

Social dimensions of resilience and climate change: a rapid review of theoretical approaches

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Abstract: The social dimensions of resilience and their relationship with social capital have received little attention in climate change research. This article aims to provide an understanding of the structural, cognitive, and human rights-based interconnection of social capital and the social dimension of resilience. This article provides a rapid review of published studies on the social dimensions of resilience in the context of climate change. The search yielded 26 articles, 18 of which were related to the social dimension of resilience and were selected for review. Based on the findings, I elaborate on social capital, social-psychological, and right-based approaches to theorize social capital. The findings indicate a link between social capital and the social dimensions of resilience. The structural foundation for social capital is provided by the interconnection of bonding, bridging, and linking. The social psychological approach is linked to cognitive social capital that contributes to collective psycho-social resilience. The human rights-based approach educates about the social dimension of resilience through the lens of equity and power. To survive and thrive in environmental threats, communal solidarity requires the social interconnectedness formed by all three forms of social capital integrating social system, social values, reciprocal engagement, and inclusive social actions. This article provides theoretical knowledge about three dimensions of social capital, elaborating on the interconnections and need for theoretical triangulation in climate change studies.

1. Introduction

An increase in the average temperature of the Earth has been reported as a key indicator of extreme events that may lead to climatic disasters (Hoegh-Guldberg et al., 2018; IPCC et al., 2021). In the context of human-environment interaction and human dependency on ecological systems, climate change, and its associated challenges have an impact on people and communities in a variety of ways, including food security and production, human migration, and livelihood strategies. Climate change has a significant impact on people's ability to grow food in agricultural and coastal communities, putting food security and well-being at risk (Adger et al., 2003; Connolly-Boutin and Smith, 2016; Fazey et al., 2021; Macpherson, 2014; Malhi et al., 2021; Villasante et al., 2022). The role of social capital demonstrated in the studies on climate change provides the contribution of different forms of social capital in resilience-building strategies (Azad and Pritchard, 2023; Hagedoorn et al., 2019; Wang et al., 2021). Structural capital (social system and social network) and cognitive capital (values, trust, and reciprocity) are two dimensions of social capital that are frequently mentioned in studies on community resilience in the face of a crisis. As cognitive capital provides a shared pattern of cognition

(among actors), it facilitates the social behavior for collective actions and social networking. Hence, both dimensions are often fused and interlinked in describing social capital (Cinner and Barnes, 2019; Uphoff, 2000). While researchers employ various theoretical approaches to explore and explain the role of social capital during and after the crisis, the social dimensions of resilience (embedded in the conceptualization of social capital) need attention. This article provides a rapid review of published studies on the social dimensions of resilience in the context of climate change. The main objective is to provide an understanding of the structural, cognitive, and human right-based interconnection of social capital and the social dimension of resilience.

While 'vulnerability' is a result of the interaction between threats to livelihood, coping mechanisms, and corresponding growth strategies (Hesselberg and Yaro, 2006), an individual's or a community's response must be based on a psycho-social understanding of vulnerability, social capital, and social resilience in the face of climate change. The concept of resilience extends from psychological to social dimensions of resilience. The social aspects of resilience, however, have received little attention in climate change studies. It is a relatively recent development that social dimensions of resilience find their place in research in socio-ecological systems. With the recognition of the interdependent and interconnected relationship between humans and the ecosystem, researchers are now interested in collective response to socio-ecological change with an emphasis on human learning, flexibility, agency, and social organization to foster adaptive capacities (Cinner and Barnes, 2019). The published reviews studies identified the focus of studies on the role of social capital, social network, and the outcome of social relations in resilience. It was also noted that the process or phenomenon that interprets how social capital shape resilience and interconnect multiple dimensions of social interactions is neglected (Aldrich and Meyer, 2015; Carmen et al., 2022; Rockenbauch and Sakdapolrak, 2017). Social capital provides the channels to access and exchange resources through the social organization of support networking. Social organization, in this connection, is a vital human action that facilitates the human capacity to absorb, withstand and recover from a crisis (Keim, 2008).

