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SUSTAINABILITY: A MULTI-
DIMENSIONAL ASSESSMENT**

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COMMUNITY ACTIVISM AND SUSTAINABILITY: A MULTI-DIMENSIONAL ASSESSMENT

Filippo Celata and Venere Stefania Sanna¹

ABSTRACT

A growing body of research is exploring the role of community-based initiatives (CBIs) in the promotion of sustainable regional transitions. While existing research and policies acknowledge the relevant contribution of community activism in providing a soft, self-governed and bottom-up path towards sustainability, much of this work has a clear normative intent, it is based on individual case studies and rarely provides a systematic assessment of their actual effects.

This paper is an attempt to fill this gap by providing an extensive review of the literature about the social, economic, political and technological impacts of CBIs, in order to define a set of indicators for the monitoring and evaluation of these initiatives. For each of the above mentioned four dimensions, a set of key variables will be proposed for assessing CBIs in a variety of domains: from food production (e.g. community gardens), to food distribution (e.g. solidarity purchasing groups), from recycling, to cohousing, bike/car-sharing, community energy.

Classification JEL: O17, O35, Q56, L30, C18

Keywords: *community-based initiatives, grassroots activism, sustainability, social innovation, monitoring and evaluation, impact assessment.*

1. Introduction

The role of community-based initiatives (CBIs) in the promotion of sustainable regional transitions has recently captured the interests of many scholars, experts and policy-makers. Existing research, which we will extensively review in the following pages, acknowledges the relevant contribution of community activism in providing a soft, self-governed and bottom-up path towards sustainability. Much of this work, however, has a clear normative intent, and it is mostly based on individual case studies.

The research presented hereafter is instrumental to the definition of a tool for the monitoring and the evaluation of the outcomes and impacts of CBIs in Europe, in four different domains: food, transport, waste and energy. The assessment will therefore cover a wide range of grassroots initiatives: from food production (e.g. community gardens), to food distribution (e.g. solidarity purchasing groups), from recycling, to cohousing, bike/car-sharing, community energy, etc. Notwithstanding these initiatives are very diverse in terms of objectives, activities and outcomes, the aim is to define a unique methodology which may be applied to each of them.

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The analysis is conducted within the European research project "TESS: Towards European Societal Sustainability". The final aim is to define a set of indicators for a detailed assessment of single initiatives and typologies of initiatives in the four domains, and across different study regions.

The first challenge in constructing such a methodological framework is how to delimit and define the scope of the assessment, i.e. what a community-based initiative is. The TESS project consortium agreed upon including in the assessment all those collective actions initiated and managed by communities, i.e. any group of individuals - not necessarily located in proximity - who feel that they share something in common, be that a connection through interest, place, lifestyle, culture or practice, and self-organized in order to deliver some benefit to its members, to engage in socially innovative activities, and to reduce environmental impacts, by committing their time and/or sharing their resources and/or implementing projects which serve the community. These initiatives may have received public money, but are not managed by public authorities; they may be not-for-profit as well as for profit; but their revenue-model should serve the community.

This paper presents the first steps towards the definition of the monitoring and evaluation tool, by providing an extensive review of the literature about the social, economic, political and technological impacts of CBIs. The literature review is limited to research published in English, and aims at highlighting, among each of the four above mentioned domains, what existing studies have indicated as the main dimensions/effects of CBIs and which key variable are consequently worth considering. At the same time a preliminary reflection on how these dimensions/effects should be revealed and measured will be developed, together with the proposal of a set of indicators. The review, moreover, will focus primarily on the food domain, given the availability of an extensive literature about grassroots initiatives such as urban gardens, food cooperatives, community supported agriculture, etc.

In constructing such a set of indicators, a number of challenges which limit the scope of the analysis due to practical and methodological reasons have been considered. Our aim is, first, to define indicators which may be applied to a variety of initiatives active in various domains/sub-domains/cross-domains and which may be difficult to compare according to a single metric. CBIs, moreover, have wide-ranging impacts which we cannot expect to cover exhaustively, also because some of those may be too difficult to assess comparatively. The unit of analysis, finally, will be the initiative as an organizational unit, not the single participant to the initiative.

Our main research question is which initiative shows the most relevant outcome/impact and, consequently, which is the most policy relevant and should be prioritized, supported, funded, replicated, institutionalized. Existing research rarely provide a systematic and quantitative assessment of CBIs' actual effects. This paper is an attempt to fill this gap, in order to contribute to scientific research in this field and to provide solid and sound information to policy-makers about which initiatives to support and how.

2. Community-based initiatives' aims and their (self-)assessment

Before proceeding to the definition of the key assessment variables and indicators, it should be considered that CBIs are highly diverse and – even among any single domain considered for this study (food, mobility, waste, energy) – they pursue a variety of different and sometimes divergent objectives. In order to fully understand and to assess the social, political, economic and technological dimension/impact of CBIs, is therefore crucial to investigate the explicit aims that initiatives pursue and how those aims are perceived by each of them, by their participants and by their beneficiaries.

It is, for example, crucial to distinguish between those initiatives that pursue solely utilitarian aims or direct economic benefits, vs. those initiatives with a more social/political orientation. Many initiatives mention the aim to promote more socially just and/or environmentally sustainable forms of urban living (Girardet 2006), but what are their primary aims? We know little of the strategies and meanings of most CBIs: “what are the cultural, ecological, economical, political and philosophical models which inform these initiatives, and what geography and radical alternatives are they building?” (Tornaghi 2014).

The range of CBIs potential aims/achievements is enormous. A brief look at existing research on the topic can reveal such variety. CBIs have been regarded as aimed at the enhancement of the public space, improvement of the neighbourhood, neighbourhood beautification, “eyes on the street”, leisure and fun, health (Wakefield et al. 2007, Freeman et al. 2012), economic benefits, job creation, entrepreneurship, other self-serving motives (Rosol 2012), social innovation, technological innovation, civic engagement, socialization and social linkages, community building (Bellows et al. 2003; Alaimo et al. 2008; Robinson-O'Brien et al. 2009), political claim, reducing ecological footprint, providing green infrastructure (Viljoen and Howe 2005; Van Veenhuizen 2006), improve deprived neighbourhoods (Kremer and DeLiberty 2011), ecological resilience, greenhouse gas mitigation, reconnect production-consumption linkages (Kloppenbergh et al. 1996; Jarosz, 2008; Maye et al. 2007; Donald et al. 2010), subvert capitalist logics, re-embed production within social relations, social inclusion (Kurtz 2001; Baker 2004; Saldivar-Tanaka and Krasny 2004; Turner 2011), public participation, social learning (Baker 2004; Levkoe 2006), cultivate political and social skills necessary for citizenship and activism (Travaline and Hunold 2010, p. 587), pave the way for a more “socially-inclusive form of development” (Donald and Blay-Palmer 2006, p. 1903), represent the preferences and wishes of communities and local people in the policy process (Luckin and Sharp 2004), reclaiming the ‘commons’ (Johnston 2008) or the “right to the city” (Eizenberg 2012; Shillington 2013), etc.

A crucial area of assessment should therefore be what the *motivations* and *objectives* of CBIs are, the extent to which – for example - they are driven by material/individual needs/benefits or economic self-interest and/or sustainability concerns, environmental ethics and social justice. Existing evidence in this regard is partial and not definitive. Seyfang and Haxeltine (2012), for example, asked Transition Towns group organisers around the UK to describe their greatest

achievements to date², and the motivations behind joining the initiative³, revealing a strong political orientation and sensibility of many initiatives. On the other hand, a survey about the “sharing economy” in the UK has indicated that the main motivation for joining sharing initiatives is to save money (36%) and, secondarily, to help other people in the neighbourhood (19%) or to benefit the environment (9%)⁴. In a survey about urban gardeners, more than half of respondents (54%) noted that they practice gardening to save money on groceries and a third (34%) responded that the current economic recession motivated them “very much” or “a fair amount” (National Gardening Association 2009). Along similar lines, in the field of energy, see for example: Walker et al. 2010, Walker 2008, Maruyama et al. 2007, Kellet 2007.

Robbins and Rowe (2002) proposed the following scheme to investigate community-based waste reduction initiatives’ aims (through a qualitative method):

Table 1. Criteria for evaluating community-based waste initiatives outcomes

Individual development	Feelings	Enjoyment/satisfaction, increased confidence
	Relations	Improved social networks
	Actions	Engagement with other groups/issues
	Knowledge	Increased knowledge of waste and environmental issues
	Skills	New/improved skills
Community capacity-building	Achievements/outputs of groups	Projects completed
	Long term capacity (sustainable organisation)	Ability of the group to continue its work with a reduced level of support
	More resources	For WAG projects and to continue the initiative
	Improved contact with wider networks and community	Working with and making links between other community groups
	More local ownership/Management/control	Increased influence over decisions affecting the local environment
Organisational development	Wider profile	Recognition of the organisations involved in the initiative
	Job satisfaction and professional development	Development of the workers’ roles in this field
	More resources	Secured to extend the initiative and to fund new initiatives

Source: Robbins and Rowe 2002

² Results: awareness raising and community engagement activities (69%); establishing and maintaining a group (52%), building links with other local groups and government (47%), food and gardening (40%), waste (12%), energy (11%).

³ Results: tackling climate change (67%), building local self-reliance (66%), preparing for peak oil (57%), community building (50%).

⁴

One method could be to highlight the initiatives' objectives and motivations both when the initiative was launched and at the present time, as in the survey about UK community gardens conducted by Holland (2004) and reported in Table 2. Such comparison may be useful to emphasize and to confront initial intentions with effective results.

Table 2. What the intentions and present reasons for the community garden were and are

	<i>Initial purposes</i>		<i>Current purposes</i>		<i>Var.</i>
Education	63	17,2%	70	16,9%	-0,3%
Community development	62	16,9%	67	16,2%	-0,8%
Leisure	61	16,7%	67	16,2%	-0,5%
Skills and/or training	42	11,5%	51	12,3%	0,8%
Health issues	33	9,0%	41	9,9%	0,9%
Protection of an area	45	12,3%	40	9,7%	-2,6%
Food provision	31	8,5%	37	8,9%	0,5%
Business and/or job opportunities	14	3,8%	23	5,6%	1,7%
Extending existing project	15	4,1%	18	4,3%	0,2%
Total	366	100,0%	414	100,0%	

Source: Holland 2004

3. The social dimension/impact of CBIs

In addition to being aimed at reducing environmental impacts and at promoting sustainability practices and lifestyles, CBIs have a variety of social aims and effects. The 'social' dimension of CBIs is both instrumental to the achievement of their sustainability/practical aims and a goal in itself which, consequently, needs to be properly assessed and evaluated.

3.1. CBIs and social capital

The main social dimension/impact of CBIs is indicated in the literature as the strengthening of social capital within the community or group. Social capital is indeed a very general term which, according to Putnam (1995), can be defined as "connections among individuals - social networks and the norms of reciprocity and trustworthiness that arise from them".

The primary dimension of social capital is therefore expressed by the attitude towards networking of a given group or community which, in turn, expresses itself through increased trust, cooperation and reciprocity, and by building a sense of community and belonging.

The literature has emphasized that the pillars of social capital are inter-personal relationships which, in turn, require the opportunity of actually meeting and interacting face-to-face: this is exactly the opportunity that most CBIs offer to their members (Macias 2008).

Community gardens, for example, are deliberately created to provide a “third place” else from work and home (Oldenburg 1999) where people can meet, build relationships, develop common interests and identify themselves as members of a community (Glover et al. 2005), which- in turn – “can foster norms of reciprocity and trust among members”.

