Rethinking Climate Adaptation: Care and Neighbourhood-Scale Resilience

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Abstract

Cities play a central role in the climate crisis: they are exposed to increasing risks such as heat waves, floods and heavy rainfall, while at the same time contributing significantly to ecological destruction. Beyond the material threats, urban areas also face a subtler yet critical challenge: a growing ecological disconnect, manifested as the loss of knowledge, belonging, and affective ties between urban dwellers and the ecosystems that sustain them (Kronenberg et al., 2024). Addressing these crises requires rethinking climate adaptation beyond techno-managerial and infrastructure-focused strategies. This paper offers an exploratory attempt to bring two debates—resilience and care—into conversation as a lens for looking at how climate adaptation is enacted at the neighbourhood scale. We conceptualize care as the everyday practices that maintain, repair, and transform human and more-than-human worlds (Tronto, 1993). While adaptation research increasingly acknowledges the importance of social capital and relational dimensions, a documented gap persists between technical adaptation and social uptake, along with a need for strategies rooted in local contexts and cultural practices. At the same time, scholarship on care has illuminated relational and affective practices but has rarely been systematically connected to climate adaptation or resilience. We begin to address this gap by identifying links between resilience and care, grounding our discussion in a case study in Tan Mai, Vietnam. By linking established resilience frameworks with practices of care, we explore how resilience is built at the neighbourhood scale through collective engagement with shared resources—such as monitoring, maintaining, and cleaning green areas and public spaces. This exploration provides a basis for outlining guiding questions for future research on the relationship between caring practices and neighbourhood-scale resilience. By situating care at the centre of adaptation, the paper calls for strategies that strengthen rather than displace existing practices of care, thereby reconnecting urban communities with ecological systems and contributing to more sustainable and resilient cities.

Keywords: socio-ecological resilience, climate adaptation, practices of care, neighbourhood-scale adaptation

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1 Introduction

Cities today stand at the frontline of the climate crisis: Intensifying hazards such as extreme heat, heavy rainfall, and flooding already disrupt urban life and are projected to increase in frequency and severity. At the same time, urban areas are transgressing their environmental boundaries, both by driving climate change and by eroding the local ecosystems and undermining the life-supporting functions on which urban communities depend (IBES, 2024; DEAL, 2023; Kronenberg et al., 2024). The resulting risks are multi-dimensional and interdependent: as recent work on urban resilience underlines, effective responses require a shift from narrowly defined, hazard-specific interventions toward transformative strategies that take into account the complexity of socio-ecological systems (Handayani et al., 2023).

These pressures are accompanied by a subtler yet equally critical challenge: a growing environmental disconnect—economic, spatial, cognitive, and emotional—between urban dwellers and the ecosystems that sustain them (Kronenberg et al., 2024). This disconnect is often described as *ecological illiteracy*: the loss of ecological knowledge and awareness of human–more-than-human interdependencies, leading to a weakened sense of belonging and diminished emotional connection to the natural world (Kronenberg et al., 2024; Heikkurinen, 2020).

Moreover, recent debates highlight that adaptation underperforms when social uptake is weak. Adaptation strategies often prioritise technical, control-oriented interventions, paying limited attention to how people engage with, maintain and co-govern these measures over time. The 12th World Urban Forum (UN-Habitat/WUF12, 2024/25) stresses that effective climate action requires not only technological solutions but also behavioural change and cultural translation. Similarly, a national survey of German municipalities reveals knowledge gaps in securing social acceptance for adaptation even in well-resourced cities (UBA, 2024: 11). These signals converge on the need to look closer into the local values, routines, and relationships to bridge social and technical dimensions. At the same time, adaptation discourses often retain modernist assumptions of mastery and control over nature. Critics call for approaches that recognise non-human agencies and foster mutually sustaining relationships within more-than-human ecological communities (Do Thi & Dombroski, 2022). Together, these critiques point to the need for holistic and transformative adaptation strategies in which humans are not passive recipients of policy but active agents in shaping urban resilience.

Against this background, this paper explores the potential of care as a lens for examining how climate adaptation is enacted at the local level and how such processes contribute to building resilience at the neighbourhood scale. Care, understood as the everyday practices that maintain, repair, and sustain human and more-than-human worlds (Tronto, 1993), has been widely discussed across disciplines but rarely connected systematically to climate adaptation or resilience. We suggest that care can illuminate how people engage in situated, often informal practices—such as monitoring, maintaining, or cleaning shared spaces—that matter for socio-ecological resilience.