The role of social capital is seen as a significant facilitator in building resilience strategies to climatic changes (Brinkman et al., 2022; Hsueh, 2019). Though studies have documented the role of social capital in the recovery process during disasters and crises (e.g., Aldrich and Meyer, 2015; Roque et al., 2020; Harte et al., 2009; Ludin et al., 2019; Straub et al., 2020), the social dimensions of resilience contributing to social capital in response to climate change have rarely been studied. The relatively new concept of social resilience is intriguing because of the theoretical space that it provides for social dimensions of resilience and spatial dimensions of social capital. Given the theoretical gap to connect the concepts 'social', 'resilience', and 'climate' in the studies on climate change, this article aimed to provide a rapid review of the studies, spotlighting the importance of theoretical triangulation in studies on the socioeconomic impacts of climate change and resilience strategies. Using the rapid review method, I present three theoretical approaches to social capital and their connections with social dimensions of resilience. This article provides theoretical knowledge about these three dimensions of social capital, elaborating on the interconnections and the need for triangulation of theoretical approaches in research on social resilience in the context of climate change.

2. Method

This review is focused on: (1) elaborating theoretical approaches to social capital in climate change, and (2) the social dimensions of resilience that connect social resilience and social capital. The electronic academic database 'Scopus' was used to search for journal articles published since 2000. To search the relevant literature, the following inclusion criteria were used:

- English-language journal articles published between 2000 and 2022.

- Article titles should include the words 'Social,' 'Resilience,' and 'Climate.' I assume that the inclusion of these words in the titles indicates a focus on the social dimensions of resilience in climate change research.
- The disciplines of the study were restricted to the social sciences, psychology, humanities, and economics.

27 articles were found using the above criteria. I selected 18 articles related to the social dimension of resilience and relevant theoretical approaches for review. Articles were reviewed to explore and describe the theoretical approaches used in these studies to investigate the social dimension of resilience. The descriptive analysis provides the following theoretical approaches to social capital.

3. Theoretical Approaches – Review Findings

The following list of resilience-building strategies was found in this review (regarding climate change, environmental disasters, food insecurity, livelihood threats, and survival challenges).

- Innovative productive activities
- Reducing household expenses
- Reinforcing social participation and agency
- Increase household size
- Nurturing diversity in social networking
- Collaborative knowledge and learning
- Self-organization opportunities
- Justice, Equity, and accountability
- Enhancing social processes and relationship building
- Collaborative and systematic action
- Maintaining coping strategies
- Framing development policies
- Multiple and alternative income sources
- Strengthening local governance and administrative system
- Giving voices to all
- Recognizing social networks and corresponding psycho-social dependencies
- Emphasizing collective psycho-social resources and resilience
- Understanding the diversity of impacts and responses
- Integrating social practices and social capital
- Revitalizing and integrating local and scientific knowledge and skills
- Participatory development plan and management
- Contextualized intervention and adaptive response

All these strategies are constituted through a direct relationship between resilience and all forms of social capital (i.e., economic (money, property, assets, etc.), social (network, relationship, social ties, etc.), cultural (norms, trust, reciprocity, etc.), and political (policy, governance, political engagement, etc.) capital). It was also evident in these strategies that social participation and practices were inclusive, and diversity was seen as a strength in the social processes of creating and fostering productive social networks. Overall, the emphasis was on connecting people and institutes to integrate psychological and social resources for the contextualized understanding of the crisis and shared execution of intervention plans. In this connection, three approaches provide substantial knowledge to study climate change, its impact, and social dimensions of resilience: 1) the social capital approach, 2) the social psychological approach, and 3) the right-based approach.

3.1. Social Capital Approach

The concept of social capital has not been explained sufficiently as a functional concept. Despite debates over its measurement, objectivity and subjectivity, and various dimensions, the concept has been widely used in studies (Haynes, 2009; McKeever et

al., 2014). Here I provide a naive overview of 'social capital' as a guiding concept to understand the role of social and cognitive resources in shaping resilience. Song (2013) distinguished between two widely accepted theories of social capital proposed by Coleman (1988, 1990) and Bourdieu (1986). Though both theorists agreed on the significance of the structure of social relations, Coleman defined social capital by its internal (bonding) function, where social capital is a "variety of different entities, consisting of some aspect of social structure, and facilitating certain actions of individuals who are within the structure" (Coleman 1990, p. 302). He described social capital as a collective feature of a group that meets collective needs and is built on mutual trust and shared values. Coleman (1990) mentioned the importance of individual actions, but he presented the individual as a social actor who exists as an asset in social relationships. In this context, individual social capital serves the group's collective interest, where trust and reciprocity serve as resources for individual benefits. As a result, inequalities, which were central to Bourdieu's conceptualization of social capital, have little space. Bourdieu defined social capital as an external (bridging) resource that is one of the three types of capital (along with economic and cultural capital), as he says, "social capital is the aggregate of the actual or potential resources which are linked to possession of a durable network of more or less institutionalized relationships of mutual acquaintance or recognition" (Bourdieu, 1986, p. 248). Here, Bourdieu's relational approach to understand social capital through social positioning in a social network provides a theoretical framework for investigating social inequalities.