More generally, according to Kingsley and Townsend (2006) the social benefits of CBIs are the following: increased social cohesion (the sharing of values enabling identification of common aims and the sharing of codes of behaviour governing relationships)⁵, social support (having people to count on in times of crisis), social connections (the development of social bonds and networks)⁶.

Other authors have emphasized the capacity of CBIs to promote local pride and citizens’ participation, especially in poorer communities that may be lacking other public amenities (Macias 2008; Johnston and Baker 2005; Lawson 2005), and to build a sense of belonging to the community. Community-building, according to Seyfang and Haxeltine (2012) is also the motivation for people to join the initiatives in 50% of the cases, and is at times their almost exclusive motivation:

“Community garden initiatives (...) are often more about the community than they are about gardening. They offer places where people can gather, network, and identify together as residents of a neighbourhood” (Glover 2003, p. 192).

The immediate expressions of such networking potential are, for example, the sharing of resources among members, increased cooperation and social support by other participants (Kingsley and Townsend 2006), or *empowerment* more generally (Kirwan et al. 2013), which will be discussed more in detail in section 4.

Moreover, building social capital among participants is instrumental to almost all of the other initiatives’ aims (Beall 1997). It is instrumental, first, to the effectiveness and to the survival of initiatives which often fail due to a decreased will from participants to engage, to cooperate and to actively participate. “Maintaining momentum, managing group dynamics, developing the group” is perceived as the third biggest barrier faced by the transition town movement’s initiatives (reported by 53%, Seyfang and Haxeltine 2012). Networking is also instrumental to increasing the scope of initiatives and for other people to join due to their social ties with those who are already members. It is instrumental to disclose the socially innovative potential of CBIs - collective action and interaction being crucial for any social innovation (Kemp et al. 1998; Kirwan et al. 2013; Smith and Seyfang 2013), as we will see further. A research by Robbins and Rowe (2002) about CBIs in the field of waste, for example, demonstrated that the two communities in which groups were (apparently) most effective in terms of an increase in local recycling activity were those which had a relatively strong sense of local identity and existing capacity. Social capital is a prerequisite, finally, for initiatives to reach their political aims, if they have any, by linking organizers with wider social movements or groups and providing a social space that fosters networking and activism (Flachs 2010).

⁵ Along the same line, about community gardens, see Mares and Peña, 2010.

⁶ In the domain of energy see: Walker et al. 2010.

The extent to which CBIs promote social capital is however extremely variable, not only according to the typology of the initiative, the domain to which it pertains to or its primary aims, but also according to the number of participants, the degree of their involvement in the initiative, the opportunity that those members have to meet, interact, cooperate, and their 'social investment' in the initiative.

3.2. CBIs and social inclusion

Another important social dimension of CBIs is *inclusion* (Hinrichs and Kremer 2002). This could also be considered a dimension of social capital, which is indeed a multi-dimensional and at times elusive concept. An important distinction needs to be made between what in the literature is defined as the 'bonding' dimension of social capital, and to which we referred above (increased social cohesion among communities, groups or participants), and its capacity for 'bridging' between usually separated social groups or individuals differing in ethnicity, age, class and social identity (Kingsley and Townsend 2006). In this latter sense, CBIs may be evaluated in their ability to increase social integration (Macias 2008), and consequently for their capacity to contrast social isolation.

Initiatives, moreover, can be more or the less socially inclusive not only in terms of process – the degree to which they involve or not involve a diversity of participants – but also in terms of their vision – the extent to which they explicitly address social, racial, gender or other kinds of inequities – and in their outcomes – the degree to which they improve food access, waste management, clean energy, etc., to a wide range of beneficiaries including, for example, vulnerable groups, minorities, lower-incomes. In this, social inclusion it's not only about building social networks, but about social equity and social justice more generally.

The ability of CBIs to promote social inclusion is, however, controversial. Some research suggests that although many initiatives attempt to promote wide community participation, "they often stumble in their efforts to include a diversity of people on the basis of income, education, and occupational status" (Hinrichs and Kremer 2002). Participants and beneficiaries tend to be homogeneous in terms of race, religion, income, education, and some initiatives have been accused to be explicitly exclusionary.

Several scholars (Schmelzkopf 1995; Von Hassell 2002; Peña 2005; O'Neal 2009) describe the existing tensions between, for example, community gardeners and the greater environmental movement. Much of this tension can be class and racially motivated, as low-income gardeners tend to be people of colour or poorer while environmental leaders tend to be Caucasian or wealthier. Some research notes that gardeners feel marginalized by environmental leaders, and often exist on the periphery of this "white movement" (Flachs 2010, p. 3). According to Tornaghi's work on urban agriculture (2014), "while many of these food-growing projects are actually providing access to land for some social groups, this does not always translate into a fairly accessible resource for the whole population, lacking therefore in terms of distributional justice". Some community gardens have been even accused of cultivating racist agendas by masking structural inequities, and conditioning participants to pursue change through individual endeavour,

rather than collective action (Pudup 2008). Consequently, we need research that “goes beyond the naive and unproblematic representation of urban food production practices, able to expose the socio-environmental exclusionary dynamics which are embedded into them” or, more generally: “how are social cohesion and social exclusion promoted and alleviated through urban agriculture” or others CBIs (Tornaghi 2014)?

According to Ghose and Pettygrove (2014), such exclusionary dynamics are not due to any explicit aim to include or exclude particular groups, but because the willingness and ability to participate vary contextually according to organizational capabilities, social connectedness, and resource access. Research showed, to give another example, that co-housers in the UK, US and the Netherlands tend to be affluent, white and well educated. This deters some groups (particularly low-income and minorities) from joining cohousing communities because they feel they would be socially and culturally isolated. Case studies conducted in the US and UK prove that a “key problem is that some cohousing communities are more insular - resulting from perceived hostility of surrounding communities or development fatigue (particularly in the case of new build developments) - thus integration restricted” (Williams 2008, p. 272-274).

More general literature about social capital has warned, indeed, that the bonding dimension of inter-group relationships can produce closed networks, and that a proper balance between bonding and bridging needs therefore to be pursued.

The expressions of the social inclusion dimension of CBIs is, for example, their capacity for integrating newcomers (State of the World 2008 of The Worldwatch Institute), engaging/benefiting disadvantaged groups (Smith and Seyfang 2013) or low-income individuals (Hinrichs and Kremer 2002), or promoting inter-racial interactions (Shinew et al. 2004) and guaranteeing their benefits across the whole spectrum of society. Another important dimension is the initiatives’ gender balance or, more generally, the demographic profile of member/participants which, according to surveys reported in the table below, can be highly differentiated.

Table 3. Demographic profile of community garden allotments in the UK

<i>Survey</i>	<i>Female (%)</i>	<i>Retired (%)</i>	<i>White British (%)</i>
Thorpe 1969	3	-	-
NSALG 1993	15	-	-
NSALG 2003	16	40	-
LB Richmond 2001	41	45	89
LB Hounslow 2002	34	-	92
LB Hillingdon 2002	17	60	88

Source: Buckingham 2005

3.3. Key variables

The social dimensions of CBIs will therefore be evaluated according to two separate groups of indicators:

a) *Social capital*. A first set of indicators will aim to estimate the CBIs (internal) networking potential, intended as a proxy of social capital.

The networking potential of initiatives is primarily a function of the network size (number of participants/members that maintain relationship) and network density (frequency of contacts).

Key variables are therefore the following: how many members are actively participating in the initiative (scale matters and, in this sense, can be considered as an 'intensity' measure: networking potential of initiatives depends, firstly, upon their extent); how much time and resources participants dedicate to the initiative (which may be regarded also as an indicator of personal commitment and social investment from members to the initiative); how often members/participants meet (which influence the actual opportunities for personal and face-to-face interaction).

b) *Social inclusion and equity* will be the second key variable. A first option in this regard is to measure indicators of the internal diversity of CBIs participants/members' on the one hand, and of their beneficiaries on the other hand. Diversity, in this frame, is intended as a proxy of the initiatives' social integration or social inclusion potential, which for example can be measured by surveying the composition of participants/beneficiaries/target groups: how do participation in the initiative vary by class, ethnicity, gender or any other socio-cultural dimension. The social integration potential of groups can be measured, moreover, by the extent to which group members differ from the local population in general (Hinrichs and Kremer 2002).

Two additional observations are needed. First, as already mentioned, when measuring social capital is crucial to distinguish between its '*bonding*' and '*bridging*' dimensions. The Council on Quality and Leadership (2005), for example, proposed a Social Capital Index to provide a tool for organizations, people and communities to measure their social capital, that can account for both its bridging and the bonding dimensions. Bonding social capital is defined as "what we have with people who are similar to us and who are already part of our social circle", while bridging social capital is "the type we have from our relationships with others who are less like us and who exist outside our typical social circle". The bonding dimension is expressed by whether participants (i) have intimate inter-relationships, (ii) participate in the life of the community, (iii) are respected, etc. On the other hand, the bridging dimension is estimated investigating whether participant: (i) live in integrated environments, (ii) interact with other members of the broader community/neighbourhood, (iii) perform different roles, etc. The sum of the two factors, bridging and bonding, offers an estimate of total social capital. A similar methodology may be applied to CBIs by adapting it to their peculiarities and by referring more specifically to the initiatives' participants (rather than to members of a given community in general) and their concrete opportunities for networking.

Second, it should be noted that the social dimensions/impacts of CBIs do not always extend beyond the boundaries of the initiatives (Kingsley and Townsend 2006). This opens up the very important issue of *external networking*, which needs to be properly discussed and evaluated. The issue may be considered as

an integral component of the social capital dimension of initiatives and estimated by the degree to which the networking potential of CBIs is limited to its members or, on the contrary, extend beyond these boundaries to involve the whole community and/or other communities. The issue of external networking will be discussed more in details in Section 4.

4. The political dimension/impact of CBIs

Whether the aims of CBIs can be more or less 'politically-oriented' or not, as we will see, community involvement and participation has an important political dimension. Glover et al. (2005) work on community gardens, for example, emphasizes the "democratic effect" of those initiatives, following the idea that participation and civic engagement is the foundation of a strong democracy. To evaluate these political impacts, the authors refer to Warren's distinction between the three main "democratic effects" related to participation in any kind of association (2001):

1) the "developmental effects" of associations, i.e. micro-effects at the scale of each individual participant. Civic engagement helps participants to cultivate their individual autonomy in developing judgments based on personal preferences and normative beliefs, through better information and skills and by enhancing participants' organizational capacities. This dimension can be expressed – and evaluated - through the lens of the concept of individual *empowerment*.

2) the "institutional effects" that go behind the initiative itself, expressing its capacity to influence external organizations and actors, to have a significant impact on and/or relation with public policies or formal political institutions and, in the end, a societal significance: the extent to which they influence wider socio-political priorities, agendas and practices.

3) the "public sphere effects" of associations, which regards their 'internal' political functioning. CBIs provide a more or the less viable socialization infrastructure through which participants can discuss, confront and test ideas, deliberate and develop a sense of attachment. The "public sphere effects" of CBIs are related to their internal decision-making procedures, and expressed by, for example, the degree of hierarchical management, or the frequency of leadership turnover, the opportunities that non-leaders, participants and beneficiaries have to express their personal opinion and influence the initiative. Ghose and Pettygrove (2014), for example, have documented that "forms of subtle exclusion occur in the division of leadership roles and navigation of difference along intersecting lines of race and class among [community] garden participants". Luckin and Sharp (2004) noted that when CBIs are involved in the policy process, they do not always represent the wishes of local people. This issue is correlated to the issue of social inclusion referred to within the social dimension/impact.

