Shifting power through participation in post-disaster recovery: A scoping review

Heidi Tuhkanen [a,b,*]

[a] *Ecosystems and Environment Research Programme, University of Helsinki, PO Box 65, FI-00014, Finland*
[b] *Stockholm Environment Institute Tallinn Center, Arsenal Keskus, Erika 14, 10416, Tallinn, Estonia*

A B S T R A C T

Community participation is considered an integral part of Build Back Better (BBB) initiatives and an asset for ensuring equitable resilient outcomes of post-disaster recovery. However, BBB-related practices, as well as recovery research have failed to overcome the challenge of practices reinforcing inequities that require addressing issues of power. This scoping review examines the intersection of power and participation in post-disaster recovery. Using a qualitative analytical approach, this paper presents an overview of the existing power imbalances, participatory activities, and their associated outcomes. How can participatory processes influence power dynamics? The study identifies five roles that participatory processes can play: raising critical consciousness, reflecting just power relations, developing a culture of change-making, changing relationships between actors, and providing a structure for change. In general, this scoping review finds that the literature does not make use of power as an explicit analytical lens and that the social processes related to participation are insufficiently documented. Correcting for these gaps can generate a better understanding of the possibilities for collaborative disaster risk governance in recovery.

1. Introduction

According to the WMO, the number of natural hazard-triggered disasters has increased five-fold over the last fifty years. While improved preparedness has resulted in an overall decrease in deaths, economic losses have increased sevenfold [1]. In lower-income countries, displacement associated with natural hazard-triggered disasters has increased by 335% between 2008 and 2021, while in all other country categories, it has decreased [2]. Under such challenging conditions and increasing damage and loss, it is clear that recovery interventions need to be investments that leverage the "window of opportunity for change towards sustainability" [3] to stop the continuing cycle of loss and damage.

Recovery processes, which are increasingly recognised as development-related [4], are inherently complex. Their governance requires coordinating between different actors at multiple levels, including national and sub-national authorities, local and external non-state actors, as well as the local communities affected by the hazard event and the recovery intervention [5]. Build Back Better (BBB) is suggested as one such approach for decentralised governance. According to the UNDRR, BBB aims "to increase the resilience of nations and communities through integrating disaster risk reduction measures into the restoration of physical infrastructure and societal systems, and into the revitalization of livelihoods, economies and the environment" [6]. It emphasises the central role of

* Ecosystems and Environment Research Programme, University of Helsinki, PO Box 65, FI-00014, Finland.
E-mail address: heidi.tuhkanen@helsinki.fi.

communities and local authorities [7]. In 2015, the Sendai Framework for Disaster Risk Reduction institutionalised BBB as an approach for risk reduction during the recovery phase [8].

Despite decentralisation in recovery processes, recovery-related governance approaches must still account for power dynamics for several reasons. First, to promote equitable resilience and development outcomes, recovery policies and processes must go beyond dealing with the local socio-ecological conditions, and account for how disaster risk is produced in each particular situation, including the underlying drivers of disaster risk [9,10]. This necessitates "challeng[ing] existing structures, power relations, vested interests and dominant narratives" that sustain inequity [9]. In contrast, interventions limited to changes in local conditions preserve social inequities [11,12] and continue to create risk [13]. Eventually, this cycle undermines potential development gains [10]. Similarly, resilience research has received critique for being apolitical and non-normative and overlooking inequities and social justice issues, which risks sustaining the status quo and undermining long-term resilience and sustainability [14,15]. The likelihood of equitable resilience increases when "resilience practice considers issues of social vulnerability and differential access to power, knowledge, and resources ….and accounts for [people's] need for a change of circumstance to avoid imbalances of power into the future" [16].

Power is a complex concept that draws heavily from decades of social and political theory [17]. In general, power can be defined as "an ability to achieve a wanted end in a social context, with or without the consent of others" [18]. Power is a contested concept due to its multi-dimensionality. According to Avelino [19,20] power, as a term, captures a number of similar concepts that are difficult to compare and integrate. For example, Lukes [21] organises the concept of power around three-dimensional views of power based on where the power is exercised in (non)decision-making (including agenda setting) as well as how overtly and directly it is exercised. Decision-making is the main indicator of power in one of the most commonly used participatory frameworks, Arnstein's Ladder of Participation, which categorises resident engagement in planning based on the level of power held by communities [22]. However, Foucault recognises power permeating society through our structures and relations, as well as through how knowledge is defined and used [17]. Gidden [23] also considers power as structural but also as a part of human agency and action, where structure and agency shape each other. Rowlands [24] draws on various theories of agency to develop a model of power comprised of four forms: *Power over*, *Power to*, *Power with*, and *Power from within*. *Power over* relates to the ability to influence and coerce and the ability to resist coercion. *Power to* is generative and relates to doing something or participating in an activity, while *power with* is acting within a collective. *Power from within* is an individual power derived from increased self-respect. One form of power can be used to support another, and each of these forms has implications for the understanding of empowerment [24,25].

In collaborative or participatory planning processes, such as recovery, inattention to power distribution can lead to an inaccurate or incomplete understanding of whether, how, and why collaborations work to produce desired outcomes [26,27]. Understanding power dynamics can help collaborative processes avoid reinforcing existing power relationships known to affect outcomes negatively [28]. To improve the understanding of power dynamics in the field of resilience, Harris et al. [14] propose the concept of negotiated resilience, where resilience is considered an inclusive and long-term stakeholder negotiation process without a clear end or goal where power is dealt with explicitly in negotiations. Focusing on the aspects of power in the process "may open up spaces for innovation" around solutions and accountability in decision-making [14]. However, while participatory processes have the potential to alter power dynamics through community empowerment [22], people-centred approaches are criticised for insufficiently representing the needs and narratives of those recovering [29–31]. Recovery can, in practice, reinforce pre-disaster inequalities and power structures [31–33]. In other policy fields relevant to disaster recovery (e.g. climate adaptation, risk governance, planning, resilience planning, and development), participation has been criticised for weak engagement with power [34–41].

Despite the challenges facing recovery processes, the central role of participation in BBB, and the importance of understanding participation as a process, research on participation within this context presents a research gap [31,42,43]. Other studies on participation in the recovery context have focused on individual cases [43], limited sets of cases [42,44–46], or reviewed policy documents [47]. Further research on the scope of resident involvement and engagement processes within reconstruction has been called for [30]. Iannelilo et al. [48] also point out the value of studying participation within specific policy areas in light of the importance of contextual factors. Recovery is a complex context during which, often numerous, large and small interventions and investments take place affecting many areas of community life. This implies that significant changes will take place – ones that can be used to correct for unsustainable development trajectories of the past to support equitable resilience in the future. To date, no reviews have been conducted in this field to synthesise the learnings related to participation, let alone focus on the role that power plays in this context.

In this study, I address these gaps by conducting a scoping review of cases of participatory processes implemented as part of medium to long-term post-disaster recovery and described as resulting in positive outcomes for participants. The paper is structured as follows: the data collection and inductive data analysis methodology applied in the research are described in Section 2. Section 3 presents the findings in terms of an overview of participation in post-disaster recovery, its outcomes as well as its role in affecting power dynamics. In addition to discussing the limitations of the study, Section 4 discusses how participation influences power dynamics and recommends further actions for researchers. This is followed by the conclusion and its implications for governance in Section 5.

2. Methods

This scoping review aims to understand the manifestations of power in local participatory recovery processes. The objectives include generating (1) an understanding of the power imbalances in the context of recovery, (2) an overview of how participation in post-disaster recovery and how different methods relate to power, and (3) whether and how participation can influence power dynamics related to the underlying drivers of disaster risk.

Scoping reviews can provide an overview of the literature focus, clarify key concepts, identify key factors related to a concept,

identify gaps, and inform future research questions [49,50]. According to Munn [49], scoping reviews are useful for the "identification of certain characteristics/concepts in papers or studies, and in the mapping, reporting or discussion of these characteristics/concepts". They can also be used to determine the range of evidence available on a topic [51,52]. Previous research on participatory methods in other areas indicates the low likelihood of finding sufficient literature that consistently describes participatory interventions, their results, as well as their contexts [48,53]. Due to this, a systematic literature review to provide evidence of the causal impacts of specific interventions to inform practice is not feasible [49,54]. This scoping review uses techniques informed by the principles of a systematic scoping review, namely in the literature sampling, selection, and analytical approach [50,52,53].

The systematic methodology of a scoping review requires inclusion and exclusion criteria for replicability and mitigation of researcher bias (see Fig. 1 below and Supplemental Material Table 1 for more details on the search criteria and terms). Despite the vast amount of literature on the failures of recovery, I limited this study to peer-reviewed literature on cases of local participatory processes implemented as a part of recovery that described positive outcomes for those affected by the disaster. This exclusion of cases with less desirable outcomes from a resident point of view is due to limited resources as well as my interest in informing future research particularly about participatory processes that benefit affected residents. I considered participation to be a "process of discussion, information gathering, conflict, and eventual decision making, implementation, and evaluation by the group(s) directly affected by an activity" [55]. I used two main databases (Web of Science and Scopus), excluding grey literature and books. The search terms sought breadth [50] and reflected the themes of community participation, recovery, and power. I performed a search on studies published up until (December 14, 2021). A total of 3131 articles were screened for duplicates and against the inclusion criteria in a reiterative process using the title, keywords, and abstract, as well as the full body text where needed. A total of 121 articles were imported into Atlas.ti 22, where they were simultaneously coded and screened a second time for inclusion. Sixty-nine articles made up my final dataset.

I grouped and coded the literature using Atlas.ti 22 software. To describe the literature sample, I grouped the documents according to the type of event, hazard, and location of the case study. I further coded the content of the articles inductively to answer the research questions. The coding was theory-informed and influenced by my existing knowledge as a researcher. I used versus coding, which "identifies the conflicts, struggles and power issues observed in social … interaction" [56] in combination with descriptive coding to identify the power imbalances emerging from the literature. I used descriptive coding to represent specific categories of actors, participatory methods, as well as their outcomes [56]. The role of participation in altering power relations was also coded in this way. As the coding was inductive, I used Vermeulen's general definition of power as "an ability to achieve a wanted end in a social context, with or without the consent of others" [18] as a base. In all cases, I reiteratively analysed, recoded, and grouped the codes under thematic categories. These coded segments under each category were then analysed as a whole and in relation to the other categories. I used a qualitative approach to describe the results.

The dataset consists of 69 studies from 46 journals and two book series, most of which were published between 2011 and 2020 (Fig. 2). The dataset is multi-disciplinary, in that it draws on journals from a range of disciplines including disaster or hazard studies, environment, operational research, and social work. The 69 studies in the dataset covered ninety-five post-disaster recovery cases that align with the inclusion criteria. About two thirds of the studies were single-case studies, compared to multiple case studies (24 multiple case vs. 46 single case publications). The hazard events triggering the disasters were mostly natural hazard events that took place between 1989 and 2017 (Fig. 3). Recovery cases were North America and Asia-centric (Fig. 4). About half (n = 52) of the cases are from Low and Middle-Income countries.

3. Results

3.1. Power dynamics in recovery

To explore the power asymmetries in post-disaster recovery, I coded the power-related concepts and the power relations reflected
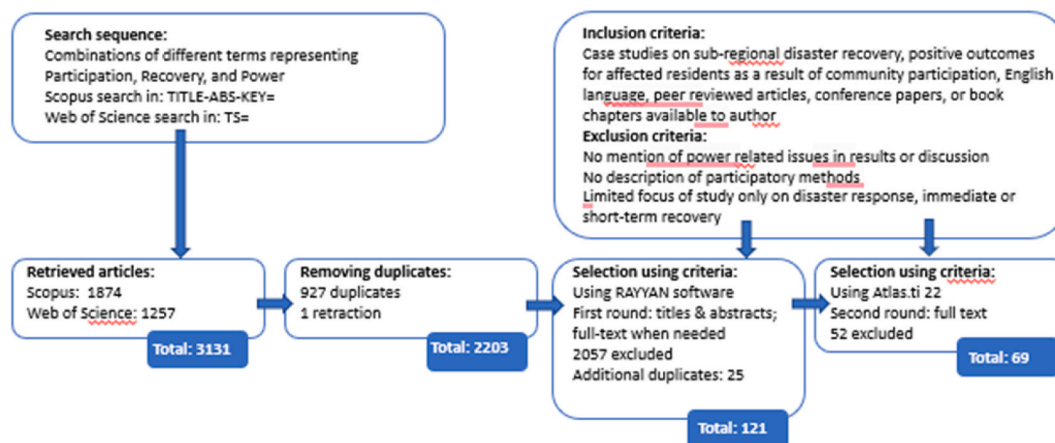

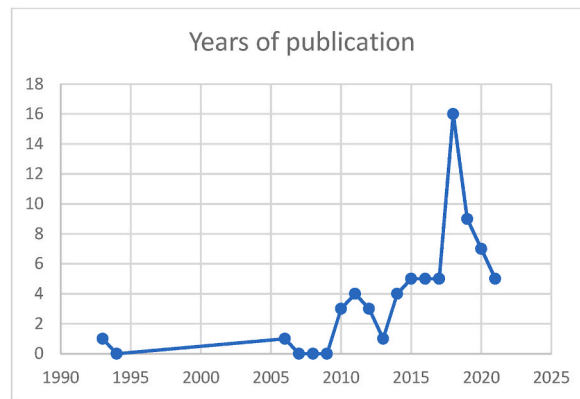**Fig. 1.** Selection and screening process of the scoping review.

