BDC

Università degli Studi di Napoli Federico II

19

numero 1 anno 2019

BDC

Università degli Studi di Napoli Federico II

19

numero 1 anno 2019

The Circular Economy Model: from the Building Functional Reuse to the Urban System Regeneration

BDC

Università degli Studi di Napoli Federico II

Via Toledo, 402
80134 Napoli
tel. + 39 081 2538659
fax + 39 081 2538649
e-mail info.bdc@unina.it
www.bdc.unina.it

Direttore responsabile: Luigi Fusco Girard
BDC - Bollettino del Centro Calza Bini - Università degli Studi di Napoli Federico II
Registrazione: Cancelleria del Tribunale di Napoli, n. 5144, 06.09.2000
BDC è pubblicato da FedOAPress (Federico II Open Access Press) e realizzato con Open Journal System

Print ISSN 1121-2918, electronic ISSN 2284-4732

Indice/Index

COMMUNITY-LED PROCESSES FOR PERI-URBAN REGENERATION IN NAPLES: EVALUATING SCENARIOS OF SOCIAL SELF-ORGANISATION AND COOPERATION

Maria Cerreta and Maria Reitano

Abstract

The research investigates the possibility for regenerative socio-spatial dynamics to be activated within peri-urban areas, through community engagement in transformation and cooperative processes, promoting environmental integrity and socio-spatial diversity. This contribution aims at evaluating different scenarios involving social self-organisation, towards the activation of community-led regeneration processes within peri-urban residual spaces. Through a site-specific set of indicators, related to categories of territorial and social self-production, the preferable scenario is evaluated, adopting the Analytic Network Process (ANP) as Multi-Criteria Decision Aid method (MCDA).

Keywords: residual space, social self-organisation, peri-urban regeneration, Analytic Network Process (ANP)

PROCESSI COMUNITARI PER LA RIGENERAZIONE PERI-URBANA A NAPOLI: VALUTAZIONE DI SCENARI PER L'AUTO-ORGANIZZAZIONE E LA COOPERAZIONE SOCIALI

Sommario

La ricerca indaga la possibilità di attivare dinamiche socio-spaziali rigenerative, nell'ambito di aree peri-urbane, attraverso l'impegno comune nei processi cooperativi di trasformazione, che promuovono l'integrità ambientale e la diversità socio-spaziale. Questo contributo intende valutare differenti scenari progettuali, a partire da capacità di auto-organizzazione sociale, volte all'attivazione di processi comunitari di rigenerazione del territorio peri-urbano residuo. Attraverso un set di indicatori site-specific, legati a categorie di auto-produzione territoriale e sociale, lo scenario preferibile è valutato adottando l'Analytic Network Process (ANP), un metodo multi-criterio di supporto alle decisioni (MCDA).

Parole chiave: spazio residuo, auto-organizzazione sociale, rigenerazione peri-urbana, Analytic Network Process (ANP)

1. Introduction

Contemporary urbanisation processes, creating economic cores and metropolitan centralities, have generated urban marginal fringes, which can be referred to as *peri-urban spaces* (Brook and Davila, 2000; Iaquinta and Drescher, 2000; Allen, 2003; Marshall *et al*., 2009). They constitute hybrid in-between urban areas, to be found within complex metropolitan territories. Peri-urban spaces definition in literature shifts from their spatial consideration as threshold territory between urban centres and rural areas (Dupont, 2005), to their association to the wider concepts of *place* and *process* (Narain and Nishcal, 2007), being identified as interfaces, where socio-spatial dynamics are produced through social conflicts and negotiation, and metropolitan fabrics coexist with rural areas and natural landscapes. If, on one hand, peri-urban spaces are characterized by the peripheries negative connotation as exclusion spaces, resulting from globalisation mechanisms of the contemporary metropolis (Smith, 2002), on the other hand, they are to be considered as urban opportunity-spaces, as well, since: they provide the city with ecological, material and energetic resources, constituting the self-regulating and balancing capacities of the metropolitan system between the natural ecosystem sphere and the anthropic pressures that tend to modify it (Maes *et al*., 2018); within their heterogeneous fabrics, many opportunities for social organisation arise, in terms of community network and cooperation processes among people, who, often informally, engage in social and spatial transformation dynamics (Moffat and Finnis, 2005).

Through this perspective, the contribution investigates the possibility for peri-urban areas to activate complex socio-spatial dynamics, functioning as a territorial *residue* (Clément, 2004), for community engagement in urban transformation and self-organising cooperative processes, promoting environmental integrity and socio-spatial diversity. As well as Berger's (2006) concept of *wasted places* refers to marginal and abandoned sites, Clément's (2004) definition of *residual landscape* as *third landscape* refers to uncultivated areas, fragments of *uncertain* landscape, in a dynamic state of *waiting*, where hybrid and *entropic* spaces, being always in motion and transformation, can be understood as the complex product of a *social vitality* (Clément, 2006).

An urban hybrid territory can be substantiated as a *spatial ecosystem*, composed of different complex subsystems, allowing the *vital* (environmental-economic-social) conditions for the system itself, hence its self-development: urban ecology, considering the city as a living organism, studies the *biodiversity* of urban systems, as deriving from the synergistic coexistence of social ecosystems and natural ecosystems (Müller *et al.*, 2013). An urban ecosystem is the product of the interaction among natural capital, manufactured capital and cultural identity of places (Magnaghi, 2010). Synergistically linking these different subsystems, heterogeneous peri-urban territories combine natural ecosystems and urban ecosystems (natural capital and manufactured capital), whose *vitality* depends on the capacity of a community (social capital and human capital) to cooperate, allowing social coevolution and the activation of *self-productive* and *self-organising processes*. That is to say that the transformation processes of complex territorial systems, depends on the capacity of the urban system to enable social vitality and social self-production of material and immaterial relationships, producing the *glue value* (Turner, 1992), which keeps different individualities of a community together, tying them within a structure.