By adapting the above mentioned scheme, we can therefore distinguish between (and attempt to evaluate/measure) CBIs' political effects among participants ("development effects") on the one hand, and their external political dimension ("institutional effects") on the other hand, while the "public sphere effects", i.e.

internal decision making procedures, will be assessed in terms of organizational effectiveness, discussed in Section 5.

4.1. The internal political dimension of CBIs

At the scale of individuals, CBIs impact on the capacity of participants and beneficiaries to act politically and are often regarded as means to 'empowering' those who participate (Langhout et al. 1999; Myers 1998). According to Glover et al. (2005), the associative dimension of CBIs and social networks is that they have the effect of promoting cooperation and civic culture among 'active' participants, as well as providing them with the information/skills and relational assets (networking, cooperation, empathy) which are needed to act politically.

Empowerment – already mentioned when discussing the social dimension of initiatives – is a concept which is flexible enough to capture a number of effects that initiatives have upon those involved, including 'political' effects. Notwithstanding the popularity of the concept, there is no clear definition of what empowerment is, not to mention the difficulty in providing any kind of measure. Most definitions suggest that empowerment is the process of gaining power or gaining control over decisions and resources (Page and Czuba 1999; Jupp et al. 2010), but how to define 'power' and how to evaluate such gains?

The World Bank defines empowerment as "enhancing an individual's or group's capacity to make choices and transform those choices into desired actions and outcomes" (Alsop and Heinsohn 2005). The Bank suggests empowerment is expressed by: access to information; inclusion/participation; social accountability; and local organizational capacity (WB, 2002). On this basis, Alsop and Heinsohn (2005) proposed an ambitious set of indicators of "degrees of empowerment" at the macro and meso-scale, based mainly on the concepts of agency – ability to make choices – which the authors suggest to measure in terms of "asset endowments", i.e. psychological, informational, organizational, material, social, financial, or human assets of individuals like, for example, skills, literacy, capacity to envision, ability to express personal opinions, social capital, ability to organize with others for collective action, ownership of assets and resources, etc. Direct measures of empowerment are proposed to assess: 1. whether an opportunity to make a choice exists (existence of choice); 2. whether a person actually uses the opportunity to choose (use of choice); 3. whether the choice resulted in the desired result (achievement of choice). A number of 'intervention-level' (i.e. meso-scale) indicators are proposed by the authors.

Meso-scale indicators (like those referring to single projects, organizations or initiatives), however, are by far less developed than macro-scale methods.

In our case, we need first to define what (social and political) empowerment means for the kind of CBIs that we will evaluate. CBIs are usually regarded as venues for enhancing the skills, knowledge, relational assets, control over means of production, security, democratic citizenship and activism of participants. But how to measure those 'empowerment effects' (without necessary surveying each individual participant)? And is it possible to define indicators which do not rely on subjective judgements?

Existing methodologies are for the most qualitative. One option is to use stakeholders' 'stories' to understand outcomes, or social accounting methods (www.proveandimprove.org). Krishna (2005) suggests letting individuals themselves define what 'empowerment' means in their case, proposing a 'community-led' method for measuring it. Other methods are proposed by Myers (1998) and Kearney (2009), or may be found in the extensive literature about project's impact evaluation, starting from the methods developed by the World Bank, mentioned above. Glover et al. (2005) proposed a complex quantitative model to evaluate the "democratic effect" of community gardens through individual surveys⁷. Moreover, according to the authors, the "internal [political] effect" of community gardens – i.e. developmental effects and individual empowerment - is stronger than their "external effects" – i.e. institutional effects – which will be the object of the next sub-section⁸.

4.2. The external political effects of CBIs

The 'institutional' effects of CBIs, as we have seen, is their capacity to influence their political and societal exterior in terms of, for example, policy priorities, or social practices more generally: the degree to which they not only promote more sustainable practices and lifestyles within their community or group, or towards their direct beneficiaries, but also for the wider societies. A proxy of CBIs' societal significance could be the attitude of initiatives towards *external networking*, i.e. the extent to which initiatives relate to: a) other initiatives, b) other organisations and actors.

A crucial issue that will be explored – and translated into standardized indicators – is the attitude of CBIs towards *networking with other initiatives*: information in this regard will be extracted from the mapping of initiative-to-initiative collaborations, through social network analysis.

In relation to the initiatives' attitude towards *external networking with other organisations and actors*, a tension can be highlighted between, on the one hand, the tendency of many CBIs to pursue autonomy and self-sufficiency within their communities through a 'localistic' agenda and, on the other hand, those initiatives which actively seek to up-scale, to diffuse or to influence other communities/actors

⁷ The authors propose measuring (civic, social and political) citizenship based on answers on a Likert scale to questions related, first, to the degree of *personal political commitment* to the initiative and to the community (for example: "I have a responsibility to connect and talk."; "I have a duty to contribute actively..."; etc.), the degree of *political citizenship* (the extent to which participants believed they should be involved directly in the discussion, selection, and implementation of strategic alternatives in their communities), a *social interaction variables* (which could be approximated by the social capital index referred to in the previous section), and a measure of *intensity of involvement* (hours spent working or networking in the community initiative).

⁸ "Time spent in a community garden is a stronger, albeit weak, predictor of political citizenship orientations than was time spent talking and visiting with other community gardeners" (Glover et al. 2005)

in order to transform socio-political systems, or to promote a wider diffusion of radically alternative practices (Tornaghi 2014; Mason and Whitehead 2012⁹).

Existing evidence is controversial in this regard. “The need to build effective links with other actors” is not perceived as a major barrier and it is faced only by 17% of grassroots initiatives, as reported by Seyfang and Haxeltine (2012). Pothukuchi and Kaufman (1999, p. 220) have documented that food justice initiatives have not been successful in mobilizing or involving diverse food system stakeholders. “Local projects seek supportive partnerships with other local organisations on an *ad hoc* basis” and, some of them, perceive a risk of capture and instrumentality in their relations with more powerful actors (Smith and Seyfang 2013). “Voluntary organizations that rely on or compete for state funding may become ‘arms’ of the state, serving to translate state policies to non-state practices” (Ghose and Pettyglove 2014). Many of those initiatives, consequently, explicitly refuse to promote any sort of up-scaling and diffusion, as a mean to “resisting pressures to mainstream, yet simultaneously generates accusations of marginality” (Smith and Seyfang 2013).

Other typologies of initiatives are more open to their (political) exterior, as they influence or get influenced by wider political agendas, also in order to get some sort of support from external organizations or political institutions, which is however a problematic issue for most small scale CBIs, as we will see further. The forms of external support offered by political actors to CBIs can be the following: advice, funding, adaptation of regulations and permission schemes (Walker 2008), tax incentives (Jaccard et al. 1997), political lobbying, etc.

Beside political institutions and actors, other crucial ‘external’ actors are, for example, *‘umbrella’ organisations or networks*, whose roles need to be properly assessed and examined (e.g. the Transition Town Movement), or the *private sector* (important especially in the field of waste and energy), as a source of – for example – private sponsorship. The issue of external funding will be explored within the economic dimension, Section 5.

While in some cases, as already mentioned, community activists explicitly refuse to relate in any way or the get any kind of support from public (or private) actors, in other cases researchers (see Wekerle 2004 about Toronto) have examined the emergence of a networked movement linking community advocates, small and large public agencies, social justice groups, staff of local government and municipal politicians. As reported by Seyfang and Haxeltine (2012), 83% of

⁹ Such tension, according to Mason and Withehead (2012), is evident in the Transition Towns movement, and expressed in the “uncertainty over the formation of transpatial networks of towns, sharing ideas, resources, skills (and exercising greater political solidarity) and the threats that any such network could pose to the process of local self-determination in the individual Transition community”. According to the authors, the commitment to localism of many initiatives has negative effects (diminish the potential for municipal exchange and coalition building, and reduces the potential to develop extended registers for care for distant others) and positive effects (support a strong sense of local empowerment and focus in changing the nature of a place). Opening to other groups as well may have negative effects (often makes it difficult to develop the oppositional energy that is actually needed to change the nature of a place) and positive ones (encourage and emphasize diversity, up-scaling).

initiatives have begun the process to “build a bridge to local government”. Other actors that those initiatives have relationships with are: other voluntary organisations (74%); private businesses (59%), charities (45%), social enterprises (39%), political parties (23%), national government (8%). Other research has, for example, emphasized the role of ‘intermediaries’:

“The focus has shifted from understanding ‘local projects’ towards understanding how multiple such projects combine to form a ‘global niche’ level which refers to an emerging field or community at which shared rules and practices form and evolve” (Hargreaves et al. 2013).

Those external relations are also instrumental to the survival and success of CBIs, as reported by Hess (2013): “over time, grassroots innovations that are connected with aspirations of local ownership tend to be displaced by better-funded models of financing supported by corporations in the financial and technology industries”. Public institutions in different policy fields (health, environment, planning, etc.), have an important enabling or constraining role for CBIs to exist, persist and diffuse. Local authorities are especially crucial. But national policies and laws play a key role especially in the field of energy (Hain et al. 2005; Maruyama et al. 2007; Rogers et al. 2008; Walker 2008; Walker and Devine-Wright 2008; Walker et al. 2010) and waste (Robbins and Rowe 2002; Joseph 2006). The extreme cases are those programmes that, in some localities, are coordinated centrally (Tarasuk 2001), but that do not fit with the definition of CBIs adopted within this work (i.e. those initiatives that are initiated by communities).

Within community-led projects, however, the extent to which initiatives are relying on the support or relating to external actors in various forms – funding, special agreements, regulations, collaborations, etc. – is highly variable, and worth considering. Those same agreements, regulations or policies, in other cases, can also constrain the activity of CBIs¹⁰. The issue is complex: it can only be partially explored through standardized measures.

