

# About Socio-Cultural Sustainability and Resilience

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## ABSTRACT

**Sustainability and resilience have become an indispensable part of contemporary research discourse. In the literature, the notions of these two concepts are numerous and diverse. Approaches to sustainability and resilience thus range from philosophical, political, economic, psychological, ecological, etc., to more complex, systematic considerations, i.e. from broad theoretical or metaphorical views to particularised sets of proposed measures and actions. Although sustainability and resilience basically deal with human systems and social organisations, for which reason expressions like ‘sustainable community’ and ‘resilient community’ are often used in current studies, the social dimension of sustainability and resilience and the role of culture, however, persist as the least clarified and are without consensus. Recognising the challenge that, in a multitude of interpretations, can primarily be connected with a necessity to revisit the conceptualisation, this paper unfolds several fundamental questions: What is the relationship between environments, communities, sustainability, and resilience? What is social sustainability and what does social sustainability have to do with sustainable development? What are the concepts and characteristics of sustainable/resilient communities? What are the roles of individuals and of community as a whole? Finally, how do sustainability and resilience relate to each other within the socio-cultural dimension?**

**The research based on the questions posed above, however, does not aim to find the only correct answers, but to assist in deepening the understanding of some of the most intricate and least illuminated topics in the fields of sustainability and resilience, thus bridging a knowledge gap regarding the socio-cultural implications of planning and design decisions for built environment subjected to shifting dynamics, irregular and unexpected changes, and growing uncertainty.**

KEYWORDS notion, social environment, community, sustainability, resilience, culture

## 1 Introduction

According to the Oxford Dictionaries (n.d.), the term *environment* means: 1) “The surroundings or conditions in which a person, animal, or plant lives or operates”; 2) “The natural world, as a whole or in particular geographical area, especially if affected by human activity”. To understand complexity and diversity regarding the environment, a systemic approach and an interdisciplinary perspective of its different parts and to the interrelations among these parts are needed (Park, 2001). Watson et al. (2015, p. 4) identify the use of resources and the production of waste, health and wellbeing, and productivity and performance as “three areas where the interplay between people and the designed environments around them is key”. Bartuska (2007a) has distinguished between *perceptual* (a part of environment intercepted by senses), *functional* (a portion of environment that physically impinges on an organism, i.e. a part in which we operate or function), and *conceptual* environment, which is society’s cultural world, including the built environment, a world shaped by human ideas and the meaning they convey. Although the built environment is manifested in constructed surroundings, physical artefacts, and places (Squires, 2013; Bartuska, 2007), it is meaningful only in socio-cultural terms (Rapoport, 1990; Niculescu, 1975). For Bartuska (2007a), relations between humans and environment lie at the core of human experience; human concepts and abstractions are underpinned by symbols that express the reality, and so even myths and legends develop as a part of built environment. Broadly speaking, built environment can be seen as cultural landscape, organisation of space, time, meaning and communication, or a system of settings in which the systems of activities take place (Rapoport, 2007). From a user-centred perspective, the basic purpose of built environment is to support the activities of the users that it shelters (Vischer, 2008, p. 231). The components of built environment that emerge from human needs, thoughts, and actions (Bartuska, 2007) consequently have an influence on their creators and users. Between an initial need to create, and a goal to use the created, lies the *socio-cultural realm*.

The literature review reveals that the interest in exploring the links between social worlds and physical spaces is not new (e.g. Strauss, 1970; Tuan, 1979), and that *social environment* can be studied from different standpoints, in narrow or wide contexts, on different scales, and in changeable relations towards natural and built environments. For Hundertwasser, the social environment that is the identity represents the fourth of man’s five skins (the first skin is his natural epidermis, the second his clothes, the third is his home, and the fifth skin is the planetary skin) (Restany, 1998). Squires (2013, p. 15) conceptualises social environment as a sub-category of the environment which “considers the culture that an individual lives in and the people and institutions with whom they interact”. For Rapoport (2007), culture influences the mechanisms that link people and environments (from homes and offices, to parks, streets, buildings, to cities) in a number of ways, and cultural variables result in a multitude of environments. According to Barnett and Casper (2001, p. 465), the broad notion of human social environment that encompasses “immediate physical

surroundings, social relationships, and cultural milieus within which defined groups of people function and interact” can be experienced at multiple interconnected scales (from households and neighbourhoods, to cities, to regional, national, and international scales). Therefore, social environment placed in a certain physical (geographical) context can actually be understood as a system of different overlapping social environments, a network with an intricate web of connections among the units it is made of (Palla, Derényi, Farkas & Vicsek, 2005), that is, among the different ‘groups of people’. A group (unit) of people who have and share something (in) common is defined as *community*.

