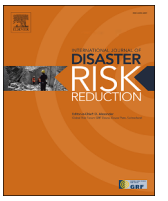
International Journal of Disaster Risk Reduction 103 (2024) 104313

Contents lists available at ScienceDirect

International Journal of Disaster Risk Reduction

journal homepage: www.elsevier.com/locate/ijdrr



Exploring the realities of urban resilience: Practitioners' perspectives

George Babington Amegavi *, Melissa Nursey-Bray, Jungho Suh

Department of Geography, Environment and Population The University of Adelaide, South Australia, 5005, Australia

ARTICLE INFO

Keywords:
Urban resilience
Climate change
Practitioners
Transformation
Ghana

ABSTRACT

Cities in Sub-Saharan African countries, already vulnerable, are under increasing pressure from the impacts of climate change and its associated risks. Urban resilience has emerged as a development strategy for improving the capacity of urban systems to cope with, withstand, and mitigate the impacts of extreme events in cities. Using a qualitative research approach and drawing on semi-structured interviews with 20 practitioners in Ghana, the study examined practitioner insights into urban resilience and the implications for urban resilience theory and practice. The study identified that practitioners have diverse understandings and views about urban resilience, shaped by their different experiences and priorities. Functional and outcome-oriented urban resilience understanding prioritising physical urban infrastructure dominated urban resilience views among the practitioners. Few practitioners understood urban resilience in social and governance terms that align with transformative urban resilience ideas. The key point for urban resilience planning is that the dominant outcome and functional view that aligns with conservative urban resilience ideas limits opportunities for multi-stakeholder engagement, collaboration, and urban transformation. Therefore, if urban resilience remains an essential goal for urban planning, it should incorporate change, learning, social, and governance ideas because they hold enormous promise for advancing politically feasible and socially equitable urban resilience policies and planning outcomes.

1. Introduction

Cities in Africa are renowned for being climate risk 'hotspots' [1]. The cities in Africa possess a variety of unique characteristics which unfortunately render them vulnerable to climate risks; the most recognised of these characteristics are their infrastructure deficit, weak institutional structures, growing population in informal settlements, susceptibility to disaster triggered by natural hazards, and limited resource base [2–6]. While African countries have contributed the least to the climate change crisis, with about 3 percent of global emissions, compared to other regions, cities in Africa experience disproportionate amounts of climate-related impacts [1], with some resulting in devasting outcomes [7].

There have been calls in development policy discourse to integrate urban resilience as a core component of urban planning. The Sustainable Development Goals (SDGs) directly call for "inclusive, safe, resilient, and sustainable cities" (Goal 11), placing urban resilience as an essential component of global ambitions to improve the capacity of urban systems and structures and deliver disaster risk reduction in both developed and developing countries. Urban resilience refers to the capability of a city and its systems to adapt

* Corresponding author.
E-mail addresses: george.amegavi@adelaide.edu.au (G.B. Amegavi), melissa.nursey-bray@adelaide.edu.au (M. Nursey-Bray), jungho.suh@adelaide.edu.au (J. Suh).

https://doi.org/10.1016/j.ijdrr.2024.104313
Received 8 August 2023; Received in revised form 5 February 2024; Accepted 5 February 2024
Available online 9 February 2024

to extreme events and transform urban systems that limit current or future adaptive capacity [8], facilitated through processes that consider local, institutional, social, economic, and political dynamic situations [9,10]. As a concept, it bridges various notions of how cities should prepare and respond to disasters and extreme events. It is, therefore, unsurprising that in recent years, urban resilience has become an essential part of disaster risk development programs and is being used to orient urban policy discussions [11].

Despite its importance as a development strategy, the urban resilience concept is beset with conceptual tensions. Examples of these conceptual tensions include the epistemological orientation of urban resilience, characteristics, pathways to building urban resilience, the notion of equilibrium, and the timescale of action [8,12]. These developments in knowledge about urban resilience have yet to provide clarity but have caused considerable uncertainty and difficulties in understanding and applying the concept in practice. These tensions reflect the concept's complex and context-dependent nature and the different approaches to employing the idea among scientists and practitioners [11].

In this context, this study aims to further these discussions in practice. Based on a qualitative research approach, we examined the concept of urban resilience through the perspectives of practitioners in Accra, an area known for flooding and tidal waves. In June 2015, Accra recorded one of the worst flood disasters in the history of Ghana. The city suffered an estimated 50 million USD in damage from floods, and 154 lives were lost, with several people injured [7]. In this context, the study's main objective is not to determine which interpretation of urban resilience is 'right' or 'true' but to examine how the different interpretations can facilitate critical reflection and the implications for urban resilience research and practice. As Weick [13], p. 524) puts it, "The contribution of social science research does not lie in validated knowledge, but rather in the suggestion of relationships and connections that had not previously been suspected". The paper proceeds with an overview of the key ideas and debates in the urban resilience literature. We then describe the research method and present the study findings. We conclude by discussing the results and their implications for advancing urban resilience research and practice.

1.1. Theoretical background

The concept of resilience has a long history in art, law, engineering, literature, and science but gained prominence in ecological literature following the theoretical work of ecologist Crawford S. Holling in 1973 [14]. Since then, several studies have contributed to advancing the concept of resilience. Unfortunately, the increasing interest and use of the concept have not led to a unified understanding of its meaning and practice [8,15]. The urban resilience literature generally identifies two resilience schools of thought: engineering and social-ecological resilience, metaphorically referred to as 'bouncing back' or conservative and 'bouncing forward' or transformative approach, respectively. Engineering resilience refers to a system's persistence and ability to absorb change and disturbance and maintain current system dynamics [16]. This resilience perspective prioritises system function, efficiency, robustness, and resistance and maintains the status quo [11,17] and is linked to the inherent conditions of critical urban infrastructures and services [18]. Consequently, the 'bouncing back' perspective has also been called 'functional resilience' in development studies [19]. While reliance on this notion of resilience might be appropriate for the physical infrastructural elements of cities, which require a stable equilibrium, it does not consider the social and political dynamics of cities [9,12], important factors for addressing inequities in urban resilience [20].

The social-ecological resilience perspective calls for a shift from conservative to more proactive change-oriented thinking that disrupts inequitable development trajectories and promotes transformation [9,21]. This model of resilience emerged due to the shortcomings of the engineering resilience model [9]. Social-ecological resilience refers to the level of risk or disturbance a system can withstand and still self-organise, learn, adapt, and retain its functional structure [22]. By prioritising change, innovation, and transformation [23], this paradigm creates opportunities to consider cities' social and political dynamics [9,10]. Change-oriented thinking creates opportunities for policymakers to approach urban resilience in ways that challenge the status quo and enable learning [21]. Examples of attributes identified in the literature to contribute to transformative resilience in cities include decentralisation and inclusive engagement of relevant stakeholders, collaboration, and equity [20,21,24,25]. Thus, transformation involves significant changes to institutions, planning processes, and systems.