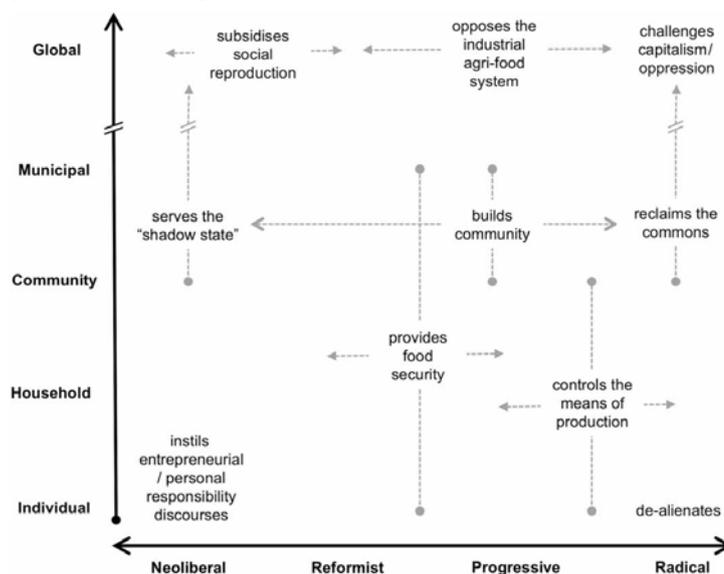
It is worth considering that the relations between community involvement and the political sphere is currently the object of fierce debates. The fact that CBIs have an important political dimension is demonstrated by the fact that they are currently on the agenda of many formal political institutions. CBIs, in this regard, may be said to *complement* wider efforts in promoting sustainability or seeking other social and economic aims (Armstrong 2000; Saldivar-Tanaka and Krasny 2004; Rosol 2012). On the other hand, and from a critical perspective, the self-organization of communities may be said to *substitute* political authorities by taking up tasks that are ultimately the responsibility of political institutions. In this sense, the spread of CBIs can be regarded as an expression of a more general “hollowing-out” or “roll-back” of the State and have been accused of constituting, justifying or supporting a neoliberal agenda, in that community activism and volunteering replace the role of formal political institutions in the promotion of

¹⁰ See, for example, the ambivalent attitude of political authorities towards community gardens, which are often tolerated, in other cases supported, but sometimes contrasted (Ghose and Pettygrove 2014; Smith and Kurts 2003). In the field of renewable energy, in the UK from the 2000s the programme “community renewables” entered in the mainstream policy discourse as a premise for the massive development of this kind of investment; but in 2007 the government cut off those funds (Walker 2008; Walker and Devine-Wright 2008).

sustainability (in the case of food, see: Tornaghi 2014; Baker 2004; Rosol 2012; Knigge 2009; Ghose and Pettygrove 2014; McClintock 2014). The increasing activism and autonomy of communities in pursuing sustainability can be interpreted as an expression of a more general ‘rescaling’ of urban ecological policies (Hodson and Marvin 2009; Whitehead 2013), i.e. ecological responsibilities shift from upper scales (states and municipal authorities) to communities and individuals, or even as a form of “governing through community” (Rosol 2012, p. 251). From this perspective, public policies are sometimes indicated as responsible for the (unsustainable) situation that initiatives seek to react from and oppose to (Smith and Kurtz 2003); for example, “government has played a huge role in creating the current industrialized, commodity-based food system” against which alternative food networks were created (Conner and Levine 2007, p. 13). In the field of waste or energy, CBIs are often developed in the context of government failure to provide adequate services (Beall 1997; Chakrabarti et al. 2009), and the relation between communities and public authorities is often problematic (Luckin and Sharp 2004; Zurbrügg et al. 2004; Pasang et al. 2007; Davies 2007). Transition to a more sustainable future according to some authors, finally, requires “structural change and not just changes in individual or community behaviour” (Mason and Whitehead 2012).

These two perspectives pertain to two separate strands of research – critical research on the one hand, and policy-oriented research on the other hand – which have very little in common and rarely communicate with each other. A good exception is the work of McClintock (2014) that – in the field of urban agriculture – proposed the comprehensive scheme presented in Figure 1.

Figure 1. Urban agriculture multiscalar (and often contradictory) processes.



Source: McClintock 2014

Finally, not every political authority/institution equally supports every kind of CBI. There's a '*selective support*' by policy-makers which needs to be scrutinized both in order to fully understand the policy impact of these initiatives, and to better understand their complexity and diversity (Tornaghi, 2014). In general, some authors have stressed "the general risk aversion of policy makers when dealing with small-scale, often radical, and relatively informal innovating organisations" (Hargreaves et al. 2013). In the field of waste, for example, Davies (2007) noted that community-based recycling organisations in Ireland are marginalised from waste policy development and implementation. In the field of energy, Hain et al. (2005) noted that although the UK Government has included non-profit community renewable projects as eligible for grant support, the renewable energy policy is designed primarily to support large-scale projects. Moreover, bottom-up and grassroots initiatives are flourishing side-by-side a number of top-down, policy-driven and publicly funded initiatives which have the same goals and characteristics, but "with little or nothing in common" (Tornaghi 2014), meaning both that the two typologies don't interact and that they are different in many respects. These issues, however, requires in-depth research and will only partially be included in the standardized assessment presented in this paper.

4.3. Key variables

Summing up the above mentioned political dimensions/impacts of CBIs, key and measurable variables could be the following:

a) *Individual empowerment*, which can be expressed (and measured) in various ways: access to information; training and skills; organizational capacity; 'asset endowments' more generally (i.e. psychological, informational, organizational, material, social, financial, or human assets); inclusion/participation; social capital; ability to make choices and express personal opinions; ownership of assets and resources, etc. Following Glover et al. (2005), such empowerment effect is dependent on the intensity of participants 'political' commitment and involvement to the initiative (e.g. hours spent working or networking in the community initiative).

b) *External networking with other initiatives*, which can be expressed by the attitude of CBIs towards networking with other initiatives and extracted from the mapping of initiative-to-initiative collaboration, through social network analysis.

c) *External networking with other actors/organizations*, including formal political institutions and actors (at various scales), political parties, public agencies, umbrella organisations or networks or intermediaries, other community representatives or voluntary organizations or socio-political organizations, social enterprises, private organizations and firms, schools and training centres, etc. (see Wekerle 2004). One option could be to replicate/widen the survey by Seyfang and Haxeltine (2012): with which actors are initiatives' currently or wish to networking with or collaborating?

d) *External support*: the extent to which initiatives are relying on policy support – in the form of funding, incentives, special agreements, regulations, external advice.

political lobbying, etc. In terms of public funding, this issue overlaps with those discussed within the economic dimension, Section 5.

e) To highlight the initiatives' *aims/objectives/expectations/achievements* is especially crucial when discussing their political dimension: which were their initial objectives? Where those political objectives? To what degree those objectives have been achieved? Which are their objectives today? What will those be in the future? We already referred to this issue in Section two¹¹.

As already mentioned, other issues that we referred to cannot be covered by a standardized/structured questionnaire survey as they need to be framed within a more politically inspired and case-study-based action-research (Blaikie 2012).

5. The economic dimension/impact of CBIs

CBIs have a variety of economic aims and effects. According to recent studies, participants in CBIs are mostly motivated by a set of tangible factors - because most CBIs make available and/or affordable housing, transport, food, etc. - and intangible ones, in that they produce indirect economic benefits for individuals and/or their community.

In order to identify the variety of possible positive and negative economic impacts of CBIs, it is necessary to define the scale of observation. CBIs can indeed produce economic effects at different scales:

1. Micro: potential benefits and costs to the individual participant and by extension to group members.
2. Meso: at a local level in the neighbourhood or locality where the initiative takes place, or on the local community involved.
3. Macro: effects at the city-regional and/or national scale.

The further we move the point of our observation from the initiative itself, the more difficult is to measure its impacts. For this reason, and given the aims of the research, we will focus on the micro scale, i.e. the economic effects on individual participants, to be estimated at the scale of each single initiative and, secondarily, on their local economic impact.

¹¹ In political terms, some CBIs are direct affiliations of political activism and political struggles started during the 1960s and 1970s. As such, they are proposing a sort of participative and neighbourhood-level politics. Some authors investigate CB-initiatives, indeed, from the perspective of social movements studies (Schmelzkopf 2002; Staeheli et al. 2002; Wekerle 2004; Smith and Seyfang 2013). The aims of CBIs could be to reduce environmental impacts only, or more radically and politically-informed objectives such as promoting environmental justice and equity (Ferris et al. 2001; Macias 2008; Tornaghi 2014), strengthening democracy and a better citizen involvement (Neumeier 2012; Ghose and Pettygrove 2014), challenging dominant power relations and claim rights to the city (Starr 2000; Schmelzkopf 2002; Staeheli et al. 2002; Wekerle 2004), providing alternatives to capitalist social relations (Eizenberg 2012) or producing new individual and collective subjectivities (Pudup 2008). But such a strong political orientation is not always the case (Flachs 2010): not all initiatives "reflect an intentional collective effort to forward positive social change" (Glover et al. 2005); many initiatives are much more pragmatic, as already mentioned, while those more politically-oriented do often fail in achieving most of their ambitious (political) objectives (Ghose and Pettygrove 2014).

In what follows, a distinction will be made between direct and indirect economic benefits.

Table 4. Direct and indirect benefits of urban agriculture

Agriculture production	Social and psychological benefits
Marketed (to consumers)	Food security (available and affordable)
Not marketed (given to members or neighbours)	Dietary diversity
	Personal psychological benefits
Indirect economic benefits	Community cohesion and well-being
Multiplier effects	
Recreational	Ecological benefits
Economic diversity and stability	Hydrologic functions
Avoided disposal costs of solid waste	Air quality
	Soil quality

Source: Koc et al. 1999, p. 98

The economic dimension is also crucial in terms of the initiatives' chances for surviving, which implies the assessment of the initiatives' functioning in economic terms: how they sustain themselves economically, through which sources, the degree their resilient in respect to external or internal shocks, etc.

5.1. Direct economic impacts of CBIs

CBIs often have substantial effects on the economic situations of individuals, households and communities, increasing personal or family incomes directly or indirectly.

In terms of economic impacts, the literature shows that the majority of participants, when asked the most important reasons for joining CBIs, agreed "it was due to the *financial savings*" (Katzev 2003; Flachs 2010, p. 2) and *impacts on income*. Data gathered by Muheim (1998, p. 20) regarding car sharing initiatives, for example, show that practical reasons have the most important and that the proportion of those who joined for ecological reasons is 6-9%. This rationale, according to previous research, has become more pressing in the current economic crisis and participants "saw their efforts in most of these initiatives as supplementing their income in the recession" (Flachs 2010, p. 2). Although evidence reveals that other motivations are important, economic needs are becoming more pressing.

CBIs have direct economic benefits in that they tend to make goods and services available and/or accessible and more affordable, e.g. providing products that individuals would otherwise need to pay for, giving participants access to affordable transport, energy, food, etc.

For car and bike sharing initiatives the financial savings are expected to be derived from "avoiding the cost of owning and operating a private vehicle or by making it unnecessary for people to purchase one" (Katzev 2003). Various studies

(Cohen et al. 2008; Katzev 2003) have shown that car and bike sharing schemes almost entirely remove the fixed cost associated with transport, or reduce costs compared with public transport, taxi or car hire (SGS Economics and Planning 2012, p. 15). Moreover, participants can also save on the variable costs of maintenance.

Community gardens and community farming, to give another example, deliver fresh, local, and often organic food at relatively low prices, consumers save money on comparable products available in shops. Flachs (2010), states that participation is economically advantageous for individuals because “with a relatively small input, they can make large returns”. Gardeners save significant amounts of money on produce: “one project [in the US] estimated that community gardeners saved between \$75 and \$380 in food costs every season” (Hlubik et al. 1994; Armstrong, 2000). Studies have estimated that a community garden can yield between \$500 and \$2,000 worth of produce per family a year, and that every \$1 invested in a community garden plot yields around \$6 worth of produce (Hagan and Rubin 2013, p. 12).

In some places or neighbourhoods, the quality and quantity of food is insufficient; “even when cash is available to low-income urban residents, food is not always accessible” (Brown and Carter 2003, p. 8). In ‘food deserts’ for example (areas where food supermarkets and grocery shops have closed, and healthy and affordable food is inaccessible to the public, particularly for those without access to an automobile) and especially in low-income areas, particularly in cities, community-based agriculture initiatives “have filled a necessary gap in fresh, healthy, and affordable food” (Peña, 2005). Even though food insecurity continues to affect these communities, gardens help to make food available, sometimes generating “literally tons of food” (Ibidem). Such benefits are particularly evident for low-income groups.