Community is a type of social organisation (Hunter, 2008), a familiarised social environment exempted from generality. At the same time, community is, according to Cnaan, Milofsky, and Hunter (2008, p. 5-6), a complex construct consisting of many important dimensions that can be grouped into: shared ecology (specifics of spatial location), social organisation (network character, types of on-going social processes, and organisational systems), and shared cultural and symbolic meaning (shared sentiments, values, sense of community, identity, and others). The social and personal identity of an individual (Niculescu, 1975) is related to the identity of other members in a community, and the entire group reflects the patterns of these relationships, which ultimately becomes its characteristic. Nonetheless, community should not be viewed as an isolated space where only the relationships between insiders are considered as important (Cnaan et al., 2008, p. 14). To that end, Wang, Qiu, Wang, and Zhang (2008, p. 637) describe community, from the topological view, as a group of nodes connecting densely inside and sparsely to the outside.

Traditionally, communities are formed according to the age, sex, race, occupation, religion, ethnicity, etc. Rapoport (2007) makes a departure from this simplified categorisation and recognises lifestyle as one of the main criteria of grouping community members and the main specificity on the basis of which a diversity of communities can be explained. Lifestyle, as stated by Rapoport (2007), lies at the core of human activity and activity systems that are specific and hence suitable for analysis. Thus, one of the most significant community determinants is its dynamics.

An individual can be a member of several communities, which is the reason for the occurrence of the ‘overlapping communities’ phenomenon. In a time of advanced technologies and rapid exchange of information, these overlaps are getting a new, stronger dimension, often shifting from physical to virtual reality in which interactions are easy to establish and network structures are quickly evolving (Rosseti, Guidotti, Miliou, Pedreschi & Giannotti, 2016). “...Bicycle activists, slum dwellers or community gardeners often have more in common with other similar groups around the world via virtual communication networks than with neighbors with physical proximity” (McGrath & Pickett, 2011, p. 56). Community structure is further compounded and heterogenized because of the development of global culture and the diversity of individual responses to globalisation trends. While

traditional cultural traits among members of the same community are maintained with significant differences, new 'real' world issues and global values such as sustainability and resilience are concurrently adding additional complexity to the notion of community.

## 2 The Notion of 'Social' in Sustainability Framework

Omann and Spangenberg (2002) have characterised sustainable development as perhaps the most challenging policy concept ever developed. According to Becker, Jahn, and Stieß (1999), sustainability has emerged as a response to the prevailing societal transformation trends, including erosion of 'development' and merely economic modernisation. Based on a widespread understanding, sustainability encompasses environmental, economic, and social dimensions, and their diverse interlinkages established through culture. Environmental sustainability (sometimes also referred to as technical or ecological sustainability) is the most comprehensively employed sustainability segment so far, followed by economic sustainability. *Social sustainability* started to become relevant in research, politics, and practice only at the beginning of the 21<sup>st</sup> century (Colantonio, 2007).

At the present time, when key sustainability postulates are already being questioned (e.g. Robinson & Cole, 2015), the consensus on what social sustainability is and what its indicators are has not been reached yet. A significant body of literature testifies to the accepted challenge of defining an inclusive notion of social sustainability, as well as to the difficulties in establishing such a definition. Existing interpretations reflect different approaches and a wide range of philosophical, political, and practical issues (Woodcraft, 2012). The more general the perceived objective of social sustainability, the more notable the difficulties encountered in defining the term. A particular barrier to describing social sustainability, according to Colantonio (2007, p. 6), is "the multifaceted nature of the concept of sustainability that amalgamates social, environmental and economic matters into a new independent entity". Similarly, Murphy (2014, p. 32) recognises that the difficulties in identifying 'purely' social issues actually represent a consequence of considerable overlaps across the three pillars of sustainable development. Besides variable interpretations of sustainability as a whole, another difficulty in defining the notion of social sustainability is a durable ambiguity (e.g. Sachs, 1999) regarding the relationship with other sustainability segments, which most often stems from discipline-specific observations.