The review shows a positive relationship between social capital and resilience, as well as the interconnection of bonding, bridging, and linking, which serve as the structural foundation for social capital. Mignone and O'Neil described three dimensions of social capital after reviewing various definitions (including Bourdieu and Coleman) (i.e., bonding, bridging, and linkage – Figure 1). Here is a synopsis of these dimensions (Mignone and O'Neil, 2005; Ramos-Pinto, 2012; Putnam, 2000):

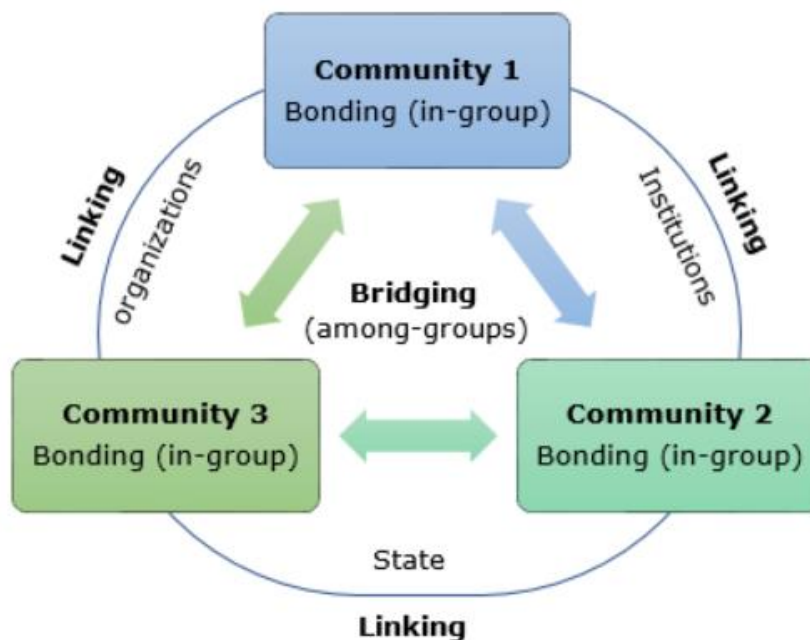


Figure 1. Social Capital – Bonding, Bridging, Linking

3.1.1.1. Bonding

Bonding social capital exists between close relationships within a group or community, such as family, relatives, friends, and neighbours. Bonding is determined by the density of the relationship, which is further determined by belongingness,

interconnectedness, and frequency of interaction. Social ties in the relationships strengthen the bonding social capital.

3.1.2. Bridging

Bridging extends social capital from 'in-group' to 'among-groups' interactions and connects groups or communities that appear to be separated based on race, ethnicity, religion, or other defined class (such as caste or clan). Thus, bridging social capital refers to inter-group relationships that can form a support network. However, the strength of bridging may also be determined by shared interests and similarities that link two groups together.

The distinction between bonding and bridging may be blurred, depending on how the concept of social capital is theoretically framed in the context. However, a difference does exist. Bonding is inward, intragroup with strong ties reinforcing identities and belongingness, whereas bridging is outward, intergroup with weaker ties establishing connections between different individuals and groups that help find other forms of support. Bonding and bridging can both contribute significantly to socio-ecological resilience.

3.1.3. Linking

Linking social capital (a vertical dimension of social capital) extends the bridging by connecting organizations, institutions, and the state to provide institutionalized support and power to individuals and groups.