The concepts of *self-organisation* and *self-renewability* are associated with complex system thinking, focusing on the vital functioning mechanisms of an ecosystem, as based on a

.

complex non-linear network of local interactions among the elements constituting the system (Cilliers, 1998; Heylighen, 2001). In ecology, self-producing ecosystems are defined *autopoietic* and are organised through a network structure of mutual interactions among the elements that make up the system (Varela *et al.*, 1974).
Luhmann's (1986) theory of autopoietic or self-referential systems has brought spatial and social systems into the complex ecosystem thinking, as well. If «urban social sustainability can be defined as the continuing ability for a city to function as a long-term viable setting for human interaction, communication and cultural development» (Yiftachel and Hedgcock, 1993, p. 140), it is evident that what makes the social urban system vital is the actor's interdependent network of relationships, through which conflicts are solved and visions, information and knowledge exchanged (Sullivan and Skelcher, 2002; Healey, 2006).
Urban regeneration processes generally engage with urban land issues, aiming at developing social, economic and environmentally sustainable conditions (Roberts, 2000). They result from network participative partnerships among stakeholders, including both administration and municipalities and civil society (Healey, 2006).
The Italian Urban Dismissed Areas Association (AUDIS, 2008) developed an urban regeneration chart, proposing guidelines for programs of urban unused areas transformation, which constitutes major potentiality spaces for economic, social, urban and environmental regeneration. According to this document, one of the basic principles of an urban transformation process is the general goal to contribute to increasing social and economic cohesion. Within the framework of urban sustainable regeneration programmes and processes, social inclusion has become fundamental, and local community involvement is considered essential for urban problem-solving (Fordham, 1993). Beyond participating in decision-making processes, communities of inhabitants should be the main beneficiaries of urban transformation actions, which have to be addressed toward the improvement of their quality of life, promoting social cohesion and sense of belonging to a place (Arthurson, 1998). Local community-led initiatives for urban transformation are based on the assumption that the implementation of collectively defined visions and plans depends on citizens' commitment and strategic involvement in starting the regeneration from within the urban area itself, through local-based approaches (Sullivan and Skelcher, 2002; Wagenaar, 2007), and self-organised processes. This dynamic constitutes the immaterial drivers (Goonetilleke *et al*., 2011) catalysing the metabolic capacity of the city to activate urban regeneration processes, based on the local culture (Sacco *et al*., 2014) and the creative capacities of an urban community. Today, many examples of community-based initiatives - often leading to the development of innovative policy instruments for collaboration and cooperation - demonstrate how vital urban regeneration processes can be defined according to social self-organising and co-production capacities to collaboratively develop problem definition and negotiate joint solutions (Healey, 2006), through mutual interactions and reciprocity, allowing communication and shared social recognition.
The EU policy instrument Community-Led Local Development (CLLD), providing an implementation of the LEADER program (European Commission, 2014), is an example of a policy tool that supports local development, by funding new spatial planning strategies that promote place-based approaches (Barca, 2009), through the involvement of local actors in decision-making processes. CLLD focuses on sub-regional areas, aiming at defining local action groups (LAG), composed of local public and private stakeholders, at developing social innovation, community ownership and multi-level governance (European

.

Commission, 2014). Community-led initiatives (CLIs) arise whenever people self-organise in the places where they live to take action on issues that concern them (Penha-Lopes and Henfrey, 2019). As highlighted by the ECOLISE European network (Penha-Lopes and Henfrey, 2019), experiences of community-led sustainability initiatives are taking place all over Europe, through the definition of ecovillages, permacultures and community gardens, expressing how CLIs can be related to processes of collective transformation of unused green areas, according to the socio-ecological resilience thinking (Garmestani *et al.*, 2014).
The research aims at evaluating different scenarios involving social self-organisation and self-production towards the activation of community-led regeneration processes within peri-urban residual spaces. The following questions drive the methodological approach: Can peri-urban residual areas constitute opportunity-spaces, towards the activation of urban self-regenerative dynamics? How can spatial transformation processes be established, starting from social self-organising practices? Which type of community-based synergistic initiative could allow social self-production mechanisms and, as a consequence, glue values production?
In Section 2, the methodological framework is described; in Section 3, the methodological approach is applied to the case study of Naples; in Section 4, the obtained results are presented; in Section 5, discussion and conclusions about the adopted approach are reported.

2. Methodological approach: opportunities, processes, and scenarios

The research evaluates urban transformation project alternatives, interpreting social self-organisation and cooperation through different scenarios, according to community glue values production and self-regeneration capacity of the analysed processes.
The proposed methodology can be structured in the following phases (Fig. 1):