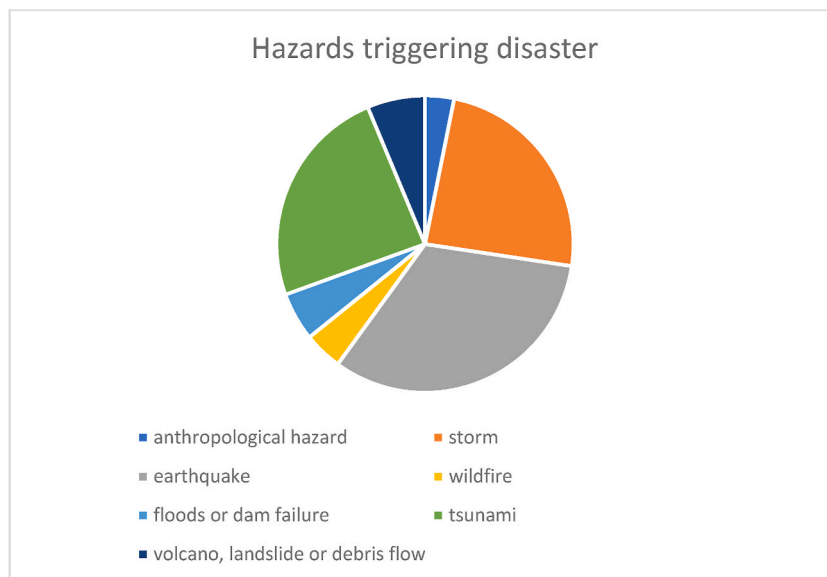**Fig. 2.** The number of publications over time, n = 69.

Fig. 3. Proportion of the different types of hazard events across the case studies, n = 95.

in both the broader society and participatory processes. Asymmetries in broader society are included due to their influence on the power dynamics within the participatory processes. The power-related concepts used in the articles highlight the broader societal inequities as well as the attempts of participatory processes to decrease the level of imbalance through e.g. empowerment (see Table 1). The recovery processes covered in the studies ranged from top-down to self-led community-based recovery and varied significantly in how power was distributed among actors. In a few cases, the participatory approaches were used to guide a larger recovery process, e. g. at the city level. However, in most cases, the participatory processes dealt with only part of the recovery process, usually in a specific geographic area and pertaining to a specific theme, e.g. housing. These more focused cases represented a more even distribution of power among participants and empowerment of the community in contrast with the contextual power dynamics. In some cases, this shift was even supported by official authority-led recovery approaches, while in other cases, e.g., community resistance, it was not.

The results of the inductive coding suggest that power asymmetries derive from three main categories determining power relations: the agency and/or authority to make decisions, access to resources, and structures that determine power distribution (see Table 1). First, power originates from actors' abilities to take decisions and actions related to the future development of a particular place or community. Decision-making ability relates to planning local development paths, e.g. aims, how funding is allocated, and whose knowledge is involved in the process. This includes those with official authority and/or agency, e.g., public authorities, external project leaders such as universities or NGOs, as well as informal community leaders, e.g., residents who have agency and take action. This latter links to the empowerment of community members or leaders. Second, power derives from access to resources, including tools, knowledge, capacities, and person-power. Differentiated access to combinations of resources creates imbalances. Finally, power is distributed through structures, e.g., restricted by gender norms [32] or shared through collaborative processes [57,77]. Structures included formal and informal institutions and processes.
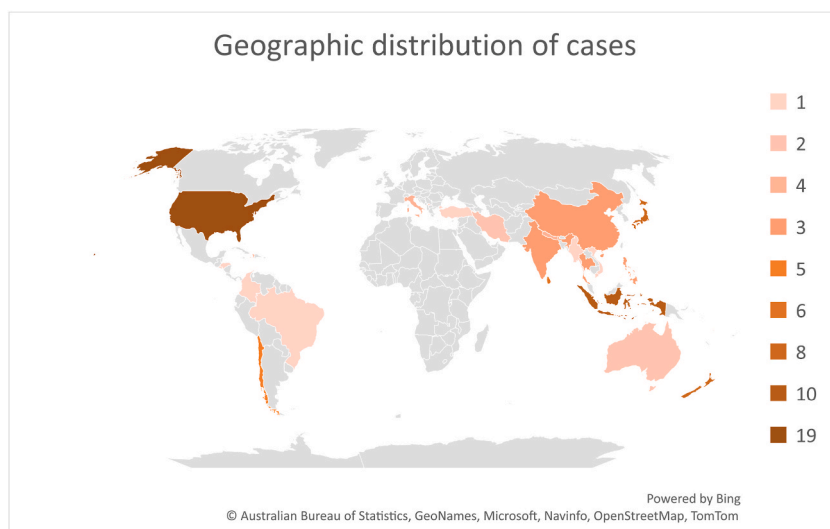
Fig. 4. The geographic distribution of cases, n = 95.

These three categories interconnect in the following ways: many of the structures determine authority and access to resources [58, 78,89,90]; those with authority can create structures and determine access to resources, and those with access to resources, especially funding, and capacities, can influence decision making [43,57,78,59–63,79,80]. Empowerment can be generated through structures that enable engagement [97,98] and the cultivation of agency and capacities [99]. The linkages can also be seen in the overlaps of power-related terms according to the categories.

3.2. Descriptions of participation

The participatory processes represented different approaches to local recovery at various scales, including city-wide [79,65], village level, or processes specific to certain groups of people within a community [80,85]. They include official recovery processes involving authorities [43], overall recovery processes made up of various efforts that have various strengths of connection [78], distinct processes or projects led by various actors [32][64], as well as organic processes unfolding through collective resident actions [93]. The processes focus on both planning and implementation of recovery-related actions around themes including the planning and/or implementation of plans related to resettlement, new housing, public spaces and infrastructure, and reconstruction at different spatial levels; disaster risk reduction (DRR); urban gardening; community socialising and cultural activities; psycho-social support; recovery related social services; reparation process; education and public health initiatives; livelihood initiatives; and benefits distribution, sometimes with overlaps in the themes, e.g. socialising and planning of public spaces. While most processes took place in a single location close to their pre-disaster locations, others engaged geographically dispersed communities. To gain an overview of the participation methods used in the cases, I coded the descriptions of the participatory processes inductively regarding the actors involved, the types of participatory methods used, and outcomes.

3.2.1. Actors involved

The cases involved diverse actors [65] (see Fig. 5). Local-level actors were the most represented, with the disaster-affected community playing a central role. While some studies focused on the engagement of or by community leaders or local organisations [89,90, 93], most dealt with the engagement of residents more broadly [77]. Few studies highlighted the heterogeneity within communities. While some cases focused on specific societal sub-groups, e.g. ones which were previously marginalised [68,69,71,75,91], fewer articles considered intersectionality [86,100], multiple subgroups within a population or the diversity of post-disaster situations across a community [31,67]. Marginalised residents included indigenous people, youth, the elderly, people of lower castes, people of various ethnic backgrounds, those with lower financial means, the landless, and women.

Civil society organisations (CSOs) especially local ones, played a vital role in supporting communities. They include emergent local non-governmental organisations (NGOs) [62], official or unofficial community groups [86,91], recovery groups or councils [65,83, 87], cooperatives or entrepreneurial associations [79,99,81,82,101], or coalitions [58]. In several cases, pre-existing local CSOs played a role in supporting the formation of new CSOs [77,80,69,102]. Locally embedded and external NGOs often coordinated participation for a broader group of residents but also partnered across levels with emergent local groups, the public sector, the private sector, and research institutes [79,65]. Studies mentioned nationally [65,91] and internationally active [95,103] NGOs supporting communities less frequently. In several cases, the geographic scope of the overall activity or local embeddedness of CSOs was unclear.

Studies frequently mentioned local and regional authorities, including the city council, emergency services, and local community services [90]. While higher-level authorities were less visible, some cases included committees consisting of both national and sub-national authorities, recovery or other sectoral agencies [68,73,104]. In some cases, local and national authorities' aims conflicted with those of communities. Also less represented were international agencies [71,72,74,88], and private sector actors [66,81].

Table 1

Determinants of power relations and examples from the case studies and examples of power-related terms used. Underlined terms are terms that originated within the participatory processes, whereas the non-underlined terms are related to background contextual conditions.

Determinants of power relations	Descriptive examples showing power or lack of power based on these determinants	Examples of power-related terms	References
Agency and/or the authority to make decisions and/or take actions	• Decisions determine: ○ Rules and regulations related to recovery ○ Allocation of resources and timing to programming ○ How the funding is used and by whom ○ Who is involved in the process ○ Who's knowledge is recognised for decision-making (e.g. economic, scientific, expert-based, local, and indigenous knowledge) ○ Scope/aims/narrative of recovery and participatory processes ○ Who benefits from certain types of urban development or other decisions ○ Progress of resettlement or recovery plans • Actions: ○ Decision-making is taking action ○ Motivate, mobilise and inspire other actors ○ Set precedence for what is possible	Agency, empowerment, leadership, oppression, exclusion, depoliticisation/politicisation, self-determination, self-efficacy, transformation, representation, delegated power, guerrilla urbanism, resistance	[1,3] [[,43,57,58,59] [31,43,57–76] [63, 64] [31,43,57–76] [31,43,57–76]
Access to resources or assets (material, immaterial, and human) that can be drawn on to carry out one's aims.	• Resources/assets include: ○ Finances ○ Human assets and mutual help, including physical and emotional support ○ Social and technical skills and capacities (building and construction, livelihoods, leadership, areas of technical expertise, networking, planning, facilitation, coordination and management, adaptation) ○ Networks and connections that can be leveraged for any of the above • Access to resources enables influence, and ability to operate, contribute and participate.	inequity, privilege, social capital, capacity, knowledge, poverty, elite, funding, leadership, network, survivor, culture/cultural heritage, creativity, food security/insecurity; education; civic infrastructure; displaced	[31,43,77,58,78, 59–61,79,80,67,72, 81–88]
Structures, such as institutions, norms, and rules that influence how people behave and make decisions	• Institutions ○ Sectoral institutions, networks, and policies directly and indirectly related to recovery, e.g. economic institutions and disaster recovery networks ○ local governance structures ○ economic systems and structures ○ civic infrastructure • Rules, norms, and practices ○ Rights related to property (land and housing) influence how residents are treated; whether they have a say in what is rebuilt in a specific area; whether they receive benefits ○ Organisational cultures and procedures ○ Representations of knowledge, e.g. maps ○ Participatory structures & processes in recovery ○ Gender, social and cultural norms ○ Castes and other social classifications of people	gender roles, injustice, oppression, patriarchy, privilege, exclusion, regulation, rights, marginalisation, informality, kinship ties, invisibility, institutional racism, capitalism, partnership, coalition, collective management; disenfranchisement; illegitimacy; dominant culture discourses; colonising	[31,43,57,78,79,89, 90,59–61,63,66,68, 70,71,74,76,88, 91–96]

International agencies provided services and private sector actors both participated in coalitions as part of new solutions and worked in opposition to the community actors.

3.2.2. Ways of participation

To understand the types of engagement methods used in the participatory processes, I grouped methods according to the main activities and aims. The categories include mobilisation, capacity building, collaboration, participatory research, and consultation (see Table 2). Cases can be associated with multiple categories, e.g. capacity building can take place through collaboration or participatory research.