3.2. *Social Psychological Approach*

Precisely, the concept of psychological capital is based on the individual's psychological development (regarding hope, self-efficacy, resilience, and optimism) (Luthans et al., 2007). The social psychological approach is linked to cognitive aspects of social capital (such as social identity, reciprocity, altruistic behaviour, sense of responsibility, and shared knowledge of risk and responsibility) that contribute to collective psycho-social resources (Whitley and McKenzie, 2005). A shared understanding of adversity, trust, and reciprocity within the community all contribute to the development of shared narratives and shared goals (Uphoff, 2000).

Through shared identification and solidarity, the social identity approach (which is more common in social psychology) informs about collective psycho-social resilience. The emphasis of social psychology on individual group behaviour provides a bottom-up approach to community resilience (Ntontis et al., 2020). Tighter social norms (of togetherness) and greater reinforcement of these norms, on the other hand, are viewed as internal resources for resilience in this approach. As a result, traditional resilience practices (such as in agriculture and fishing) include shared risk (and sense of vulnerability), shared labour, and shared access to resources (Huntsinger and Li, 2018; Jordan, 2015).

Social and economic survival, as well as physical and social insecurities, are all inextricably linked to adversity. When individual members of a community become aware of the difficulties and their impact, a sense of belonging and group solidarity motivates them to participate collectively. Common context and shared language establish a connection to immediate coping and recovery, leading to shared resilience (Figure 2). The cognitive dimension of social capital fosters social relationships through mutual commitment and confidence, which strengthens the community's psycho-social resources (Adger, 2003; Coleman, 1988; Jack, 2005; Plastina, 2022).

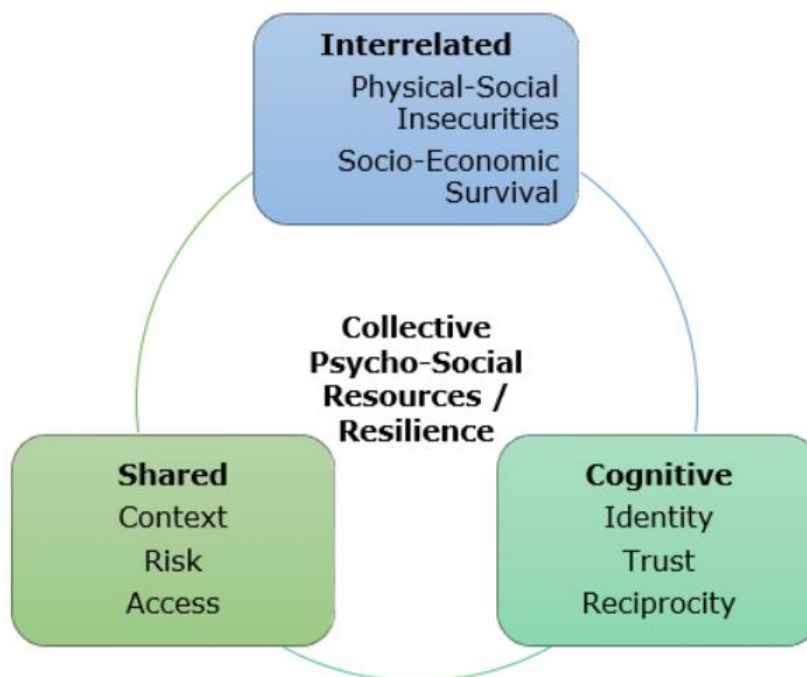


Figure 2. Social Psychological Capital – Collective Psychosocial Resources and Resilience

3.3. Human Right-Based Approach

The third perspective is a human rights-based approach to understand the social dimension of resilience in terms of equity and power, as well as the narratives that normalize inequality and marginalization. Human rights are the rights of people regardless of their status, position, belongingness, or any other characteristics that may distinguish them and lead to discrimination regarding provision, protection, and participation in their socioeconomic context (McInerney-Lankford and Sano, 2010). Greater and equal participation in decision-making is a modern approach to comprehend the social dimensions of resilience concerning human rights. According to this perspective, human vulnerability and resilience are shaped by socially, culturally, and politically established statuses and power relations that influence decision-making, control, and resource access. The framing of social capital in power relations, locus of power, and social network represents resilience practices accounting for issues of equity and power. In this regard, the two aspects of resilience practices are linked. First, recognize and respond to deep-rooted narratives that normalize inequality and marginalization. Second, the transformation toward more equitable political and social arrangements (Artur and Hilhorst, 2012; Ensor et al., 2018; Granderson, 2014).