With regard to the overall sustainability concept and its constituting dimensions, it appears that the term 'social sustainability' can be understood as:

- implication of environmental sustainability;
- support for the processes of achievement of environmental and economic sustainability goals (through behaviour, policies, institutions, etc.);

- prerequisite for the achievement of environmental and economic sustainability goals, where individuals and groups are placed at the core of the process; or
- a set of features of social environment valued in its own integrity and desirably contributing to the environmental and economic sustainability goals. This is the most complex form of interpretation of social sustainability and with the greatest diversity; it can equally refer to the widening of the traditional (holistic) meaning of sustainability, or be understood as the 'sustainability of social environment', e.g. the sustainability of community (Dempsey, Bramley, Power, & Brown, 2009).

For Becker et al. (1999), sustainability, as well as non-sustainability, conditions refer to a combined system of nature and society in real time and space, because of which it is not possible to consider social or environmental sustainability in isolation; rather, it is the viability of their relationship over long periods of time that defines the course of (non-) sustainability. On the other hand, the prerequisite for dealing with social sustainability, according to McKenzie (2004), is to define it as distinct from environmental or economic sustainability. Criticising the division of the 'three pillars' of sustainability, Mundt (2011, p. 90) has proposed returning to the original concept of the use of natural resources without trying to widen the meaning, and indicated that social issues should not be mixed with sustainability and that they have to be dealt with separately and on different levels. To define social sustainability, Woodcraft (2012, p. 32) has posed the following questions about its purpose: "Who and what is being sustained?" "Why and at what costs?" For Vallance, Perkins, and Dixon (2011), social sustainability is crucial for the fulfilment of environmental goals. "Only when people have potable water, healthy food, medication, education, employment, equity and justice, they can change their behaviour and place their concerns on global warming, energy efficiency, and other environmental issues" (Vallance et al., 2011, p. 345). What people need, what people want, and what is good for the bio-physical environment, therefore emerge, according to these authors, as three main factors enabling an understanding of the complex, and, to a certain extent, contradictory and conflicting, conditions within social sustainability itself (in relation to environmental sustainability); yet, the awareness about bio-physical sustainability goals intervenes with practices, preferences, and places people would like to see maintained (sustained) or improved, i.e. with the patterns of behaviour, values, and traditions that people would like to see preserved. Although people tend to keep and preserve what they subjectively find as valuable (beautiful), these values inevitably represent a part of socially constructed, socially shared reality (Niculescu, 1975, p. 291). According to Rapoport (2007), the evaluation of environmental quality is performed at the level of a group of users, according to its values, ideals, images, and schemata. Correspondingly, user groups, at least partially represent a function of culture. "Finally, how people behave and their social structures are all culturally highly variable and can be seen as specific expressions of culture. Thus culture plays a role in socio-behavioral phenomena" (Rapoport, 2007). Alexsson et al. (2013) have placed cultural values next to social

values for a given landscape, and then presented the diversity of local sustainabilities using an example of Swedish municipalities. Within a newly proposed conceptual framework consisting of four interrelated concepts (equity, eco-presumption, safety, and urban forms), Eizenberg and Jabareen (2017) interpret social sustainability as “a part of a wider framework for sustainability that strives to cope with environmental and climate change risks”.

In conclusion, there is not only one form of social sustainability. The indicators, criteria and objectives of social sustainability (e.g. Dempsey et al., 2009; Murphy, 2014) are often context-specific (Omann & Spangenberg, 2002). On the one hand, different forms of social sustainability are determined by its general framework, i.e. by the ‘hard’ and ‘soft’ themes (Colantonio, 2008), which includes here the satisfaction of basic needs, quality of life, self-determined lifestyle, health and wellbeing, happiness, education, experience, inclusion and participation, opportunities, income, poverty alleviation, employment, gender equity, human rights, generational issues, security, cultural diversity, social justice, social capital etc., and contextual variable factors on the other hand (e.g. Reich, Riemer, Prilleltensky, & Montero, 2007). The unique integration of these two, more or less contrasting, components generates diversity and requires sufficient knowledge and active involvement of a broad range of stakeholders on different levels, including communities.