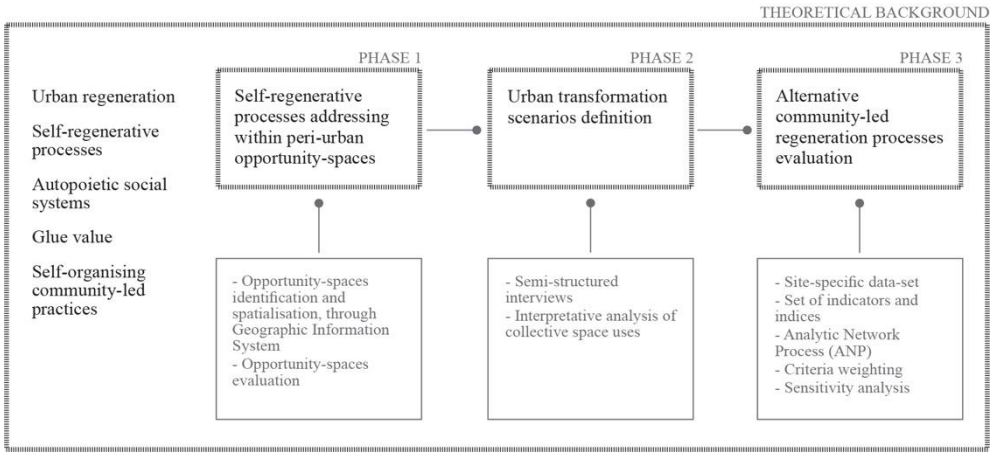
1. addressing different self-regenerative synergistic processes within identified opportunity-spaces;
2. defining alternative transformation scenarios for residual spaces, based on different types of community-led self-organising processes, according to the detected space uses and people's formal-informal practices and behaviour in space;
3. evaluating the alternatives, through a site-specific set of selected indicators.

Phase 1 methodological steps will not entirely be reported. This paper focuses, instead, on the definition and evaluation of regeneration scenarios (phase 2 and 3), according to the results obtained from the first phase, supporting place-based alternatives definition.
This first methodological phase investigates the heterogeneous peri-urban system, identifying the opportunities deriving from the relational dynamics in collective spaces. It aims at detecting the territorial capacity to allow the catalysation of urban regeneration processes, based on self-production and community self-organisation. According to this, the place-based methodological structure is built, starting from the analysis and interpretation of uses and relationships in collective space. It highlights how use and non-use values and the opportunities of a marginal urban area can depend on social identity and glue values.
The term *opportunity* is understood as the possibility to activate a cooperative and synergistic community process within a space, starting regeneration dynamics. Opportunity-spaces are identified through four indices, elaborating the data deriving from different interpretative analysis of the use of space and of people's activity and behaviour

.

according to the use of space. The development of these indices focuses on space heterogeneity and relational dynamics detectable in this space.

Fig. 1 – The methodological framework for the evaluation of peri-urban regeneration scenarios



As a consequence, five categories of opportunity-spaces are defined and spatialised, highlighting different regenerative possibilities. Among these categories, *residual* spaces are considered and spatialised, as well. They result to be spaces, where people's frequency, hence the density of relationships in space, is low, but the landscape quality and the presence of green spaces, enable people to establish spatial bonds and informal self-organised practices, related to the use of space. The opportunity-spaces are evaluated through a site-specific set of quantitative and qualitative indicators, referring to criteria related to glue value and intangible relationships production, as well as to the 2030 Agenda for Sustainable Development goals and targets (United Nations General Assembly, 2015), deepening, in particular, the issues related to social self-development and inclusive urban spaces promotion. The results of the evaluation allow addressing different types of local cooperative synergistic processes, according to the categories of opportunity-spaces and their different characteristics. The second methodological phase focuses on the definition of possible alternative scenarios for the identified residual spaces, according to the different territorial opportunities and to the informal and spontaneous dynamics, already shaping spatial transformations. In particular, for the case study, three possible scenarios are defined, taking into account these practices, which result to be related to social and community habits of: collective sharing of public and threshold spaces; informal structures self-building; unused green areas appropriation for gardening and cultivation. The definition of each alternative is supported by an urban and architectural project, focusing on the enabling conditions for the community stakeholders' network cooperation, through shared and self-defined systems of rules.

The third methodological phase is based on the alternatives evaluation, through selected indicators, referring to processes of shared urban green promotion and social self-

production, identified in phase 1. Indeed, according to the opportunity-space evaluation (phase 1), these two types of processes are to be related to residual spaces regeneration, involving synergies among open communities and cooperatives of inhabitants and enabling social innovation processes, based on the self-regenerative capacities of social systems. Residual spaces identify various unused green areas, resulting from heterogeneous urbanisation processes: inhabitants are now using these areas as collective gardens or unplanned parks, where to go walking or jogging; they function as small green infrastructures within the urban fabric. Aiming at enhancing these existing processes, phase 3 addresses the scenario that best allows urban green sharing to produce community systems of relationships and bonds. Quantitative and qualitative indicators are built, according to data, deriving from the projects enabling conditions, and from semi-structured interviews. The research adopts the Analytic Network Process (ANP) (Saaty, 2006) multi-criteria method for the alternatives evaluation. The ANP is a Multi-Criteria Decision Aid method (MCDA) that overcomes the Analytic Hierarchy Process (AHP) hierarchical structure, allowing the decision problem to be structured through a network model, based on interactions and dependencies among elements, belonging to different hierarchical levels. These are interrelated clusters and nodes, contained within the clusters. ANP method develops a supermatrix, in which the priorities - established through pairwise comparisons, as well as in the AHP method - are integrated. The supermatrix expresses the influence of an element on another one, according to the selected criteria, hence the dependencies among the clusters and the nodes of the network. The software used in this research for the ANP evaluation is SuperDecisions 3.2.
In order to better support the decision among alternatives, the evaluation result is considered, according to different priorities to be attributed to the chosen criteria. As a consequence, different results are obtained, highlighting the diversity of interests and perspectives, involved in the decision-making process.