Our contribution does not develop a full framework, but rather offer a first step in bringing together resilience and care debates. Specifically, we synthesize theoretical debates to identify potential intersections (Part 2), explore how these play out in a neighbourhood case study in Tan Mai, Vietnam (Part 3), and outline guiding questions for future empirical research (Part 4).

2 Theoretical Background

This section develops the theoretical foundation for linking climate adaptation, urban resilience and practices of care. We begin with resilience (2.1), tracing its conceptual roots, the shift from technocratic to socio-ecological framings, and its operationalization through the Stockholm Resilience Centre's principles and Ginsburg's 7Cs. We then turn to care (2.2), grounding the concept in urban debates and its potential to cultivate attachment and ownership, before operationalizing care practices with the help of a framework for ecological stewardship.

2.1. On Resilience

In the context of climate change and sustainable development, Handayani et al. (2023: 4) define urban resilience as:

> "[…] a comprehensive and adaptive capacity that empowers individuals, communities, and systems to endure, recover from, and thrive in the face of environmental, social, and economic challenges. A resilient community or system not only withstands shocks and stresses but also learns and adapts, fostering sustainability and the well-being of its inhabitants."

Resilience was long understood as reactive, the capacity to *"bounce back"* after disturbance, with emphasis on technocratic and engineering solutions such as redundancy in transport networks, flood defences, and risk management infrastructure. However, transformative resilience is recognised as a dynamic capacity that evolves through learning, collaboration, and adaptation (Fig. 1). Resilience is both an outcome and an ongoing process, shaped by the concrete actions and strategies that communities use to adapt to climate and ecological change, among other things. As Handayani et al. (2023: 7) further emphasise, this requires a conception of resilience that integrates social learning, local agency, and cultural meaning:

> "Knowledge creation and deployment become key instruments, with a shift away from technocratic solutions towards embracing social innovation and ground truthing. This transition signifies a move from reactive approaches to proactive and transformative resilience strategies. In this paradigm, humans emerge as active agents, acknowledging the power of their agency and decision-making roles in shaping resilient urban futures" (Handayani et al., 2023: 7, Fig. 1).

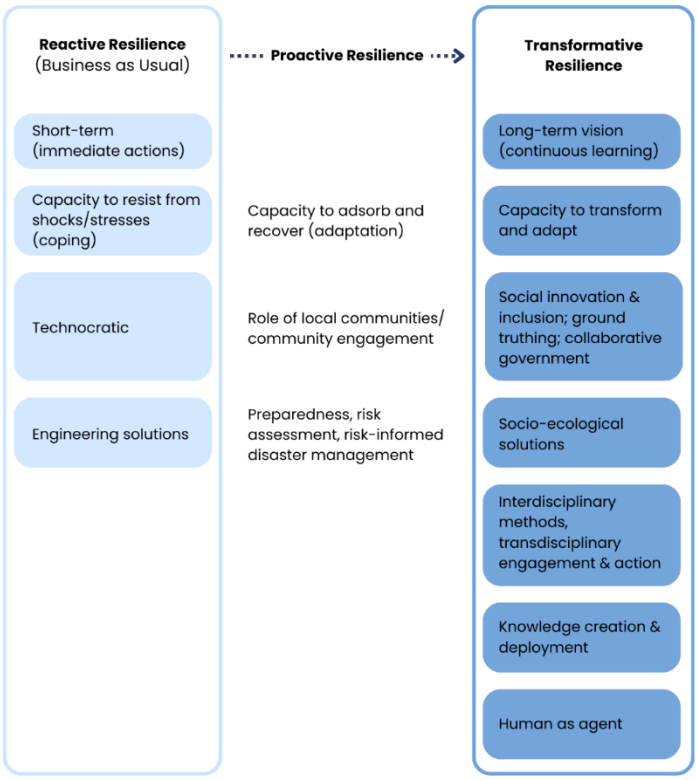

Fig. 1 Transition from reactive to transformative resilience (Handayani et al., 2023: 8)

2.1.1. Socio-Ecological Resilience Frameworks

Despite this expansion, common resilience frameworks such as Arup (2015) are still often approached primarily through a technical lens, emphasizing infrastructure robustness, redundancy, and institutional preparedness. Such technocratic framings privilege governmental or expert-led solutions while underestimating the role of social actors, informal practices, and everyday adaptations (Meerow et al., 2016, 2019; Vale, 2013; Asif et al., 2023).