Each category was analysed in terms of how the method relates to power to see the differences between activities. Mobilisation includes the most confrontational and politically oriented activities aiming to demand rights, fulfill recovery needs, or raise awareness
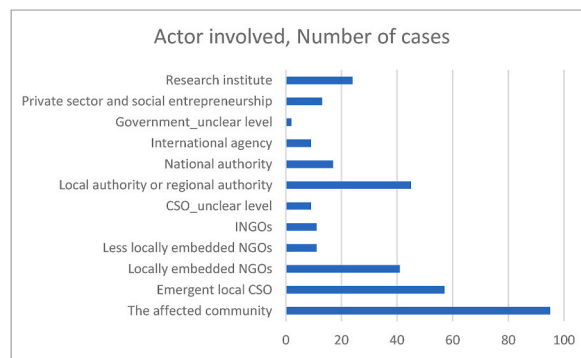
Fig. 5. Types of actors involved across the cases, CSO stands for Civil Society Organisation; n = 95.

about social justice issues [65,101]. This is the only category where communities categorically had the ultimate decision-making power. In capacity building, collaboration, and participatory research, the decision-making power was mixed. Capacity building empowered communities by enabling them to advocate for themselves through soft skills, e.g., political or media skills [59,105], articulation of rights-based language [99,65], leadership, and management [112]. They also supported communities to take concrete steps in recovery related to livelihoods [99] and construction [95], as well as DRR [72], using newly acquired or enhanced technical skills. Collaboration, or the organisation of collective action to move social or physical recovery forward, took place within a community [69,81,95], as well as with the involvement of external actors [85,113]. In the community, it reflected community-level decision-making and management and thus also developed leadership and management capacities. Participatory research focused on ensuring recovery was community-based [115]. These methods were the most explicitly reflexive of power relations. They considered the researcher's positionality relative to the community members and reflected on the approach and values implicit in the methods [90,75,119]. Similar to mobilisation, participatory research also allowed participants to explicitly consider issues such as power and oppression, but also knowledge, and leadership [75]. The final method type, consultation, was least related to power in that it was mostly based on one-way communication. In the cases, consultation was always used together with another method to e.g. gain information and feedback [92,113].

About one-third (n = 24/69) of the publications included processes that reiteratively engaged residents from the beginning and throughout the planning or implementation process. The percentage may have been higher, but it is impossible to discern due to the lack of descriptions related to the processes. These processes utilised multiple methods and included experimentation, participatory planning, and self-management. Some of them also reflected work at two levels – a concrete on the ground level, e.g. school and community development and a higher abstract level related to structural inequities, e.g. school reform or food security [77,80]. It should be noted that these inclusive and reiterative processes were not always successful in meeting their goals. They faced challenges related to the dependence on external funding, which shifts power away from the communities [78,61], management of participation-related trade-offs [43], and incompatibility between the cultural norms and other structures used in the participatory process [116]. These processes were led by coalitions, local CSOs, research institutes, or INGOs.

3.2.3. Outcomes associated with participatory processes

To understand the relationships between participatory processes and power, I explored both the reported outcomes as well as the role of participation in supporting changes in power relations (see Section 3.3). To understand the outcomes associated with participatory processes and their relation to power, I inductively coded the reported outcomes of analysed participatory processes. It should be noted that none of the participatory processes were specifically assessed using an evaluation process. Thus, I consider these outcomes associated with, rather than attributed to, participatory processes. Through coding, I identified eighteen different outcomes participatory processes that I further grouped into six categories: process-related outcomes, substantive outcomes, changes in perceptions, changes in system aspects, changes in scale, and obstacles to change (see Table 3). The concepts of empowerment and transformation cut across multiple outcome categories related to changes in power dynamics.

The reviewed literature often used the term "empowerment" but without a clear definition. Empowerment was, however, associated with other outcome aspects, such as learning, capacities, connections, and changes in agency and sense of self (see Table 3). For example, some articles link empowerment with developing skills and capacity through training, discussing, learning, or collaborating. In contrast, other articles attribute it to the creation of spaces that enable interaction in a new way. Empowerment was reported to be both self-generated by residents individually as well as collectively generated. Empowerment was primarily associated with the outcome of agency and a sense of self. It resulted from processes led or supported by residents, as well as local and external actors.

Transformation cuts across categories most directly dealing with change at different levels – changes in thinking, changes in system aspects, and scaling. The literature describes transformation in many ways: as a change in a relationship, a specific space of possibility, a set of activities, and a process or pathway. Though none of the participatory processes resulted in system-wide change, a few cases reported changes related to agency; critical reflection; changes in thinking about themselves, others and their future; learning; capacity building; cultural change; or direct changes in power relations. Both Engle [77] and Blackburn [65] raise the importance of these small changes. Engle [77] refers to these as "glimpses of social transformation," which, if maintained and supported by actors and

Table 2

Types of participatory activities used in the participatory recovery process described in the literature reviewed.

Types of participatory activities	Definition	Actors leading activities	Example activities and characteristics	Example aims	References
Mobilisation	The organisation of collective activism around an issue	Led by non-community actors (NGOs) and community actors (both formal and informal)	• Organising and participating in rallies to contest government decisions • NGOs advocating on behalf of affected communities (present and displaced) • Raise awareness related to broader pre-existing social justice issues alongside specific collaborative actions • .	• To explicitly reclaim rights (e.g. land, housing, or women's rights, right of return) • To alter a government decision (e.g. eviction or displacement) • To demand that survivor needs be met • To demand access to participation in recovery processes • To engage with broader pre-existing social justice issues, e.g. food security	[58,78,59,60,80,62, 63,97,64,91,101, 105,106]
Capacity building	The development of certain skills or capacities	Led by non-community actors (INGOs, NGOs, international agencies) as well as community actors (both formal and informal)	• Specific technical skills training (livelihoods, construction, disaster risk) • Soft skills workshops (political or media skills, articulation using rights-based language, leadership) • Learning by doing through leading or representing their community	• To broaden and improve livelihood activities • To increase the number of community members who could contribute to recovery activities • To improve the capacities and self-sufficiency of community members to act on their behalf • To increase resilience	[59,60,97,65,70,72, 81,86,88,93,95,95, 96,107,105, 108–110]
Collaboration	Collective community activities	Led by partnerships and coalitions between different actors; emergent and pre-existing CSOs, research institutes, and INGOs	• Establishing collective management systems (collective savings or loans, community project management) • Establishing women's organisations • Organising community activities and events (celebrations, daily food or leisure time/creative activities, creative activism) • Collectively constructing homes, volunteering in communal recovery efforts, sweat equity • Participatory planning through surveys, meetings, workshops, working groups	• To collectively finance and manage recovery initiatives (e.g. environmental, health, or economy-related projects) • To negotiate with officials for their rights • To celebrate local identity, culture, and survival • To spend time together • To increase speed and ownership of home construction • To collectively develop plans related to housing, community-level spatial planning, recovery, resettlement, development, or DRR	[58,78,59–61,79, 80,98,69,70,73,74, 82,84–87,91,95,95, 96,100,100,107, 111,102,104,105, 112,113,114]
Participatory research	Inclusion of participatory research in part of the process or throughout the process	Led by researchers in research institutes	• Conducting individual participatory research activities (e.g. participatory mapping) as a part of a larger process • Conducting process-oriented participatory research processes, e.g. participatory action research (PAR) or indigenous research approaches • Reflexive and arts-based activities	• To improve recovery results by integrating local cultural values, was of operating into research approaches • To understand and ensure the needs of the affected communities are met • To make power-related structures explicit	[68,75,85,92,111, 115,116]
Consultation	An extractive method of engaging with high numbers of community members	Led by non-community actors (national and sub-national government and NGOs), community actors (both formal and informal)	• One-on-one engagement with community members or representatives • Engagement with groups through community meetings, workshops, or surveys	• To gain information about the community needs or preferences or get feedback on ideas • To provide space for women and other marginalised groups to share their opinions	[43,57,99,66,69,84, 85,92,103,116,110, 114,117,118]

Table 3

Types of outcomes associated with participation, as well as example factors supporting the outcomes. Terms in parentheses represent concepts that were closely associated in literature.

Types of outcomes	Outcome descriptions (and their closely associated concepts)	Example factors related to participation that support the outcome
Process related outcomes	• **Effectiveness** – increased changes of responding to local needs [65, 117] or aims [115]; increased speed and efficiency of recovery [83] • **Accountability** (trust) – decreased corruption [117]; transparency [71] • **Inclusivity** – engaging with marginalised voices [92]; a feeling of being part of something [77]; overcoming boundaries between researcher and researched [73] • **Learning** (empowerment) – gaining a more informed understanding of the situation [118] or recovery options [82]; creating new ways of interacting [98] • **Social acceptance** – securing community interest [115]; creating local benefit [120]; decreasing community concerns [112]; satisfaction with results [84] • **Local ownership** – ownership of the direction of efforts [73]; sense of pride [77]; sense of connection to the results [69] • **Self-determination** (empowerment) – communities leading based on their own priorities resources and assets [121]; proactive community responsibility for wellbeing [112]; or future development [98]	• **Effectiveness** – local hiring increases the capacity to respond quickly to local needs [65,117] • **Accountability** - community involvement in planning resulted in lower levels of corruption [117] • **Inclusivity** – coalitions ensured that the needs of those displaced and not physically present were represented [79] • **Learning** – reiterative and reflective discussions enable a better understanding of different perspectives [73] • **Social acceptance** – use of local human resources increases informal communication and increases social acceptance [112] • **Local ownership** – participation can create a feeling of local control and ownership [115] • **Self-determination** – connections formed through participatory processes created organised resistance to local authority decisions [112]
Substantive outcomes	• **Continuity** – economic recovery [81]; continuation of local lifestyle [71] or culture [85]; having a home to live in [104] • **Capacities** (empowerment, leadership) – technical and soft skills [65]; engaging with existing capacities [85] • **Connections** (social capital, empowerment) – development of relationships and social capital [81]; increased community cohesion [91] and trust [112]; connecting communities and external groups [81] • **Psycho-social support** – overcoming disaster trauma [94]; mental and spiritual care [102]; making meaning of disaster experience [122]; healing [112]; personal transformation [73]	• **Continuity** – sharing knowledge can reinforce local identity and cohesion [111] • **Capacities** – gaining an understanding of what the communities are experiencing through integrated science and indigenous knowledge increases community capacity [75] • **Connections** – collaboration between communities and NGOs can provide previously marginalised individuals with access to new networks [70] • **Psycho-social support** – reactivating traditional culture through social spaces can reconnect villagers to their traditions [88]
Change in perceptions	• **Change in agency** (empowerment) – increased capacity for individual and collective action and commitment to transformative courses of actions [99]; local agency generates civil society action [65]; making decisions and taking actions even when in opposition to top-down decisions [72]; collective power pushes through reforms [102] • **Change in sense of self** (empowerment) – a sense of independence and self-confidence in capabilities [123]; increased self-efficacy and sense of agency to initiate change and take collective action [94]; overcoming of social stigmas [111] • **Changes in thinking about the future** (transformation) – new ideas about what was possible and best for their future collectively [73]; new possibilities due to independence [109] • **Changes in thinking about others** – shift in social norm [91]; new ways of relating [94]	• **Change in agency** – co-creating organisational structures and a plan and working according to that plan to represent their interests empowered women [96] • **Change in sense of self** – positive reinforcement between participation in NGO awareness programmes and self-confidence to approach and enter dialogue with authorities [65] • **Changes in thinking about the future** – a community-led initiative that successfully returned community lands changed the community's perception about what they could achieve – and led to self-constructing an entire village [97] • **Changes in thinking about others** – bottom-up projects with a different set of values and norms can initiate new systems of relating to each other collectively [62]
Change in system aspects	• **Increase in resilience** (empowerment) – increased collective resilience to future events [122]; improved collective capacity to utilise available capitals in different combinations to produce desired outcomes [86]; improved adaptive capacity [93]; maintenance of societal functions despite disaster [124] • **Social or socio-political change** (transformation) – change in unequal power relations in social, political, and economic arenas [93]; change in social structures [93]; the opening of possibility for emancipatory socio-political change [65]; shift in consciousness through the adoption of new ideas and beliefs [94]	• **Increase in resilience** – leadership can lead to the creation of a social safety net and community cohesion that increases willingness to take proactive action to decrease vulnerability [124] • **Social or socio-political change** – willingness of women to learn new skills increased the articulation of their demands [99]
Change in scale	• **Horizontal scaling of activities** - expansion of activities to different thematic areas [78]; expansion to activities that challenge the status quo [64]; institutionalisation of participation [98]; expansion of services or activities from one location to another [108] • **Vertical scaling of activities** (transformation) – scaling from individual to community level [65]; institutionalisation of a cross-level cooperation [90]; institutionalisation of indigenous representation [68]	• **Horizontal scaling of activities** - collectively attending to urgent needs can lead to collective consideration of more systemic issues [93] • **Vertical scaling of activities** – NGO activities engaging with peoples' agency had a multiplier effect on collective agency [99]
Obstacles to change	• **Reinforced inequities** – inequitable access to participatory processes [87]; participatory processes failed to account for the complexity and different starting points for people in recovery situations [74]; systematic bias [93]	• **Reinforced inequities** – participation was unable to overcome barriers of entry for some due to low education, location, and lack of representation [91]

Table 4

Role of participation in driving changes in power relations.

