and secure food systems, organic and permaculture techniques, wildlife.

3.2 Fieldwork methods:

A staged approach to fieldwork was taken with an initial eleven interviews with members of intermediary organisations working in the area of food in general or growing in particular, complemented by a further eleven informal interviews with academics, practitioners and other actors in intermediary organisations. The initial interviews with intermediary organisations painted a picture of dynamism in the communal growing sector whereby people joined in or initiated projects at a particular time in their life, in cases then later leaving the area, or communal forms of growing altogether. Similarly, while many growing initiatives remain for many years, some quickly fail or wind down over time. Thus we decided that in order to better capture this dynamism a city-region

framing for the fieldwork was preferable to focussing on a number of geographically disparate projects. This would give a richer picture of how communal growing is sustained in an area, rather than seeking to draw and generalise lessons from individual projects with their own contingencies.

Thus a second stage of fieldwork involved fourteen in-depth interviews with project and intermediary actors in the case study city-region of Brighton and East Sussex. Brighton and its environs have an unusually rich history of food related grassroots activity, with a Food Partnership operating across the city which supports the development of a healthier and more Sustainable food system for the city. In 2008 the Partnership successfully bid for funding from the Local Food Fund to develop a programme (called Harvest) facilitating growing in and around the city. This and other dedicated intermediary organisations work to support the more than 60 growing projects currently running in Brighton and nearby Lewes (ranging in age from about 20 years to projects started in the last year). The broader general trajectory of niche expansion and development in this city-region, further facilitated the focus on the 'sustaining' both of individual projects and the wider niche as a whole. Brighton and East Sussex therefore represents a pioneering or 'extreme' case study on the basis that "atypical or extreme cases often reveal more information because they activate more actors and more basic mechanisms in the situation studied" (Flyvberg 2006). In other words, it seems in some ways to be a place that is sustaining this innovation of interest, and we seek to look at how this is being achieved in the context of diverse motivations and the problems that the niche faces.

Participants and leaders were interviewed from across 6 currently running growing projects – two CSAs and four community growing initiatives (detailed in Table 1 below). Participant observation of between 2 and 20 hours was also spent with each growing project. For community gardens, initial interviews suggested a broad divide between those projects focussed on food production and those oriented to other outcomes, such as education. We therefore sought to interview across these two 'group types', and within each of those group types included a relatively more formal and informal

project as represented by having paid members of staff. Because we were interested to understand processes underlying the sustaining of communal growing as an activity, we also chose to interview in projects that had worked with the land for over three years allowing for some historical perspective of challenges and how these have been dealt with.

Table 1: Projects in which interviews were undertaken

Project type	Size	Aims & Outcomes
Cooperative, communally running a growing area within an allotment site	30 members, 4 regular core volunteers. 1000m^2 site. Turn-over of hundreds of pounds per year.	Food production for cooperative members for an environmentally sound lifestyle.
Community growing space	3 paid members of staff, 15 regular volunteers. 2250m^2 site. Turn-over of thousands of pounds per year.	Social inclusion particularly for young people struggling in mainstream education, community development and health.
Communally run allotment plot	~ 5 regular volunteers very variable volunteering otherwise. 250m^2 site. Turn-over of hundreds of pounds per year.	Educational and access to food growing free of charge in an economically deprived area.
Community project on an area of former allotments	2 paid members of staff, 30 sub-paying members. 1500m^2 site. Turn-over of thousands of pounds a year.	Food growing, education, and with provision of raised beds for disabled members.
Community owned farm w/communal management structure	£1.8 million turn-over from farming of 300 hectares, 20 staff.	Biodynamic food production and education on biodynamic growing.
CSA scheme and communal growing plot	1.5 paid members of staff, 3 regular volunteers. 7000m^2 site. Turn-over of thousands of pounds a year.	Organic food production and an example of environmentally beneficial growing practices.

Interviews were transcribed into NVivo, and analysed alongside participant observation notes in the software programme. A coding scheme was devised that drew in part from the conceptual framework, distinguishing where pressures were engaged with clearly as either shocks and stresses (or just coded 'pressures' where not), and reactions to these as being thought of clearly as either control-like or response-like. Processes and qualities (of individuals, groups, institutions) relating to the enactment of pressure framings and reactions to them were also coded. Of course, it was not assumed that interviewees made the above distinctions between 'shock' and 'stress', nor were these

terms or the framework introduced directly. Attention was paid (alongside other aspects), however, to whether participants distinguished between issues seen as cumulative or episodic and reactions to this as response or control like.