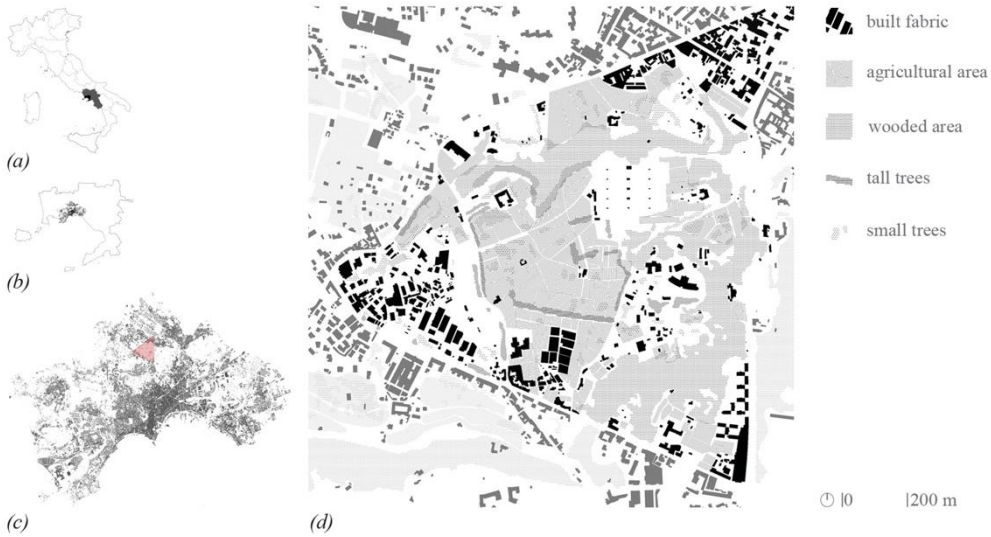
3. Case-study: community-led practices for residual spaces

The analysed area is a peri-urban region, located in-between the central urban districts of Naples (Italy) and the inland municipalities, surrounding the city. It is part of Piscinola district, being connected to the historical city centre and the districts on the northern hills through an urban tube line. The study area is very close to the northern part of Capodimonte park - one of the biggest urban parks in Naples - and can be located between the limits of the districts of Colli Aminei and Scampia; it is largely included in the Regional Park of the Hills of Naples (Città Metropolitana di Napoli, 2004), being crossed from south-west to north by the northern part of San Rocco valley, a yellow tuff gorge, occupied by large wooded areas (Fig. 2).
In the 2004 Report of Naples General Master Plan (Comune di Napoli, 2004), the area description underlines a predominantly agricultural use of the territory and the heterogeneous composition of the urban fabric: illegal and non-normed buildings - constituting an actual new urban fabric - overlap with the cultivated areas, where the presence of farmhouses and rural buildings persists; peri-urban agriculture coexists seamlessly with the urban fragments of ancient and recent formations. San Rocco valley constitutes a wide ecosystem resource for the city, crossing the urban built fabric and the rural areas. The uncultivated and unused green areas are widely distributed on this territory, resulting from different abandonment processes of rural and productive structures.

.

The opportunity-spaces are spatialised, as describes in Section 2, and among these, residual spaces are identified within the study area, as well (Fig. 3). They are spatialised, according to a 20x20 meters grid, that is a minimum spatial unit for the selected indices values to be assessed, through GIS software. QGIS 3.4 software was used, implementing a GIS-based data-set, collecting the results of the interpretative analysis and the interviews. In particular, three residual areas are identified and the north-western one is considered for the evaluation of alternatives.

Fig. 2 – Study area



(a-c) Study area location (d) Study area, built fabric, agricultural and wooded areas
(a) Campania region, Italy; (b) Municipality of Naples, Metropolitan City of Naples; (c) Study area, Municipality of Naples

Fig. 3 – Residual spaces, identified within the study area

(a) Spatialisation (b) Different residual spaces

The three alternatives (A1, A2, A3) are defined, aiming at catalysing regeneration processes, based on urban green sharing, social self-production and community self-organisation. They differently enhance the detected social informal dynamics and practices, happening in space (Fig. 4).

Fig. 4 – Project alternatives for north-western residual area

(a) A1 *(b) A2* *(c) A3*

Alternative A1, focusing on the overlapping of urban and rural fabric, typical for this peri-urban area, and on the practices of residual spaces appropriation for gardening and cultivation, proposes a residential settlement, where strips of in-between-houses community gardens are shared among the inhabitants. In this scenario, residential, agricultural and commercial functions are integrated, resulting in mixed structures and facilities, and providing different opportunities for a community of existing, new and temporary inhabitants. Furthermore, the closeness to the existing agricultural areas would allow dependences and hybridisation between two different land uses, corresponding to vast zones within the study area. A1 project actions provide with: residential, agricultural and commercial facilities; direct continuity among buildings, agricultural and green areas; sharable green areas, to be cultivated by the inhabitants; water recycle systems for residential and agricultural uses, to be connected with the water system of the close wooded area of San Rocco valley; paths for pedestrians and bikes, connecting the rural areas with the new settlement. A1 supports the establishment of an active stakeholders' network, involving inhabitants, local farmers and local sellers, cooperating within the framework of a circular local economy of vegetable production-selling, and community garden sharing. The stakeholder, directly involved in urban green and agricultural areas definition, would maintain and administrate collective areas.