Different studies from different disciplines have examined the relationship between conservative and transformative resilience schools of thought, pointing out areas of potential conflict and synergies and ways to integrate both in urban planning practice [18]. These studies have shaped and informed our understanding of urban resilience. Conservative or functional resilience framed around robustness and resistance to change dominated urban resilience planning [15], which has resulted in the rise of technocratic urban resilience planning approaches. Technocratic resilience planning interventions shift urban resilience planning focus away from justice and equity issues [20,26], de-emphasising the need for a more comprehensive understanding of urban resilience that takes into consideration existing vulnerabilities and uneven distribution of benefits and risks [27]. It also limits the potential for transformative trajectories in urban resilience [20,28]. Adopting this approach, policymakers often fail to consider how socioeconomic and political structures intersect, thereby neglecting or underestimating the need for critical engagement with inequality and marginalisation that come into consideration when exploring vulnerabilities to extreme events and risks in cities [29]. Urban resilience to extreme events does not occur in isolation from the broader social and political structures [10]. It is driven by deliberate action that reinforces the distribution of power and self-interest and their interaction with ecological and physical systems [17]. Hence, a city's ability to withstand and cope with extreme events should not be the only focus of urban resilience.

The academic literature has gradually shifted, with recent studies integrating transformation in definitions of urban resilience [8]. However, Chelleri and Baravikova [18] note that efforts to incorporate transformative ideas into urban resilience have been challenging, with only a few studies exploring the issue. Previous studies have demonstrated that, in some instances, it is relatively less complicated to ascertain which urban structures require improved robustness and functional capacity and which require total transformation. But often, transforming urban structures to enable urban resilience results in complex management, social, and political deci-

sions, implying potential tensions and trade-offs [12,19,30]. These likely tensions and trade-offs indicate urban resilience planning is a complex political process [10]. The study provides an empirical examination of practitioners' understanding of urban resilience based on a qualitative research method, presented in more detail in the section below.

2. Research method and study area

2.1. Research method

A qualitative research approach was explored to examine how practitioners who participated in the Greater Accra Resilient and Integrated Development (GARID) Project interpret urban resilience in Ghana. A practitioner in this study is defined as a person with technical knowledge and expertise in urban resilience and is responsible for planning and implementing urban resilience initiatives. In addition to being qualified as per the coined/chosen definition, this paper required the practitioners to be between senior and middle level. It is believed that practitioners at that level would be more involved/influential in urban resilience policy development, planning, and implementation. Purposive and snowball sampling were used to select the research participants [31]. With assistance from the Accra Metropolitan Assembly (AMA) resilience office, participants were recruited through existing contacts, telephone, and email invitations. According to records from the AMA resilience office, 24 urban resilience practitioners who were between senior and middle level were involved in the GARID project. These 24 practitioners were repeatedly contacted; however, only 20 responded and were subsequently interviewed. The interviews occurred between September 2020 and April 2021. Participant distribution included AMA (3), Environmental Protection Agency (EPA) (2), Land Use and Spatial Planning Authority (LUSPA) (2), National Disaster Management Organisation (NaDMO) (2), and one each from the Ministry of Local Government, Decentralisation and Rural Development (MLGDRD); Ministry of Works and Housing (MWH); Ministry of Environment, Science, Technology and Innovation (MESTI); and the Ministry of Sanitation and Water Resources (MSWR). The others include Non-Government Organisations (NGO) (3), International Development Organisations (IDO) (2), and private urban resilience consultants (2). While their educational background was mainly in engineering (11), urban planning (6), and architecture (3), some also had further management training. Interviews with practitioners from different organisations and sectors enabled the representation of organisational and sectoral diversity. All the participants had between five and twenty-five years of experience.

Using a semi-structured interview guide, telephone and face-to-face approaches were used in conducting the interviews. First, we established rapport with the participants through introductory conversations, and questions were asked conversationally. The semi-structured interview guide offered the flexibility to ask more probing questions to gather more detailed information [32]. With guidance from the reviewed literature, an interview protocol was developed. The interview questions covered: (i) What does resilience mean to you? (ii) More specifically, how do you define urban resilience? (iii) What shapes or determines a city's resilience? (iv) What should be prioritised in building urban resilience? (v) Can you describe characteristics that make a city resilient? Related tangents to these questions were explored when raised by the participants. Each interview lasted between 50 and 90 min. Following informed consent from participants, all the interviews were audio recorded. This research received ethics approval from the Human Ethics Research Committee at the University of Adelaide. In line with the project's approved ethics protocol (under ethics number H-2020-049), each interviewee was given a unique code (see Appendix 1).

After each interview, a verbatim transcription of the recorded interviews was conducted. Thematic content analysis was used to analyse the data. The interview transcripts were repeatedly read to identify recurring, contradictory, and converging patterns of interaction in the data, including key concepts. The NVivo software (version 12) was used for the data analysis. The data analysis involved three main steps. The first step involved the preliminary coding of the interview text. Categorising concepts and identifying the themes was the second step. To ensure the validity and inter-coder reliability of the emerging themes, they were checked against the data from which they were being formed (Hall et al., 2015). Finally, modification/reduction of codes and themes, where, for instance, the emphasis placed on a particular issue or characteristic by the participants and the adjective utilised were considered. After the data analysis, 71 codes were extracted. Following extensive reviews and merging of the codes based on their similarities, 33 codes and nine themes were eventually extracted.

2.2. Study area

Ghana is one of the most severely affected areas by climate change in sub-Saharan Africa [7]. This study was conducted in Accra (See Fig. 1), as the city represents an area affected by floods and tidal waves caused by climate change. Accra is the capital city, the economic hub, and the city with the highest population density in Ghana [33]. the 1960s commenced the expansion of Accra. By the 1980s, the average population growth rate in Ghana was estimated at 2.8 percent; however, Accra was experiencing a growth rate of 4.3 percent during the same period. By 1984, the population of Accra had reached an estimated 970,000, mainly caused by migration and causing substantial pressure on existing infrastructure [34].