A rights-based approach is intended to educate about human equality in the context of human development. Equal participation and inclusive empowerment in social and political processes are important for resilience practices, as are transparency and accountability. However, it is critical to expand the scope of 'equality' beyond the legal definition to include an empirical investigation of structural marginalization and inequalities. Similarly, transparency and accountability should be put into action by giving marginalized people a voice and holding power-holders accountable for their responsibilities in decisions that lead to inequalities (Figure 3). Hence, access to resources, empowerment, and participatory rights should not be solely determined by structural power positioning and the status quo (Gready, 2008; Ensor et al., 2018; Kindornay et al., 2012). The right-based approach connects the recognition of deep-seated discrimination with the transformation of an equitable socio-political system, intending to achieve social sustainability and well-being.

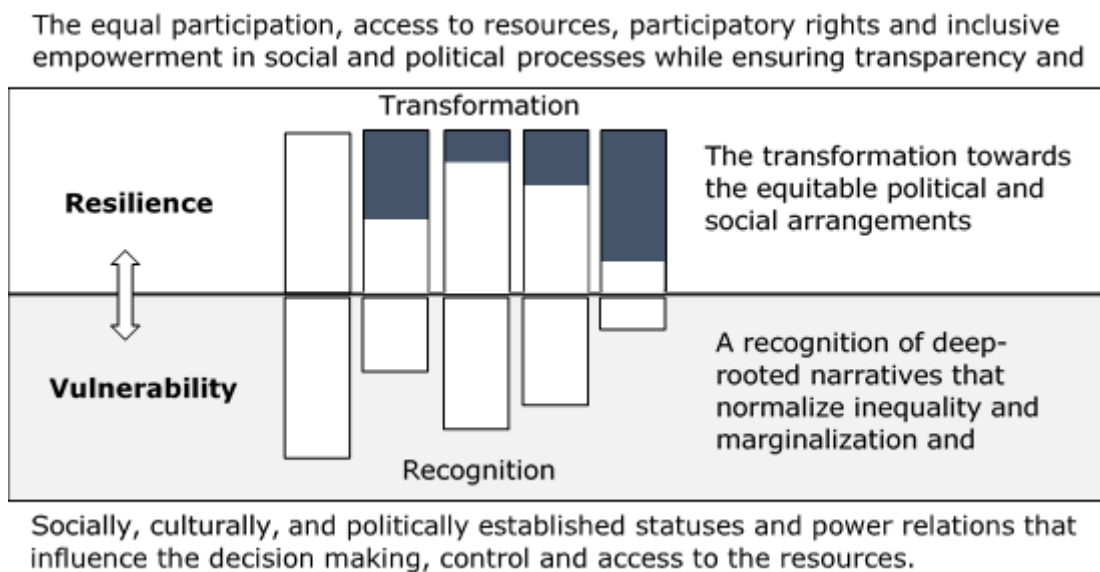


Figure 3. Human Right-Based Capital – Recognition and Transformation

4. Discussion

The ability to "withstand and recover from stress and enhance the capabilities and assets for future" is what determines whether a livelihood is sustainable. A livelihood is composed of "the capabilities, assets (stores, resources, claims, and access), and activities required for a means of living" (Chambers and Conway, 1992, p.6). Social resilience is defined by Adger, whose work is frequently cited for this definition, as "the capacity of a community or of individuals to withstand shocks and stress without significant upheaval." A shock or stress, on the other hand, refers to "significant changes in social structure and livelihood" brought on by internal or external factors (Adger et al., 2002, p.1). To deal with adversities caused by climate change, the framework of social resilience, climate change, and human vulnerability connects livelihood strategies, resource accessibility, and adaptive capacities (Adger, 2003; Adger et al., 2002; Adger et al., 2003; Pelling and High, 2005). Reactive (immediate coping), responsive (adjustment and recovery), and proactive (anticipation and planning) resilience are emphasized in studies on climate change practices and strategies that provide the conceptual relationship between social capital and resilience (Carmen et al., 2022; Jordan, 2015; Mngumi, 2021; Ntontis et al., 2020; Smith et al., 2012).