### 3 What is Sustainable Community?

People represent an integral part of every definition of sustainability and sustainable development. Being the ultimate beneficiaries and the critical component (Watson et al., 2015), people are the ones who bring sustainability into each dimension of the built environment, particularly into the social dimension, regardless of laws, regulations, physical space characteristics, etc. Therefore, a strong relationship between social sustainability and sustainable development undoubtedly exists.

The concept that is most closely related to social sustainability – *sustainable community*, emerged in spatial and urban planning across Europe during the 2000s (Raco, 2007). To that end, McKenzie (2004, p. 23) has interpreted social sustainability as “a positive condition within communities, and a process within communities that can achieve that condition”.

According to the *Bristol Accord*, sustainable communities “are places where people want to live and work, now and in the future. They meet the diverse needs of existing and future residents, are sensitive to their environment, and contribute to a high quality of life. They are safe and inclusive, well planned, built and run, and offer equality of opportunity and good services for all” (ODPM, 2005, p. 6). Bristol Accord also establishes the main features and describes sustainable communities as: active, inclusive and safe; well run; well connected; well served;

environmentally sensitive; thriving; well designed and built; and fair for everyone. To the present day, this document has remained the basis for research and development of sustainable communities.

A study of the notion of sustainable communities in this work is structured according to several research questions, where no answer has a consensus:

- A *What are the features of sustainable communities?* Dispersive discourse on social sustainability (Section 2) is inevitably transmitted to the concept of sustainable communities. Reviewed literature provides different definitions derived from variable perspectives and a variable scope of included issues or features of sustainable communities (e.g. Colantonio, 2007; Maliene, Howe & Malys, 2008; McKenzie, 2004; Raco, 2007). The main reason for the absence of a consensus in this domain is precisely the contextual variability. Therefore, the notion of sustainable communities must be seen as two-layered: generally-significant and context-specific, which is in agreement with the description of sustainable communities regarding diversity and reflection of local circumstances (ODPM, 2005, p. 7);
- B *What is the optimal scale of sustainable communities?* From the perspective of urban sociology, a neighbourhood represents an “important arena in which social activity occurs” (Dempsey et al., 2009, p. 295). In urban studies and projects, neighbourhood is often represented as the right scale for operationalisation of social sustainability (e.g. Bacon, Cochrane, & Woodcraft, 2015). On the other side, some authors protest against such spatial-social scaling and framing. For example, Woodcraft (2016) criticises the ‘sustainable community’ construct built on the imagined homogeneity of urban life and focused on neighbourhood as the primary setting for social relationships and practices that supports a collective sense of belonging and attachment, and negates some other forms of identity. Earlier, Lee (1968, p. 241) had criticised the elusiveness of the concept of neighbourhood and the lack of correlation between an isolated piece of territory and human behaviour. As contrasting opinions are spread over a large body of literature, the optimal scale of sustainable community continues to persist as an open topic;
- C *What do sustainable communities have to do with sustainable development?* Originally, sustainable communities were related to environmental issues, but their notion grew over time to include other dimensions of sustainable development. In current literature, sustainable communities are related to a variable range of issues, such as: socio-environmental relations (e.g. Agyeman, 2005); food systems (e.g. Carlsson, Callaghan, Morley & Broman, 2017); economic development (e.g. Kim & Lim, 2017); social sustainability in its own integrity (e.g. Alawadi, 2017; Bell & Morse, 2008; Dempsey et al., 2009); resilience (Section 4); a broad set of issues on sustainable development (e.g. Kusakabe, 2013); etc.

With regard to the interrelations discussed, between social and built environments, and social environment and community (Section 1), notions of social sustainability (Section 2) and the key determining questions about sustainable communities given above, sustainable community can hierarchically include the following components:

- group of people who reside or work in a shared physical environment with determined boundaries;
- social environment encompassing both end-beneficiaries and the factors (such as governing bodies and other relevant stakeholders) that manage general and recognised context-specific sustainability issues on local level;
- community with empowered individuals able to promote processes of achievement of universally relevant social, environmental and economic goals of sustainable development, thus connecting global, regional and local scales.

As the processes (e.g. education) within the three possible components of a sustainable community overlap, or flow from one to another component, proposed hierarchy should not be understood as a set of stand-alone entities. An individual can be connected to all three hierarchical components of a given community, and even further, to multiple communities (e.g. Hyde & Chavis, 2008). Nonetheless, the greatest differences between the three components of a sustainable community refer to the roles of individuals and groups, defined physical boundaries, the aspects of sustainability involved, the ways of managing these aspects, and the relationship between the global, regional, and local. At the same time, these are the fundamental criteria on the basis of which sustainable communities can be formed and developed, under a precondition that they are resilient.