The city's expansion has led to multiple communities without proper infrastructure, such as roads, drainage systems, and other social amenities. The increasing landscape changes caused by this growth have intensified the conflict between nature and humans, progressively negatively impacting humans and the environment. In recent years, given the global influence of climate change, risks such as flooding, rainstorms, and excessive heat have become increasingly frequent in cities, and Accra is no exception. Accra has a long history of flood-related disasters, experiences regular climate-related floods, and has the highest flood-related mortality in Ghana [35]. The worst climate-related flood disaster in the history of Ghana was recorded in Accra in June 2015. The city suffered an estimated 50 million USD in damage from the flood disaster, and 154 lives were lost, with several people injured [7]. These risks and destruction to life and property reflect Accra's vulnerability to extreme events and poor planning, which Oteng-Ababio et al. [25] note have been reactive to existing challenges in the city rather than from a more proactive and sustainable outlook.

Fig. 1. Location of the study area in Ghana.

In the aftermath of the June 2015 flood disaster, the World Bank conducted an assessment based on climate modelling and adaptation as part of the city strength diagnostic and post-2015 flood disaster review of Accra. The findings from the study fed into the evaluation of Ghana's climate change vulnerability, especially in urban spaces, and the subsequent proposal for the Greater Accra Resilience and Integrated Development (GARID) project funded by the World Bank. The project is part of the World Bank's long-term

slum upgrading, disaster risk management, climate change adaptation, and urban development assistance for developing countries. The GARID project is part of an agenda to improve flood risk mitigation and solid waste management in Accra. Accra is also part of the 100 Resilient Cities programme of the Rockefeller Foundation, which provides some ground for the research. Therefore, it is worth exploring the meanings those who bear the responsibility and power to shape urban resilience outcomes attach to the concept, the factors that influence their views, and the implications for resilience planning in Accra.

3. Research findings

The results are presented across four main themes: (i) ambiguity of the urban resilience concept, (ii) diverse interpretations of urban resilience, (iii) different priorities for urban resilience, and (iv) multiple characteristics of urban resilience.

3.1. Urban resilience, an ambiguous concept

Our results showed that 85% of practitioners perceived the concept as inherently ambiguous. They felt the inherent ambiguity and challenge of conceptualising the urban resilience concept had added more complexity to the city's planning, an already complicated area. For one practitioner from MESTI, "Urban resilience is just another development idea that means everything, but it is difficult to appreciate its true meaning" (Practitioner 6). Hence, another participant said urban resilience has become the "latest buzzword in a long list of concepts" (Practitioner 18) associated with debates on development planning and environmental challenges facing cities. These include, among other things, climate change and sustainable development.

In this context, over half of the practitioners claimed that the "lack of clarity" around what urban resilience means was both a challenge and a weakness for its application: "Urban resilience has become a solution for every urban problem, with multiple interpretable dimensions to consider. This makes implementation difficult" (Practitioners 3 and 8). This frustration with the urban resilience concept resulted in a suggestion by the practitioners that to ensure its application in the "right" way, the concept should be clearly defined.

3.2. Diverse interpretations of urban resilience

Significantly, the analysis reveals diverse interpretations of urban resilience among practitioners. The capacity to 'bounce back' (65% of practitioners) was the most frequently reported description of urban resilience. Notably, this definition was predominant among the practitioners working in government agencies, who stated that urban resilience relates to the capacity to withstand and recover from disasters. Practitioners emphasised the role of perseverance and robustness as part of what typifies the bouncing-back feature of urban resilience. This description of urban resilience is rooted in the engineering resilience perspective. The following quotes illustrate this construction:

> Urban resilience refers to the capacity of cities like Accra to be prepared, withstand, and absorb climate and non-climate shocks, recover from them, and revert to their previous state. (Practitioner 2)

> Urban resilience is the preparedness and ability of Accra to absorb and minimise the impact of disasters and recover from the disaster in the shortest possible time without permanently collapsing or losing its structural capability. (Practitioner 11)

> The ability of a city to experience disasters and continue to function without permanently collapsing or losing its structural capability. (Practitioner 14)

However, one-third of practitioners, particularly those from NGOs and IDOs, challenged this description of urban resilience. They argued that extreme events or disasters offer opportunities for change and innovation and to build back better in their aftermath. Some argued that because Accra is changing, extreme events present additional opportunities to enhance and transform urban infrastructure and processes after a disaster rather than reverting to a previous state. Some explained urban resilience:

> Disasters open windows of opportunities to change and improve the infrastructural landscape of Accra to enhance its capacity to withstand and resist future shocks. (Practitioner 16)

> Accra has many slums, making it vulnerable to disasters. It is challenging to relocate the people and plan these slum communities better. So, the aftermath of a disaster offers the opportunity to plan and design these slum communities in Accra better. These are poor people, so what use is it if we cannot help them build their capacity to withstand floods of similar or greater intensity? (Practitioner 20)

Therefore, these practitioners emphasised the need to 'build back better' after a disaster. The analysis also highlights how these practitioners' observations and disaster experiences informed their interpretations of urban resilience. As some practitioners explained:

> Since floods are an annual problem in Accra, it will not be beneficial to revert to a pre-existing state after a flood disaster. This is because the disaster's destruction creates opportunities to plan the city better. You should see the impact of these disasters across the communities in Accra. The government will do the communities much good by helping them build back better to withstand future disasters of similar or greater magnitudes. (Practitioner 18)

> I have worked in these communities for over a decade, and almost every year, we come back to provide nearly the same assistance to disaster victims. We must start doing things differently to ensure that these communities are equipped so they do not

> revert to their previous or normal state after these disasters. Urban resilience will mean ensuring that these communities build back better. (Practitioner 5)

Our analysis also identified other descriptions of urban resilience, which included a state of 'preparedness', or 'readiness' - "extreme events and disasters are inevitable, so urban resilience is about our readiness to respond to these extreme events" (Practitioner 8). 'Coping' was also used to describe urban resilience, "urban resilience is not just about thriving in the phase of extreme events; it also means developing the capacity to transcend mere community survival" (Practitioner 13). Urban resilience was also described as 'adaptable'; "it entails a city's ability to respond to and adjust to different disaster situations with limited impact on the lives of its inhabitants" (Practitioner 7).

3.3. Different priorities for urban resilience

Unsurprisingly, given the diverse ways that urban resilience was interpreted, our analysis shows significant differences in how the concept is prioritised among practitioners and in ways that reflect their different organisational or sector goals. For instance, the practitioners from LUSPA and MWH consistently mentioned infrastructure development as a priority for achieving urban resilience. They argued that the prioritisation of building and caring for the physical infrastructure of Accra might increase the capacity of local urban communities to withstand and adapt to the incessant annual floods. The practitioner from MWH explained that "urban resilience is about the development of reliable and robust physical infrastructure such as roads and drainage systems that support urban life. We must keep the physical infrastructure of Accra as a high priority" (Practitioner 10). A practitioner from LUSPA also added that "urban resilience is about rigorous planning arrangements that ensure that the necessary infrastructure is in place to mitigate the negative effects of floods on people and property. Without that, there is no urban resilience" (Practitioner 12).