To endure and recover from adversity is a one-line definition of resilience. The question is how to endure and recover. It can be a process or the abilities, capacities, or competencies that enable people to be resilient. Ungar's (2003, 2013) constructionist approach to resilience provides a socio-ecological explanation of resilience that helps to identify resources and multiple environmental factors that influence human lives. Ungar conceptualized resilience as a socio-ecological construct that focuses on person-environment interaction, cultural relativity, and individual capacities. People's perceptions, experiences, and the contextualization of these experiences in the environment all contribute to resilience. The development of resilience is facilitated by psychological and social resources. While psychological resources are internal and individual, social resources are found in familial, social, cultural, and formal institutionalized networks (Earvolino-Ramirez, 2007; Garmezy and Masten, 1986; Murphy, 2007; Rutter, 1987). An overemphasis on individual psychological resilience may overlook "the relationship (constraints and resources) between institutions and individuals or social structures and social practices" (Estêvo et al., 2017, p. 12). Individual characteristics, environmental impact, and access to resources are all linked

to resilience in adversity (Coyne and Downy, 1991; Lazarus and Folkman, 1984; Thoits, 1986).

In the context of natural disasters, Burton (1997) explored the interplay of nature, technology, and society, and recognized the significance of social dimensions of resilience. In this review, only one article used a definition of social resilience as a form of adaptive resilience to discuss social resilience and climate change disasters. This social resilience was defined as, 'the capacity of a society's basic social structures and relationships to absorb the shock of a catastrophic disaster and to alter in ways that will prevent future shocks from destroying them' (Peregrine, 2018, p.146). Other articles described and discussed social dimensions of resilience using the terms resilience or community resilience. These studies, however, also mention a lack of research on social resilience in climate change studies. Adger (the most likely first author to define social resilience) was frequently cited in these studies. He emphasized the role of social resilience in sustainable development in his working paper on 'Sustainability and Social Resilience in Coastal Resource Use' (1997, p.34).

4.1. Social Resilience and Community Social Capital

The concept of social resilience can be useful to understand the social dimensions of resilience and social capital. Social resilience is shaped by "the dynamic structures of livelihoods, access to resources, and social institutions" and it helps to withstand external shocks including "changes in government policy, civil strife, or environmental hazards that exert pressures on social structures, livelihoods, and resources" (Adger et al., 2002, p. 358). Hence, social resilience is defined as an individual's, group's, or system's ability to absorb, adapt, recover, and organize (Adger et al., 2005). This conceptualization of social resilience is useful for investigating the impact of climate change, the role of community social capital, and community coping (and recovery) strategies. As a result, focusing on the 'how' of resilience can help to contextualize community resilience in relation to the social dynamics of climate change and prospective responses (Fazey et al., 2021).

A meta-synthesis of 187 studies examining the role of social capital in the context of climate change found structural and cognitive dimensions of social capital as a source and resource to connect people in a shared understanding of risk, coping strategies, and associated outcomes (Carmen et al., 2022). Social capital on the structural (societal system, social organization, and social connections) and cognitive (beliefs, customs, values, and reciprocity) levels facilitates collective action to respond to climate threats. Community participation in creating and supporting social capital networking can significantly contribute to resilience strategies and increase adaptive capacities in the face of climate change (Kehinde and Adeyemo, 2020; Mayer et al., 2022; Ogunleye et al., 2021). Beliefs, norms, customs, and values are the cultural aspects of social capital that are closely associated with the cognitive dimensions of social capital. Since these cultural aspects shape the tendencies and attitudes to create, maintain, and extend the social capital network, the dynamic interaction between social, cultural, and psychological capital may support or restricts the people's actions and contribution to access and exchange resources and achieve expected outcomes (Carrico et al., 2019; Lisnyj and Dickson-Anderson, 2018).

While social capital may be conceptualized differently depending on the level of analysis, Community social capital relates to the interconnection of social capital and social resilience in the context of climate change and its impact. Social capital contributes to resilience through (Kerr, 2018; Vallance and Carlton, 2015):

- Immediate recovery (in-group close support network sharing local knowledge, skills, and sources to cope immediately)
- Speedy recovery (the inter-group and organizational support network sharing learning, skills, and resources to provide speedy recovery)