As outlined before, recent scholarship instead advocates for a broader conceptualization of resilience as a social–ecological capacity that integrates human agency, cultural meaning, and more-than-human relations (Handayani et al., 2023; Do Thi & Dombroski, 2022). A key reference for bridging ecological and social perspectives is the framework of the Stockholm Resilience Centre (Biggs et al., 2015). Resilience is conceptualized here through social–ecological systems (SES) and how these interacting systems of people and nature can best be managed to ensure a sustainable and resilient supply of the essential ecosystem services on which humanity depends.

The Seven Principles for Building Resilience provide a widely used set of strategies: maintaining diversity and redundancy, managing connectivity, managing slow variables and feedbacks, fostering complex adaptive systems thinking, encouraging learning, broadening participation, and promoting polycentric governance.

While SES principles integrate ecological, institutional and social dimensions, they remain less precise on the role of everyday social practices, cultural drivers, and human agency. To address this, we draw on Ginsburg's (2006) 7Cs of resilience, originally developed in developmental psychology. The 7Cs—Competence, Confidence, Connection, Character, Contribution, Coping, and Control—describe individual resilience factors that can be adapted, in line with Handayani et al. (2023), as community and urban capacities. This extends an individual-level model to community and city scales, not as a ready-made metric, but as an analytic heuristic for investigating resilience in practice.

2.1.2. Operationalizing Resilience

We combine SES principles with the 7Cs to create an operational framework for analysing urban socio-ecological resilience. To understand how these outcomes and capacities are built, we use the concept of care. Everyday acts—watering plants, cleaning public spaces, or sustaining neighbourhood relations—provide a concrete lens to observe how residents engage with their environments, build attachments, adapt to changes and ultimately co-create resilience. Section 2.2 elaborates the theoretical foundations of care and a possible operationalisation for further research.

OUTCOME	SOURCE	CONTEXTUALIZATION	EXAMPLES
Competence	7 Cs: Competence: having the ability and skills to deal with challenges SES principle 5: Encourage learning	Social and ecological learning, building institutional and community capacity (skills, knowledge, governance mechanisms)	Sharing of local ecological knowledge, peer-to-peer training, storytelling practices, e.g. acquiring ecological monitoring skills, composting
Confidence	7 Cs: Confidence: believing in one's own abilities	Collective efficacy, belief in agency	Empowerment of local communities through e.g. co-management of a park or waterway
Connection	7 Cs: Connection: building strong ties with others and the community	Linking ecological and social systems, connecting people	Mutual aid, collective action groups, cultural rituals in urban gardens
Character	7 Cs: Character: a sense of integrity and moral compass	Values-driven urban design incorporating e.g. equity, justice	Participation of marginalized groups in stewardship, fair access to green space, fair distribution of ecosystem benefits

Contribution and/ control	7 Cs: Contribution: feeling that one's actions make a positive difference 7Cs: Control: understanding that decisions and actions can influence outcomes. SES principle 6: Broaden participation	Co-creation, participation, influence over outcomes	Participatory mapping, collaborative planning and design
Coping	7Cs: Coping: strategies to manage stress and setbacks SES principle 4: Foster complex adaptive thinking	Strategies for stress and shocks, adaptive renewal after disturbances, while recognizing SES as unpredictable, interconnected, and multilayered. Embrace uncertainty and multiple perspectives	Shifting practices after floods, drought-tolerant planting, mutual aid groups during heatwaves, soil recovery through composting
Diversity	SES principle 1: maintain diversity & redundancy	Systems with many diverse components—species, actors, knowledge sources—are more resilient because redundancy allows some to compensate if others fail	Species-rich community gardens, crop diversity

2.2. Practices of Care

The conceptualization of care is rooted in feminist ethics, where care is framed as a moral and political practice (Puig de la Bellacasa, 2017). Joan Tronto's seminal work Moral Boundaries (1993) defines care as:

> "[…] everything that we do to maintain, continue and repair our world so that we can live in it as well as possible. That world includes our bodies, ourselves, and our environment, all of which we seek to interweave in a complex, life-sustaining web." (Tronto, 1993: 103)

Care encompasses interlinked dimensions: as labour, it involves the often invisible work of tending, maintaining, and repairing; as affect, it is grounded in emotional ties, attachments, and vulnerabilities that motivate engagement; and as ethics or politics, it reflects the normative and collective arrangements through which societies organize for care (Puig de la Bellacasa, 2017; Gabauer et al., 2022). Taken together, these dimensions demonstrate that care is far more than a moral stance—it is a practice that combines affective, ethical, and hands-on agencies of practical and material consequence.