Alternative A2, referring to the practice of informal structures self-building - which is very diffused within the study area - proposes a mixed residential-commercial settlement, made of punctual structures, to be located within interstitial uncertain spaces, constituting a porous hybrid built fabric, within a wide shared park. Looking at the fragmentation and heterogeneity of the territory, A2 aims at producing a hybrid garden of anthropic and natural elements, of existing and new buildings and green areas, to be fluidly interconnected. This scenario allows the integration of residential, commercial and leisure facilities. A2 project actions provide with: residential, commercial and leisure facilities; a connective fabric of anthropic and natural elements; collective green areas, constituting a diffused sharable park; accessible connections, within the park. A2 supports synergies

.

among existing and new inhabitants, cooperating within collective spaces negotiation processes and maintenance actions. Indeed, as in A1, this scenario proposes community direct involvement in collective green spaces definition and maintenance.
Alternative A3, enhancing the existing processes of collective sharing of public and threshold spaces, taking place through various informal spatial practices, defines a community reception building, to be self-built and self-defined by stakeholders and inhabitants. In this scenario, self-organised stakeholders' cooperatives could negotiate community ownership with investors and the municipality. A3 project actions have been defined through financial analysis and a partnership model, where the stakeholders' community, the public and the private have specific roles and benefits. A3 enable people's mutual support and social inclusion, providing the local community with: temporary housing and hospitality spaces and facilities for people in need; study and meeting rooms; an auditorium for community assemblies and cultural initiatives; a canteen with a community kitchen; community gardens; recreational spaces and rooms.
All the alternatives support people's direct engagement during the project realisation phases, enabling architectural self-building, through modular structures. Self-building and collective spaces self-maintenance would allow building and administration costs reduction and constitute instruments towards the achievement of community trust ownership strategies, to be defined in synergy with the municipality administrators.
In Table 1, the three alternatives definition is synthesized, through their different functions and enabling conditions, the stakeholders' synergies, and the possible regeneration processes.

Table 1 – Alternatives definition

	A1	**A2**	**A3**
Functions	Residential; Commercial; Agricultural	Residential; Commercial; Recreational	Residential; Cultural; Community services
Stakeholders	Existing, new, temporary inhabitants; Local farmers; Local sellers	Existing, new, temporary inhabitants; Local sellers	Existing, new, temporary inhabitants; Social associations and cooperatives
Project enabling conditions	Mixed use; Community gardens; Water recycle systems; Pedestrian paths	Mixed use; Collective green areas and parks; Pedestrian paths	Mixed use; Community facilities; Hospitality spaces for people in need
Synergies	Collective use and maintenance of vegetable gardens	Collective use and maintenance of green areas and parks	Collective use of community services; Mutual support and aid
Regeneration processes	Circular economy of production-selling of local agricultural products	Urban green areas and parks enhancement and sharing	Community-led initiatives and practices

.

4. Results: evaluation of social self-organisation scenarios for peri-urban regeneration

The indicators for the evaluation among the three alternatives are selected according to the following criteria: Mixed Use of space; Connectivity and Permeability; Common Green spaces; synergies for Self-Organisation; Place Identity. These criteria are chosen, aiming at addressing regeneration processes, based on practices of urban green sharing and social self-organisation.

Table 2 – Site-specific set of indicators, for the alternatives evaluation

Criteria	Indicator	Code	Data source
Mixed **U**se of space	Buildings uses and functions	MU1	Authors' elaboration
	Public space uses and functions	MU2	Authors' elaboration
Connectivity and **P**ermeability	Pedestrian paths, usable by people with disabilities	CP1	Authors' elaboration
	Cyclable paths	CP2	Authors' elaboration
	Parking lots	CP3	Authors' elaboration
Common **G**reen spaces	Community gardens	CG1	Authors' elaboration
	Parks and green areas	CG2	Authors' elaboration
	Common facilities related to gardening and cultivation in public spaces	CG3	Authors' elaboration
synergies for **S**elf-**O**rganisation	Space for collective practices	SO1	Semi-structured interviews
	Facilities for collective initiatives and events	SO2	Semi-structured interviews
	Creativity for collective initiatives	SO3	Semi-structured interviews
	Willingness to participate in community activities and initiatives	SO4	Semi-structured interviews
	Availability to cooperate and offer help to support the community	SO5	Semi-structured interviews
Place **I**dentity	Preference according to people's practices in space	PI2	Semi-structured interviews
	Recognition in space peculiar characteristics	PI2	Semi-structured interviews

.

The selected set of 15 indicators and 5 criteria is reported in Table 2. Quantitative and qualitative indicators values are reported in Table 3. Qualitative indicators are expressed through a 0-3 scale, with: 0 = non-present quality; 1 = modest quality; 2 = significant quality; 3 = very significant quality.

Table 3 – Indicators values

Indicator code	Measure unit	A1	A2	A3
MU1	number	3	3	5
MU2	number	2	2	4
CP1	m^2	4.382,33	2.896,30	3.289,48
CP2	m^2	4382,33	2.129,30	2.481,20
CP3	m^2	427,38	234,39	542,58
CG1	m^2	564,38	139,69	428,58
CG2	m^2	165,47	427,83	361,58
CG3	m^2	438,48	86,37	289,59
SO1	m^2	1.002,86	567,52	3.485,89
SO2	m^2	234,59	121,43	2.429,30
SO3	0-3	1	3	2
SO4	0-3	2	3	2
SO5	0-3	2	2	3
PI1	0-3	2	3	1
PI2	0-3	1	3	1

The ANP network model is structured through 6 clusters (5 criteria + 1 cluster for the alternatives) e 15 nodes, corresponding to the indicators. Connections and dependencies are established among elements of different clusters - network arrows - and of the same cluster - network loop arrows (Fig. 5). The influence matrix shows these different dependencies among the elements (Fig. 6).

.