Role of participation	Clarification of role and select examples	References
Raising critical consciousness	• Raise awareness about one's positionality in society in terms of local social, historical, cultural, political, and economic contexts, their contestations, and power structures • Enable an inclusive local worldview based on local values Examples: • Participation in micro-finance schemes enabled livelihood activities and changed the way that women thought about themselves. • Community-led initiatives created spaces through transitional art and architectural events for alternative discourses related to potential recovery and development paths and longer-term work on the resulting ideas • Participatory research enabled the local worldview using a local values-based approach, e.g. Kaupapa Māori, to inform the process from the beginning • Collective work around post-disaster urban gardening triggered an initiative to work on a broader issue, e.g. food access in resource-poor neighborhoods	[77,89,80,62,73,74,76,92,101,103,118, 123,125]
Reflecting just power relations	• Create and maintain structures that elevate the role of the community or that of marginalised community members or groups, are inclusive of diverse local values, enable reflection and learning, and create the space for change. • Strengthen and develop local capacities to drive change • Provide organisational support (resources and capacities) to both pre-existing and emergent local organisations which promote social issues and their leaders Examples: • The formation of an entrepreneurial association and working according to community organising principles restored self-reliance and economic recovery • Formal disaster recovery actors took an adaptive approach in providing supplementary resources and capacities to level the playing field between emergent recovery groups which were in different starting positions enabling autonomous locally embedded recovery • As a response to local demand, a national agency provided a state agency with funding to create new bodies as part of the formal recovery framework and hire local case managers to collaborate with and complement the informal recovery committees leading the local work Example recommendations: • Account for the local context and structural power imbalances • Engage without overburdening survivors	[43,57,77,79,65,66,70,71,76,81,83,84, 86,91–93,100,102,115,109,117,126,127]
Generating a "Culture of changemaking"	• Enable cultural change that generates agency and leads to collective action through experimenting, the creation of new networks of social relations, adapting, and creating positive experiences of collective action • Re-politicise recovery through grassroots-level experiments Examples: • A self-organised women's coalition took on increasing responsibilities, from running a community kitchen and fundraising to lobbying for women's property rights. Over time, their activities became more political and reflected their ability to create and increasingly access more social, political, and economic spaces. • Creation of social networks for resource sharing and experimentation to adapt their farming techniques resulted in not only economic gains, but also changes in their identities, and in some cases impact on gender relations at a societal level. • Collective management schemes resulted in social change and also provided opportunities for processes of collectively designing the administrative aspects, deliberative engagement in the decision making related to e.g. collective savings itself, as well as negotiation with the authorities. • A nationwide membership-based survivor's association maintained public pressure through rallies, testifying before authorities, and negotiations with national authorities to advocate on behalf of displaced survivors and contest the inequitable post-disaster situation. Example recommendations: • Provide longer-term institutional support	[77,78,80,60–62,99,82,86,93,95,96,101, 109]
Changing relationships between actors	• Create networks and coalitions across diverse local actors to increase agency and strength, diversify expertise, and overcome fragmentation, including for the purposes of resistance • Develop both horizontal networks to spread change and vertical ones to gain support and increase longer-term impact Examples: • Formal disaster actors took leadership roles during recovery group formation, served as brokers across the recovery network connecting recovery groups with resources and expertise • Emergent groups and networks formed to deal with various recovery challenges, e. g. increasing access to support and providing mutual support	[77,90,79,60,63,64,65,69,70,83,84,96, 100,101,112,115,109,126]

Table 4 (*continued*)

Role of participation	Clarification of role and select examples	References
Influencing broader institutional change	• Collaboration between competitors (CSOs in neighbouring communities) enabled communities to counteract the potential fragmentation caused by increased competition in an increasingly privatised recovery arena • Housing policy implementers partnered with established public, private or semi-public organisations dedicated to affordable housing to generate collective agency Example recommendations: • CSOs need to make careful trade-offs in playing broker between communities and authorities • Communities can join up to organise activities that creating solidarity across different communities and a stronger political voice • Make changes to formal and informal decision-making structures through institutionalising inclusion and collaborative structures to shift power to locals and better serve local-level needs Examples: • Institutionalising inclusion through regular use of co-created structures • Establishing longterm partnerships • Creation of co-working models for replication • Co-creative structures helped institutionalise inclusion, e.g. through the use of inclusive principles-based approaches • Creation of parallel power structures • Co-created convergence strategy developed by consortium of local authorities, university, and various NGOs proposed as a model for small island resilience in the municipality • Formal disaster actors adapted existing formal national-level disaster frameworks as needed to serve local recovery processes through adjusting organisational structures • Funders and national government shifted decision-making power to communities and took a strategic backseat approach, e.g. community-driven recovery is the guiding principle of reconstruction efforts nationally Example recommendations: • Establish policies, legislation, and institutions that empower communities, enable collective action, and counter the domination of market logic, e.g. community councils that can act as advisory boards with veto rights • Establish practice of preparing participatory recovery plans in advance of a triggering event to spell out roles and responsibilities of interested parties and include best practice methodology • Establish policies that support rather than restrict collective action and enable and validate community-led planning • Recognise transitional activities and temporary use of space as valuable arena for empowering residents • Connecting local recovery initiatives to broader political movements may offer a way to create more radical structural changes	[79,64,65,99,68,74–76,83,84,92,100, 103,116,108,109]

institutions, can lead to long-term change. Blackburn [65] emphasises the co-created and non-linear nature of transformation and proposes that external organisations create the space for those small changes without predefining either the process or the outcomes.

While the reviewed literature mainly reported on positive outcomes of the selected cases, some also noted how the participatory processes reinforced the status quo. These resulted from inequitable access to participatory processes from formal restrictions, e.g. restriction to landowners or those less visibly impacted, or the challenges of engaging with displaced people despite efforts [74,83]. The pervasiveness of social norms on interactions within participatory processes was also noted [91]. Inequitable outcomes stemmed from differences in goals between funders and communities, different members of the community, and authorities and community groups, which the participatory processes failed to overcome [58,61]. Many of these exhibited characteristics of power imbalances described in section 3.1, such as funders' influence on the conditions and pathways for recovery.

3.3. The role of participation in driving changes in power relations

To understand the influence of participation on power relations, I inductively coded the role that participatory processes took in supporting changes in power dynamics, e.g. empowerment and aspects of transformation. I also coded study recommendations that are suggested to result in a change in power relations. One of the articles included in the review, a study identifying levers of systematic social transformation in community development, heavily influenced my thinking [77]. This study provided a foundation to expand the typology and connect the findings from the other studies. I grouped the representing roles for participation in changing power relations into five categories (See Table 4).

First, participatory processes provide the vehicle through which collective critical consciousness about one's relational context in society is raised. Raising critical consciousness includes recognising the diversity of perspectives, the contestation around interests, one's rights and responsibilities, the influence of historical contexts, and the linked power structures. Understanding this diversity enables an inclusive worldview while recognising local values. According to Engle [77], raising critical consciousness is key to structural social change or transformation. In some cases, conscientisation was intentionally developed through reiterative

engagement that took place alongside tangible recovery activities [78,79,80,101]. For example, a post-disaster gardening project spun off into an initiative to develop a community-drafted food access plan for the Lower Ninth Ward in New Orleans [80]. In other cases of self-organisation, conscientisation was less intentional and evolved organically over time [93,94].

The second role for participation is to provide a power-sensitive structure that represents the more balanced and socially just power relations that the process aims to promote more broadly in society – *to walk the talk*. This role builds on and takes place parallel to the first role of raising critical consciousness. It refers to the engagement process itself accounting for the broader inequities through its processes and providing structures and support for continued conscientisation, agency, and action over time. Examples include working based on social justice-based principles; creating safe learning spaces, changing structures and support mechanisms for more self-reliance and autonomy [65,81,83]; as well as the developing local capacities to drive the change that the community needs [77, 70]. This requires the recognition of existing capacities and their limitations within the recovery context, the enhancement of existing capacities, e.g. leadership capacities [93], as well as the development of new ones.

Third, participation enhances agency in a way that generates collective action. Engle considers this the development of a culture of change-making [77]. In several cases, such a shift took place within the context of social entrepreneurship, entrepreneurship, and innovation oriented participatory activities [98,82,86,95,96,101]. In another case, the experience of collective action led to continued activities and the creation of more politically oriented participatory spaces [93]. Raised political and social awareness was also visible in some of the other cases reflected in this category. It was noted that sustaining such actions over time requires longer-term institutional support [99,109].

While the first three roles are more inward-focused on the participants involved, the fourth and fifth roles of participation also have an outward focus. The fourth role that participation plays relates to changing relationships between actors. In most cases, this meant building connections between other actors related to recovery, development or social justice more widely for the support of local change. This took place through the formation of recovery groups, networks, and collaborations, even among competitors. These connections formed within the community as well as between the community and local or external actors [90,109]. Connecting across the community maintained community cohesion [79,63,64,84] and enabled mutual help [112]. In some instances, forming networks required changing actors' perceptions of each other as well as generating a shared vision.

The fifth role of participation, which builds on the previously described roles, is to influence institutional change. This means making changes to both formal and informal structures of planning and decision-making in a way that shifts power to local communities. In the studies, participation resulted in potentially replicable new ways of working, such as collaborative models [72,126], co-creation processes [100], and working according to shared principles [75,92]. In a few cases, actors with power, such as funders or national authorities, changed how they worked, shifting the decisions to actors with less power [68,74]. Institutionalisation also included changes in property rights and gender norms. While fewer articles reported broader institutional change, several studies highlighted the need for inclusive, flexible, and adaptive governance structures [65,73,83] and policies [126] in institutionalising change.

4. Discussion

This scoping review seeks to understand the interaction between power, or the capacity of actors to determine their own circumstances, and participation in local recovery processes. It does so by identifying the power imbalances that influence post-disaster recovery, how the participatory activities and associated outcomes relate to power, as well as the various roles that participation can
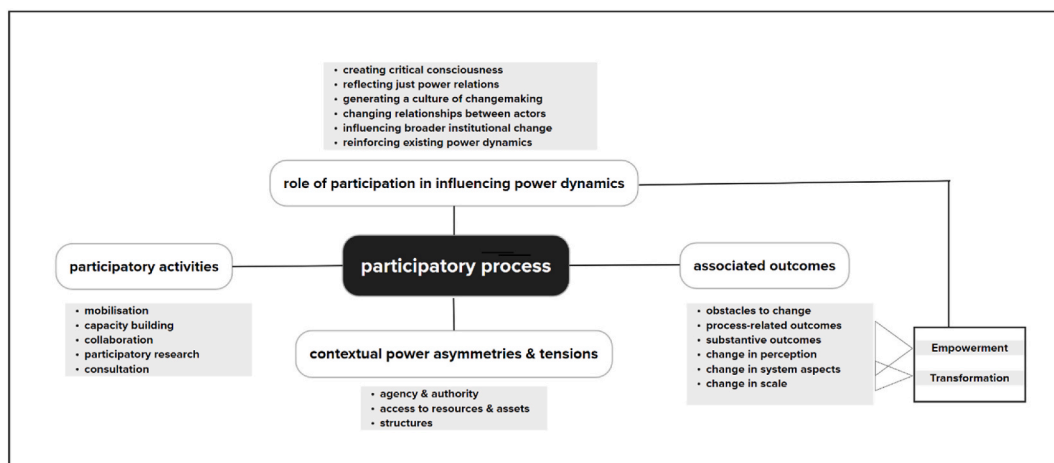

Fig. 6. Graphic summarising the results of the findings of the scoping review. This graphic maps the topics emerging from the literature on the interplay between power and participation in post-disaster recovery. In the graphic, the black shape represents the participatory process in the recovery context, which is the phenomenon under scrutiny. The white shapes represent the topics explored through the research questions and the grey boxes represent the results within those topics. The lines show connection. On the left, empowerment and transformation represent cross-cutting associated outcomes. They are connected to the role of participation as they represent changes in power dynamics.

play in influencing power dynamics (see Fig. 6). While the scoping review cannot explain the causal mechanisms of how power and participation affect each other, the identified and described components provide insight into these mechanisms, a rich overview of the diversity of engagement processes, and a basis for future research to go deeper. Future research is needed to clarify the relations between the various components to provide guidance on how to set up participatory recovery processes that can initiate broader transformations in the power dynamics that drive disaster risk [128].

4.1. Power asymmetries, tensions, and opportunities

In order to understand how power affects recovery processes and outcomes, it is critical to understand the pre- and post-disaster power asymmetries. The review indicates that power asymmetries in pre-disaster contests can be quite strong and participatory processes were not always effective in altering them. For example, residents struggling with the inability to obtain rights to housing prior to the disaster also struggled to participate in housing-related processes in recovery [129,130]. Considering that structural inequities generate vulnerability and exposure to multiple risks [131] while equity improves society's ability to cope with hazards [16, 132], such exclusionary development initiatives reflect a lack of understanding of risk generation. Such processes also fail to take advantage of the recovery opportunities to practice more inclusive (re)development and decrease disaster risk [130,133]. One challenge local recovery processes face is that many of these structures that maintain inequalities reach beyond the scope and remit of the processes and actors involved. This issue of scale highlights the need for there to be links between various recovery processes at different levels.