Tronto and Fisher (1990) distinguished four phases of care, later extended by Tronto (2013, 2019) to a fifth:

1. **Caring about** – noticing unmet needs; attentiveness to vulnerability/ deficit

2. **Caring for** – taking responsibility for addressing that need

3. **Care-giving** – the work of providing care for another

4. **Care-receiving** – responding to care and evaluating whether the needs have been met

5. **Caring-with** – building solidarity, trust, and justice through reciprocal ongoing care

This process perspective shows that care is not static but iterative and relational, constantly negotiated in everyday practice. The fifth phase, "caring-with," highlights care's transformative potential, extending beyond survival toward the co-creation of just, inclusive futures. Botha et al. (2025) show how everyday caring practices in neighbourhood "living rooms" in the Netherlands not only meet immediate needs but also produce transformed subjects and communities, enacting the forms of relation they wish to see develop in the world. In this sense, care is both reparative—maintaining and repairing what is broken—and generative, producing new relations and collective imaginaries. Puig de la Bellacasa (2017) further highlights care as a more-than-human ethic that recognizes the interdependence of humans, technologies, and ecosystems. Care is thus not only a relation between people, but also a way of "staying with the trouble" of damaged ecologies, engaging with the needs of soils, waters, and non-human life forms (Haraway, 2016, as echoed in Puig de la Bellacasa, 2017: 188).

2.2.1. Care, Crisis, and the Making of Alternative Urban Futures

In line with this, urban scholarship has in recent years increasingly conceptualized care - the care of others, society, and the environment - as an alternative paradigm for addressing the socio-ecological crises that characterize contemporary „uncaring urbanization patterns" (Gabauer et al., 2022: 6) and explored the ways in which care work and care relations with their inherent ambivalences play out under different urban conditions and how care and crisis are fundamentally linked. Practicing care can maintain and restore the conditions for life in damaged socio-ecological systems. But more than that it opens up possibilities for alternative urban futures because it reconfigures relations between humans, non-humans, and urban environments.

Fitz and Krasny (2019), in their book and exhibition *Critical Care: Architecture and Urbanism for a Broken Planet*, argue that care could be understood as a "life-saving praxis" in the climate crisis—an intentional redefinition of the relationships between economy, ecology, and labour. Their diverse collection of case studies shows that caring practices—whether focused on water and land, public space, repair, skills, or local production—materialize alternative urban futures. Although the term is not clearly defined and the instigators of care come from local administrations, NGOs, civil society, international organisations, and sustainable businesses what unites them are concrete actions and a collective commitment to remaking the city in ways that improve quality of life, promote social justice, and ensure ecological viability.

Gabauer (2022: 10-11) highlights how so-called *"moments of presence"*—social encounters in which affective contact shapes existential forms of meeting others—enable residents to mutually recognize and respect one another. These moments allow participants to alter their habitual ways of *"becoming-related"* and create new qualities of *"moments of encounter"* in which subjects can shift their positions, learn from one another, and co-produce relational urban life. Botha et al. (2025) similarly observe that when care practices unfold outside hierarchical or transactional settings, they create conditions for mutual recognition and belonging, transforming residents into co-actors in shaping their urban environments.

Yet, the capacity to care is unevenly distributed across urban populations. Scholars have therefore emphasized the necessity of infrastructures of care—the material, spatial, and institutional arrangements that sustain and enable care relations. These range from accessible housing or well-designed public spaces to sites of everyday encounter that facilitate ongoing maintenance, repair, and ecological stewardship. In the absence of such arrangements, care risks becoming individualized, precarious, and over-reliant on volunteerism, with structural vulnerabilities left unaddressed (Power & Mee 2019; Gabauer, 2022).