CBIs not only provide food, transport and other services creating savings in household expenditure on consumables - thus increasing the amount of income allocated to other uses - but also, in some cases, provide surpluses that can be sold in local markets, generating additional income for participants. More generally, products and services provided by CBIs can be marketed or not marketed. Some US community gardens, for example “combine their surplus and sell at farmers’ markets or sell food directly to restaurants” (Brown and Carter 2003, p. 12), “while most use gardens to supplement their food purchases, some have created small economies by selling to neighbours and community members” (Flachs 2010, p. 2). This factor is easily quantifiable, and can generate positive publicity for similar initiatives to start (Ibidem). Moreover, when neighbours and residents start to “buy local” this is likely to activate a general trend of lifestyle changes improving both the health and economic vitality of communities (Hagan and Rubin 2013, p. 11).

Not all the impacts of a CBI are positives. Below are some of the *direct negative impacts* explored in the literature. Participants in CBIs usually incurs in direct costs; even if they are low, membership rates and usage fees represent an expense for users. Participants may be asked to contribute the recurrent cost of

project operation, maintenance and management. In addition to fees paid for joining a CBI, many initiatives finance themselves through periodic subscriptions. A CBI might also be organized based on prepayments for goods and services.

Moreover, in order to cover operational costs to maintain the program, CBI participation may involve contributing to the initiative not only indirectly in terms of labour, effort or other tangible contributions (space, means of transport, etc.), but also directly by, for example, dedicating resources to the initiative. In particular, voluntary work may be considered as a collateral direct cost expressed by the loss of free time for alternative or remunerative use.

Finally, in some cases participants to CBIs may pay higher prices for products or services provided by the initiative. The higher price may be motivated by different non-economic reasons, for example the use of alternative and more costly productive practices which are more sustainable or fair (Grasseni 2014).

5.2. Indirect economic impacts of CBIs

Most CBIs have as well a number of indirect or intangible economic impacts among their members and for the community in which they are operating, which are difficult to identify or to measure, but which should be taken carefully into account when conducting – for example – a complete cost/benefit analysis.

The literature indicates that CBIs are felt to convey non-financial benefits – intangible factors such as improved health, better consumption patterns, increased physical activity, lack of stress, recreation, civic participation, etc.

Research has shown, for example, that community gardeners and their children eat healthier and more nutrient-rich in their diets than non-gardening families (Bremer et al, 2003, p. 54). “In a survey in Flint, Michigan, while only 17,8% of respondents from non-gardening households ate fruits and vegetables at least 5 times a day, that number rose to 32,4% in households with a gardener (Alaimo et al. 2008). There is evidence to suggest a connection between access to healthy food and decreased obesity rates and other diet-related diseases (Hagan and Rubin 2013), as well as significant benefits to mental health (Maller et al. 2006; van den Berg and Custers 2011). Some CBI provide participants with opportunities for practicing a physical activity, therefore protecting health and preventing disease (Bellows et al. 2003; NYCDPC 2009). Transport-oriented CBIs can as well have indirect socio-health benefits. Car-share membership, for example, encourage members to walk/cycle more, and therefore lead to a more active lifestyle (SGS Economics and Planning 2012, p. 15). These effects can also create benefits in social service costs, such as health services.

CBIs exhibit transformational effects in terms of social behaviour and civic participation. For example bike-share schemes tend to introduce new people to cycling and make it a part of peoples’ lives in new ways (NYCDPC 2009, p. 17) whereas urban agricultural participants often adopt dietary changes towards less processed foods, and an increasing attention to energy saving and sustainable waste management. Car sharing help to re-shape participants’ behaviour and have impacts on increasing the use of alternative means of transport such as walking, cycling and public transport (SGS Economics and Planning 2012, p. 15).

Among other potential intangible effects, people involved in such initiatives gain in terms of education and knowledge – technical and practical skills, environmental literacy, nutritional awareness, etc. Urban gardeners, for example, spread their knowledge and skills in production, processing (and sometimes marketing their products) and, when the growers themselves lack this knowledge, there are a number of organizations that offer public education, training and demonstrations (Brown and Carter 2013, p. 19). CBIs offer a wide range of cultural opportunities (inter-generational exposure, cultural exchange, etc.). They can serve as ‘outdoor classrooms’ in which youths can learn valuable skills, including communication, responsibility and cooperation. This issue will be discussed further in Section 6.

Some of these initiatives, moreover, create benefits in terms the reduction in *time* spent in routine activities (e.g. shopping, driving, parking, etc.).

There may be some *indirect negative effects*: bike sharing, for example, increase insecurity due to an increase in accidents (Sælensminde 2004); other initiatives may expose participants to environmental risks (Koc 1999, p. 99), but those cases are very rare.

5.3. The costs and economic sustainability of CBIs

Most CBIs do not require substantial investment and tend to have low running costs. However, they have some costs that should be covered in some way, and this can be difficult given that most initiatives are not for-profit. Nevertheless, ‘not-for-profit’ doesn’t mean ‘for loss’. Even though CBIs are not created to generate revenue, they face the necessity of covering expenses related to their activities to accomplish their mission.

Therefore, despite the nature of their official objectives and aims, *financial sustainability* is a major goal/necessity towards which grassroots initiatives strive (Smith and Seyfang 2013).

According to the literature, economic difficulties faced by CBIs are some of the biggest challenges those initiatives have to deal with. Previous research highlighted that “securing funding” is difficult in the long term, and it is instrumental to any other of the initiatives’ aims (Seyfang and Smith 2007; Seyfang 2009; Smith 2006, 2007). Obtaining critical funds to carry out the necessary activities to fulfil their mission is therefore crucial.

The public sector, volunteers, donors as well as charities, foundations, banks, and private funders have made a significant contribution to the development and financial resources for CBIs. Often banks, non-profit organizations and governments are open to providing loans, micro-credit and/or **grants** to support start-ups, labour, insurance, specific costs, etc. Those initiatives that depend on external funding, “tend to be quite strategic – thinking ahead, understanding funding cycles and increasingly applying to more than one fund” (White and Stirling 2013).

However, “on-going reliance on grant funding alone is a problem” (Ibidem). More generally, attaining financial sustainability through a single source of funds is improbable. *Diversification of sources* contributes to the longevity of the project and to its resilience, i.e. its ability to resist crisis.

Financial suitability is related to internal *income generation*, which “was a pressure raised by all respondents”, in order to provide potentially greater security and less dependency, according to the survey by White and Stirling (2013). CBIs might provide and/or sell products/goods and services that exceed their internal needs. This enables them to increase their financial autonomy and to make independent decisions that truly reflect their - rather than external donors'/investors' - priorities. According to Phillips and Graham (2000), voluntary organizations have had to become more business-like in their attitudes and behaviour. There is indeed more emphasis on recruiting members who are business-oriented and entrepreneurial, rather than selecting those more socially focused (Adams and Perlmutter 1991). This is accompanied by an increased focus on adopting new governance and management structures and practices (see below).

Depending on the nature of the initiative, another key issue is access, ownership (and tenure) or *control of the capital goods*, assets and infrastructure (land, tools, machinery, etc.) that are needed to run the initiative. This is problematic for most initiatives, for example for community gardens. “Many involved in urban agriculture do not own the land they use to grow food. Without title, or three to five year leases, they risk losing their investment when the land is taken for other purposes” (Brown and Carter 2003, p. 17). In response to these issues, growers tend to prefer to start initiatives within the context of a legal agreement to use public or private land provided they maintain it well (e.g. usufruct arrangements, conservation easements, land trusts, etc.) or try to secure parcels which rarely have other uses, so can potentially remain agricultural for years (rooftops, roadsides, institutional properties, etc.). Where the previous options are not viable, many urban farmers have been able to write medium-to-longer-term leases; others have pressed to increase urban agricultural spaces in the city master-plan or for obtaining incubator spaces and block grants, or have encouraged the temporary use of vacant public and private lots, also adopting forms of urban agriculture which require little investment or are mobile (Ibidem, p. 18).

CBIs, in short, can incur in economic costs that may include (i) cost of rent or purchase (if existing), (ii) construction costs for start-up (iii) annual maintenance costs (iv) cost of labour and (v) costs for processing, packaging, and marketing (if required). They all face challenges that refer to how they are organised and managed, and the monetary resources and skills they require, which can leave them vulnerable to wider shocks such as funding cuts, loss of key people, or changes in policy priorities (Hargreaves et al. 2013; Seyfang and Smith, 2007).

It should be considered, again, that CBIs are highly diverse, not only in their aims but also in their functioning (Holland 2004, Baker 2002). CBIs have

“Distinct organisational forms (firms vs. a wide range of organisational types encompassing co-ops, voluntary associations, informal community groups etc.); different resource bases (commercial income vs. voluntary labour, grant funding etc.); divergent contextual situations (the market economy vs. the social economy); alternative driving motivations (the pursuit of profit vs. meeting social needs or pursuing ideological commitments); and the pursuit of qualitatively different kinds of sustainable development (mainstream business greening vs. radical reform of socio-technical systems)” (Seyfang and Smith 2007, p. 592).

Such 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” (White and Stirling 2013).

A major challenge that they all face is related to their *organizational effectiveness*: the ability to perform a function with optimal levels of input and output. The idea of organizational effectiveness is especially important in a non-profit context, as most institutions and people who donate money, time and other resources to this kind of activity are interested in knowing whether the organization is effective and efficient in accomplishing its goals.

5.4. Local economic impact

Although the analysis will focus mainly on the micro-scale, it is worth considering that CBIs also have a wider impact on the local economy, contributing positively to the local area. For example, they might create new jobs, help revitalize commercial districts, help businesses thrive and keep money circulating in the local economy, improve nearby land and housing values, generate additional tax revenues, work as business incubators, etc.

CBIs might produce a measurable *impact on land and housing value* with reportedly higher resale values. A study by Voicu and Been (2008) found that New York City gardens had a statistically significant positive impact on residential property value within 1,000 feet of the garden, an impact that increased over time. More importantly, this impact was highest in the lowest income neighbourhoods. In Milwaukee, properties within 250 feet of gardens experienced an increase of \$24.77 with every foot and the average garden was estimated to add approximately \$9,000 a year to the city’s tax revenue (Bremer et al. 2003, p. 20; Sherer 2006).

CBIs may also improve the visual quality, visual preferences, and the perceived safety of derelict sites and the surrounding areas, by improving the quality of the urban environment. CBIs may help foster a positive ‘green’ image for the local area and the city which can in turn result in increased tourism and a better business climate (NYCDCP 2009). More generally, when neighbours are rich in community initiatives, this is likely to activate a general trend of lifestyle changes improving both the health and economic vitality of communities (Hagan and Rubin 2013, p. 11).

One example of this are those CBIs in the food domain that establish alternative purchasing networks, such as Community Supported (or shared) Agriculture (CSA): alternative, locally-based economic models of agriculture and food distribution. Typically, a CSA community (association or group) constitutes a particular network which supports one or more local farms, with growers and consumers sharing the risks and benefits of food production. CSA members or subscribers pay at the onset of the growing season for a share of the anticipated harvest; once harvesting begins, they receive weekly shares of vegetables and fruit, in a vegetable ‘box scheme’. In the US, CSA farms share three common characteristics: an emphasis on community and/or local produce, shares or subscriptions sold prior to the growing season, and weekly deliveries to

members/subscribers¹². This arrangement creates several rewards for both the farmer and the consumer. In particular, farmers receive payments early in the season (which helps their cash flow), are able to cut the costs of marketing the food, and reduce the risk of unsold products.

Those impacts may also, in the medium term, generate negative spillovers. Among *negative indirect impacts* of CBIs on the local economy, are those linked with the negative visual impact on the area, the negative economic impact on local retailers, etc. Some authors have documented that some kind of initiatives can promote new forms of enclosure and (ecological) *gentrification* (Dooling, 2009; Tornaghi 2014), by increasing the value and attractiveness of undeveloped inner-city areas which may negatively affect low-income residents. Notably, perhaps as a result of a bias towards enthusiasm for such schemes, there is considerably less literature available regarding their downsides.