Power asymmetries and actor preferences create tensions between recovery actors. The literature reflected tensions between authorities and the community, especially in the cases that utilised mobilisation for building community resistance. Tensions derived from differing perspectives related to specific intervention objectives, as well as the underlying ideologies and values of their associated development pathways. Power imbalances further exacerbate the tensions caused by these differences. Although details related to tensions were often insufficiently documented, the literature also indicated tensions between multiple recovery actor categories (communities, private sector, NGOs, research teams, and different levels of government), as well as within communities. In some cases, these relationships changed during the participatory process. This highlights the inherently complex and dynamic nature of power relations [18] as well as the potential for change through governance and management processes.

Rather than an obstacle to collaboration, tensions can be harnessed to generate innovative solutions [27,134,135]. In risk management, conflicts are inherent and understanding the diverse positions, values, and goals is part of the solution [136]. Participatory processes that enable social learning are deliberative, reflexive, and reiterative practices and take place in a trusted environment [137]. Such collaborative processes can leverage tensions to generate solutions to complex problems [138] through co-producing new knowledge and practices [139], increasing understanding of other perspectives [140], and improving decision-making, collective action, and changes in social relations [137]. However, these processes need to be structured to manage power dynamics explicitly [27, 141,142]. The review identifies participatory action research and indigenous research approaches as examples of how the diversity of stakeholder aims, preferences, values, and power differentials can be handled reflexively.

In recovery, collaborative processes involving social learning are needed to improve the effectiveness of recovery in meeting resident needs as well as disaster risk reduction overall [143]. Future research could build on co-production research in the fields related to recovery [144–147], especially concerning the design and pitfalls of such co-production processes [27,134,148,149]. However, due to the peculiarities of the recovery setting, particular attention needs to be paid to the resources needed. Collaborative processes involving social learning require resources, particularly time, which may not be available, or equally available, for all actors during recovery.

4.2. Agency and empowerment

The review indicates that participatory processes can influence power dynamics through the support of agency and empowerment. Participatory processes were associated with empowerment-related outcomes, e.g. residents' self-determination, learning, and changes in their sense of self. These outcomes took place through the development of social and technical capacities, such as the use of rights-based language, or leadership skills that are useful in promoting residents' interests in recovery. In such processes, participation was used as a means to achieving an end, e.g. other outcomes related to spatial planning, disaster risk reduction, food, livelihoods, basic services, and psycho-social support in addition to empowerment. While the articles reviewed rarely used the term agency, which can be defined as "the ability to act … make a difference," [23] their use of the term empowerment suggests that they use empowerment to mean "an expansion of agency" [25]. This conceptualisation of empowerment does not consider the structural constraints that might hinder the transformation of that agency into action [150].

The review indicates that the ability of participatory processes to support agency may be one way to influence power dynamics. As outcomes, empowerment and agency are connected to the inward-oriented roles that participatory processes played in influencing power dynamics, namely raising critical consciousness, reflecting just power relations, and generating a culture of change-making. These initiatives can be considered to reflect *power to*, *power with,* and *power from within* approaches of empowerment that move beyond increasing inclusivity to changing structures, increasing solidarity for local initiatives, and increasing local capabilities [24]. In the reviewed cases, local agency of residents connected with participatory processes in two ways. First, local agency of residents emerged both spontaneously and independently to take forward collective, and thus participatory, recovery actions within their communities. Second, the local agency of residents emerged or was strengthened within the context of participatory initiatives led by others. Participatory processes supported local agency to sustain and solidify self-deterministic activity in the face of structural barriers, e.g. social norms or governance institutions, that otherwise hinder the employment of local capacities [151]. While the review showed evidence that individual and small-scale community agency can persist for some time without support, this places enormous

pressure on individual leaders who have also experienced the traumas of disaster [152]. According to the review, the type of support needed to enable long-term or larger-scale employment of agency in recovery includes resources and institutional support for new organisations, the general support of economic capabilities, especially for women, and societal support for broader uptake of changes to norms [151]. Although most of the supporting organisations in the cases were civic organisations, such as NGOs, CSOs, or research institutes, such support could also be provided through authority-led partnerships with local actors aiming to trigger "virtuous circles of mutual empowerment" in recovery [153]. However, this requires participatory processes that include activities that not only raise awareness but also bridge these actors' interests. This indicates that the participatory processes' aims and influence on power dynamics are critical. In recovery, resident or community agency is perhaps more important for DRR, than in other phases of disaster risk management because of the amount of change and the potentially long-lasting effects of that change on risk taking place within recovery. Recovery is a window of opportunity for residents to influence the components of social-ecological systems far into the future.

4.3. Broader change

The review indicates that participatory processes that increased inclusion influenced power dynamics by triggering changes to pre-existing structures and introducing new structures post-disaster. However, inclusive participation without structural change may still represent a *power over* approach where one group still dominates another [24] even though the power imbalance may have been slightly altered due to broader and more diverse representation. In contrast, inclusivity achieved through changes in structures creates a shift to *power to* or *power with* approaches of empowerment that are more about generation than domination [24,128]. The review identified cases where structural changes, e.g. increased local management and related decision-making power, were followed by increases in local agency and empowerment [23] and continued recovery-related action by residents. This points to the potential of community-level collaborative management processes to trigger shifts in power within a community [154,155]. The new organisational structures identified in the review, e.g. a gained land right, new management scheme, or new partnership, remained small-scale. This suggests that existence and extent of structural change may be critical for broader influence in power dynamics, e.g. changes in the status quo that are needed for decreasing vulnerability and disaster risk [130].

Transformation requires scaling of change. In the review, cross-level scaling of change was reported in relation to changes in agency from the individual level to a collective level. Cross-level changes also included adjustment of multi-level disaster frameworks to better serve local needs, co-created strategies and structures, as well as implementation of community-driven recovery principles. While institutionalisation of structural changes was less evident, it was often recommended for scaling changes. These recommendations rest on the involvement of higher-level actors that in some cases remained external to the participatory process. The lack of involvement of these actors limits the shift in power dynamics and impacts are confined to the intervention space. Although small-scale processes can be a safe space to articulate needs, experiment, and develop capabilities, the lack of connection between the processes and the larger system blocks transformation [27]. Ensor and Harvey [139] suggest that social learning aimed at social change requires the involvement of and reflexivity by those in positions of power. Moore [156] suggests that social change can also be scaled out or scaled deep. In the review, cases with changes in thinking and critical consciousness are aligned with scaling deep. In some cases, collective action related to tangible recovery action, such as a community kitchen, eventually led to expanded collective action on broader equity-related issues. This could be an example of scaling deep as "power gained in one space [is] used to enter new spaces" [157]. While personal and local transformation is considered a precursor to broader system transformation [158], systems transformation requires eventual scaling up of change [159]. Future research could identify whether scaling out or replication in other geographical areas or communities can eventually build momentum for scaling up and systems transformation.

Scaling impact requires "material, moral and political [support]" for change [160]. In the reviewed cases, NGOs or community-based organisations often provided this support. This represents both opportunities and challenges. Local organisations are key to supporting initiatives, local empowerment, and scaling of change. In recovery, they coordinate initiatives, provide resources, connect key actors [161], and often represent previously marginalised groups. They represent a valuable resource for external organisations operating within the recovery context as they bring their local knowledge, social networks, and trust they may have built up [5]. This is considered an effective way to work, which is especially important in recovery where time and resources are limited [162–164]. On the other hand, it is important to be aware that local organisations may exhibit potential bias towards particular groups and may act in alignment with the cultural norms that reinforce the status quo [131,132]. This dilemma emphasises the importance of reflexivity in collaborations between partners.

4.4. Recommendations for researchers

In addition to the recommendations for future research that are already mentioned, several recommendations can be drawn from this review to improve the understanding of the role that power dynamics play in recovery-related participatory interventions. More in-depth and critical research on participation is needed, specifically due to the lack of specific power framings used in the research, the vague definition of related concepts, and the lack of critical evaluation and monitoring of participatory processes. As the scoping review aims to inform future research inquiries, the recommendations are primarily for research [49]. However, as practitioners utilise participatory processes, some of them may also apply to them.

First, to better understand power dynamics in participatory recovery processes, this study echoes previous calls made by research for research to better reflect the heterogeneity of communities [165,166]. If inequity is to be understood and challenged, then the diversity within communities needs to be recognised by research. This study extends this call to also account for details related to intra-community tensions or micro-politics [136]. Although the review identified some tensions within specific communities, e.g. based on differences in intervention outcomes, preferences and understandings of the situation for different individuals, as well as social norms that marginalised certain groups [77,69,119], the differences were weakly documented. Intra-community tensions are

relevant because during medium-term recovery the cohesion experienced immediately after a disaster starts to fade. People's pre-existing differences are compounded by their post-disaster realities, as well as their potentially different recovery preferences and needs [167]. Analysing these differences alongside power asymmetries can help to understand the equitability of the outcomes across society [168]. Also, tensions are relevant to collaborations where elite capture may be an issue [169]. The review highlights the value of building recovery efforts on the work of pre-existing networks and organisations, especially ones supporting marginalised groups. Interventions built on local networks can support longevity and are valuable in recovery when time and resources are limited. However, overlooking local micro-politics in participatory processes can strengthen existing tensions and inequities and even lead to the disempowerment of participants, which ultimately discourages participation [136].

Second, researchers should apply specific power-related frameworks as analytical lenses to recovery-related research. The review showed weak application of frameworks despite their potential to improve the accountability of processes aiming at social change [20]. For example, similar to other studies, the review found evidence of exclusion through agenda-setting, influencing the discourse, and restricting access to participation [5,170]. Applying Luke's dimensions of power typology [21] could potentially help identify further hidden power dynamics within participatory decision-making processes. The review suggests that participatory processes can shift decision-making from a *power over* approach to more structurally empowering *power with* and *power to* approaches. In exploring this further, research could answer interesting research questions such as: What is the role of social learning in this shift? [27] What are the barriers, enablers, and incentives for actors in positions of power to enter into participatory processes that aim to empower currently disempowered populations? Similar questions have recently been posed for future research related to co-management in disaster response [171].

Third, researchers and practitioners should clarify central concepts, such as empowerment. Empowerment is the most frequently utilised power-related concept in the reviewed articles. Like power, empowerment is a multi-dimensional concept often left undefined [25,172–174]. The review indicates that in the recovery context, empowerment is associated with outcomes, such as agency, socio-political change, inclusivity, self-determination, connections, learning, social acceptance, and accountability. These associated concepts partially overlap with other more comprehensive conceptualisations of empowerment e.g. [25,174]. They also reflect the aspects of empowerment that are useful in challenging the status quo and promoting social justice [172]. However, to ensure that power dynamics are being shifted away from the status quo, Cattaneo et al. [172] recommend the term empowerment to be clearly defined in each situation. This includes being explicit about who is being empowered and whether it is scaled outward from personal to broader society. Conceptual clarity around empowerment would increase its value as a research tool to explain how recovery-related participatory processes can support equitable outcomes. For researchers and practitioners, utilising a more defined and comprehensive empowerment approach [173,174] could enable critically planning for, understanding, and evaluating changes in power dynamics in the recovery-related participatory processes.

Finally, researchers and practitioners should view participation as a process that is not self-evident rather than an outcome [175]. In contrast with most of the reviewed articles, which lacked critical details, future research should document and evaluate to understand the mechanics of these social processes and ideally also monitor their impacts. Participatory action research and indigenous research approaches could provide examples of how to document and reflect on these social processes. This focus on the outcomes is a common issue with participatory research [53,176–179]. Voorberg et al. [180] conclude that it occurs because resident engagement is considered a "virtue in itself, which does not need to be legitimised." However, processes need to be evaluated, not only to ensure legitimacy of governance [180] but also to show causality. In a qualitative comparative analysis of shelter projects, Opdyke et al. [45, 46] provide an example of the detailed empirical data collection required to assess the impact of participation. Evaluation can also improve funding allocation and be used to justify resources for the effective aspects of these time-intensive processes.