Based on their study on three First Nations communities in Manitoba, Mignone, and O'Neil (2005, p.27) characterize social capital as ecological and environmental social capital where "resources are socially invested (SIR), presenting a culture of trust (SIR-physical), norms of reciprocity (SIR-symbolic), collective action (SIR-financial), and participation (SIR-human); and that it possesses inclusive, flexible, and diverse networks". These socially invested resources are evaluated along three dimensions of social capital: bonding (relationships within the community), bridging (inter-communities' relationships), and linkage (relations with formal institutions). As socially invested resources are expected to be available to community members for potential benefit, a culture of trust and reciprocity, as well as a network supported by collective active engagement, are critical components of the three dimensions of social capital (Mignone and O'Neil, 2005). While the three dimensions also present intra and inter-community networks, and connections with institutionalized public or private organizations, community social capital is dependent on inherited senses of identity, belongingness, and trust, and communal sense of participation, cooperation, and reciprocity (Carmen et al., 2022; De Silva et al., 2005; Mignone and O'Neil, 2005; Mngumi, 2021).

In one way or another, studies reviewed in this article reflect an engagement of people and institutes in creating, shaping, and maintaining social capital, and that is done through connecting people in a social organization with a shared understanding of risk, vulnerability, and possible resilience strategies. Overall, findings from this review suggest the expansion of 'social capital' through the social dimensions of resilience, where resilience is a gradual process of connecting psychological and social resources to strengthen communal relationships and shape human capacities and capabilities to recover and grow amidst crisis.

4.2. Social Resilience and Social Capital: A Triangular Perspective

The three approaches to frame social capital in the context of climate change are interconnected and built on one another to investigate and comprehend the social dimension of resilience. The social capital approach provides an explicit resource network that extends from 'in-group' to 'among-groups' and is linked to a larger social network or support organizations and institutions. The social psychological approach interprets and connects the internalized sense of shared risk and responsibility to collective identification and belongingness. This method is useful for understanding the psycho-social process that underpins in-group solidarity and collective resilience. The social capital approach and social-psychological approach facilitate the process of resilience simultaneously by providing psychological and social resources. Hence, the two approaches remain intact and interdependent going through crisis over time.

The right-based approach is appealing because it employs two concurrent processes to investigate resilience. First, it reveals the structural formation of inequalities based on socially and culturally situated power status. Second, is the transformation process, which leads to inclusive participation, empowerment, and access to resource access. Though rarely used in studies (as compared to the other two approaches), the right-based approach significantly addresses empowerment with equality to create social connections for shared social interests and communal needs. In this sense, to survive and thrive in environmental threats, communal solidarity requires the social interconnectedness that can be formed by using all three forms of social capital integrating social system, social values, reciprocal engagement, and inclusive social actions. Hence, these different theoretical lenses to study resilience may contribute to a more holistic understanding of individual and community responses to environmental threats. This review proposes combining these approaches to investigate social sustainability and resilience in the context of climate change (Figure 4).