4. Results

A range of pressures is experienced by both projects and the niche more generally. Pressures framed as shocks included: energy levels in the group, volunteers leaving, funding (both its loss, application and sometimes reward), availability of land, vandalism, and interruptions to securely tenured land. Pressures framed as stresses included funding and its management, land access and conflict in groups, in addition to the availability of skills. These distinct kinds of pressure were broadly apprehended both by groups and intermediary organisations.

However, communal growing groups – perhaps due to their fire-fighting mode of operation and inability in some cases to take a step back – were more likely to frame pressures as shocks, under circumstances where intermediaries saw them as stresses. The stress framing of intermediaries meant that they were better placed to think strategically about the longer-term re-orientation of communal growing, compared with growing groups. This suggests a close inter-dependency between groups who work to get around a problem in the short term, and intermediary organisations who work to reduce the likelihood of this problem resurfacing in the longer-term. However, among the groups interviewed for this research, those that had developed processes of reflection in their operating procedures and governance structures, were more likely to be able to take a strategic look at pressures and so be more prone to frame these as stresses, rather than just shocks. This suggests a corresponding contrast in strategies aiming more at properties of durability or robustness in these communal growing projects than stability or resilience.

Here we focus on two key pressures which affect growing projects and with which intermediary organisations who support them are also engaged –income generation and land access. This

illuminates richer dynamics lying behind the heuristic properties of stability, resilience, robustness and durability.

4.1 Funding

The ability to source or generate income for a group was a pressure raised by all respondents. All but one of the projects spoken to – the community owned farm business – rely to an extent on grants. Small or informal groups acknowledged that they had low running costs on the whole, needing hundreds of pounds a year to buy seeds, replace tools and for maintenance. While groups where there was a need to maintain paid employees had much higher running costs and correspondingly more need for continuity in income streams.

Rather than seeing funding in terms of short term shock, projects tend to be quite strategic – thinking ahead, understanding funding cycles and increasingly applying to more than one fund. A local intermediary organisation also viewed funding as a long-term stress on getting new initiatives up and running and so sought to 'control' this by becoming a grant-giver itself, locally administering money from the Local Food Fund. Grants given were smaller and more easily accessible than those often available from national organisations.

However, for all but the smaller projects, on-going reliance on grant funding alone is a problem. With the future funding environment uncertain and projects growing or developing on top of previously gained funding, there is an awareness that 'response' approaches, with diversification of income away from grants alone, are necessary if projects are to continue to thrive, as illustrated by one respondent,

> *"now we get little pots of money from loads of different people. If one of them says no, okay, we might have to stop doing something that we wanted to, but it won't be..[makes a throat cutting sign]….probably we get 30% of our income now from schools. I don't know if that will really go up. I think we'll always rely 50% on grants because we'd have to charge so much for*

our work that schools and people wouldn't be able to afford to come here…we'll do our best - I want to move away from grants" *(Community garden project leader)*.

This is supported by national and locally based intermediary organisations who try to build robustness by running a wide range of workshops and producing literature and case studies in support of generating alternative forms of income. Albeit, for some project participants and intermediaries, there was a realisation that 'chasing' revenue, whether from grants or other means, should not compromise the core identity of a group. Conforming to the demands of certain types of income, rather than finding income that suits you was seen by some as a risk to be avoided.

For those projects interviewed, a number of strategies have developed. The CSA model adopted by one growing project was chosen in part because it enabled the development of a livelihood out of a piece of land, but also provided the security of knowing how much money would be generated. The longer-term commitment and more engaged nature of the exchange contract meant better control of income,

"consumers are buying into you, whether you produce famines or gluts. And they pay up front by direct debit. So you have guaranteed income coming in. And the main thing is good communication… Not only were we communicating the concept of CSA, but also that we were a new group and it was a pilot project – asking people to bear with and that we were learning" (CSA project leader).

Similarly the model of community financing used by the farm business seeks to generate no debt relations, and a locally embedded financial and emotional investment in the farm.

Another strategy undertaken by two of the larger and more formalised gardens investigated and the CSA was developing, or seeking to develop, increasingly formalised partnership relations with local schools and a disability charity whereby the gardens were used either continuously or part of the time as a space for learning, training, managing problem behaviour and socialising. Importantly,

these activities were also seen as complimentary to mainstream forms of education, rather than antagonistic or alternative to them,

> *"I mean the schools are strapped, we know that, if they are prepared to pay us a few hundred quid a week, I'll take that as confirmation of them seeing what we do as complementary to them" (community garden participant)*

Rather than a market exchange relationship, they had an ongoing relationship with the schools and charity. This reflects the perception amongst some intermediaries, that more funding is now to be found with statutory or service providing organisations than in open grants, and furthermore that this will provide potentially greater security and less dependency. However, one intermediary organisation also felt that local authorities particularly were increasingly reluctant to partner with community gardens due to their own cuts.