4.5. Limitations

The methodology imposes some research limitations, namely from the criteria and search terms. This study is limited to peer-reviewed literature. Future studies could extend the range of literature included. For example, if analysed in a way that accounts for potential bias, grey literature, such as NGO or development agency monitoring and evaluation reports on participatory processes could bring forth more details on the methods and impacts. Furthermore, my language restriction to English is likely to have also impacted the resulting geographic scope of studies. The results were heavily weighted with studies from the U.S., Australia, New Zealand, South East Asia, and Japan, lacking literature from several parts of the world. Studies from Africa, other parts of Asia, and Latin America, as well as Europe, could be further studied through a broadening of language criteria or utilising locally relevant alternative terms for methods of participation, as well as disasters. The selection of search terms also influences the results. Further terms for participation, power, or resulting social change could have been included. Also, while cases focusing on shelter planning were excluded due to their primary focus on shorter-term recovery, they may also consider topics that overlap with longer-term recovery planning, e.g. livelihoods, services and infrastructure [46]. Shelters often become or are transitioned into permanent housing [46]. However, as the existing search resulted in a high number of initial results, a more focused context, such as societal group, e.g. indigenous communities, people with disabilities; a specific participatory approach, e.g. participatory action research or activist mobilisations; or domain of recovery, e.g. housing, urban planning or resettlement, are recommended for future systematic reviews or comparative studies.

The review results included only a few cases of conflict or technological hazard-triggered disasters and no slow-onset disasters. While Winkworth [181] indicates similarities between disaster recovery processes irrespective of their trigger, these can mainly be expected at the level of principles for engagement rather than implementation details. Differences arise due to the interaction of local contexts and the specifics of the disaster type [182]. For example, technological hazard-triggered disasters may require more involvement from the technical experts and thus may even carry higher risks of overlooking local concerns. There may also be a higher

level of tension between communities and other actors perceived as responsible for the disaster. It can also be expected that recovery processes concerning slow-onset disasters, such as droughts, are quite different from disasters triggered by a typhoon or a flood due to the long-term impacts and conditions of droughts. Further studies are recommended to focus specifically on these differences.

5. Conclusion

While community participation is considered a requirement of BBB and has been mainstreamed through policies, the practice of participation still leads to outcomes that continue the cycle of risk generation [130]. Issues of power have been identified to be at the centre of this challenge to decrease disaster risk. This scoping study reviews research on participatory processes in the post-disaster recovery context to identify whether such processes deal with power. The studies included in this review lack explicit consideration of power. However, this review's findings indicate that participatory processes can alter power dynamics between actors through empowerment and agency, as well as structures. While many of the changes were limited to the local scale and represented small-scale structural changes, they nevertheless indicate the potential for larger-scale change if supported. The review discusses the potential of reflexive processes such as social learning to bridge asymmetries in power relations and calls for the deeper exploration of the inner workings of participatory processes along with a more explicit consideration of power. This would add to our understanding of empowerment as a process, as well as the extent to which it can be supported through participatory practices during recovery.

With climate change projected to further increase the frequency and severity of shocks to our society in the future, it is imperative that we halt risk recreation through our development pathways. This fundamental change requires a different relationship between actors in society and structures that support this. It also requires investing in the capacities of residents across society so that they have stronger capabilities to decrease their own risks and respond to shocks. Knowing what to invest in requires listening to a variety of residents whose lives constitute the development pathways with special attention to those who are marginalised. This review indicates that changes in power dynamics are to some extent possible even in recovery periods which are inherently more complex than non-recovery periods, with additional layers of actors, constraints, and concerns. This is significant because of the potential corrective influence of recovery on development trajectories. However, if participatory processes were effective in changing power dynamics in processes of development during non-recovery periods, recovery might be even more effective in reducing disaster risk.

Declaration of competing interest

Data availability

Data will be made available on request.

Appendix A. Supplementary data

Supplementary data to this article can be found online at https://doi.org/10.1016/j.ijdrr.2023.104041.

References

[1] WMO, WMO Atlas of Mortality and Economic Losses from Weather, Climate and Water Extremes (1970–2019), 2021, 1–90, https://library.wmo.int/records/item/57564-wmo-atlas-of-mortality-and-economic-losses-from-weather-climate-and-water-extremes-1970-2019#.YS9CMNMzZBx.
[2] H. Ritchie, P. Rosado, M. Roser, Natural disasters, Our World in Data, https://ourworldindata.org/natural-disasters#citation, 2022.
[3] K. Brundiers, H. Eakin, Leveraging post-disaster windows of opportunities for change towards sustainability: a framework, Sustainability 10 (2018) 1390.
[4] E. Maly, M. Vahanvati, T. Sararit, People-centered disaster recovery: a comparison of long-term outcomes of housing reconstruction in Thailand, India, and Japan, Int. J. Disaster Risk Reduc. 81 (2022), 103234.
[5] M.L. Finucane, J. Acosta, A. Wicker, K. Whipkey, Short-term solutions to a long-term challenge: rethinking disaster recovery planning to reduce vulnerabilities and inequities, Int. J. Environ. Res. Publ. Health 17 (2020).
[6] UNDRR, Build Back Better, Terminology, 2021.
[7] S. Mannakkara, S.J. Wilkinson, Supporting post-disaster social recovery to build back better, International Journal of Disaster Resilience in the Built Environment 6 (2015) 126–139.
[8] U.N.D.R.R. Sendai, Framework for Disaster Risk Reduction 2015-2030, vol. 25, 2015. https://www.unisdr.org/files/43291_sendaiframeworkfordrren.pdf.
[9] F. Thomalla, et al., Transforming development and disaster risk, Sustainability 10 (2018).
[10] E.L.F. Schipper, F. Thomalla, G. Vulturius, M. Davis, K. Johnson, Linking disaster risk reduction, climate change and development, IJDRBE 7 (2016) 216–228.
[11] N. Matin, J. Forrester, J. Ensor, What is equitable resilience? World Dev. 109 (2018) 197–205.
[12] F. Thomalla, et al., Long-term recovery narratives following major disasters in Southeast Asia, Reg. Environ. Change (2017), https://doi.org/10.1007/s10113-017-1260-z.
[13] B. Wisner, Five years beyond sendai—can we get beyond frameworks? Int J Disaster Risk Sci 11 (2020) 239–249.
[14] L.M. Harris, E.K. Chu, G. Ziervogel, Negotiated resilience, Resilience (2017) 1–19, https://doi.org/10.1080/21693293.2017.1353196.
[15] P. Romero-Lankao, D. Gnatz, O. Wilhelmi, M. Hayden, Urban sustainability and resilience: from theory to practice, Sustainability 8 (2016) 1224.
[16] N. Matin, J. Forrester, J. Ensor, What is equitable resilience? World Dev. 109 (2018) 197–205.
[17] M. Haugaard, Power: a Reader, Manchester University Press ; Distributed exclusively in the USA by Palgrave, 2002.

[18] S. Vermeulen, Power Tools for Participatory Learning and Action, 2005, 9–14, https://www.iied.org/sites/default/files/pdfs/migrate/G02966.pdf.

[19] F. Avelino, Power in sustainability transitions: analysing power and (dis)empowerment in transformative change towards sustainability: power in sustainability transitions, Env. Pol. Gov. 27 (2017) 505–520.

[20] F. Avelino, Theories of power and social change. Power contestations and their implications for research on social change and innovation, Journal of Political Power 14 (2021) 425–448.

[21] S. Lukes, Power: a Radical View, Macmillan, 1974.

[22] S.R.A. Arnstein, Ladder of citizen participation, J. Am. Inst. Plan. 35 (1969) 216–224.

[23] A. Giddens, The Constitution of Society: Outline of the Theory of Structuration, University of California Press, 1984.

[24] J. Rowlands, Questioning Empowerment: Working with Women in Honduras, Oxfam, 1997.

[25] S. Ibrahim, S. Alkire, Agency and empowerment: a proposal for internationally comparable indicators, Oxf. Dev. Stud. 35 (2007) 379–403.

[26] Brisbois, M. C. & de Loë, R. C. Power in collaborative approaches to governance for water: a systematic review, Soc. Nat. Resour. 29 (2016) 775–790.

[27] E. Turnhout, T. Metze, C. Wyborn, N. Klenk, E. Louder, The politics of co-production: participation, power, and transformation, Curr. Opin. Environ. Sustain. 42 (2020) 15–21.

[28] A. Vallet, et al., Power asymmetries in social networks of ecosystem services governance, Environ. Sci. Pol. 114 (2020) 329–340.

[29] M. Boyland, C. Adelina, Covid-19, Cyclone Amphan and building back better, SEI Perspectives (2020). https://www.sei.org/perspectives/covid-19-cyclone-amphan-and-building-back-better/.

[30] B. Balachandran, R.B. Olshansky, L.A. Johnson, Planning for disaster-induced relocation of communities, J. Am. Plann. Assoc. (2021) 1–17, https://doi.org/10.1080/01944363.2021.1978855.

[31] K. Tsubouchi, T. Okada, S. Mori, Pathway of adaptation to community relocation: prospects and limitations of community-centred planning, Int. J. Disaster Risk Reduc. 66 (2021), 102582.

[32] M. Hsu, R. Howitt, F. Miller, Procedural vulnerability and institutional capacity deficits in post-disaster recovery and reconstruction: insights from wutai rukai experiences of typhoon morakot, Hum. Organ. 74 (2015) 308–318.

[33] J. Ensor, et al., Redistributing resilience? Deliberate transformation and political capabilities in post-Haiyan Tacloban, World Dev. 140 (2021).

[34] B. Cooke, U. Kothari, Participation: the New Tyranny? Zed Books, 2001.

[35] Participation, from Tyranny to Transformation? Exploring New Approaches to Participation in Development, ZED Books ; Distributed exclusively in the U.S. by Palgrave Macmillan, 2004.

[36] G. Blue, M. Rosol, V. Fast, Justice as parity of participation: enhancing Arnstein's ladder through fraser's justice framework, J. Am. Plann. Assoc. 85 (2019) 363–376.

[37] U. Boyer-Villemaire, J. Benavente, J.A.G. Cooper, P. Bernatchez, Analysis of power distribution and participation in sustainable natural hazard risk governance: a call for active participation, Environ. Hazards 13 (2014) 38–57.

[38] D. Geekiyanage, T. Fernando, K. Keraminiyage, Assessing the state of the art in community engagement for participatory decision-making in disaster risk-sensitive urban development, Int. J. Disaster Risk Reduc. 51 (2020), 101847.

[39] N. Lambrou, A. Loukaitou-Sideris, Resilience plans in the US: an evaluation, J. Environ. Plann. Manag. (2021) 1–24, https://doi.org/10.1080/09640568.2021.1904849.

[40] G.B. Markus, A. Krings, Planning, participation, and power in a shrinking city: the Detroit Works Project, J. Urban Aff. 42 (2020) 1141–1163.

[41] N. Aarts, C. Leeuwis, Participation and power: reflections on the role of government in land use planning and rural development, J. Agric. Educ. Ext. 16 (2010) 131–145.

[42] C.H. Davidson, C. Johnson, G. Lizarralde, N. Dikmen, A. Sliwinski, Truths and myths about community participation in post-disaster housing projects, Habitat Int. 31 (2007) 100–115.

[43] S. Hamideh, Opportunities and challenges of public participation in post-disaster recovery planning: lessons from galveston, TX, Nat. Hazards Rev. 21 (2020).

[44] D. Chandrasekhar, Digging deeper: participation and non-participation in post-disaster community recovery, Community Dev. 43 (2012) 614–629.

[45] A. Opdyke, A. Javernick-Will, M. Koschmann, Assessing the impact of household participation on satisfaction and safe design in humanitarian shelter projects, Disasters 43 (2019) 926–953.

[46] A. Opdyke, A. Javernick-Will, M. Koschmann, A comparative analysis of coordination, participation, and training in post-disaster shelter projects, Sustainability 10 (2018) 4241.

[47] J. Horney, M. Nguyen, D. Salvesen, O. Tomasco, P. Berke, Engaging the public in planning for disaster recovery, Int. J. Disaster Risk Reduc. 17 (2016) 33–37.

[48] M. Ianniello, S. Iacuzzi, P. Fedele, L. Brusati, Obstacles and solutions on the ladder of citizen participation: a systematic review, Publ. Manag. Rev. 21 (2019) 21–46.

[49] Z. Munn, et al., Systematic review or scoping review? Guidance for authors when choosing between a systematic or scoping review approach, BMC Med. Res. Methodol. 18 (2018) 143.

[50] H. Arksey, L. O'Malley, Scoping studies: towards a methodological framework, Int. J. Soc. Res. Methodol. 8 (2005) 19–32.

[51] M.D.J. Peters, et al., Guidance for conducting systematic scoping reviews, Int. J. Evid. Base. Healthc. 13 (2015) 141–146.

[52] M.D.J. Peters, et al., Updated methodological guidance for the conduct of scoping reviews, JBI Evidence Implementation 19 (2021) 3–10.

[53] D. Erku, et al., Community engagement initiatives in primary health care to achieve universal health coverage: a realist synthesis of scoping review, PLoS One 18 (2023), e0285222.