#### 4 **Socio-Cultural Resilience**

Resilience aspects are interpreted with clarity when the answer to the question “Resilience to what?” (Carpenter, Walker, Anderies, & Abel, 2001) is known. This work deals with *specified resilience* (Folke et al., 2010) to climate change in accordance with the profession and the contribution that the profession can give towards adaptation. Interpretations and discussion on the topic of socio-cultural resilience aim to emphasise the need for a systemic approach and transdisciplinary methods in engineering branches.

Climate change carries a complex field of risk that can be treated both as a physical and a social phenomenon (Reser & Swim, 2011) and that affects all layers and scales of social environment, from individuals to different social groups – communities, i.e. from the physical environment (Bosher, Carrillo, Dainty, Glass, & Price, 2007), to the psychological domain, to interpersonal and intergroup relationships. Strategies that aim to strengthen social resilience to climate change inevitably address intra-individual psychological processes, such as emotion



regulation and behavioural responses (Reser & Swim, 2011). To that end, Doherty and Clayton (2011) have identified a range of adaptive (e.g. creativity, curiosity, concern, scepticism, humour, suppression, etc.) and maladaptive, acute, and disordered individual responses (such as trauma, stress, anxiety, dysregulated defences, etc.), and have defined a potential for psychological distress that lies between these two poles.

The psychological aspect cannot be omitted when considering the effects of climate change on communities and community responses, as it accounts for one of the main references of the intensity of impact. To analyse the complex and multi-layered impact of climate change on communities, certain characteristics and processes, such as proximity and exposure, social understanding, social comparison, social construction, and social reinforcement (Reser & Swim, 2011; Doherty & Clayton, 2011) need to be explored. According to Reser and Swim (2011), the characteristics of communities are among the main moderators in each step in the psychological process that influence adaptation and coping with climate change.

Community perception of climate change and its manifestations differs from that of the individual. Accordingly, community responses to climate change are not the same as individual responses. Collectively and in mutual interaction, people perceive, interpret, assess, and react (respond) to reality and its threats through consensual social construction, on the basis of provided social representations (such as media, literature, public discourse, and others) and social processes that can amplify or attenuate understandings of climate change (Reser & Swim, 2011). Therefore, any generic strategy for resilient communities should, at its basis, tackle both the processes and the representations, just like any general strategy for a resilient built environment should centrally deal with communities (e.g. Collier et al., 2013), having regarded that negative weather and climate events potentially transform into disasters only in social environments (Bell, Greene, Fisher & Baum, 2005), and that community features represent a key to successful adaptation.

As for many other resilience references, adaptation is at the core of a community response to climate change. Holling (2001, p. 394) has suggested the following “three properties that shape the adaptive cycle and the future state of a system”: wealth, internal controllability of a system, and adaptive capacity, i.e. the resilience of the system, a measure of its vulnerability to unexpected or unpredictable shocks. According to Ahern (2011), resilient systems are those able to reorganise and recover from a change without transfiguring into a qualitatively different stage. Resilient communities have systemic property (Lang, 2010) and sufficient resources and capitals to not only survive and adapt, but also to develop in circumstances characterised by change, uncertainty, unpredictability, and surprises (Collier et al., 2013; Flint, 2010; Magis, 2010; Walker & Salt, 2006). In the literature, community resilience indicators are set according to various applied methodologies and degrees of comprehensiveness, e.g. The Disaster Resilience of Place (DROP) model (Cutter et al., 2008). In developing the multiple

equilibria of resilient communities, in any case, the role is played by their numerous processes and components, built and built-in natural systems, policy makers, governance and other stakeholders in the built environment, and the members of those communities.

The process of adaptation to climate change needs to be adjusted to cultural determinants (e.g. Swim et al., 2011). As cultures are many, resiliencies are also diverse. The bottom line is that resilience is a socially constructed and culturally bounded concept (Berger, 2017). In a rather brief period of time, culture is not impacted by climate change because of the short adaptation period, but the culture certainly determines resilience-related community attributes, as climate change is perceived in a culture-specific manner. In the long term, it can be expected that climate change will shape culture and embody aggregated resilience-related experience in it. To that end, Doherty and Clayton (2011, p. 273) have posed a question: "How are different cultures likely to be affected by climate change, in ways that are both concrete (loss of homeland) and more abstract (changes in cultural practice and values)?" Another challenge in this process would be cultural (diversity) preservation as one of the goals of sustainable development.