5.5. Key variables

Key variables identified for assessing the economic impact/dimensions of CBIs are the following:

a) *Financial sustainability*: the ability of the initiative to cover its expenses and sustain itself economically in the long term. A detailed analysis in this regard is difficult, either because of the size and variety of CBIs, and because most of them lack of an accounting system. It is possible, however, to identify whether (i) financial sustainability has been established as a goal and/or (ii) this goal has been satisfied, and/or to see whether the initiative: (i) has a *surplus*, a deficit, or a “zero” balance (ii) If there is a surplus or deficit, where it is coming from (Léon, 2001). Financial sustainability, moreover, requires the *diversification of funding sources*: the ability to access external funding on the one hand (government incentives, grants, funds, donations, loans - ordinary or with preferential terms, etc.), and to generate (internal) income on the other hand, which may be measured by the share of annual expenses covered by internal/external or by temporary/permanent sources. It also requires an analysis of the initiative’s access (and tenure of) the capital goods, assets and infrastructure (land, labour, tools, machinery, etc.) that are needed to run the initiative.

b) *Ability to deliver economic benefits* to participants and communities: direct and indirect impacts on participants’ income, expenditures and/or financial situation. Direct impacts can be measured considering: (i) increase in individual or family *income*; (ii) decrease in individual or household *expenditure*: providing essentials (food, services, transport, etc.) below (above) market cost or free, lower (higher) proportion of income spent on the items provided than before, increase (decrease) in disposable income and/or resources for other necessities or for savings; (iii) decreasing in individual/family *debt* (and/or increasing in savings): preventing/avoiding/deferral participants from acquiring debt to buy land, housing, transportation, energy, etc.

¹² <https://attra.ncat.org/publication.html> and <http://www.newfarm.org/features/0104/csa-history/part1.shtml>

c) *Local economy impact*: degree to which the initiative contributes (positively or not), and how, to the local economy. For example, CBIs might create new jobs, help revitalize commercial districts, help businesses thrive and keep money circulating in the local economy, improve nearby land and housing values, generate additional tax revenues, etc.

d) *Organizational effectiveness*, which implies flexibility in the initiative's organization, substitutability of key roles and degree of hierarchical management, the extent to which participants can be transferred to different activities and tasks within the initiative and, ultimately, the adoption of an organizational model which suit to the well functioning of the initiative and to its aims.

It would be difficult to analyze all of these aspects systematically, but some of them could be the object of ad-hoc and in-depth case studies.

6. The technological/innovative dimension/impact of CBIs

“Community action is a neglected, but potentially important, site of innovative activity” (Seyfang and Smith 2007). Many studies have investigated, at least preliminarily, how CBIs and grassroots organizations are actively engaged in innovation processes themselves or seek to influence innovation processes from the outside (Hargreaves et al. 2013). What is their specificity in this regard? Within the debates and the literature about innovation and sustainability, CBIs are often regarded as a ‘soft’ and ‘bottom-up’ alternative to major technological changes (Seyfang and Longhurst 2013). This is to say that CBIs emphasize ‘social’ innovation, rather than technological change but, sometimes, the two dimensions at once (Seyfang and Smith 2007), which therefore need to be both properly assessed.

Grassroots innovation is, however, radically different from market-based innovation, or business innovation – as reported in Table 5 – which is typically the almost exclusive object of any study on innovation processes.

Table 5. Comparing the characteristics of market-based and grassroots innovations

	<i>Market-based innovations</i>	<i>Grassroots innovation</i>
Context	Market economy	Social economy
Driving force	Profit: Schumpeterian rent	Social need; ideological
Niche	Market rules are different: tax and subsidies temporary shelter novelty from full forces of the market	Values are different: alternative social and cultural expressions enabled within niche
Organizational form	Firms	Diverse range of organisational types: voluntary associations, co-ops, informal community groups
Resource base	Income from commercial activities	Grant funding, voluntary input, mutual exchanges, limited commercial activity

Source: Seyfang and Smith, 2007

Differently from more traditional innovation processes, grassroots and community-based innovation favours communities 'owning' and embodying innovative sustainable practices and generating socially embedded changes among a plurality of actors, i.e. they do not only favour single innovations but seek to contribute to translating those innovations into a more general 'socio-technical regime' change (Seyfang and Smith 2007), also acting as 'pioneers' of wider changes. Moreover, they use contextualised knowledge and imply a better 'fit' of solution to the context.

Beside the extensive literature on 'standard' innovation processes, and drawing upon this literature, more or the less unifying frameworks for analysing the innovative potential of CBIs are to be found within research about sustainability transition. In what follows we will draw inspiration from the following three approaches:

- 1) the "multi-level perspective" and strategic niche management (Kemp et al. 1998; Rip and Kemp 1998; Geels 2002; Smith et al. 2010),
- 2) the "innovation systems" approach, as it has been applied to sustainability transition (van den Berg et al. 2011; Jacobsson and Bergek 2011),
- 3) social innovation (Moulaert et al. 2005; Klein and Harrison 2006).

The distinction between the first two approaches is not very sharp. A comparison and combination between the two can be found in Markard and Truffer (2008). Both perspectives "highlight the importance of networks and learning processes together with the crucial role of institutions" (Ibidem), and are rooted in evolutionary theory to transition (Van den Berg et al. 2006; Safarzynska and Van den Berg 2010; Safarzynska et al. 2012). Social innovation perspectives have been as well related to the multi-level perspective (Kirwan et al. 2013). The three approaches will however be treated separately.

6.1. The multi-level perspective and CBIs as innovative niches

A widely diffused approach in this regard is the so-called multi-level perspective on sustainability transitions. The perspective has been applied previously to market-based technological innovations, and has been lately applied to 'grassroots innovation' and CBIs in a transition to a low-carbon sustainable economy (Seyfang and Smith 2007; Seyfang 2010; Seyfang and Haxeltine 2012; Smith et al. 2010). According to this perspective, three crucial layers should be considered:

- a) Innovation '*niches*', which are defined as local 'protected spaces' or 'incubators', in which new technologies or socio-technical practices or 'radical alternatives' emerge and develop isolated from the selection pressures of 'standard' markets or regimes (Markard and Truffert 2008; Smith et al. 2010; Hoogma et al. 2002). The term is borrowed from strategic niche management theory. Niche spaces are 'protective' insofar as they provide "shielding, nurturing and empowerment" (Smith and Raven 2012), and offer "supportive networks to allow experimental new systems to take shape" (Seyfang and Longhurst 2013). Examples are various and range from business incubators to ecovillages (Smith and Raven 2012). Smith and Seyfang (2007) applied the concept to community-

based innovations and defined “green niches” as “sustainability experiments in society in which participation is widespread and the focus is on social learning”.

b) Socio-technical *regimes* (Geels 2002), which represent the ‘mainstream’ that niches wish to change, or to react from. Regimes can be defined as “structures constituted from a co-evolutionary accumulation and alignment of knowledge, investments, objects, infrastructures, values and norms that span the production-consumption divide” (Smith et al 2010). As such, they are characterized by stability and cohesion (Haxeltine et al. 2008): “a constellation of dominant practices, rules and shared assumptions”, which represent the “selective environment” for technological development and act as a “homogenising influence on actors”.

c) *Landscapes*, finally, represent the macro-level structuring socio-economic context, and are constituted by “factors that influence innovation or transition processes but are hardly (or only in the long run) affected by themselves” (Markard and Truffert 2008).

Landscapes are, therefore, exogenous by definition while the relation between emerging niches and socio-technical regimes is dialectical. In the field of technological innovation (Van den Berg et al. 2011), research has documented that regimes tend to restrict the diversity of innovations, due to some sort of institutional path-dependency (Garud and Karnøe 2001), and tend to produce only ‘normal’/incremental innovation patterns - i.e. technologies that do not require a radical change of the dominant socio-technical equilibrium - thus restricting the transformative potential of societies and acting as barriers for radical changes to emerge and to diffuse (Markard and Truffert 2008). Radical changes, on the other hand, develop in niches (Smith et al. 2010). In certain circumstances, niches entering competition with dominant regimes are successful in outperforming them and “take over” (*ibidem*), becoming “sufficiently powerful to challenge and, ultimately, overthrow a dominant solution” (Haxeltine et al. 2008).

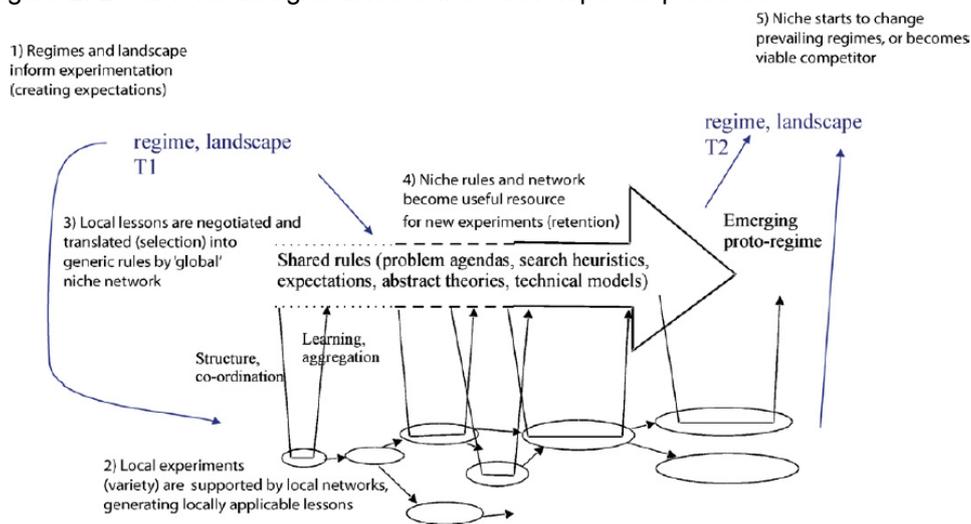
This is not always the case. The relation between niches and regimes may be conflictual but can also be synergic. In the first case the potential for radical change is higher, but less probable, due to various forms of resistance. In the latter case innovations developing in niches are more easily adaptable/acceptable within the dominant regimes and can more easily be absorbed and even “work alongside a regime without changing it fundamentally” (Seyfang and Longhurst 2013). The relation between niches and regimes, moreover, does not depend much on the intentions of those involved, but on the characteristics of innovations.

Crucial questions are therefore:

1) what is a ‘niche’, how can it be identified and strengthened and, in our case, can CBIs be equated to ‘protective’ spaces where radical changes can more easily emerge, consolidate and spread? Finally, what makes such niches ‘protective’ and/or fertile?

2) under which conditions do niches emerge, up-scale and challenge the dominant regime and, from our perspective, how can the *performative potential* of niches be assessed?

Figure 2. Local-level and global-level niche development processes



Source: Smith and Raven 2012

Work in this field emphasizes, on the one hand, exogenous conditions, i.e. the importance of landscape pressures and 'triggers' in extending the space for radical changes, tensions and contradictions within incumbent regimes, pressures deriving from broader socio-economic dynamics (Geels 2004), and even the possibility that regimes collapse following some sort of environmental or socio-economic or technological crisis (Geels and Schot 2007; Seyfang and Longhurst 2013).