[54] B. Ryan, K.A. Johnston, M. Taylor, R. McAndrew, Community engagement for disaster preparedness: a systematic literature review, Int. J. Disaster Risk Reduc. 49 (2020), 101655.

[55] S. Alkire, Valuing Freedoms: Sen's Capability Approach and Poverty Reduction, Oxford University Press, 2002.

[56] J. Saldaña, Fundamentals of Qualitative Research, Oxford University Press, 2011.

[57] L. Ojeda, G. Bacigalupe, A. Pino, Co-production after an urban forest fire: post-disaster reconstruction of an informal settlement in Chile, Environ. Urbanization 30 (2018) 537–556.

[58] E.M. DuPuis, M. Greenberg, The right to the resilient city: progressive politics and the green growth machine in New York City, J. Environ. Stud. Sci. 9 (2019) 352–363.

[59] F. Letelier, C. Irazábal, Contesting TINA: community planning alternatives for disaster reconstruction in Chile, J. Plann. Educ. Res. 38 (2018) 67–85.

[60] R. Padawangi, M. Douglass, Water, water everywhere: toward participatory solutions to chronic urban flooding in Jakarta, Pac. Aff. 88 (2015) 517–550.

[61] I. Tomassi, G. Forino, The Ecovillage of Pescomaggiore (L'Aquila): birth and death of a self-determined post-disaster community (2009-2014), Disaster Prev. Manage. 28 (2019) 513–526.

[62] R. Cretney, "An opportunity to hope and dream": disaster politics and the emergence of possibility through community-led recovery, Antipode 51 (2019) 497–516.

[63] C. Losekann, B. Milanez, Mining disaster in the doce river: dilemma between governance and participation, Current Sociology (2021) 1–19, https://doi.org/10.1177/00113921211059224.

[64] I. Jon, M. Purcell, Radical resilience: autonomous self-management in post-disaster recovery planning and practice, Plann. Theor. Pract. 19 (2018) 235–251.

[65] S. Blackburn, What does transformation look like? Post-disaster politics and the case for progressive rehabilitation, Sustainability 10 (2018).

[66] S. Platt, E. So, Speed or deliberation: a comparison of post-disaster recovery in Japan, Turkey, and Chile, Disasters 41 (2017) 696–727.

[67] T. Okada, R. Howitt, K. Haynes, D. Bird, J. McAneney, Recovering local sociality: learnings from post-disaster community-scale recoveries, Int. J. Disaster Risk Reduc. 31 (2018) 1030–1042.

[68] S. Phibbs, C. Kenney, M. Solomon, Ngā Mōwaho: an analysis of Māori responses to the Christchurch earthquakes, Kotuitui 10 (2015) 72–82.

[69] V. Cronin, P. Guthrie, Community-led resettlement: from a flood-affected slum to a new society in Pune, India, Environ. Hazards 10 (2011) 310–326.

[70] P.-S.S. Lin, Building resilience through ecosystem restoration and community participation: post-disaster recovery in coastal island communities, Int. J. Disaster Risk Reduc. 39 (2019), 101249.

[71] G. Kovacs, A. Matopoulos, O. Hayes, A community-based approach to supply chain design, Int. J. Logist. Res. Appl. 13 (2010) 411–422.

[72] L.J. Bowman, K.B. Henquinet, Disaster risk reduction and resettlement efforts at San Vicente (Chichontepec) Volcano, El Salvador: toward understanding social and geophysical vulnerability, J. Appl. Volcanol. 4 (2015).

[73] C. Goulding, M. Kelemen, T. Kiyomiya, Community based response to the Japanese tsunami: a bottom-up approach, Eur. J. Oper. Res. 268 (2018) 887–903.

[74] L. Fan, Shelter strategies, humanitarian praxis and critical urban theory post-crisis reconstruction, Disasters 36 (2012) S64–S86.

[75] T.K.K.B. Morgan, T.N. Fa'aui, Empowering indigenous voices in disaster response: applying the Mauri Model to New Zealand's worst environmental maritime disaster, Eur. J. Oper. Res. 268 (2018) 984–995.

[76] M. Hsu, T. Okada, S. Mori, R. Resettling Howitt, Disconnecting or displacing? Attending to local sociality, culture and history in disaster settings, Asia Pac. Viewp. 60 (2019) 163–174.

[77] J. Engle, Stories of tragedy, trust and transformation? A case study of education-centered community development in post-earthquake Haiti, Prog. Plann. 124 (2018) 1–34.

[78] L. Graham, W. Debucquoy, I. Anguelovski, The influence of urban development dynamics on community resilience practice in New York city after superstorm sandy: experiences from the lower East side and the rockaways, GLOBAL ENVIRONMENTAL CHANGE-HUMAN AND POLICY DIMENSIONS 40 (2016) 112–124.

[79] R.D. Green, T. Hamelin, K. Zitelman, NGOs address structural racism: after the storm in new Orleans, Rev. Black Polit. Econ. 38 (2011) 311–325.

[80] Y. Kato, C. Passidomo, D. Harvey, Political gardening in a post-disaster city: lessons from new Orleans, Urban Stud. 51 (2014) 1833–1849.

[81] S. Alifa, F. Nugroho, The role of local community enterprise towards economic recovery of disaster-affected community in Indonesia, Pertanika J. Soc. Sci. Humanit. 27 (2019) 2333–2349.

[82] D. Archer, S. Boonyabancha, Seeing a disaster as an opportunity - harnessing the energy of disaster survivors for change, Environ. Urbanization 23 (2011) 351–364.

[83] M. Consoer, A. Milman, The dynamic process of social capital during recovery from Tropical Storm Irene in Vermont, Nat. Hazards 84 (2016) 155–174.

[84] S. Mannakkara, S. Wilkinson, R. Potangaroa, Build back better: implementation in Victorian bushfire reconstruction, Disasters 38 (2014) 267–290.

[85] H.B. Ku, L. Dominelli, Not only eating together: space and green social work intervention in a Hazard-Affected Area in Ya'an, Sichuan of China, Br. J. Soc. Work 48 (2018) 1409–1431.

[86] N. de Mel, A grammar of emergence: culture and the state in the post-tsunami resettlement of Burgher women of Batticaloa, Sri Lanka, Crit. Asian Stud. 49 (2017) 73–91.

[87] P. Daly, S. Ninglekhu, P. Hollenbach, J. Duyne Barenstein, D. Nguyen, Situating local stakeholders within national disaster governance structures: rebuilding urban neighbourhoods following the 2015 Nepal earthquake, Urbanization 29 (2017) 403–424.

[88] M. Mori, R. McDermott, S. Sagala, Y. Wulandari, Sinabung volcano: how culture shapes community resilience, Disaster Prev. Manag. 28 (2019) 290–303.

[89] C.A. Grace-McCaskey, S.C. Pearce, L. Harris, M. Corra, K.J. Evans, Finding voices in the floods of Freedom Hill: innovating solutions in Princeville, North Carolina, J. Environ. Stud. Sci. 11 (2021) 341–351.

[90] V. Ingham, S. Redshaw, Connecting community organisations for disaster preparedness, Int. J. Safety Secur. Eng. 7 (2017) 52–64.

[91] G. Crawford, C. Morrison, Community-led reconstruction, social inclusion and participation in post-earthquake Nepal, Dev. Pol. Rev. 39 (2021) 548–568.

[92] E. Rawson, 'Te Waioratanga': health promotion practice - the importance of maori cultural values to wellbeing in a disaster context and beyond, Australas. J. Disaster Traum. Stud. 20 (2016) 81–87.

[93] J. Moreno, D. Shaw, Women's empowerment following disaster: a longitudinal study of social change, Nat. Hazards 92 (2018) 205–224.

[94] I. Unanue, et al., Seeing more clearly: communities transforming towards justice in post-hurricane Puerto Rico, Community Psychol. Glob. Perspect. 6 (2020) 22–47.

[95] J. Bruen, J.P. Spillane, T. Brooks, Community orientated post-disaster sustainable housing recovery, rebuilding and community renewal: Sri Lanka case study, in: *Proc. Annual ARCOM Conf., ARCOM* 127–136, Association of Researchers in Construction Management, 2021.

[96] R. Renuka, E. Srimulyani, Women after the tsunami: impact, empowerment and changes in post-disaster situations of Sri Lanka and Aceh, Indonesia, Asian J. Women's Stud. 21 (2015) 192–210.

[97] S. De Sylva, Taking back control: issues and benefits of bottom-up redevelopment, in: Procedia Eng (Ed.), Amaratunga D. & Haigh R., Elsevier Ltd, 2018, pp. 212 348–355.

[98] D.H. Lopez Meneses, S. Hita CaÃ±adas, Altos de la Estancia: an applied project of risk governance in Colombia, Climate Change Management 477 (2018).

[99] Badayos-Jover, B.P. M, Security in adversity: highlighting coastal women's agency and efforts to organize after Haiyan, Asian Fish Sci. 30 (2017) 303–312.

[100] J.G. Molina, Advancing small island resilience and inclusive development through a convergence strategy in Carles, Philippines, Disaster Prev. Manage. 28 (2018) 33–41.

[101] R. Clissold, R. Westoby, K.E. McNamara, Women as recovery enablers in the face of disasters in Vanuatu, Geoforum 113 (2020) 101–110.

[102] S. Nakagawa, K. Suwa, A cultural approach to recovery assistance following urban disasters, City Cult. Soc. 1 (2010) 27–36.

[103] M. Pardasani, Tsunami reconstruction and redevelopment in the Maldives: a case study of community participation and social action, Disaster Prev. Manage. 15 (2006) 79–91.

[104] E. Maly, Building back better with people centered housing recovery, Int. J. Disaster Risk Reduc. 29 (2018) 84–93.

[105] S. Farquhar, N. Dobson, Community and university participation in disaster-relief recovery: an example from Eastern North Carolina, in: University-Community Partnerships: Universities in Civic Engagem, Taylor and Francis, 2013, pp. 203–218, https://doi.org/10.1300/J125v12n03_12.

[106] J. Joseph, S.M. Irshad, A.M. Alex, Disaster recovery and structural inequalities: a case study of community assertion for justice, Int. J. Disaster Risk Reduc. 66 (2021).

[107] H. Osofsky, J. Osofsky, T. Hansel, B. Lawrason, A. Speier, Building resilience after disasters through the youth leadership program: the importance of community and academic partnerships on youth outcomes, Prog. Community Health Partnersh Res. Educ. Action 12 (2018) 11–21.

[108] P.R. Berke, J. Kartez, D. Wenger, Recovery after disaster: achieving sustainable development, mitigation and equity, Disasters 17 (1993) 93–109.

[109] N.E. Ganapati, In good company: why social capital matters for women during disaster recovery, Publ. Adm. Rev. 72 (2012) 419–427.

[110] I. Farni, R.M. Zin, Alzahri, Community base development at the implementation of rehabilitation and reconstruction project after earthquake in West Sumatera, in: B.Y. Suprapto, Herlina Saloma, S. Dwijayanti (Eds.), IOP Conf. Ser. Mater. Sci. Eng., vol. 620, Institute of Physics Publishing, 2019.

[111] H.D. Qi, X. Gu, Older people and placemaking in post-disaster community rebuilding: an interdisciplinary action research in Sichuan, China, Action Res. 18 (2020) 48–68.

[112] T. Sim, J. Lau, K. Cui, H.-H. Wei, Post-disaster psychosocial capacity building for women in a Chinese rural village, Int. J. Disaster Risk Sci. 10 (2019) 193–203.

[113] L. Dominelli, The opportunities and challenges of social work interventions in disaster situations, Int. Soc. Work 58 (2015) 659–672.

[114] S. Collins, B. Glavovic, S. Johal, D. Johnston, Community engagement post-disaster: case studies of the 2006 matata debris flow and 2010 darfield earthquake, New Zealand, N. Z. J. Psychol. 40 (2011) 17–25.

[115] W. Abara, et al., Engaging a chemical disaster community: lessons from Graniteville, Int. J. Environ. Res. Publ. Health 11 (2014) 5684–5697.

[116] M.R. Dionisio, E. Pawson, Building resilience through post-disaster community projects: responses to the 2010 and 2011 Christchurch earthquakes and 2011 Tōhoku Tsunami, Australas. J. Disaster Traum. Stud. 20 (2016) 107–116.

[117] J. Garnett, M. Moore, Enhancing disaster recovery: lessons from exemplary international disaster management practices, J. Homel. Secur. Emerg. Manag. 7 (2010).

[118] L. Dominelli, Empowering disaster-affected communities for long-term reconstruction: intervening in Sri Lanka after the tsunami, J. Soc. Work. Disabil. Rehabil. 12 (2013) 48–66.