Fig. 5 – ANP network model, screenshot from SuperDecision software

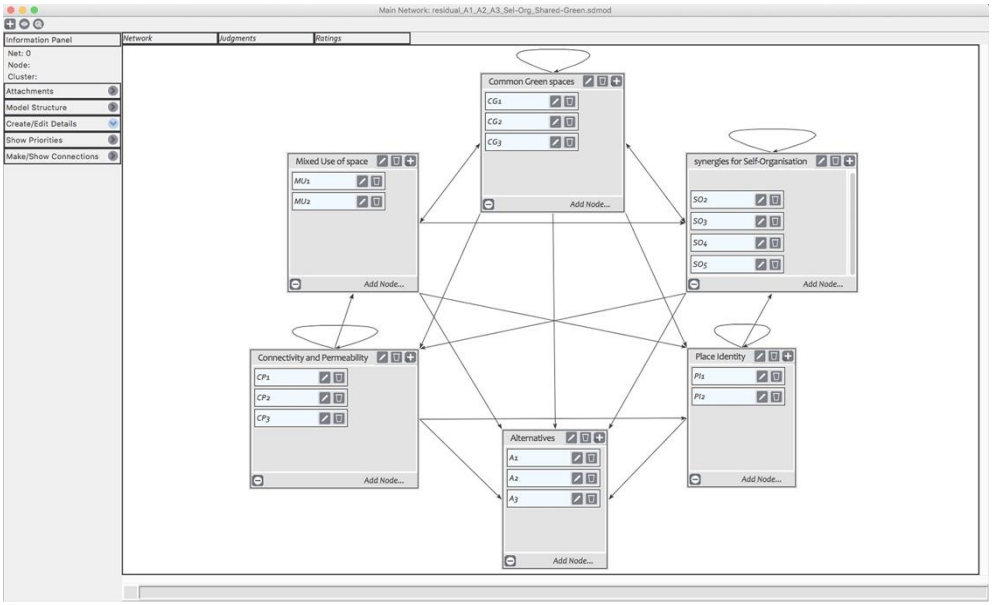


Fig. 6 – ANP method application: Influence matrix

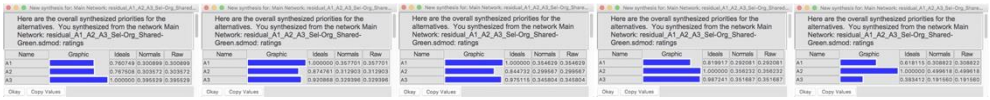
		Alternatives			MU		CP			CG			SO					PI	
		A1	A2	A3	MU1	MU2	CP1	CP2	CP3	CG1	CG2	CG3	SO1	SO2	SO3	SO4	SO5	PI1	PI2
Alternatives	A1				x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
	A2				x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
	A3				x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Mixed Use of space	MU1	x	x	x								x		x					
	M2	x	x	x						x	x	x						x	x
Connectivity and Permeability	CP1	x	x	x		x		x										x	x
	CP2	x	x	x		x												x	x
	CP3	x	x	x		x												x	x
Common Green spaces	CG1	x	x	x		x	x	x	x				x	x	x	x	x	x	x
	CG2	x	x	x		x	x	x	x	x			x	x	x	x	x	x	x
	CG3	x	x	x	x		x	x	x	x			x	x	x	x	x	x	x
synergies for Self-Organisation	SO1	x	x	x			x	x	x	x	x	x			x	x	x		
	SO2	x	x	x			x	x	x	x	x	x			x	x	x		
	SO3	x	x	x															
	SO4	x	x	x									x	x	x			x	
	SO5	x	x	x									x	x	x				
Place Identity	PI1	x	x	x											x	x	x		x
	PI2	x	x	x											x	x	x	x	

Alternatives ratings, deriving from the overall ranking, indicate scenario A2 to represent the preferable choice, according to the goal of activating community-driven regeneration processes of peri-urban residual spaces, based on the promotion of social self-organisation and urban green spaces enhancement. The ranking also shows A3 scenario values to be very close to the previous one, indicating how the choice between these two could depend on different perspectives and interests, involved in the decision-making process. Therefore, different priorities are progressively attributed to the five clusters (Fig. 7).
As a result, the following considerations can be done, supporting the overall result: A1 scenario is preferable when considering pedestrian and cyclable mobility as a priority; A1 and A3 support, almost equivalently, regeneration processes, focusing on the promotion of urban green areas for the community to share them, through collective practices and activities, such as community gardening; A3 best promotes a mixed-use of collective spaces and new buildings; A2 and A3 equally support the community to activate processes of self-organisation for collective spatial definition; A2 is remarkably preferable by the community of existing inhabitants, constituting the scenario, which better continues the types of spatial dynamics happening in space (Fig. 8).

Fig. 7 – Different priorities of ANP clusters, screenshots from SuperDecision software

(a) Mixed Use *(b) Connectivity* *(c) Common Green* *(d) Self-Org.* *(e) Place Identity*

Fig. 8 – Different rankings according to the priorities, screenshots from SuperDecision software



(a) Mixed Use *(b) Connectivity* *(c) Common Green* *(d) Self-Org.* *(e) Place Identity*

5. Conclusions

The contribution evaluates three different urban regeneration scenarios, to be adopted within a peri-urban residual area, aiming at enhancing processes of social self-organisation and cooperation. Having identified and evaluated opportunity-spaces within the peri-urban study area, residual spaces result to be areas where the activation of urban self-regenerative dynamics can be related to social and natural capital enhancement.
The three alternatives, are defined, according to different strategies for social self-definition of collective space, and propose to enable community-led processes, which reflect the

.

spatial and relational dynamics happening within the analysed area. They, indeed, propose to engage the transformations starting from the detected space uses and the observed behaviour of people in space, which, very often for the case study, revolve around informal practices of spatial temporary appropriation. However, it is noticed that the definition of alternatives through stakeholders' involvement methods, such as those based on cognitive psychology and social negotiation (Eden and Ackermann, 2010), can provide the decision-makers with scenarios that respond to the involved stakeholders' opinions and different perspectives.