Under favourable circumstances, regimes can collapse thanks to the pressures arising from what Haxeltine et al. (2008) define as 'empowered niches', i.e. niches that have "grown 'powerful' enough to (...) attack (sometimes effectively) an incumbent regime (and therefore to potentially take over from it)". Another crucial distinction is between 'simple niches' (not seeking regime change) and 'strategic niches', i.e. "seeds for wider transformation" (Seyfang and Smith 2007). Niches alone, however, will not seed wider change (Hoogma et al. 2002) and need to link to wider processes of social change (Smith and Raven 2012). Some research has emphasized the role of intermediary initiatives or actors which connect niches to the mainstream and favour the up-scaling of new ideas and practices, even through some sort of compromise or mutual adjustment (Geels and Deuten 2006; Seyfang and Smith 2007). Social movements which act explicitly against existing regimes contribute to these pressures.

Summarizing from the existing literature (Kemp et al. 1998; Geels and Deuten 2006; Seyfang and Smith 2007, Seyfang and Longhurst 2013), we can identify some *key factors and processes* that favour niche emergence and growth:

- the *visions and expectations* of initiatives, which must be widely shared, specific, realistic and achievable.
- the capacity of the initiative towards *enrolment* of actors and resources.

- a *sense of community* to facilitate information-sharing.
- the possibility of building effective *social networks*, both internally, within single initiatives, and externally between different initiatives/niches and with other societal actors including a variety of 'supporting' stakeholders, or 'intermediary actors' who "speak for the field".
- the promotion of *learning processes* which include everyday knowledge and expertise, plus 'second-order learning', i.e. those forms of knowledge that induce people to question the assumptions and constraints of mainstream regimes.
- *knowledge infrastructures* to enable the flow of information and ideas.

The importance of networking and intermediary actors implies that a crucial dimension is how a niche interacts with other niches and how it performs in aggregating actors and resources, in building coalitions and in promoting mobilisation, i.e. how does the niche perform as a political actor, which is still, however, an open question (Smith et al. 2010), as it is the way in which niche innovations move beyond the initial protective space, replicate, scale-up or translate into other contexts (Smith et al. 2010).

Seyfang and Longhurst (2013) identified the following *stages* of grassroots niche development and up-scaling: knowledge circulation, establishment of new projects, establishment of national networks, new knowledge production, new models emergence. The authors examined the prevalence of different community types and their spread and development over time, and looked for evidence of niche-formation processes at work. Contrary to existing research, according to the authors, up-scaling is not paralleled by the consolidation/standardization and convergence/diffusion of a particular model but, on the contrary, is characterised by increasing fragmentation, complexity and diversification/branching of initiatives. Moreover, according to the authors – and as already mentioned - regime shifts are more probable when innovations are adaptable to the existing framework, rather than completely novel.

Haxeltine et al. (2008) have similarly attempted to identify a sequence of mechanisms that commonly occur in socio-technical transitions (based on Geels and Schot 2007). Their aim is to see how (empowered) niches and regimes interact to produce a transition, based on niches' internal dynamics (their ability to endure, to "maintain change", to grow or to continually search for novelty and new opportunities), their networking with other niches, and external circumstances such as 'trigger' events or the reaching of a certain threshold.

The dynamic dimension of CBIs, however, will only partially be investigated here because it requires different and more in-depth methodologies.

In terms of evaluation and assessment tools, the methodologies adopted by most authors within the multi-level perspective are qualitative and fieldwork based. Seyfang (2010), for example, applied an evaluation method based on the new economics of sustainable consumption. The author used participant observation and in-depth semi-structured interviews with the aim of evaluating if the single initiative has positive or negative impacts according to the following five dimensions: localisation (the degree to which they are based on local resources), reducing ecological footprints (the extent to which they reduce environmental

impacts), community-building (the degree of involvement of the community and network building), collective action (up-scaling and diffusion to other communities), building new infrastructures for provision of innovations.

Seyfang and Longhurst (2013) proposed a sort of stakeholder analysis to identify significant actors in each stage of niche development based on background material and interviews with “leading developers” and a panel of academic and practitioner experts.

Haxeltine et al. (2008) attempted to extract from an analysis of ‘historical’ examples of how niches interacted with regimes to produce effective transitions, a more or the less unifying narrative about the kinds of processes involved in producing transition patterns. Their aim was to identify a recurrent ‘models’. Smith and Raven (2012) have used narrative analysis as well but from the perspective of constructivism and critical discourse analysis.

According to Smith et al. (2010) there are other authors seeking to apply more standardised and indicator-based methods to the field but, whether drawing upon qualitative methods or quantitative measures, there is still considerable work to do in formalising the multi-level perspective into a solid methodology. This methodology, moreover, should not focus on niches alone, but should include the analysis of socio-technical regimes which are difficult to delineate or to investigate (Seyfang and Longhurst 2013; Markard and Truffer 2008).

Some have proposed taking inspiration from the literature on innovation systems (Markard and Truffert 2008), a perspective where standardised methodologies have been more widely experimented, as reported in Section 6.2.

6.2. CBIs as innovation systems

Whereas the multi-level perspective emphasizes the interaction between layers/scales in the innovation process, the innovation systems tradition highlights the relational dimension of innovation processes. An innovation system is composed of networks of actors and institutions that develop, diffuse and use innovations. The approach is interested in seeing how these actors relate to one another and promote knowledge development and diffusion. The key element is therefore the generation and diffusion of knowledge, more than the material outcome of innovation, i.e. new products and markets. This is especially crucial for emerging or ‘immature’ innovation systems, like most of those that will be investigated through our research.

Following Carlsson et al. 2002, the methodology for investigating innovation systems usually follows three steps:

- a) to delimit the ‘system’ which, within different strands of literature, have been identified at the national, regional, sectoral, or technological level.
- b) to identify the actors, which within ‘standard’ innovation processes are typically industries and firms, universities, research institutes, government agencies, government policies, etc. Methods commonly adopted to identify the actors are, for example, expert interviews, citation analysis, membership in associations, or the snowball method.

c) to understand its capability, which can be distinguished into selective (or strategic) ability (effectiveness); organizational (or coordinating) ability; functional ability; learning (or adaptive) ability.

d) to assess the system's performance. Common methods in standard innovation research are the analysis of patents, bibliometric studies, the economic performance of innovation outcomes (which is difficult to measure), innovation diffusion, etc.

For what refers specifically to the assessment of knowledge creation and diffusion, following Carlsson et al. (2002), Jacobsson and Bergek (2003, 2011), Jacobsson et al. (2004) a number of possible methods can be identified: conventional patent indicators, the number of actors involved, cross-fertilization of different technologies - e.g. mobility of professionals - an evaluation of the 'closeness' to market exploitation, conventional indicators of the economic use of knowledge, such as employment and growth figures. Examples of those standard indicators are reported in Table 7.

Table 7. Examples of performance indicators for an emerging technological system

<i>Generation of knowledge</i>	<i>Diffusion of knowledge</i>	<i>Use of knowledge</i>
Number of patents	Timing/stage of development	Employment
Number of engineers or scientists	Regulatory acceptance	Turnover
Mobility of professionals	Number of partners/number of distribution licenses	Growth
Technological diversity	-	Financial assets

Source: Rickne 2001

Table 8. Seven sub-processes/functions in a technological innovation system

Knowledge development and diffusion	The breadth and depth of the knowledge base and how that knowledge is developed, diffused and combined in the system
Entrepreneurial Experimentation	The testing of innovations, applications and markets whereby new opportunities are created and a learning process is unfolded.
Influence on the direction of search	The incentives and/or pressures for initiatives to innovate. These may come in the form of visions, expectations of growth potential, regulation, articulation of demand from external actors, crises, etc.
Resource mobilization	The extent to which actors within the innovation system is able to mobilize human and financial capital as well as complementary assets such as network infrastructure.
Market formation	The factors driving market formation, including the articulation of demand from external actors, institutional change, changes in performance.
Legitimation	The social acceptance and compliance with relevant institutions. Legitimacy is not given but is formed through conscious actions.
Development of positive externalities	The collective dimension of the innovation and diffusion process, i.e. how initiatives may benefit other initiatives. It also indicates the dynamics of the system since externalities magnify the strength of the other functions.

Source: adapted from Bergek et al. 2008

Less conventional methods have been proposed; for example measures of the supply of specialized human capital and of the *legitimacy* of a new technology, or the degree of (technological, or scientific) *diversity* of the system: diversity may indeed be considered an indication of innovation systems' performance, because of the highly selective environment.

In the specific case of sustainability transition, some authors suggested analyzing each of the innovation system functions - intermediate variables between structure and system performance - separately (see Table 8).

6.3. CBIs and social innovation

The term social innovation has been applied to a diversity of contexts within various lines of enquiry: urban and regional studies, policy studies, social psychology, social entrepreneurship, social movements, public administration studies, economics, etc. (for a review see Cajasanta 2014). The meaning of the concept is extremely varied and existing studies range from analysing how social context influences or is influenced by (standard) innovation processes (Pol and Ville 2009), to identifying new methods to deliver social services or social policies (Goldsmith et al. 2010).

The concept of social innovation is here intended to identify those innovations that do not create new technologies or products or artefacts, but express themselves "at the level of social practice" (Howaldt and Schwarz 2010, p. 21), i.e. they don't result in tangible (technological or productive) improvements, but in a change of attitudes, behaviour, social practices or forms of organization (Neumeier 2012, p. 55), which in turn can help to improve the living conditions of those involved (Kirwan et al. 2013) and that will later become institutionalized (Cajasanta 2014).

Table 9. Contrasts and similarities in economic and social innovation

	<i>Old economic innovation</i>	<i>New economic innovation</i>	<i>Social innovation</i>
Drivers	Shareholder value	Market position	Social wellbeing/liveability
Location	Firms	Industries/regions	Community
Leadership	Company engineers	Industry groups/clusters	Distributed
Ideas from	Experts	Shop floor	Networks
Actions	Research and development	Invention, diffusion, adoption	Building inter-sectoral networks
Relations	Ownership	Mutual interest	Trust
Interventions	Grants, tax breaks	Incubators/infrastructure	Facilitating network formation/capacity building
Governance	Licenses, patents	Partnerships	Partnerships

Source: Adams and Hess 2010

The relevance of the concept for our research is evident because, firstly, in contrast with standard innovation processes, social innovation is “constructivist and community based” (Adams and Hess 2010), and secondly because the domain of sustainability transition is probably where the concept has been applied most (EC 2014).

Being intangible, social innovations and their impacts are difficult to identify and even more difficult to evaluate through a standardized metric. Building upon existing research (Moulaert et al. 2005; Adams and Hess 2008, 2010; Vicari Haddock 2009; Caulier-Grice et al. 2012; Kirwan et al. 2013; Cajaiba-Santana 2014) we can identify the following *key dimensions* of social innovation:

- a) *novelty*: the initiative/practice does not necessarily need to be completely original or unique but new in some way or applied in a new way.
- b) *intentionality*: “the distinguishing feature of social innovation lies firstly in newness and secondly in the inherent purposeful actions oriented towards a desired result” (Cajaiba-Santana 2014).
- c) to provide tangible *improvements* and to satisfy human needs that are not yet or no longer satisfied by the market or the state.
- d) to *empower* those involved by increasing their socio-political capabilities and assets, their capacity to prevent or to react, their access to or a better use of resources.
- e) to create new or to change *social relations* (and power relations), through community-building, social inclusion, participative decisional processes and by promoting social justice.
- f) to increase the capacity of communities and groups to act collectively as *social agents* of change.
- g) *replicability* to other circumstances.