While the ethics of care provides a rich normative foundation, for our purposes we require a framework that is able to link care to observable socio-ecological practices. Environmental stewardship offers this bridge, focusing on concrete human–environment interactions and operationalizing care in ways that are measurable and analytically useful:

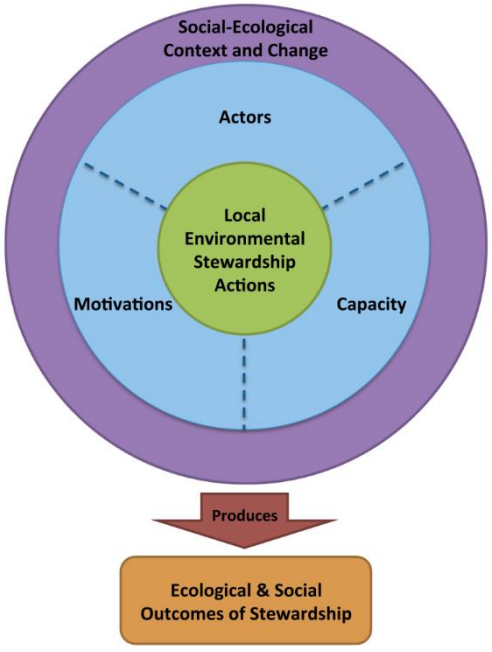

Fig. 2 The conceptual framework for local environmental stewardship (Bennett et al., 2018: 599)

Environmental stewardship can be defined as

> "[…] actions taken by individuals, groups or networks of actors, with various motivations and levels of capacity, to protect, care for or responsibly use the environment in pursuit of environmental and/or social outcomes in diverse social–ecological contexts." (Bennett et al., 2018: 597).

The developed stewardship framework (Fig. 2) conceptualizes local environmental stewardship actions (the practices or interventions themselves such as monitoring, maintenance, or restoration) according to (1) actors involved (individuals, communities, institutions), (2) the motivations and values that drive action (intrinsic such as self-actualization, responsibility, identity or extrinsic such as cultural meaning) and (3) the capacities to steward influenced by local community assets (social, cultural, financial, physical, human capital) and broader governance factors (institutional capital). All of these aspects are shaped, enabled or undermined by the socio-ecological context (including the resources under steward such as water bodies, urban green spaces, soils) and produce outcomes for both ecosystems and communities (Bennett et al., 2018).

For our context, we adopt stewardship theory as a complementary lens because it allows for the disaggregation of care into identifiable elements—context/ resource, practices, actors, motivations, capacity, and outcomes. In other words, care provides the *why* (an ethical, affective, and political orientation toward maintaining and repairing the world), whereas stewardship provides a way to study the *how* (concrete actions, resource foci, and socio-ecological impacts).

2.2.2. Operationalizing Care

To translate our findings into an empirically useful framework, we draw on Bennett's elements of environmental stewardship and Tronto's phases of care to formulate analytical dimensions and guiding questions for investigating neighbourhood-scale practices of care.

1. Practices (What is done? *Caring for* what?)
Care practices

- Involve human effort directed at maintaining or improving a shared resource
- Is repeated or sustained over time (not a one-off event)
- Is voluntary or collective in nature (not just private maintenance)
- Shows relational components: interaction with other people, institutions, or ecological systems

Care becomes visible in material, cognitive, and affective forms:

- Material/physical care: direct actions such as watering, sweeping, planting, cleaning, repairing.
- Cognitive/knowledge care: activities of observing, documenting, educating, or transmitting environmental knowledge (e.g., neighbourhood storytelling, citizen science).

- Affective care: practices expressing attachment or advocacy, such as festivals, commemoration rituals, or campaigns for public space.

Analytical focus: What concrete activities constitute care (cleaning, repairing, planting, monitoring, advocating)? What resources are maintained?

2. Socio-ecological context (Where does care take place?)
Care practices depend on material and social infrastructures—housing, streets, parklets, water canals, community networks—that enable or constrain them. *Analytical focus*: Which socio-material conditions make care possible? Are there spaces or networks that facilitate encounters and care relations?

3. Actors and relations (Who cares?)
Practices can be enacted by informal actors (neighbours, families, spontaneous initiatives) or formal actors (NGOs, local authorities, institutions). *Analytical focus*: Who notices and responds to ecological needs in the neighbourhood? What are the relational components (interaction with others, be it other humans, institutions or ecosystems)? Are practices individual, collective, or institutional? What forms of reciprocity, collaboration, or conflict emerge?