[119] S. Collins, B. Glavovic, S. Johal, D. Johnston, Community engagement post-disaster: case studies of the 2006 matata debris flow and 2010 darfield earthquake, New Zealand, N. Z. J. Psychol. 40 (2011) 17–25.

[120] M. Affan, et al., Lessons learned from two villages in the tsunami most affected area of Banda Aceh city; A review of the housing reconstruction and the current state of village development, Adv. Nat. Technol. Hazards Res. 44 (2015) 72. Springer Netherlands.

[121] T.R. Francis, S. Wilkinson, S. Mannakkara, A. Chang-Richards, Post-disaster reconstruction in Christchurch: a "build back better" perspective, Int. J. Disaster Resilience Built Environ 9 (2018) 239–248.

[122] D. Johnston, J. Becker, D. Paton, Multi-agency community engagement during disaster recovery: lessons from two New Zealand earthquake events, Disaster Prev. Manage. 21 (2012) 252–268.

[123] M. Nakhaei, H.R. Khankeh, G.R. Masoumi, M.A. Hosseini, Z. Parsa-Yekta, Participation a key factor for life recovery after disaster: a grounded theory study in an Iranian context, Iran. Red Crescent Med. J. 18 (2016).

[124] E.I. Vlachopoulou, D.D. Mizuta, Shellfish aquaculture and resilience: leadership experiences from kesennuma bay, Japan, Mar. Pol. 92 (2018) 111–119.

[125] M. Méndez, G. Flores-Haro, L. Zucker, The (in)visible victims of disaster: understanding the vulnerability of undocumented Latino/a and indigenous immigrants, Geoforum 116 (2020) 50–62.

[126] A. Paidakaki, F. Moulaert, H. Leinfelder, P. Van den Broeck, Can pro-equity hybrid governance shape an egalitarian city? Lessons from post-Katrina New Orleans, Territory Polit. Gov. (2020), https://doi.org/10.1080/21622671.2020.1773919.

[127] J.D. Osofsky, In the aftermath of hurricane katrina: a personal story of a psychologist from new Orleans, Prof. Psychol. Res. Pract. 39 (2008) 12–17.

[128] C. Luttrell, S. Quiroz, Understanding and Operationalising Empowerment, 2007.

[129] C.C. Hammer, J. Brainard, A. Innes, P.R. Hunter, (Re-) conceptualising vulnerability as a part of risk in global health emergency response: updating the pressure and release model for global health emergencies, Emerg. Themes Epidemiol. 16 (2019) 2.

[130] B. Wisner, P. Blaikie, T. Cannon, I. Davis, At Risk: Natural Hazards, People's Vulnerability and Disasters, Routledge, 2004.

[131] I. Kelman, J.C. Gaillard, J. Mercer, Climate change's role in disaster risk reduction's future: beyond vulnerability and resilience, Int J Disaster Risk Sci 6 (2015) 21–27.

[132] I. Kelman, J.C. Gaillard, J. Lewis, J. Mercer, Learning from the history of disaster vulnerability and resilience research and practice for climate change, Nat. Hazards 82 (2016) 129–143.

[133] P. Blaikie, T. Cannon, I. Davis, B. Wisner, At Risk: Natural Hazards, People's Vulnerability, and Disasters, Routledge, 1994.

[134] C. Dedding, B. Groot, M. Slager, T. Abma, Building an alternative conceptualization of participation: from shared decision-making to acting and work, Educ. Action Res. (2022) 1–13, https://doi.org/10.1080/09650792.2022.2035788.

[135] R. Pain, M. Finn, R. Bouveng, G. Ngobe, Productive tensions—engaging geography students in participatory action research with communities, J. Geogr. High Educ. 37 (2013) 28–43.

[136] C.-P. Tseng, E.C. Penning-Rowsell, Micro-political and related barriers to stakeholder engagement in flood risk management: barriers to stakeholder engagement in flood risk management, Geogr. J. 178 (2012) 253–269.

[137] G. Cundill, R. Rodela, A review of assertions about the processes and outcomes of social learning in natural resource management, J. Environ. Manag. 113 (2012) 7–14.

[138] I.N.S. Djenontin, A.M. Meadow, The art of co-production of knowledge in environmental sciences and management: lessons from international practice, Environ. Manag. 61 (2018) 885–903.

[139] J. Ensor, B. Harvey, Social learning and climate change adaptation: evidence for international development practice, WIREs Clim Change 6 (2015) 509–522.

[140] K. Collins, R. Ison, Jumping off Arnstein's ladder: social learning as a new policy paradigm for climate change adaptation, Env. Pol. Gov. 19 (2009) 358–373.

[141] R. Pain, G. Whitman, D. Milledge, Participatory Action Research Toolkit: an Introduction to Using PAR as an Approach to Learning, Research and Action. Practice Guide, 2019. https://eprints.icstudies.org.uk/id/eprint/293/.

[142] G.P. Whitman, R. Pain, D.G. Milledge, Going with the flow? Using participatory action research in physical geography, Prog. Phys. Geogr. Earth Environ. 39 (2015) 622–639.

[143] D.C. Whybark, Co-creation of improved quality in disaster response and recovery, Int J Qual Innov 1 (2015) 3.

[144] R. Murti, S. Mathez-Stiefel, Social learning approaches for ecosystem-based disaster risk reduction, Int. J. Disaster Risk Reduc. 33 (2019) 433–440.

[145] Q. Zhang, et al., How does social learning facilitate urban disaster resilience? A systematic review, Environ. Hazards 19 (2020) 107–129.

[146] T.M. Kong, A.C. de Villiers, M.B. Ntloana, S. Pollard, C. Vogel, Implementing capacity development for disaster risk reduction as a social learning system, Int. J. Disaster Risk Reduc. 50 (2020), 101740.

[147] C.E. Haque, et al., Social learning for enhancing social-ecological resilience to disaster-shocks: a policy Delphi approach, DPM 31 (2022) 335–348.

[148] M. Muro, P. Jeffrey, A critical review of the theory and application of social learning in participatory natural resource management processes, J. Environ. Plann. Manag. 51 (2008) 325–344.

[149] S. Van Bommel, N. Rä¶ling, N. Aarts, E. Turnhout, Social learning for solving complex problems: a promising solution or wishful thinking? A case study of multi-actor negotiation for the integrated management and sustainable use of the Drentsche Aa area in The Netherlands, Env. Pol. Gov. 19 (2009) 400–412.

[150] R. Alsop, M.F. Bertelsen, J. Holland, Empowerment in Practice: from Analysis to Implementation, World Bank, 2006.

[151] J.C. Gaillard, J.R.D. Cadag, M.M.F. Rampengan, People's capacities in facing hazards and disasters: an overview, Nat. Hazards 95 (2019) 863–876.

[152] B.K. Sovacool, M. Tan-Mullins, W. Abrahamse, Bloated bodies and broken bricks: power, ecology, and inequality in the political economy of natural disaster recovery, World Dev. 110 (2018) 243–255.

[153] J. Fox, Empowerment and institutional change: mapping 'virtuous circles' of state-society interaction, in: R. Alsop (Ed.), Power, Rights, and Poverty: Concepts and Connections, vols. 68–92, The World Bank, 2005, https://doi.org/10.1596/978-0-8213-6310-2.

[154] C. McDougall, H. Ojha, How does adaptive collaborative management leverage changes in power, in: *Adaptive Collaborative Management in Forest Landscapes* 186–216, Routledge, 2021, https://doi.org/10.4324/9781003197256-15.

[155] L. Hasselman, Adaptive management; adaptive co-management; adaptive governance: what's the difference? Australas. J. Environ. Manag. 24 (2017) 31–46.

[156] M.-L. Moore, D. Riddell, D. Vocisano, Scaling out, scaling up, scaling deep: strategies of non-profits in advancing systemic social innovation, J. Corp. Citizen. (2015) 67–84, 2015.

[157] J. Gaventa, Towards Participatory Governance: Assessing the Transformative Possibilities. In Participation, from Tyranny to Transformation? *Exploring New Approaches to Participation in Development*, ZED Books ; Distributed exclusively in the U.S. by Palgrave Macmillan, 2004, pp. 25–41.

[158] D. Manuel-Navarrete, M. Pelling, Subjectivity and the politics of transformation in response to development and environmental change, Global Environ. Change 35 (2015) 558–569.

[159] K. O'Brien, Global environmental change II: from adaptation to deliberate transformation, Prog. Hum. Geogr. 36 (2012) 667–676.

[160] A. Cornwall, Unpacking 'Participation': models, meanings and practices, Community Dev. J. 43 (2008) 269–283.

[161] P. Satizábal, I. Cornes, M. De Lourdes Melo Zurita, B.R. Cook, The power of connection: navigating the constraints of community engagement for disaster risk reduction, Int. J. Disaster Risk Reduc. 68 (2022), 102699.

[162] C. Pezzica, V. Cutini, C. Bleil de Souza, Mind the gap: state of the art on decision-making related to post-disaster housing assistance, Int. J. Disaster Risk Reduc. 53 (2021), 101975.

[163] M. Fayazi, G. Lizarralde, Conflicts between recovery objectives: the case of housing reconstruction after the 2003 earthquake in Bam, Iran, Int. J. Disaster Risk Reduc. 27 (2018) 317–328.

[164] M. Fayazi, et al., Managing institutional fragmentation and time compression in post-disaster reconstruction – the case of Bam, Int. J. Disaster Risk Reduc. 21 (2017) 340–349.

[165] J. Marlowe, A. Neef, C.R. Tevaga, C. Tevaga, A new guiding framework for engaging diverse populations in disaster risk reduction: reach, relevance, receptiveness, and relationships, Int J Disaster Risk Sci 9 (2018) 507–518.

[166] A. Titz, T. Cannon, F. Krüger, Uncovering 'community': challenging an elusive concept in development and disaster related work, Societies 8 (2018) 71.

[167] C. Monteil, P. Foulquier, S. Defossez, M. Péroche, F. Vinet, Rethinking the share of responsibilities in disaster preparedness to encourage individual preparedness for flash floods in urban areas, Int. J. Disaster Risk Reduc. 67 (2022).
[168] J. Lewis, I. Kelman, Places, people and perpetuity: community capacities in ecologies of catastrophe, ACME Int E J Crit Geogr 9 (2015) 191–220.
[169] J.F. McCarthy, Using community led development approaches to address vulnerability after disaster: caught in a sad romance, Global Environ. Change 27 (2014) 144–155.
[170] S. Laska, B.H. Morrow, Social vulnerabilities and hurricane katrina: an unnatural disaster in new Orleans, Mar. Technol. Soc. J. 40 (2006) 16–26.
[171] B. Nowell, T. Steelman, A. Velez, K. Albrecht, Co-management during crisis: insights from jurisdictionally complex wildfires, Int. J. Wildland Fire 31 (2022) 529–544.
[172] L.B. Cattaneo, J.M. Calton, A.E. Brodsky, Status quo versus status quake: PUTTING the power back in empowerment: status quo versus status quake, J. Community Psychol. 42 (2014) 433–446.
[173] B.D. Christens, L.T. Winn, A.M. Duke, Empowerment and critical consciousness: a conceptual cross-fertilization, Adolescent Res Rev 1 (2016) 15–27.
[174] G. Laverack, Using a 'domains' approach to build community empowerment, Community Dev. J. 41 (2006) 4–12.
[175] A. Opdyke, A. Javernick-Will, M. Koschmann, H. Moench, A Constitutive Communication Lens of Stakeholder Participation in Post-Disaster Construction, Engineering Project Organization Conference Cle Elum, Washington, USA, 2016.
[176] C. Bunn, et al., Arts-based approaches to promoting health in sub-Saharan Africa: a scoping review, BMJ Glob. Health 5 (2020), e001987.
[177] P. Tschakert, et al., Micropolitics in collective learning spaces for adaptive decision making, Global Environ. Change 40 (2016) 182–194.
[178] P. Tschakert, et al., Methodological lessons for negotiating power, political capabilities, and resilience in research on climate change responses, World Dev. 167 (2023), 106247.
[179] K. Ortiz, et al., Partnerships, processes, and outcomes: a health equity–focused scoping meta-review of community-engaged scholarship, Annu. Rev. Public Health 41 (2020) 177–199.
[180] W.H. Voorberg, V.J.J.M. Bekkers, L.G. Tummers, A Systematic Review of Co-Creation and Co-Production: embarking on the social innovation journey, Publ. Manag. Rev. 17 (2015) 1333–1357.
[181] G. Winkworth, Disaster Recovery A Review of the Literature, 2007.
[182] K. Nguyen-Trung, H. Forbes-Mewett, D. Arunachalam, Social support from bonding and bridging relationships in disaster recovery: findings from a slow-onset disaster, Int. J. Disaster Risk Reduc. 46 (2020), 101501.