In contrast, MLGDRD and EPA practitioners also argued that a more environmental and climate change focus on urban resilience would be more secure in delivering comprehensive urban resilience, including socio-economic, technological, political, and infrastructure development. The practitioner from MLGDRD claimed that: "consolidating these different developmental needs reduces the possibility for urban resilience to focus solely on infrastructure development or economic development, which may lead to detrimental trade-offs in terms of which developmental issue to prioritise" (Practitioner 13). This interpretation of urban resilience indicates openness towards the multi-functionality of urban resilience rather than a narrow prioritisation of it as a functional requirement to enable infrastructure development as prioritised by the practitioners from LUSPA and MWH.

For the NGO and IDO practitioners, the processes for planning and building urban resilience were their top priority. They emphasised 'community recognition and empowerment', 'equity', and 'collaboration': "We need more engagement and collaboration. We can achieve more if we work with the communities most affected by incessant floods yearly. Urban resilience is a humanitarian development strategy, so it must be planned as such" (Practitioner 19). Another added, "Urban resilience in Accra is about enhancing the readiness of our communities to respond to floods. Even though infrastructure development is critical in meeting this goal, it is only an outcome of urban resilience. We must also look at the processes for planning urban resilience and give the local people a voice" (Practitioner 17).

On another level, some NGO practitioners viewed the focus on community as valuable in confirming the significance of a 'bottom-up' participation process. As a practitioner from one of the NGOs argued:

> Urban resilience can only be developed at the community level but cannot be imposed. There is still too much focus on urban resilience planning agencies and limited acknowledgment that urban resilience begins with the communities. When there is a disaster in Accra, the state agencies take over everything and push everyone out. (Practitioner 15)

Given these different priorities for and around urban resilience, some practitioners argued that a common definition of urban resilience could help build a shared focus among the various planning agencies. According to one practitioner from AMA:

> Disaster officers from NaDMO don't necessarily care about urban sustainability; urban sanitation officers don't also care about floods and rescue, but everybody cares about urban resilience. Reframing urban resilience to develop a common understanding may help integrate the different sectoral goals. (Practitioner 1)

In this context, urban resilience could be employed as a strategic development goal to link the different climate change, disaster management, and urban planning goals that, thus far, have been approached in isolation with limited collaboration. As part of this discussion, a practitioner from MESTI described prioritising urban resilience as "a development idea that could underpin Accra's development planning goals across different sectors and help planners think about urban resilience as the fulcrum of urban planning". (Practitioner 6).

3.4. Multiple characteristics of urban resilience

3.4.1. Physical infrastructure and support services

Our analysis also showed different dimensions in the characteristics practitioners attribute to urban resilience. Availability of physical infrastructure and support services (all 20 practitioners) was the most frequently mentioned characteristic of urban resilience. The practitioners stated that resilient cities have robust physical infrastructure and support services that help them to withstand extreme events. Their discussions centred generally on the negative impact of the absence of physical infrastructure and support services in cities. For instance, the practitioners from MSWR and MLGDRD focused on community infrastructure, with drainage systems and water supplies as the most frequently mentioned examples. As explained by the practitioner from MSWR:

> Most of the communities in Accra need proper drainage infrastructure. Because of poor maintenance, the available drainage infrastructures in some communities are in terrible shape. They have lost their structural integrity, so we see most of the communities in Accra getting flooded whenever it rains. (Practitioner 7)

Some practitioners also emphasised the detrimental effects of the lack of resources and support services, such as ambulance and fire services, on the resilience of communities in Accra. They reported that the lack of these support services hinders the capacity to respond to disasters in a timely and effective manner, as illustrated by the following quotes:

> The ambulance service in Accra is inefficient and unreliable. During the 2015 flood disaster in Accra, ambulances were unavailable to transport the injured to hospitals. We had to rely on the 'trotros' and taxis to help transport the injured people to the hospital. (Practitioner 10)

> Because of the lack of support services, our response to disasters has always been poor. When there is a fire in Central Accra, it takes forever for the fire service to get to the disaster scene. Resilient cities have support services that quickly respond to disasters, but Accra lacks that. (Practitioner 14)

Other practitioners also reported the lack of reliable power supply, road networks, hospital facilities, and public transport as affecting the resilience of communities in Accra.

3.4.2. Resourcefulness

Resourcefulness emerged as a dominant theme in the descriptions of what a resilient city is by all the practitioners. Their descriptions reflected the relative and situational nature of urban resilience. In this context, the analysis showed urban resilience as a capacity enabled by available and adequate financial resources. An NGO practitioner claimed that inadequate funding has been a significant impediment to adopting ideas of building back better in Accra's resilience (Practitioner 16). Another practitioner from the AMA succinctly stated the centrality of financial resources: "The whole idea of urban resilience gets down to money" (Practitioner 1). Another added that "human resources and technical support make no difference without funds" (Practitioner 18). Reflecting on the criticality of resources, other practitioners explained:

> The district assemblies and NaDMO are the first points of call during disasters, but these organisations are under-resourced. Until they are well-resourced, I do not see how they can effectively respond to disaster. (Practitioner 4)

Another added:

> Urban resilience is only enabled through material and financial resources; without these, there is no resilience. When you compare cities in developed countries to the case of Accra, Accra is not a resilient city. We have poor road networks and lack the necessary material and financial resources to enable resilience in Accra. However, these issues are not problems for cities in developed countries. (Practitioner 10)

The above quote implies that resources are essential in developing urban resilience against risks and extreme events. The diverse referencing of urban resilience to the resourcefulness of a city points to the criticality of situational and local conditions in resilience discourse.

3.4.3. Community networks and support

NGOs, IDOs, and AMA practitioners also discussed community networks and support as essential characteristics that enable urban resilience. They pointed out the criticality of the support provided by friends, family, neighbours, and work colleagues based on shared values as a foundation of urban resilience for urban communities. A supportive community helps each other to cope and adapt during hard times. According to the analysis, social support and a collective sense of community among residents were important in their response to the June 2015 Accra flood disaster. Notwithstanding the limited resources at the disposal of these communities, the support from the communities was recognised as timely in helping the victims of the flood. As explained by some practitioners:

> There was enormous community support for the victims during the June 2015 disaster. We saw many young men and women coming out to assist the affected people. A community member also offered his house to shelter the disaster victims. (Practitioner 17)

> The communities mobilised themselves and started helping the most affected households by helping carry some of their belongings to safety. Others offered blankets and places for affected people to stay. (Practitioner 14)