Similarly, following Mulgan (2007), Adams and Hess (2010), Cajaiba-Santana (2014), EC (2014), we can identify some recurrent *stages* through which social innovation emerges:

- 1) *'trigger'*: social innovations often do not emerge out of the blue but constitute an explicit reaction to, for example, environmental crisis (Biggs et al. 2010), public spending cuts (Murray et al. 2010), etc.
- 2) *ideation*: in this, social innovations “are usually new combinations or hybrids of existing elements, rather than being wholly new in themselves” (Mulgan 2007). Social innovators are “technology takers” initially rather than “technology makers” (Seyfang and Smith 2007). In some cases, the innovative dimension rest solely on the capacity to ‘reframe’ old problems in order to provide a new approach (Biggs et al. 2010), in a way that “makes sense to other groups and resonates with existing beliefs and values” (EC 2014).
- 3) *enrolment*: the enrolment of people and resources, mostly intangible, through community-building, the creation of “new social relationships between previously separate individuals and groups which matter greatly to the people involved, contribute to the diffusion and embedding of the innovation” (Mulgan 2007).
- 4) *results*: to create tangible benefits, improvements, skills or opportunities for those involved.

5) *effective management*: putting social innovation into practice, that according to some, “implies the establishment of consistent and motivated leadership by either an individual or core group” (EC 2014), or even entrepreneurship, via the consolidation of specific organizations, community enterprises or cooperatives. In other cases, in order to emerge, social innovations need to get ‘politicised’, i.e. to transform into wider social movements (Vicari Haddock and Moulaert 2009).

6) *external networking*, intended here as the tendency of social groups to link in collaborative and/or competitive relationships with other groups (Cajaiba-Santana 2014).

7) *engaging stakeholders*: almost all existing research agrees upon the importance of engaging external stakeholders (EC 2014, Biggs et al. 2010) - also in order to cut across organisational, sectoral or geographic boundaries - and the critical role played by ‘connectors’: brokers, entrepreneurs and institutions that link together people, ideas, money and power (Mulgan 2007).

8) *scaling up* and diffusion through replication, emulation and inspiration. Sometimes this requires institutionalisation, i.e. initiatives “go through a life-cycle, which involves increasing formalisation, professionalisation and possibly co-optation into the established political system” (Moulaert et al. 2005).

9) *systemic change*. The *outcome* of social innovation, as mentioned above, is expressed by a change in social practices, rather than in new artefacts, or - more practically - “new solutions (products, services, models, markets, processes etc.) that simultaneously meet a social need (more effectively than existing solutions) and lead to new or improved capabilities and relationships and better use of assets and resources” (Caulier-Grice et al. 2012).

Even those community initiatives that promote new social practices, rather than ‘standard’ innovation, can provide an optimal terrain for experimenting with more sustainable technologies (Seyfang and Smith 2007); a sort of “test-bed for innovative experiments in environmental and sustainable living” (EC 2014), “whereby each innovation opens up the possibility of further innovations” (Mulgan 2007). In the field of energy, for example, Maruyama et al. (2007) showed how CBIs can affect the social acceptance of particular innovations. The analogy with the concept of the innovative niche mentioned above is evident. The social dimension of the concept is equally evident - “social innovation is very much about social inclusion as well as social justice” (Kirwan et al. 2013); as well as its political implications: social innovation is often the result of “intended, planned, coordinated, goal oriented, and legitimated actions undertaken by social agents aiming at social change” (Cajaiba-Santana 2014).

Methodologies for identifying, analyzing or assessing the emergence and outcome of social innovations are still in an embryonic stage of development. Research in the field is still largely based on anecdotal evidence or case studies (Cajaiba-Santana 2014). Qualitative methodologies are by far the most widely adopted, e.g. in-depth interviews, observation and focus groups to assess the dynamics, attitudes and behaviour of groups involved in social innovation (Biggs et al. 2010, Seyfang and Smith 2007, Smith and Seyfang 2013), or action-research methods and participatory research (Reeves et al. 2013). Cajaiba-Santana (2014) proposes

the analysis of historical narratives, sense-making and storytelling to see how change unfolds over time. Van den Berg et al. (2007) propose a comparative technique for confronting successful and non-successful innovations using literature reviews, interviews and workshops. Other research has attempted to use scenario-based methodologies and 'backcasting' as a way to highlight "discrepancies between current realities and the desired vision of a sustainable future" (EC 2014).

More standardized methods are to be found in Reeves et al. (2013). Their proposal is to measure changes in attitudes to environmental issues and the perceived impact of socially innovative projects. Seyfang and Smith (2007) propose short survey research that can help map the extent, characteristics, impacts and outcomes of social innovations, based on a likert-scale method.

Murray et al. (2010) list a variety of methods, whose applicability to our case needs to be verified. Those include: standard investment appraisal methods, cost-benefit analysis and cost-effectiveness analysis, stated preference methods, social accounting methods, quality of life measures, social impact assessment, comparative metrics or benchmarks, user experience surveys, etc. Others have proposed using quantitative assessment of the output of social innovation, aimed for example at evaluating CO₂ savings obtained thanks to social innovations.

6.4. Key variables

As already mentioned, the three perspectives presented above are not self-exclusive and they often highlight common elements. On the other hand, they all refer to a variety of potential methodologies which are not easy to translate into a standardized and unifying framework.

What we need here is indeed not to evaluate or to measure the outcome of grassroots innovation in terms of, for example, their environmental impact or the degree to which they succeeded in diffusing and up-scaling. We need to understand what the initiatives' performance and their *potential* for providing a fertile terrain for innovation is, i.e. the extent to which CBIs constitute 'niche' spaces which are conducive to changes.

In this, a number of key variables can be highlighted. The crucial issue is not only how those variables can be estimated but also how they can be combined to produce synthetic measures - although exploratory - of innovative potential.

a) *Novelty*, i.e. the extent to which initiatives adopt original or radically different practices or models, which is also related to their *innovativeness*: the extent to which they contribute to creating or, mostly, to experimenting and applying new technologies, new ideas and novel approaches. A related dimension is the initiatives' *diversity* that, as mentioned above, is a crucial innovation asset.

b) *Technical complexity and specificity*, in terms of skills or technologies required. This on the one hand positively impacts the initiatives' innovative potential but, on the other hand, reflects negatively on their *replicability*. Being too complex can constitute a barrier to survival, diffusion and up-scaling: a typical 'intrinsic' challenge of grassroots innovation is the need for particular skills and resources which may be difficult to mobilize or to sustain (Seyfang 2010).

c) *Social innovation*. The degree to which the initiative contributes to the production/diffusion of social innovations, innovative/sustainable social practices, changes in attitudes, behaviour, forms of organization, etc.

d) *Enrolment*: their ability to involve and to mobilize people, actors, resources, both within single initiatives and via their *external networking*, i.e. their ability to influence other niches (that can be measured via innovation diffusion analysis) or significant actors which are relevant for transforming single ideas or community-based practices into wider social and technological changes. This is also related to the initiatives' degree of *institutionalisation* and their *legitimacy*: the degree to which they are perceived by key institutions and actors as crucial, useful, replicable, etc. This issue will be covered in the political domain, because it is strictly related to external networking.

e) *Human capital externalities*: the extent to which CBIs offers participants and communities with first and second order learning occasions, diffuse instrumental/technical or critical knowledge, provide formal education or informal knowledge and learning infrastructures to enable the flow of information, ideas and knowledge spillovers.

Table 10. Key variables for CBIs' multi-dimensional assessment

	<i>Social</i>	<i>Political</i>	<i>Economic</i>	<i>Technological</i>
<i>Drive</i>	[Self-assessment: initiatives' initial and future objectives, degree of achievement]			
<i>Process</i>	Enrolment: ability to involve and to mobilize people, communities, actors, resources			
	(Bonding) social capital	Political mobilisation (a): alliances/coalitions building	Financial sustainability: surplus creation and revenues diversification	Technical complexity: skills/technologies required
	Bridging social capital		Organizational effectiveness: organizational adequacy and flexibility	Knowledge effort: skills gained/acquired
	Social inclusion and equity (1): consideration of local needs			
	External networking:			
	(Bridging relationships with non-members)	Degree of interaction with: 1) other CBIs, 2) Stakeholders	(Pooling of assets and resources)	(Innovation networks and diffusion)
<i>Output</i>	Social inclusion and equity (2): heterogeneity of beneficiaries	Political mobilisation (b): influence on political agendas	Ability to deliver direct/indirect Economic benefits	Innovativeness: experimentation/ creation of new products/services
	Empowerment:		Local economy impact: direct/indirect contribution to the local economy	Human capital externalities: learning occasions/spillover
(1) Enhancing self- and social awareness	(2) Openness of decision-making	Social innovation: changes in practices/lifestyles		

Internal	External
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7. Indicators for CBIs assessment

In order to translate the key variables discussed above into a specific set of comparable and measurable indicators, the authors conducted a detailed discussion with experts and scholars participating to the TESS research project. The results are presented in the following tables. Table 10 presents these key variables and indicators classified according to the four dimensions they pertain to, and distinguishing between their external and internal scope, and between drive, process and outcomes of the initiative. Table 11 presents a list of specific indicators and a short definition for each of them.

Table 11. Indicators for the multi-dimensional assessment of CBIs

<i>Dimension</i>	<i>Indicator</i>	<i>Definition</i>
<i>Social</i>	ENROLMENT	The ability to involve people, and openness towards new members
	BONDING SOCIAL CAPITAL	Strengthening social interaction/networking between CBI members (trust)
	BRIDGING SOCIAL CAPITAL	The creation of new relationships between people who did not previously know each other; without the CBI relationships would be unlikely
	INTERNAL SOCIAL INCLUSION	The heterogeneity of CBI participants in terms of origin, gender, age, social
	EXTERNAL SOCIAL INCLUSION	The degree to which the needs of the local community are taken into consideration
	EMPOWERMENT 1 (SOCIAL)	Enhancement of the participants' self- and social awareness
<i>Political</i>	EXTERNAL NETWORKING WITH OTHER CBIs	The number, variety and degree of interaction/collaboration with other CBIs
	EXTERNAL NETWORKING WITH OTHER ACTORS	The number, variety and degree of interaction/collaboration with relevant stakeholders
	POLITICAL MOBILIZATION	The ability to build alliances and coalitions, and to influence the political agenda
	EMPOWERMENT 2 (POLITICAL)	The participation of members in decision-making, capacity building
<i>Economic</i>	REVENUE CONCENTRATION	The variety of financial sources and degree of dependence on external sources
	SURPLUS CREATION	The ability to create a positive surplus margin
	ORGANIZATIONAL EFFECTIVENESS	Organizational flexibility, interchangeability of key roles, degree of hierarchy, etc.
	ECONOMIC BENEFITS TO PARTICIPANTS	The ability to increase income of participants, decrease their expenditure, etc.
	JOB CREATION	New jobs created directly (and indirectly)
	TOTAL LOCAL ECONOMIC IMPACT	Previous leakage from the local economy that is now locally retained, and local income generation

Technological	TECHNICAL COMPLEXITY	Complexity of the skills needed in order to run the initiative
	KNOWLEDGE EFFORT	Technical skills acquired/gained in response to emerging needs
	INNOVATIVENESS	The extent to which CBIs experiment, improve, diffuse or create new products/services
	HUMAN CAPITAL EXTERNALITIES	Learning occasions/infrastructure and knowledge spillover provided by the initiative
	SOCIAL INNOVATION	The diffusion of 'alternative' social practices, behaviours and intangible innovations

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