The selected set of indicators focuses on the establishment of community-led regeneration processes, hence its definition through criteria regarding the support of local communities, towards the production of shared territorial values and glue values. In particular, the criteria referring to people's involvement and cooperation within spatial transformation processes, address the evaluation according to the existing social practices, underlining how their support and the enabling of new ones constitute a priority for directly involved stakeholders and inhabitants. Indeed, the evaluation results provide a very interesting focus of reflection: when attributing priority to the criterion Place Identity - based on semi-structured interviews, where people were asked to express an opinion on the proposed scenarios - the alternative that more refers to social practices, already happening in space, is preferable over the other two, proposing a more mixed-use of space. Nonetheless, the selected indicators could be implemented with criteria based on different types of circular processes, actively involving local communities and economies. In particular, the research on the study area has shown that many opportunities for social and economic enhancement are related to agricultural production, constituting a fundamental local resource.

References

Allen A. (2003), "Environmental Planning and Management of Peri-Urban Interface: Perspective on an Emerging Field". *Environment and Urbanization*, vol. 15, n.1, pp. 135-148. https://doi.org/10.1177/095624780301500103

Arthurson K. (1998), "Redevelopment of public housing estates: The Australian experience". *Urban Policy and Research*, vol. 11, n. 1, pp.35-46. https://doi.org/10.1080/08111149808727746

AUDIS - Associazione Aree Urbane Dismesse (2008), Carta AUDIS della Rigenerazione Urbana, https://www.casaportale.com/public/uploads/Carta%20AUDIS%20della%20rigenerazione%20urbana.pdf

Barca F. (2009). "Agenda for a reformed cohesion policy. Brussels". European Communities, https://www.europarl.europa.eu/meetdocs/2009_2014/documents/regi/dv/barca_report_/barca_report_en.pdf

Berger A. (2006), "Drosscape", in Wladheim C. (ed.), *The Landscape Urbanism Reader*. Princeton Architectural press, New York, USA, pp. 198-207.

Brook R.M., Davila J.D. (2000), *The Peri-urban Interface: A Tale of Two Cities*. School of Agricultural and Forest Sciences, University of Wales and Development Planning Unit, University of Wales, London, UK.

Cilliers P. (1998), *Complexity and Postmodernism: Understanding Complex Systems*. Routledge, London, UK. https://doi.org/10.1080/02580136.1999.10878187

Città Metropolitana di Napoli (2004), *Parco regionale metropolitano delle colline di Napoli, Proposta di Piano territoriale del Parco. Relazione illustrativa*, http://www.parcometropolitanocollinenapoli.it/index.php?action=index&p=409

Clément G. (2004), *Manifesto del terzo paesaggio*. Quodlibet, Macerata, Italy. Italian ed., 2005. Original title: *Manifeste du Tiers paysage*, 2004.

Clément G. (2006), *Piccola pedagogia dell'erba, riflessioni sul Giardino Planetario*. Habitus, Rome, Italy. Italian ed., 2015. Original title: *Où est l'herbe? Rèflexions sur le Jardin Planétaire*, 2006.

Comune di Napoli (2004), *Variante al Piano Regolatore Generale di Napoli. Relazione*, https://www.comune.napoli.it/flex/cm/pages/ServeBLOB.php/L/IT/IDPagina/1025

Dupont V. (2005), "Peri-Urban Dynamics: Population, Habitat and Environment on the Peripheries of Large Indian Metropolises: An Introduction", in Dupont V. (ed.), *Peri-Urban Dynamics: population, Habitat and Environment on the Peripheries of Large Indian Metropolises. A Review of Concepts and General Issues*. Centre de Sciences Humaines, New Delhi, India.

Eden C., Ackermann, F. (2013), "Decision making in groups: Theory and practice", in Nutt, P., Wilson, D. (eds.), *Handbook of decision making*. Blackwell, Oxford, UK, pp. 2301-272.

European Commission (2014), *Community-led local development. Cohesion Policy investment for 2014-2020*, https://ec.europa.eu/regional_policy/sources/docgener/informat/2014/community_en.pdf

Fordham G. (1995), *Made to last*. Joseph Rowntree Foundation, York, UK.

Garmestani A.S., Allen C. R. (Eds.) (2014), *Social-ecological resilience and law*. Columbia University Press.

Goonetilleke A., Yigitcanlar T., Lee S. (2011), "Sustainability and urban settlements: urban metabolism as a framework for achieving sustainable development", Summit Proceedings of the 4th Knowledge Cities World Summit. The World Capital Institute and Ibero-American Community for Knowledge Systems, Bento Gonçalves Publisher. Bento Gonçalves, Brazil, October 26-27, 2011.

Healey P. (2006), "Transforming Governance: Challenges of Institutional Adaptation and a New Politics of Space". *European Planning Studies*, vol. 14, n. 3, pp.299-320. https://doi.org/10.1080/09654310500420792

Heylighen F. (2001), "The science of self-organization and adaptivity", in Kiel L.D. (ed.), *Knowledge management, organizational intelligence and learning, and complexity*. Encyclopedia of Life Support Systems (EOLSS) Publishers Co Ltd.