4. Motivations and values (Why care? *Caring about* what?)
Care is driven by normative, affective, or cultural motivations—responsibility, pride, identity, obligation, spirituality, or resistance. They can be distinguished in intrinsic (self-actualization, responsibility) or extrinsic (incentives, recognition, regulations). *Analytical focus*: What motivates residents to maintain or improve shared resources? What values, emotions, or identities are articulated? How do people narrate their relationship to place, neighbours, and ecosystems?

5. Capacities (What enables care?)
The ability to care depends on local community assets (social, cultural, financial, physical, human capital) as well as broader governance and institutional contexts. *Analytical focus*: What assets and structures enable or inhibit care practices?

6. Outcomes (What results from care?)

Finally, practices of care produce social and ecological outcomes. They may improve environmental quality, strengthen neighbourhood cohesion, foster new forms of governance, or generate attachment and ownership. *Analytical focus*: How do residents evaluate the effects of their actions? Are there observable improvements in ecological quality, social cohesion, or local agency?

This operationalization allows us to move beyond abstract framings and systematically identify *who* cares, *how* care is practiced, and *what* socio-ecological consequences result. Thus, it provides a common analytical vocabulary that connects theoretical insights (Part 2.2) with empirical cases (Part 3). By making care empirically observable, we establish the groundwork for further research (Part 4), where these dimensions will inform the development of guiding questions that explicitly connect the identified dimensions with resilience outcomes.

3 Resilience & Care in Tan Mai (Hanoi)

Tan Mai is a densely populated ward located in the southern part of Hanoi, the capital city of Vietnam. It lies at the interface between a historic residential neighbourhood with narrow alleys to the south and a high-traffic main road to the north. This setting creates a dynamic interplay between traditional urban structures and contemporary developments.

Against this backdrop, the project ‚*Low-Cost, Safe, Inclusive, and Accessible Neighbourhood Public Spaces in Tan Mai Ward*' was launched in 2019, led by HealthBridge, the People's Committee of Tan Mai Ward, Think Playgrounds, and the Hanoi Institute for Socio-Economic Development Studies (HealthBridge et al., 2022). The initiative sought to address structural challenges in the ward, notably the lack of functional public spaces that significantly constrained peoples' ability to participate in community life. At the core of the project was a participatory approach: In four so-called Minecraft workshops, 93 individuals—including women, children and youth, adults, and seniors—took part. These activities were complemented by validation meetings involving around 60 residents, during which proposed designs were collaboratively reviewed and adapted to reflect community needs. As a result, five publicly accessible spaces were created through collective design (HealthBridge et al., 2022).

The following sections focus on the overall Tan Mai project as well as one of these newly created spaces—the area surrounding a ‚parklet' (see Fig. 3). Originally, this site featured an open drainage canal, later filled in and used informally as a parking area. The increase in traffic and consequent safety risks—especially for children and older people—elicited community concern. In response, and in close collaboration with the community, the area was transformed into a small public space — a parklet complete with seating and newly planted trees — which also helped to reduce and consolidate motorised traffic. Community members actively contributed to this transformation by planting beds, constructing and painting benches (HealthBridge et al., 2022).

The following piece of analysis looks at the project through the lens of resilience and care practices in public spaces. It draws on existing project documentation as well as firsthand spatial observations conducted in September 2022 in the immediate vicinity of the parklet, as part of Anika Slawski's PhD research on ‚*Perspectives on Placemaking'*. The goal is to highlight the practices that shape social interaction and contribute to resilience.

Fig. 3: Parklet in Tan Mai (by Stefanie Slawski, 22 September 2022)

3.1. Resilience in the Tan Mai Project

The overall Tan Mai project demonstrates how small-scale interventions can effectively enhance social–ecological resilience. Firstly, a variety of functionally differentiated spaces—such as the parklet—were created to ensure diversity and redundancy, thereby catering to different needs and compensating for potential failures in individual elements (HealthBridge 2020: 4). Secondly, by providing five designated public spaces with accessible paths and inclusive areas, local connectivity was improved, traffic reduced, and formerly inaccessible places made available to more people (Cao Thiên et al., 2022; HealthBridge, 2020: 6–8).