While these are response style strategies (seeking to deal with the outcome of changing funding environments rather than the cause) common to many of these approaches is their potential to give more control to growing groups. In particular partnerships and forms of community buy-in are not arms-length trading or funding relationships, but means of creating longer-term bonds of mutual benefit. Feeling more embedded in the community was another benefit of this type of relationship mentioned by a respondent. Nevertheless, they are contracts, and this can change the dynamic of a project, particularly those that draw on voluntary labour to fulfil these in part. Where there are pressures to deliver a product, tensions may arise in seeking simultaneously to attend to the diverse needs of volunteers. One respondent illustrated this well,

> *"The danger of growth, expansion, professionalization, is that it becomes increasingly institutional and bureaucratic and the spontaneity goes out the window and the fun goes with it" (community garden project participant).*

In this group, having a governance structure that allows for continual and inclusive self-reflection over group identity and core values seems critical.

For two intermediary organisations who worked to see the development of Sustainable food systems (of which communal growing is only a part), a crucial issue is the availability of funding for campaign and lobbying work aimed at developing more supportive operating environments. Advocacy is expensive and skilled work requiring supporting evidence and the mobilisation of narratives that promote a certain vision for and role of different elements of the food system. This issue was also highlighted in the Food Issues Census survey of civil society food groups (Food Ethics Council 2011). So while the interviews conducted for this research suggest that intermediaries do important work in strategically engaging with stresses on communal growing and act to alter their structural underpinnings through means including campaigning and advocacy, the resource flows to this work are more difficult to secure.

4.2 Land

Access to, and security of tenure for land is clearly critical for growing projects of any kind. Having a reasonable length of tenancy is also a pre-requisite for funding and strongly implicated in the sustained engagement of volunteers. Land is also a highly priced commodity at a premium in many urban areas. Its availability is affected by the broader economic climate, and by building booms and crashes. Consequently in many urban areas, while green space is limited, the recession has temporarily stalled some development projects leaving areas of open land – opportunities that the increasing interest in 'grow your own' has sought to exploit. By understanding these opportunities as short term, intermediary organisations like Sustain who have been working to develop 2012 new communal growing spaces in London by the end of 2012 – a programme called 'Capital Growth' – and Food Matters an advocacy group in Brighton, have sought to clarify legal structures for 'meanwhile leases' of land. As originally conceived, these are temporary leases granted to tenants which permit the non-profit use of vacant business properties, while recognising that the land-lord is

looking to find a commercial lease-holder. Through the work of intermediaries working in the field of communal growing, this has since been extended in its application to include plots of land without buildings and on which growing can take place. Through intermediary organisations and groups viewing particular plots of land as only available in the short-term, the interests of those owning the land and who are keen to have the flexibility build on or sell the land when conditions improve, are catered for. The creative design of impermanence into growing spaces through growing in skips, builders bags and in raised beds allows these windows of opportunity to be capitalised on. With reference to our framework, the option of securing a meanwhile lease therefore enables some resilience in the communal growing niche as a whole – embodying a response to a short-term opportunity. But this also points to the need for long-term approaches. Intermediary-campaigning organisations are doing just this in also framing land access as a 'stress' that requires control-style strategies that seek to address the structural underpinnings of land availability. Working to take advantage of the opportunity created by the increasing number of growing initiatives and shortage of allotments in and around Brighton and Hove, a coalition of organisations (Food Matters and the Brighton and Hove Food Partnership, along with actors in the council) have sought durability of communal growing by lobbying to get recognition for the importance of land for growing into the city core strategy and planning guidance. This will put greater onus on local administrations to support and mandate food growing projects – for example where new developments are built.

Access to land and housing was also an issue for both CSAs interviewed, although in a different way to the urban context of many community gardens. In both CSAs, people were seeking to draw livelihoods from food growing, but the affordability of land and housing for one CSA was prohibitive for the low-wage nature of this work. For the second CSA where land is available, the ability to build housing for workers on farmland is not well supported by the current planning regime. The higher labour intensity of many organic and biodynamic farming systems demands that people live on or near the land they work. Where labour is bought in, housing provision can be a key element in providing a decent livelihood despite low wages, as well as important in attracting skilled people.