Iaquinta D.L., Drescher A. W. (2000), *Defining peri-urban: Understanding Rural Urban Linkages and Their Connection to Institutional Contexts*, http://portal.geographie.uni-freiburg.de/forschungsprojekte/indigenoveg/Background1PeriurbanTypology.pdf

Luhmann N. (1986), "The Autopoiesis of Social Systems", in Geyer, F., Van d. Zeuwen, J. (eds.), *Paradoxes: Observation, Control and Evolution of Self-Steering Systems*. Sage, London, UK.

Maes J., Teller A., Erhard M., Grizzetti B., Barredo J.I., Paracchini M.L., Condé S., Somma F., Orgiazzi A., Jones A., Zulian A., Vallecilo S., Petersen J.E., Marquardt D., Kovacevic V., Abdul Malak D., Marin A.I., Czúcz B., Mauri A., Loffler P., Bastrup-

Birk A., Biala K., Christiansen T., Werner B. (2018), *Mapping and Assessment of Ecosystems and their Services: An analytical framework for ecosystem condition*, https://ec.europa.eu/environment/nature/knowledge/ecosystem_assessment/pdf/5th%20MAES%20report.pdf

Magnaghi A. (2010), *Il progetto locale, verso la coscienza di luogo*. Bollati Boringhieri, Torino, Italy.

Marshall F., Waldman L., MacGregor H., Mehta L., Randhawa P. (2009), "On the Edge of Sustainability: Perspectives on Peri-urban Dynamics". *STEPS Working Paper*, n. 35. STEPS Centre, Brighton. https://opendocs.ids.ac.uk/opendocs/handle/20.500.12413/2461

Moffat T., Finnis E. (2005), "Considering Social and Material Resources: The Political Ecology of a Peri-Urban Squatter Community in Nepal". *Habitat International*, vol. 29, pp. 231-250. https://doi.org/10.1016/j.habitatint.2004.04.001

Müller N., Ignatieva M., Nilon CH., Werner P., Zipperer WC. (2013), "Patterns and Trends in Urban Biodiversity and Landscape Design", in Elmqvist T., Fragkias M., Goodness J., Güneralp B., Marcotullio P. J., McDonald R. I., Parnell S., Schewenius M., Sendstad M., Seto (eds.), *Patterns Urbanization, Biodiversity and Ecosystem Services: Challenges and Opportunities. Dordrecht, Netherlands, Springer Netherlands*. Springer, Dordrecht, Netherlands. https://doi.org/10.1007/978-94-007-7088-1

Narain V., Nischal S. (2007), "The Peri-Urban Interface in Shahpur Khurd and Karnera, India". *Environment and Urbanization*, vol. 19, n.1, pp. 261-273.

Penha-Lopes G., Henfrey (2019), *ECOLISE Status Report 2019-Reshaping the Future: How local communities are catalysing social, economic and ecological transformation in Europe*, https://www.ecolise.eu/wp-content/uploads/2016/02/Status-Report-on-Community-led-Action-on-Sustainability-Climate-Change-in-Europe-2019.pdf

Roberts P. (2000), "The evolution, definition and purpose of urban regeneration", in Roberts, P., Sykes, H. (eds.), *Urban Regeneration, A Handbook. British Urban Regeneration Association*. SAGE Publications, London, UK, pp. 9-36.

Saaty T. L. (2006), "The Analytic Network Process. In: Decision Making with the Analytic Network Process". *International Series in Operations Research & Management Science*, vol n. 95.

Sacco P., Ferilli G., Tavano Blessi G. (2014), "Understanding culture-led local development: a critique of alternative theoretical explanations". *Urban Studies*, vol. 51, n. 13, pp. 2806-2821. https://doi.org/10.1177/0042098013512876

Smith N. (2002), "New Globalism, New Urbanism: Gentrification as Global Urban Strategy". *Antipode*, vol. 34, n. 2, pp. 427-450. https://doi.org/10.1111/1467-8330.00249

Sullivan H., Skelcher C. (2002), *Working across boundaries: Collaboration in public services*. Palgrave/Macmillan, New York, USA.

Turner R.K. (1992), "Speculations on Weak and Strong Sustainability". *CSERGE Working Paper GEC*, n. 92-26, pp. 343-41.

United Nations General Assembly (2015), *Transforming our world: The 2030 agenda for sustainable development*, https://sustainabledevelopment.un.org/post2015/transformingourworld

Varela F., Maturana H., Uribe R. (1974), "Autopoiesis: The Organization of Living Systems, Its Characterization and a Model". *Biosystems*, vol. 5, pp. 187-96.

Wagenaar H. (2007), "Governance, Complexity, and Democratic Participation: How Citizens and Public Officials Harness the Complexities of Neighbourhood Decline". *American Review of Public Administration*, vol. 37, n. 1, pp.17-50. https://doi.org/10.1177/0275074006296208

Yiftachel O., Hedgcock D. (1993), "Urban social sustainability: The planning of an Australian city". *Cities*, vol. 10, n. 2, pp. 139-157. doi:10.1016/02642751(93)90045-K

Maria Cerreta
Department of Architecture (DiARC), University of Naples Federico II
Via Toledo 402 – Naples 80134 (Italy)
Tel.: +39-081-2538-062; fax: +39-081-2538-649; email: maria.cerreta@unina.it

Maria Reitano
Department of Architecture (DiARC), University of Naples Federico II
Via Toledo 402 – Naples 80134 (Italy)
Tel.: +39-393-2326040; email: maria.reitano@virgilio.it