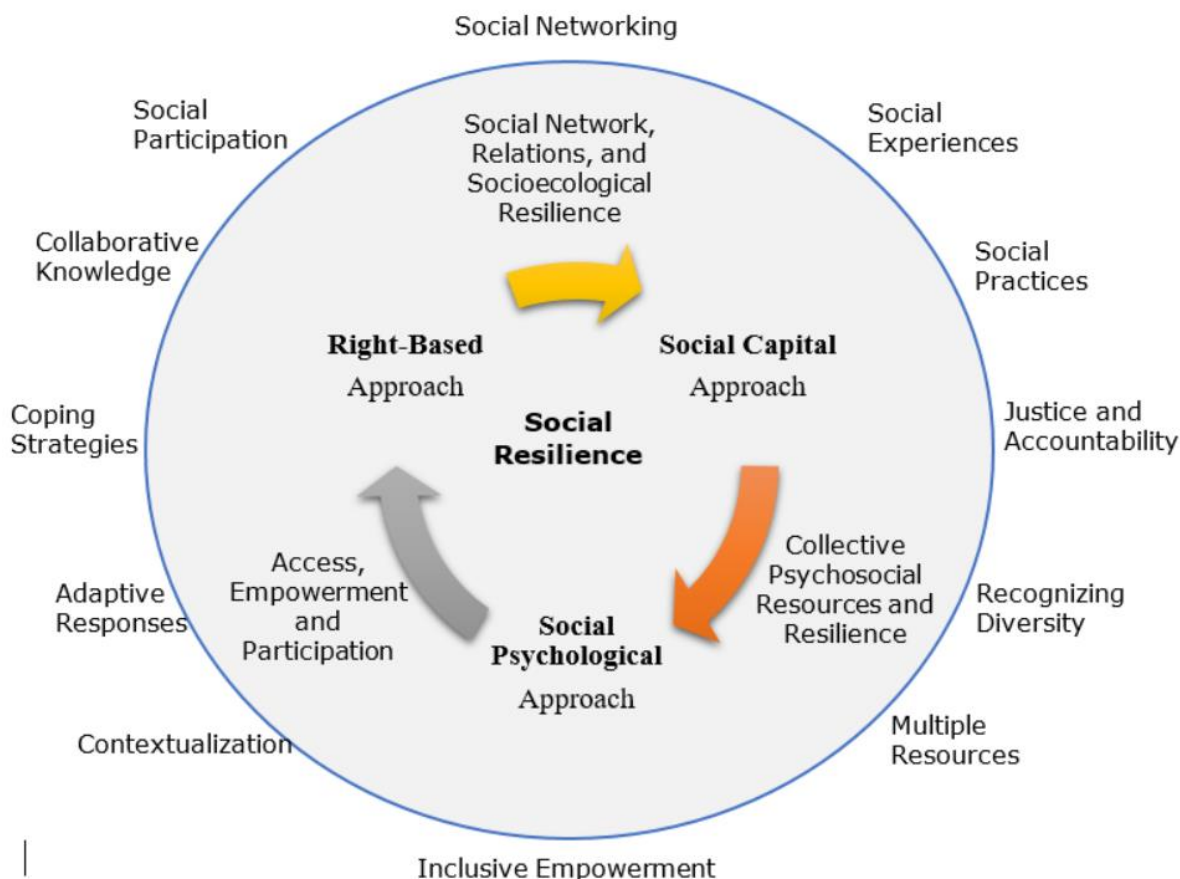


Figure 4. Social Resilience and Social Capital – A Triangular Perspective

Adaptation strategies and resilience-building interventions in the context of climate change should be theoretically grounded in the conceptualization of social resilience as a capacity-building process (regarding agency, participation, and empowerment). The proposed theoretical triangulation (Figure 4) can validate the interpretations of the research studies providing a pathway to pragmatic approaches toward climate change.

5. Conclusions

Social resilience is a relatively new concept, and it is relevant to the social dimensions of resilience. In this rapid review, I presented three theoretical approaches describing three dimensions of social capital, their interconnection, and their importance in elaborating on social resilience in climate change studies. The theoretical triangulation (of social capital, psycho-social, and right-based approach) proposed in this article is broadly based on the two aspects of social resilience.

- Social resilience, as a social process, interconnects the different dimensions of social capital.
- Social dimensions of resilience are anchored in environmental changes and their societal impact.

This review provides an overview of theoretical approaches to frame social dimensions of resilience. Few studies focus solely on social resilience and climate change, even though the importance of the 'social' has been demonstrated in several studies. Regardless of the debates over the ambiguities of the term "social capital," the various approaches are interconnected through the support network and connections that shape the capacities to withstand, recover, and grow. Hence, the idea floated in this rapid review is to frame climate change studies with an interdisciplinary approach and theoretical triangulation emphasizing social resilience. Psychological and social resources

are interdependent and should be explored as such. Participatory approaches will be useful in investigating community involvement (empowerment, participation, agency), capacity (resilience), and collaborative knowledge production, which may provide a foundation for future research and intervention.

5.1. Theoretical and Practical Implications

This review provides a conceptual road map to use theoretical triangulation of three social capital approaches that can provide a holistic understanding of social resilience embedded in social capital and social dimensions of resilience. Besides, it is also imperative to conduct bottom-up studies to investigate the success and failure of the community responses to climate change. This review can also be helpful to frame qualitative studies with a flexible approach to include the diversity of human-institution interactions on multiple levels.

5.2. Limitations

This article includes a review of the studies that exclusively include the words 'Social,' 'Resilience,' and 'Climate' in their titles. The article focuses on the social capital approaches used in these articles and provides a conceptual description of these approaches as they connect with the social dimension of resilience. However, this is a rapid review and does not include the studies that used the social capital approach to other study areas related to social and economic crises.

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