3.4.4. Learning

Just over half of the practitioners also reflected on urban resilience as a product of learning that served as the basis for withstanding and adapting to disasters. Learning from previous disaster experiences was strongly emphasised as foundational for the preparedness of the residents of Accra. Some practitioners noted that a resilient city shows an ability to learn from previous disasters:

> The 2015 flood disaster in Accra exposed the vulnerabilities in our city and created opportunities for us to learn. A critical characteristic of a resilient city is the opportunity it presents for learning. (Practitioner 15)

> Flood experiences of people in Accra create the opportunity to learn and cope with future community floods. (Practitioner 11)

Another theme associated with learning from previous disaster experiences was the ability to re-evaluate a situation and plan proactively, with most references coming from NADMO, IDO, and NGO practitioners. People's knowledge of Accra's risk factors, disaster history, and willingness to learn was recognised as vital for proactive planning. Underscoring the issue, some practitioners explained:

> An important issue for me is people's knowledge of extreme events in the city. People must know the main risks that Accra faces and its historical impact. When people appreciate the risk they are dealing with, it gives them some certainty to think proactively and prepare. (Practitioner 20)

> Flood is the number one risk in Accra, and our experiences of these flood events are crucial in determining how disaster agencies and communities in Accra respond and cope. It is not enough for people to know that floods and rainstorms are major disaster risk factors in Accra; they must also learn from these disasters. From their experience, they know how to respond and seek help. (Practitioner 9)

3.4.5. Institutional collaboration

Given its potential to create more unified disaster response and planning, a few practitioners (20%) referenced the importance of institutional collaboration. A practitioner explained:

> The willingness of NaDMO, the district assemblies, and other relevant agencies to collaborate by sharing ideas and resources is critical in determining how we respond to floods in Accra and mitigate their impacts. (Practitioner 11)

However, the analysis showed that a lack of effective collaboration among disaster planning and response agencies in Accra is impeding disaster response and urban resilience efforts. As the following practitioners noted:

> Even though local government law mandates that local governments collaborate to solve interconnected local government problems like floods, in practice, this is not the case. For example, one district will say given that I collect resources from my assembly, I don't see why I should collaborate with another district by contributing resources to address the problems facing our districts. The problem in your district is your problem, not mine, so let me focus on mine. (Practitioner 8)

> I am tired of the lack of collaboration among disaster and risk agencies in Accra. During the June 2015 Accra disaster, the response approach from the various disaster response agencies was a mess; the various agencies failed to work together. The local government wrote to some of the National disaster response agencies to get information about the 2015 Accra flood disaster …. but we never got any proper response. (Practitioner 2)

3.4.6. Community involvement and leadership

Given the potential to give voice to the locals and the opportunity to influence urban resilience outcomes, some practitioners (40%) also spoke of the importance of community involvement and leadership in urban resilience development and disaster response initiatives. The urban resilience consultants, IDO, and NGO participants made the most reference to these concepts. Their description of community involvement as a characteristic of urban resilience emphasised the need to build an efficient decentralised governance system that empowers local communities to influence urban resilience planning outcomes in Accra. Community voice was deemed a central part of urban resilience:

> The communities and their leaders are generally excluded when planning disaster response initiatives in Accra. However, government officials must appreciate that these community residents know their communities' vulnerabilities better and can provide some relevant information. So, leaving them out of initiatives to plan Accra's resilience could be counterproductive. (Practitioner 17)

> "We must give the locals a voice and start involving them. Over the years, community involvement in Accra's disaster planning and response has been marginal, and nothing is changing. Urban resilience is about including everyone and gathering ideas from everyone, and that is one sure way to address the flooding in Accra. (Practitioner 14)

A couple of these practitioners also underscored the critical role of leadership during disasters and urban resilience building. A couple claimed a lack of good leadership in Accra, particularly in urban resilience planning, community engagement, disaster response, and management. A practitioner from the MLGDRD also spoke of the importance of public confidence and trust in leadership and disaster and risk management agencies, "We must lead by example to build public confidence in our ability to respond to these disasters and demonstrate that we care about the communities" (Practitioner 13). The practitioner added that "politicians and technocrats must not shy away from making the difficult urban resilience planning decisions such as destroying buildings on waterways. Even though these decisions and actions may be unpopular, in the long-term, they will help mitigate the flood vulnerability of Accra" (Practitioner 13).

The different characteristics illustrate the complexity of factors that enable urban resilience. Besides pointing to the context-specificity of the characteristics that define urban resilience, these characteristics also accentuate the capabilities that should be prioritised in Accra's resilience planning and development. Table 1 presents a summary of the study results.

Table 1
Findings of practitioner insights into urban resilience.

Issue	Descriptions
Ambiguous concept	*… means everything, but it is difficult to appreciate its true meaning.*
Preparedness	*… urban resilience is about our readiness to respond to these extreme events.*
Function	*The ability of a city to experience disasters and continue to function.*
Robustness	*… inherent capacity of a city to withstand disasters without permanently collapsing or losing its structural capability.*
Mitigation	*Preparedness and ability to minimise the impact of disasters.*
Adapt	*…. entails a city's ability to respond and adjust to different disaster situations*
Bounce back	*… … …revert to their previous state.*
Build back better	*… . it will not be helpful to revert to a pre-existing state after a flood disaster. We should aim to build back better.*
Change and transformation	*Disasters open windows of opportunities to change and improve the infrastructural landscape of Accra.*
Physical infrastructure	*Urban resilience is about developing reliable and robust physical infrastructure, such as roads and drainage systems … … … … …*
Resourcefulness	*… inadequate funding has been a significant impediment to adopting ideas of building back better in Accra's resilience.*
Community support	*There was enormous community support for the victims during the June 2015 disaster.*
Learning	*The 2015 flood disaster in Accra exposed the vulnerabilities in our city and created opportunities for us to learn.*
Collaboration	*During the June 2015 Accra disaster, the various agencies didn't work together; they were working in silos.*
Engagement and participation	*Urban resilience is about including everyone and gathering ideas from everyone.*

Source: Authors' construction

4. Discussion

The paper explored how urban resilience is understood and described from the perspectives of practitioners in Ghana and aimed to bridge the gap between practical and theoretical interpretations of urban resilience. The findings show that most practitioners interpret urban resilience as withstanding or resisting risks and prioritising technical, functional, and physical infrastructural goals that reflect conservative urban resilience notions. The findings contradict recent studies in fourteen European countries [18], Canada [36], and a cross-country study across Africa, Asia, and South and Central America [37] where practitioners favoured transformative notions of urban resilience. We offer two possible explanations for the results. First, besides emerging recently in Ghana, urban resilience emerged in relation to disaster risk mitigation instead of broader sustainability ideas. Secondly, the World Bank has been at the heart of most, if not all, of the government of Ghana's urban resilience projects. Notable examples of these urban resilience projects funded by the World Bank include the Greater Accra Clean, Resilient and Inclusive Development Project, Resilience Cities Program, Climate Resilient Landscapes for Sustainable Livelihoods Project, and the current GARID project. The World Bank (2015: p.19) defines resilience as "the ability of a system, entity, community, or person to adapt to various changing conditions and withstand shocks while maintaining its essential functions, " reinforcing the conservative engineering perspective of urban resilience. Therefore, it is plausible that practitioners align their interpretations with the World Bank's. This validates the notion that urban resilience interpretations are influenced by urban resilience definitions and goals from development organisations [38].