While there was no explicit management of long-term variables such as environmental quality or social cohesion, the project adopted an adaptive, decentralized approach. Multiple stakeholders were involved, interventions were geographically distributed, and rigid planning was avoided—reflecting an understanding of urban complexity (HealthBridge, 2020: 3–4). Embedded in this strategy was the promotion of communal learning: Children, adults, and municipal staff alike developed new skills through the Minecraft workshops and the participatory process (HealthBridge, 2020: 6).

Despite the absence of formal polycentric governance structures, local authorities, NGOs, and neighbourhood residents cooperated (HealthBridge, 2020: 5). Importantly, participation was inclusive: Women, children, seniors, migrants, and people with disabilities were actively involved in decision-making (HealthBridge, 2020: 6–7). Shared values and social factors inspired strong civic

engagement, with many contributing time and materials (HealthBridge, 2020: 7). The project also fostered empowerment among participants, helping them develop trust in their ability to effect change and address challenges (HealthBridge, 2020: 6–7). This led to the cultivation of new skills and a growing sense of responsibility—competencies that continued to evolve through informal daily practices like gardening and maintaining public spaces (Cao Thiên et al., 2022; HealthBridge, 2020: 6).

The parklet emerged as a lively place of social interaction, nurturing new relationships and a sense of belonging (Cao Thiên et al., 2022; HealthBridge, 2020: 8–9). Serving as a retreat within a high-traffic setting, it provided relief and restoration (HealthBridge 2020: 8). In addition, its flexible usage throughout the day highlighted the adaptive capacities of local residents (Cao Thiên et al., 2022).

3.2. Care Practices in the Tan Mai Neighbourhood

Within the parklet, practices of care are evident in the everyday: watering plants, sweeping the ground, playing, lingering, staying together, and adapting the space to individual needs. These recurring acts foster neighbourhood exchange and strengthen emotional bonds. Their regularity creates trusted routines, reinforcing presence and mutual responsibility (Cao Thiên et al., 2022).

The parklet functions as a focal point of collective resilience: It offers a refuge amidst traffic, introduces spatial order, encourages interaction, reduces emissions, and is accessible to people of all ages. Thus, the space is not merely functional; it is enriched through lived care practices (Cao Thiên et al., 2022). These often unassuming actions—water pouring, sweeping—play a key role in upgrading the neighbourhood. Residents display environmental responsibility, for example by cleaning up after rainfall, signalling their commitment to the socio-ecological quality of the public domain (Cao Thiên et al., 2022).

An excerpt from field notes captures this care in action after a midday rain shower (see Fig. 4):

> "An elderly man—I also saw him in the morning—cleans the area around the parklet; he dries a spot and sits down; it is the same place as in the morning from which he now observes the surroundings; the towel he uses to clean his seat is tucked into the branches of a tree; it has been there all day […]. The man takes care of his place […]. After the rain, he cleans the ground, then the seating surface itself; he sits briefly, waves cheerfully, and then leaves […]." (Slawski, 2022).

These informal, voluntary, and collectively sustained practices arise not from formal structures, but from everyday responsibility for space. They contribute significantly to both social and ecological

resilience—strengthening community bonds, protecting the environment, and preserving public space as a shared resource.

Fig. 4: Man in the parklet after the rain (by Anika Slawski, 22 September 2022)

In summary, the Tan Mai Ward project—as exemplified by the parklet—demonstrates how collectively designed public spaces can actively foster social–ecological resilience. Participatory processes, diverse uses, and the deliberate inclusion of varied community groups have given rise to a flexible, adaptable neighbourhood structure. Concurrently, the observed practices, such as tending, personal appropriation and nurturing, can be interpreted as material, affective and relational forms of care, since they maintain the vibrancy of the public realm and sustain it as a commons. The practices are embedded in socio-material infrastructures, enacted by informal neighbourhood actors, motivated by attachment and responsibility, and generative of collective outcomes. Resilience and care interweave, reinforcing community cohesion and the ecological quality of the neighbourhood.

Crucially, resilience is not achieved through planning alone but through the dynamic interplay of place and social practice. The flexible appropriation and routine use of public spaces cultivate community, nurture responsibility, and promote shared learning—echoing Schneekloth & Shibley: *"Places are not just made by design. They are made by people engaged in the experience of place."* (Schneekloth & Shibley, 1995: 17).

4 Way Forward

Based on the case study in Tan Mai, we argue that caring practices play a key role in how communities navigate, respond to and transform their environments in the face of urban and climatic stress.