With regard planning rules, a respondent from one CSA scheme suggested that this constraint would only be solved through the development of a higher regard for organic and biodynamic farming systems and the distinct needs presented by these approaches. To date this remains an unresolved pressure on the people working in the CSA initiatives spoken to.

However, intermediary organisations working at the national level have sought to develop some durability (control of a stress) with regard to the land issue, through schemes like 'Landshare' – acting as brokers to facilitate access to land held by land-rich bodies. These include Housing Associations, infrastructure organisations like British Waterways and train companies, and NGOs with considerable land holdings such as the National Trust and the RSPB.

5. Discussion:

This research has sought to understand the ways in which actors in the communal growing niche respond to change, and in the process seek to sustain the activity itself. Communal growing is viewed as a civil-society based, bottom-up innovation, a "novel bottom-up solution for [S]ustainable development; [a] solution that responds to the local situation and the interests and values of the communities involved" (Seyfang and Smith 2007, p.585). But as well as generating local solutions, the question remains as to whether and how innovations act to influence mainstream ways (or regimes) of provisioning goods and services. Although we do not set out to answer this question per se, after discussing the key empirical findings, we turn to the implications of these for how we theoretically and methodologically conceptualise grassroots innovations with respect to the regimes they might influence.

This research has found that both grassroots groups and intermediary organisations experience similar pressures acting on the communal growing niche. In dealing with any particular pressure we find a repertoire of control and response strategies, interdependently undertaken by groups and intermediary organisations. Brighton and East Sussex hosts a large number of quite small, informal

communal growing projects - less able strategically to frame pressures as stresses. Local intermediary organisations are correspondingly crucial. Not only are they better placed to address pressures as stresses, seek to build capacity in groups to respond to these, and thus develop properties of robustness in growing across the city-region. But they are also essential in trying to control these pressures, and (through that) relaxing structural constraints on communal growing – involving strategies for durability. The work that intermediary organisations have done with councils to highlight land shortages and use planning guidance to increase land available for growing is a good example of this. However, were it not for the groundswell of activity by groups themselves, the legitimacy of intermediary groups working towards structural change would be more difficult. The group-intermediary relationship is therefore interdependent, allowing for the full range of properties to be achieved more comprehensively (stability, resilience, durability and robustness).

We suggested in the introductory sections of this paper that diversity of various kinds is to some extent an intrinsically more prominent feature in civil society than in more structured and mutually-aligned public sector or commercial domains. With respect to communal growing specifically we can see this through how the outcomes of communal growing are variously valued across (and within) groups (whether it be for environmentally friendly food production, education, social inclusion or as part of a green lifestyle), the funding sources and relations developed by groups in seeking to resource their operations, and the types of intermediary and advocacy organisations that support the activity. This paints a more nuanced picture than that afforded by the conventional, less discriminating, general theory of particular 'niches' seeking to reform singular 'regimes'. Diversity therefore needs to be more carefully interrogated in the development of theories around grassroots innovations.

In exploring elsewhere the present conceptual framework , Stirling hypothesises that diversity is a 'multivalent' strategy (Stirling forthcoming). In other words, it is a quality that is in principle equally supportive of properties of stability, resilience, durability and robustness. Although he also observes

that diversity is rarely a 'free lunch' – often carrying a price in terms of coherence or efficiency towards particular ends.

What we have found with regard to communal forms of growing as innovations for transitions to Sustainability, is that diverse outcomes saw the mobilisation of broad scale national and local support. This is illustrated by the considerable funds that have flowed into the niche nationally via networks of large intermediaries, with different remits, through the Local Food Fund, Making Local Food Work and Food for Life. At the local level this has allowed different sorts of partnership to develop between projects and local organisations like schools and charities, and between projects and the purchasers of their food. Furthermore, it is often said by intermediaries that no two growing projects are alike, and in that sense gardens and CSA schemes are a huge source of innovative diversity. As discussed, the groundswell of activity has enabled intermediary groups to engage in some of the structural constraints that communal growing is presented with. This helps to support communal growing *in general* as a locally rooted activity independent of the many regimes to which growing might be linked. What is less clear is how this diversity relates to directional change towards, for example, challenging mainstream forms of food production, or developing an alternative food system.