The practitioners' dominant conservative urban resilience views raise some concerns about urban resilience planning. It implies a high likelihood that efforts to plan and develop urban resilience would not consider how socioeconomic and political structures intersect, neglect or underestimate the need for critical engagement with inequality and marginalisation that come into consideration when exploring vulnerabilities to extreme events and risks [29,39]. In other words, practitioners are less likely to focus on vulnerable groups and communities, the improvement of institutional structures, and the inclusion of key stakeholders. So, rather than challenge established governance processes and systems, the conservative urban resilience perspective will likely reinforce them [26,40]. Hence, relying on conservative urban resilience ideas in planning resilience in cities can have opposite effects, generate maladaptation, and exacerbate existing vulnerabilities in cities [11,27,41]. This is not to argue that the conservative approach to urban resilience has no place in urban resilience planning. Undeniably, cities in African countries, including Ghana, are experiencing increased extreme events and disasters [1], with some resulting in devasting outcomes [7]. Therefore, strategies that enable immediate recovery and functioning of crucial urban infrastructure and services following disasters will be needed.

The findings also indicate that a few practitioners interpreted urban resilience from a more transformative perspective, describing the opportunity for change, innovation, and building back better. However, inadequate resources were pointed out as a significant structural barrier. These findings corroborate previous studies by Su and Le Dé [42] in the Philippines and Mannakkara and Wilkinson [43] in a comparative study involving Australia and Sri Lanka. Both studies identified inadequate funding as a major impediment to adopting transformative urban resilience ideas in post-disaster recovery initiatives. Without adequate resources for planning and developing urban resilience, opportunities to adopt transformative ideas in urban resilience might be compromised, especially in developing African countries like Ghana. This is particularly important when there are calls to adopt transformative ideas in urban resilience planning [21,26]. While efforts to integrate transformative ideas into urban resilience have been challenging, highlighting opportunities and approaches for change can help in this exercise. For policymakers, adopting transformative urban resilience ideas could provide a valuable approach to planning and developing resilience in cities that draws attention to the need to address different urban resilience priorities and goals. It may also help policymakers identify 'blind spots' in their approach to urban resilience planning and appreciate the benefits of different stakeholder interests. This can enhance urban resilience planning at all phases, from planning (creating opportunities for diverse views) to implementation (addressing different stakeholder needs) and evaluation.

Furthermore, the paper contributes to the urban resilience literature by drawing attention to the role of context for a better and more nuanced understanding of urban resilience. The analysis indicates that practitioner values, disaster experiences, and agency pri-

orities are critical contextual factors influencing practitioners' knowledge and pathways to urban resilience. The public administration and behavioural science literature have long demonstrated that how practitioners conceive and plan development programmes is primarily influenced by their contextual realities [44,45]. These influential urban resilience factors, which are context-sensitive, indicate the intricate nature of planning resilience in cities. Urban resilience interpretations underpinned by context-specific experiences and realities are less marked with preconceived assumptions and may better account for nuanced socio-political dynamics, inequities, and marginalisation patterns. This lends credence to the idea of 'negotiated resilience' [46], which is grounded in transformative resilience and suggests the need for a platform that creates opportunities to negotiate the experiences and interests of different groups in planning urban resilience. Given that cities in different institutional environments encounter different issues in planning for urban resilience, a context-specific and bottom-up approach would be an appropriate strategy to tailor urban resilience to local realities and experiences.

Lastly, the paper underscores the significance of a reflective approach to urban resilience planning. A critical reflective approach creates opportunities for ongoing learning for urban resilience planning. That is, internalising a complex disaster experience, learning from the experience, and articulating a tractable plan to guide current and future urban resilience efforts. This supports perspectives on urban resilience that align with socio-ecological or transformational resilience [9]. Considering the annual flood disasters in Accra ([7] [35]), an approach to disaster recovery from extreme events can never achieve the goal of transformation and 'building back better' without critical reflection. This suggests a need to look beyond that single disaster event with a critical analysis of the broader causal factors, including weak institutional collaboration, poor leadership, inadequate resources, and weak disaster governance structures, as highlighted in this study. Moreover, a critically reflective approach enables more collective learning, which provides a mechanism for collective urban resilience action [26,40]. Therefore, support for a reflective approach to urban resilience planning could be useful in identifying areas of risk and vulnerability to advance transformative ideas in urban resilience.

5. Conclusion

Considerable scholarly effort has been invested in unpacking the multiple meanings associated with urban resilience, debating its relevance, and criticising its lack of clarity. Using a qualitative research approach and drawing on semi-structured interviews with 20 practitioners in Ghana, the study examined practitioner insights into urban resilience and the implications for theory and practice. The findings revealed that practitioners have diverse understandings and views about urban resilience, shaped by their different experiences and priorities. Functional and outcome-oriented urban resilience understanding prioritising physical urban infrastructure dominated urban resilience views among the practitioners. Few practitioners understood urban resilience in social and governance terms that align with transformative urban resilience ideas. The study also indicated that limited resources and weak institutional and governance structures undermine efforts to develop urban resilience from a more transformative perspective. The paper unearths ways to understand the factors that impede and contribute to advancing transformative ideas in urban resilience. As climate risk and disasters occupy global and national discourse and cities continue to experience extreme events and disasters, studies such as this will be critical in ensuring that locally designed urban resilience strategies are anchored on local contextual realities and driven by transformative urban resilience ideas. This is critical because they hold enormous promise for advancing politically feasible and socially equitable urban resilience policies and planning outcomes.

The study focused on describing urban resilience from the perspective of a sample of practitioners who participated in the GARID project in Ghana, which may limit the transferability of the results in other countries, given the difference in context. Furthermore, the sample selection was restricted to urban resilience practitioners who participated in the GARID Project. Consequently, practitioners who did not participate in the project were excluded from the research. There may be some differences in how these excluded practitioners interpret and understand urban resilience that may not be captured in this study. Another limitation is that most of the practitioners who participated in the study work in the public sector, which could create a bias in their views. These limitations should be considered when interpreting the findings of the study. Future studies can expand on these findings and cross-country comparative studies would be a useful addition to the literature.