When sustainability is coupled with resilience to climate change, the notion of community becomes even more complex. While social sustainability can be somewhat more easily scaled, "resilience is based on the shifting relationship between scales, and between autonomy on the one hand and connectivity on the other" (Allan & Bryant, 2001, p. 43). Noting that sustainability is impacted by internal (social, political, ecological, or economic) and external factors (such as foreign debt, structural poverty, global environmental problems, and social/political/economic conflicts), and that the sustainability indicators derived from these factors suggest incompleteness on one hand, and the complexity that overwhelms understanding, on the other, Holling (2001) has suggested that sustainability needs to be approached together with adaptive capacity. Ahern (2011) has criticised early thinking on sustainability, which tended to be a static concept with foreseen long-term stability and durability, exempt from unpredictable disturbance and change, and recognised resilience theory as a possible solution to this sustainability paradox. For Magis (2010, p. 401), community resilience is an important indicator of social sustainability. A community, according to Flint (2010), must have certain characteristics that promote sustainable and healthy ecosystems with multiple social benefits. Transformation is therefore necessary, and it will be successful when local communities develop resilience management methods to ultimately become more sustainable, that is, when resilience building becomes an integral part of a natural response that directly affects risk factors. Holling (2001) viewed the patterns of living systems as a panarchical organisation that creates diversity and thus contributes to resilience and sustainability. When biological entities are understood not only through emotional connections developed by social systems, but also as an agent that is crucial for sustainability and resilience, regeneration could be unfolded as an approach to a higher degree of functioning. In this way, sustainability moves from a strictly anthropocentric concept to

a concept of integrated systems, and community becomes equally capable of desirable dynamics and desirable outcomes (Redman, 2014).

## 5 Discussion and Conclusions

Interactions between people and their environments are complex, multi-scalar, and vary among individuals. The choices that individuals make, characteristics of their lifestyle, worldviews, behaviour and activities, health, psychological processes and barriers (e.g. Gifford, 2011), education, economic conditions, capacity to cope with the unknown, to adapt, develop (through change) and to learn, etc. can all be related to sustainability and resilience. However, the characteristics of interactions and networks among individuals in social environments represent another significant determinant of sustainability and resilience. When these interactions and networks are based on a defined commonality, they are encompassed by the concept of community. Again, the features of a community, such as stability, safety, connectedness, or friendship, all play important roles in evaluating sustainability and resilience. In the frameworks of sustainability and resilience, community organisation transforms into community organising according “to the specific needs of any given locale and tailored to the resources available for their realization. In short, community at the local level cannot be mass produced” (Hunter, 2008, p. 29).

Socio-demographics, economy, technology, environment, and governance are, according to Romero-Lankao, Gnatz, Wilhelmi, and Hayden (2016), five main domains of socio-ecological systems that need to be concurrently addressed to thicken sustainability and to transition from fail-safe to safe-to-fail resilience. Building the capacity to adapt (as a key condition of the capacity to be sustainable) also means addressing the natural, physical, financial, social, and human capitals, and establishing a balance between them (e.g. Jacobs, Nelson, Kuruppu, & Leith, 2015).

In current literature, sustainability and resilience are most often presented as two different, yet interrelated, concepts that need to be studied concurrently. In actuality, the achievement of sustainability does not necessarily mean the achievement of resilience, nor vice versa. For example, when technical resilience is not reached, social sustainability is called into question. The societal bottom line is that preparedness is placed at the core of resilience, while empathy represents the essence of sustainability, capable of overcoming different community disparities. Therefore, sustainability- and resilience-related features of a community are mutually conditioning and even interchangeable. From this newly emerged perspective, social sustainability could represent the ‘we-type’ readiness for uncertainties, changes and surprises, and socio-cultural resilience the capacity of a community to last and to continuously develop. In conclusion, in socio-cultural terms, sustainability and resilience must be seen as a horizontally and vertically integrated interdisciplinary and transdisciplinary approach.

To that end, traditional socio-cultural values must not be exempted from applicable strategies for a sustainable and resilient future.

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