To return to the theoretical notion of a niche challenging the regime, the issue is how this diversity which supports sustaining the activity in general, plays into the 'challenging' role of a niche. This research suggests that the developmental trajectory of communal growing is best understood in the context of not a single regime, but the multiple provisioning systems to which diverse stakeholder groups identify and link with. For example, this research found that a desire not to wholly rely on grant funding means that pre-existing group aims around education or disability are being more formally developed through paid service provision in ways that support existing health and education systems, and as such 'fitting and conforming' with them (see Smith and Raven 2012). While in these and other projects, we can see experimentation with new forms of exchange which

re-work risk relations between growers and those buying or investing in the food, more directly challenging the food regime. And all of these being supported at the local level by intermediary organisations who have a broader remit of supporting the development of more Sustainable food systems. Seyfang and Smiths'(2007) delineation of the 'strategic' niche from the 'simple' niche captures the different positions that grassroots innovations can theoretically hold. The former describes a niche in which actors seek the reform of a regime, while in the latter they do not. However, as well as assuming consensus within the niche, the framing of these positions with respect to a single regime means that some of the inter-regime and intra-niche dynamics might be missed.

From this, we make two linked points bearing on grassroots innovations research. The first emphasises the methodological importance of defining grassroots niches through attention to the innovative activities (social or socio-technical) as practiced on the ground and the multiple systems of provisioning this may be linked to. This means moving away from understanding a niche as a 'location or space that is protected from *the dominant regime*' (Raven 2010), or 'constructed in *opposition* to incumbent regimes' (Smith 2007). A focus on an oppositional regime brings with it the risk that the niche comes to be overly-defined in a simple dialectical relation to a single regime. Because civil society is very often home to complex configurations of values, we propose grassroots innovation niches could be conceived of as multi-valent and multi-dimensional. As observation of species illuminates complexity of biological niches, so the same could be said of grassroots innovations. This opens up the possibility that a single niche may align in different ways with different regimes according to the multiple interpretations and values that different members bring to it.

The second point develops this further and considers implications for how we then conceptualise change for Sustainability. We suggest this proposes attention to the temporality of opportunity structures towards changes in regimes that emerge both inside and outside the innovation niche.

Taking this approach we would seek to understand the conditions under which interests – potentially spreading into a diversity of regimes – aligned with communal growing to create conducive environments for the development of this activity in ways that more starkly challenge status-quo means of meeting needs, or which (contrastingly) block or inhibit development of these more challenging directions. An interviewee hinted at this dynamic by suggesting that funding brought very diverse intermediary actors together in collaborative ways, but positions re-entrench once funding is over. How these 'windows of opportunity' are used is important to consider in the development of some grassroots innovations. This more plural approach seems particularly sympathetic to innovations with high degrees of interpretive flexibility like communal growing. We hypothesise that open source methodologies or time-banks may be two further examples of this sort of grassroots innovation.

6. Conclusion:

Civil society is a critical arena for exploring trajectories towards Sustainability – through innovation, experimentation and debate. This paper has sought to explore the development of different aspects of what it takes to sustain the communal growing niche, as exemplified in the Brighton and East Sussex area of England. Given that many civil society-based groups exist in challenging circumstances where resources are scarce and operating environments stacked in favour of incumbent mainstream actors, it is of crucial importance to understand how to build qualities like 'resilience' in these trajectories, equally within communal growing groups and networks and the Sustainable practices they pursue. A conceptual framework drawn from Stirling (forthcoming) enabled articulation of divergent insider views concerning action and temporality that underlie different understandings of what it means to sustain these niche trajectories.

Drawing from intensive interviews and extensive participatory observation, this study found that pictures of what it takes to sustain this niche, depend crucially on perspectives between growing projects and the intermediary organisations seeking to support them. This in turn highlights the

importance of synergies between these elements of the niche. Individual projects are more prone to see pressures as short term and episodic in nature, therefore requiring more conservatively tactical responses. Intermediaries are in a position to recognise more long term transformative trends and so be more adaptively strategic in their approaches.

The disparate ends to which communal growing can be a means, and the diversity of organisations that therefore underpin it, has – over the last seven years – led to considerable support for communal growing through relatively accessible resources. In the face of diminishing funding, growing projects are now seeking to generate socially and economically embedded income. These link growing projects to a diverse range of associated regimes.

With regard to implications for grassroots innovations theory, this research highlights the contrasting kinds of diversity that can exist in grassroots innovation niches. It suggests that this diversity be taken seriously – requiring approaches to the defining and understanding of 'niches' to be more open ended with respect to the diverse regimes with which they may be linked.

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