CRediT authorship contribution statement

George Babington Amegavi: Writing – original draft, Methodology, Formal analysis, Data curation, Conceptualization. **Melissa Nursey-Bray:** Writing – review & editing, Supervision. **Jungho Suh:** Writing – review & editing, Supervision.

Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Data availability

The authors do not have permission to share data.

Acknowledgments

We sincerely acknowledge the helpful comments and suggestions of the anonymous reviewers and the editor.

Appendix 1. Summary of interviews with codes, year of interview and organisation

Code	Year of interview	Organisation
Practitioner 1	2020	Accra Metropolitan Assembly
Practitioner 2	2021	Accra Metropolitan Assembly
Practitioner 3	2020	Accra Metropolitan Assembly
Practitioner 4	2021	National Disaster Management Organisation
Practitioner 5	2021	National Disaster Management Organisation
Practitioner 6	2021	Ministry of Environment, Science, Technology and Innovation
Practitioner 7	2021	Ministry of Sanitation and Water Resources
Practitioner 8	2021	Environmental Protection Agency
Practitioner 9	2021	Environmental Protection Agency
Practitioner 10	2020	Ministry of Works and Housing
Practitioner 11	2021	Land Use and Spatial Planning Authority
Practitioner 12	2020	Land Use and Spatial Planning Authority
Practitioner 13	2021	Ministry of Local Government, Decentralisation and Rural Development
Practitioner 14	2021	Non-Government Organisation
Practitioner 15	2021	Non-Government Organisation
Practitioner 16	2021	Non-Government Organisation
Practitioner 17	2021	Urban Resilience Consultant
Practitioner 18	2021	Urban Resilience Consultant
Practitioner 19	2021	International Development Organisation
Practitioner 20	2021	International Development Organisation

References

[1] United Nations Environment Programme, Responding to Climate Change, Africa. Sourced from, 2023. https://www.unep.org/regions/africa/regional-initiatives/responding-climate-change.

[2] International Panel on Climate Change (IPCC), Sixth Assessment Report. Working Group II-Impacts, Adaptation and Vulnerability, 2022 Assessed from. https://www.ipcc.ch/report/ar6/wg2/downloads/outreach/IPCCAR6_WGII_FactSheet_Africa.pdf.

[3] G.B. Amegavi, A. Quarshie, J.K. Mensah, Mitigating corruption in sub-Saharan Africa: does heterogeneity in corruption levels matter? Public Integr. 24 (2) (2022) 229–242, https://doi.org/10.1080/10999922.2021.1917171.

[4] Z. Langnel, G.B. Amegavi, K.S. Agomor, Environmental degradation and female economic inclusion in sub-Saharan Africa: effort towards sustainable development goal 5, Dev. South Afr. 38 (5) (2021) 717–730, https://doi.org/10.1080/0376835X.2020.1870933.

[5] M. Spaliviero, M. Pelling, L.F. Lopes, C. Tomaselli, K. Rochell, M. Guambe, Resilience planning under information scarcity in fast growing African cities and towns: the CityRAP approach, Int. J. Disaster Risk Reduc. 44 (2020) 101419, https://doi.org/10.1016/j.ijdrr.2019.101419.

[6] World Bank, Investing in Urban Resilience: Protecting and Promoting Development in a Changing World, 2015 Sourced from. https://openknowledge.worldbank.org/bitstream/handle/10986/25219/109431-WP-P158937-PUBLIC-ABSTRACT-SENT-INVESTINGINURBANRESILIENCEProtectingandPromotingDevelopmentinaChangingWorld.pdf?sequence=1&isAllowed=y.

[7] World Bank, Greater Accra clean, resilient and inclusive development project, Sourced from: https://ewsdata.rightsindevelopment.org/files/documents/30/WB-P164330.pdf, 2017.

[8] S. Meerow, J.P. Newell, M. Stults, Defining urban resilience: a review, Landsc. Urban Plann. 147 (2016) 38–49, https://doi.org/10.1016/j.landurbplan.2015.11.011.

[9] K. Brown, Global environmental change I: a social turn for resilience? Prog. Hum. Geogr. 38 (1) (2014) 107–117, https://doi.org/10.1177/0309132513498837.

[10] L.J. Vale, The politics of resilient cities: whose resilience and whose city? Build. Res. Inf. 42 (2) (2014) 191–201, https://doi.org/10.1080/09613218.2014.850602.

[11] M. Amirzadeh, S. Sobhaninia, A. Sharifi, Urban resilience: a vague or an evolutionary concept? Sustain. Cities Soc. 81 (2022) 103853, https://doi.org/10.1016/j.scs.2022.103853.

[12] M. Pelling, Adaptation to Climate Change: from Resilience to Transformation, Routledge, 2010.

[13] K.E. Weick, Theory construction as disciplined imagination, Acad. Manag. Rev. 14 (4) (1989) 516–531, https://doi.org/10.5465/amr.1989.4308376.

[14] D.E. Alexander, Resilience and disaster risk reduction: an etymological journey, Nat. Hazards Earth Syst. Sci. 13 (11) (2013) 2707–2716, https://doi.org/10.5194/nhess-13-2707-2013.

[15] K. Davidson, P. Nguyen, R. Beilin, J. Briggs, The emerging addition of resilience as a component of sustainability in urban policy, Cities 92 (2019) 1–9 10.1016/j.cities. 2019.03.012.

[16] C.S. Holling, Resilience and stability of ecological systems, Annu. Rev. Ecol. Systemat. 4 (1) (1973) 1–23.

[17] W.N. Adger, Social and ecological resilience: are they related? Prog. Hum. Geogr. 24 (3) (2000) 347–364, https://doi.org/10.1191/030913200701540465.

[18] L. Chelleri, A. Baravikova, Understandings of urban resilience meanings and principles across Europe, Cities 108 (2021) 102985, https://doi.org/10.1016/j.cities.2020.102985.

[19] T. Tanner, A. Bahadur, M. Moench, Challenges for Resilience Policy and Practice, 2017 London.

[20] S. Meerow, P. Pajouhesh, T.R. Miller, Social equity in urban resilience planning, Local Environ. 24 (9) (2019) 793–808 10.1080/13549839.2019.16451 03.

[21] S. Davoudi, E. Brooks, A. Mehmood, Evolutionary resilience and strategies for climate adaptation, Plann. Pract. Res. 28 (3) (2013) 307–322 10.1080/02697459.2013. 787695.

[22] S. Carpenter, B. Walker, J.M. Anderies, N. Abel, From metaphor to measurement: resilience of what to what? Ecosystems 4 (8) (2001) 765–781.