At this stage, robust claims about the motivations, values, and capacities that drive these practices, as well as their concrete outcomes for resilience, require further empirical investigation through semi-structured interviews and ethnographic observation. The meaning of care practices can be examined through the analytical dimensions outlined in Section 2.2. Yet, to understand their contribution to neighbourhood-scale resilience, we propose a set of guiding questions that explicitly connect both concepts.

The questions link the dimensions identified for care (Practices, Actors & Relations, Motivations & Values, Capacities) with the defined resilience outcomes (Competence, Confidence, Connection, Character, Contribution/Control). In this sense, care dimensions provide the *actions* and *mechanisms* through which resilience can be built, while resilience outcomes point to the *capacities* and *results* that emerge.

4.1. Guiding Questions for Future Research

Practices → Competence & Confidence

- How do everyday care practices (e.g., maintaining, monitoring, repairing) contribute to building ecological and social competence in neighbourhoods?
- In what ways do care routines enable learning, skill-sharing, and the transmission of ecological knowledge across generations and groups?

Actors & Relations → Confidence & Connection

- Who engages in practices of care, and how do these practices cultivate confidence (collective efficacy, belief in agency) within communities?
- How do care relations—among neighbours, institutions, and more-than-human actors—strengthen social connections and ecological connectivity at the neighbourhood scale?

Motivations & Values → Character

- Which ethical orientations, cultural values, or affective attachments motivate practices of care, and how do these align with goals such as equity, justice, and integrity?
- How do narratives of belonging, responsibility, or spirituality shape the willingness to care?

Capacities → Contribution & Control

- What local assets (social networks, knowledge, infrastructures) and governance structures enable or constrain care practices, and how do they shape community participation in decision-making?

- How do caring practices provide residents with a sense of contribution and control over urban socio-ecological futures?

Together, these guiding questions provide a systematic way of linking practices of care to resilience. Yet, beyond the dimension-specific connections, several integrative questions arise that point to the broader implications for theory, policy, and design and can extend the discussion from neighbourhood observations to a wider research agenda

- **Visibility and recognition**: How can informal and relational practices of care—often invisible in formal planning—be made legible, valued, and institutionally supported without reducing their situated and relational character?

- **Design and infrastructure:** How can spatial and material infrastructures be designed to actively support ongoing practices of maintenance, encounter, and mutual care—moving beyond neutrality toward enabling just and liveable urban futures?

- **Method & Epistemology**: Which interdisciplinary and ethical research methods are best suited to capture the relational and embodied dimensions of socio-ecological care in practice?

5 Conclusion: Towards Care for Urban Resilience

This paper has proposed care as a vital yet underexplored lens for understanding how resilience is built at the neighbourhood .By bringing together resilience thinking and care scholarship, and situating these concepts within neighbourhood-scale practices in Tan Mai, we have argued that every day, often invisible practices of maintenance, repair, and stewardship are constitutive of socio-ecological resilience. Rather than treating care as ancillary, we suggest that it bridges the persistent gap between technical adaptation and social uptake, connecting values and attachments to concrete acts of climate adaptation and resilience-making.

From this synthesis, we advance five theses:

1. Resilience must be relational and situated. It is shaped by how people relate to each other and to their environments in place-based, culturally embedded ways.

2. Care offers a link between capacity and action. It connects values, emotions, and responsibilities to concrete practices of maintenance, restoration, and stewardship.

3. Neighbourhoods are active sites of resilience-making. They host dense webs of interaction and informal knowledge that formal planning must learn to recognize and support.

4. Resilience is not only reactive but generative. Through caring-with, communities co-create new social and ecological futures rather than simply responding to risk.

5. Enabling care requires material and institutional support. Infrastructures of care are essential to move from isolated practices to durable, inclusive systems that strengthen resilience.

Our synthesis remains an exploratory first step. It points less to definitive answers than to the questions that must guide future research. Taken together, the theses and questions sketch a future research agenda. They invite closer empirical work, methodological innovation, and normative debate on how care and resilience can be integrated to rethink climate adaptation not only as a technical challenge but as a practice of collective and situated care. By cantering care as both a practice and a principle, this paper invites scholars, planners, and communities to reimagine adaptation as a relational process—one rooted in everyday acts of connection, maintenance, and mutual responsibility.

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