[23] S. Davoudi, K. Shaw, J. Haider, E. Quinlan, G.D. Peterson, C. Wilkinson, H. Fünfgeld, D. McEvoy, L. Porter, S. Davoudi, Resilience: a bridging concept or a dead end?"Reframing" resilience: challenges for planning theory and practice interacting traps: resilience assessment of a pasture management system in Northern Afghanistan urban resilience: what does it mean in planning practice? Resilience as a useful concept for climate change adaptation? The politics of resilience for planning: a cautionary note: edited by Simin Davoudi and Libby Porter, Plann. Theor. Pract. 13 (2) (2012) 299–333, https://doi.org/10.1080/14649357.2012.677124.

[24] G.B. Amegavi, Z. Langnel, J.Y. Ofori, D.R. Ofori, The impact of adaptation on climate vulnerability: is readiness relevant? Sustain. Cities Soc. 75 (2021) 103325, https://doi.org/10.1016/j.scs.2021.103325.

[25] M. Oteng-Ababio, K.O. Sarfo, E. Owusu-Sekyere, Exploring the realities of resilience: case study of Kantamanto market fire in Accra, Ghana, Int. J. Disaster Risk Reduc. 12 (2015) 311–318, https://doi.org/10.1016/j.ijdrr.2015.02.005.

[26] S. Shackleton, G. Ziervogel, S. Sallu, T. Gill, P. Tschakert, Why is socially-just climate change adaptation in sub-Saharan Africa so challenging? A review of barriers identified from empirical cases, Wiley Interdisciplinary Reviews: Clim. Change 6 (3) (2015) 321–344, https://doi.org/10.1002/wcc.335.
[27] I. Anguelovski, L. Shi, E. Chu, D. Gallagher, K. Goh, Z. Lamb, K. Reeve, H. Teicher, Equity impacts of urban land use planning for climate adaptation: critical perspectives from the global north and south, J. Plann. Educ. Res. 36 (3) (2016) 333–348, https://doi.org/10.1177/0739456X16645166.
[28] M.C. Therrien, S. Usher, D. Matyas, Enabling strategies and impeding factors to urban resilience implementation: a scoping review, J. Contingencies Crisis Manag. 28 (1) (2020) 83–102, https://doi.org/10.1111/1468-5973.12283.
[29] A. Kaijser, A. Kronsell, Climate change through the lens of intersectionality, Environ. Polit. 23 (3) (2014) 417–433, https://doi.org/10.1080/09644016.2013.835.
[30] L. Chelleri, J.J. Waters, M. Olazabal, G. Minucci, Resilience trade-offs: addressing multiple scales and temporal aspects of urban resilience, Environ. Urbanization 27 (1) (2015) 181–198, https://doi.org/10.1177/0956247814550.
[31] I. Etikan, S.A. Musa, R.S. Alkassim, Comparison of convenience sampling and purposive sampling, Am. J. Theor. Appl. Stat. 5 (1) (2016) 1–4, https://doi.org/10.11648/j.ajtas.20160501.11.
[32] W.L. Neuman, L.W. Kreuger, Social Work Research Methods: Qualitative and Quantitative Applications, Allyn and Barron, Boston, MA, 2003.
[33] Ghana Statistical Service, Ghana Statistical Service 2010 Population and Housing Census. District Analytical Report, Accra Metropolitan Assembly, 2014.
[34] S. Agyei-Mensah, G. Owusu, Segregated by neighbourhoods? A portrait of ethnic diversity in the neighbourhoods of the Accra Metropolitan Area, Ghana, Popul. Space Place 16 (6) (2010) 499–516, https://doi.org/10.1002/psp.551.
[35] D. Rain, R. Engstrom, C. Ludlow, S. Antos, Accra Ghana: a city vulnerable to flooding and drought-induced migration, in: UN-Habitat (Ed.), *Background Paper for Cities and Climate Change:* Global Report on Human Settlements, 2011.
[36] G. Oulahen, L. Mortsch, E. O'Connell, D. Harford, A. Rutledge, Local practitioners' use of vulnerability and resilience concepts in adaptation to flood hazards, Climatic Change 153 (1) (2019) 41–58.
[37] A. Keating, S. Hanger-Kopp, Practitioner perspectives of disaster resilience in international development, Int. J. Disaster Risk Reduc. 42 (2020) 101355, https://doi.org/10.1016/j.ijdrr.2019.101355.
[38] M.F. Olwig, Multi-sited resilience: the mutual construction of "local" and "global" understandings and practices of adaptation and innovation, Appl. Geogr. 33 (2012) 112–118, https://doi.org/10.1016/j.apgeog.2011.10.007.
[39] M. Nursey-Bray, R. Palmer, Country, climate change adaptation and colonisation: insights from an Indigenous adaptation planning process, Australia, Heliyon 4 (3) (2018), https://doi.org/10.1016/j.heliyon.2018.e00565.
[40] A. Asadzadeh, T. Kötter, A. Fekete, M. Moghadas, M. Alizadeh, E. Zebardast, D. Weiss, M. Basirat, G. Hutter, Urbanization, migration, and the challenges of resilience thinking in urban planning: insights from two contrasting planning systems in Germany and Iran, Cities 125 (2022) 103642, https://doi.org/10.1016/j.cities.2022.103642.
[41] G. Ziervogel, M. Pelling, A. Cartwright, E. Chu, T. Deshpande, L. Harris, K. Hyams, J. Kaunda, B. Klaus, K. Michael, L. Pasquini, Inserting rights and justice into urban resilience: a focus on everyday risk, Environ. Urbanization 29 (1) (2017) 123–138 10.1177/095 624781668.
[42] Y. Su, L. Le Dé, Whose views matter in post-disaster recovery? A case study of "build back better" in Tacloban City after Typhoon Haiyan, Int. J. Disaster Risk Reduc. 51 (2020) 101786, https://doi.org/10.1016/j.ijdrr.2020.101786.
[43] S. Mannakkara, S. Wilkinson, Build back better principles for post-disaster structural improvements, Struct. Surv. 31 (4) (2013) 314–327, https://doi.org/10.1108/SS-12-2012-0044.
[44] G. Majone, A. Wildavsky, in: H. Freeman (Ed.), Implementation as Evolution, Policy Studies Annual Review, vol. 2, Sage, Beverly Hills, CA, 1978.
[45] A. Bandura, Self-efficacy: toward a unifying theory of behavioral change, Psychol. Rev. 84 (2) (1977) 191, https://doi.org/10.1037/0033-295X.84.2.191.
[46] L.M. Harris, E.K. Chu, G. Ziervogel, Negotiated resilience, Resilience 6 (3) (2018) 196–214, https://doi.org/10.1080/21693293.2017.1353196.