Characterization of partnerships and collaborations in US cities' urban resilience plans

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Abstract

Purpose – The United Nations Sustainable Development Goal (UN SDG) number 13 calls for urgent action to combat climate change impacts. Urban resilience planning documents often articulate partnerships and collaborations (P&Cs) as critical strategies. This study aims to identify the actors, the topics, processes, and visions of collaboration.

Design/methodology/approach – This paper explores the characterization of urban resilience partnerships via a thematic content analysis of resilience strategy documents produced in US cities through the 100 Resilient Cities Project.

Findings – P&Cs are defined broadly, taking several forms to meet various objectives. They act as boundary objects engaging across social groups, but the details of the P&Cs are rarely articulated, which is problematic for their implementation. P&Cs are commonly discussed in relation to the focus of the work; therefore, they less often define the specific actors, processes or transformative visions involved.

Research limitations/implications – This research focuses only on the resilience plans written in US cities, showing the perspective of US policymakers. Documents analyzed were produced via the Rockefeller Foundation's 100 Resilient Cities Project.

Practical implications – Understanding and categorizing the who, what, when and why of P&Cs for urban resilience provide a deeper understanding of how these strategies are being described and offer a starting point for tangibly actualizing partnerships and collaborations outside planning documents.

Social implications – To reach vital urban resilience goals, P&Cs must be designed and managed appropriately. Understanding the shortcoming of current P&C policies can help managers mitigate problems and find better approaches.

Originality/value – To the best of the author's knowledge, this paper is the first to analyze how P&Cs are being articulated and described in urban resilience plans. The United Nations Sustainable Development Goal number 13 calls for urgent action to combat climate change and its impacts. As urbanization continues and the effects of climate change escalate, city governments are finding themselves responsible for the resilience of large populations. To cope, increasing numbers of municipalities are developing urban resilience plans. These documents often articulate partnerships and collaborations (P&Cs) as critical strategies for enhancing resilience capacity and implementing resilience policies. Although specific case studies of resilience-related collaborative practices are well documented in urban resilience literature, little is known about the proliferation of P&C strategies collectively. Furthermore, questions remain regarding the characterization of resilience P&Cs by practitioners, including who is involved and what types of projects they undertake. Therefore, this analysis explores urban resilience P&Cs via a thematic content analysis of resilience strategy documents produced in 16 US cities through the 100 Resilient Cities Project. Results indicate that cities

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prioritize P&Cs in resilience policy implementation, but they often fall short in defining the key components of P&Cs that are vital to their success. The analysis exposes the most common actors, topics, processes and visions described in resilience P&Cs and makes recommendations for how urban resilience P&Cs can be improved in the future.

Keywords Resilience, Urban planning, Partnership, Collaboration, Document analysis, Sustainability

Paper type Research paper

Introduction

As the global climate continues to warm, human populations must contend with increasing numbers of extreme environmental events and the social and economic damage they leave in their wake. It has been formally recognized that adapting to climate change impacts in an anticipatory and planned manner is crucial to the well-being of communities across the globe (Moloney, Scott, & Macdonald, 2018). This is illustrated in Goal 13 of the United Nations Sustainable Development Goals (SDGs), which calls for "urgent action to combat climate change and its impacts" (United Nations, 2017) , as well as in the 2015 Paris Agreement, which established a goal for "enhancing adaptive capacity, strengthening resilience and reducing vulnerability to climate change [. . .]" (UNFCCC, 2015, Article 7.7a, p.10). Additionally, there has been philanthropic support for accelerating a global resilience agenda, which can be seen in initiatives like the Rockefeller Foundation's 100 Resilient Cities (100RCs) Project, which helped 74 cities across the globe hire Chief Resilience Officers and write urban resilience plans (Spaans & Waterhout, 2016).

Globally and in the USA, governments across scales have developed a plethora of climate resilience-related policies and plans to build adaptive capacity and implement actions to reduce risk and vulnerability while enhancing equity (Adger, Arnell, & Tompkins, 2005; Fastiggi, Meerow, & Miller, 2020; Muñoz-Erickson *et al.*, 2021; Woodruff, Meerow, Stults, & Wilkins, 2018). Local governments and urban municipalities have been particularly active since the prevailing notion is that climate change resilience initiatives should be local and context-specific (Baker, Peterson, Brown, & McAlpine, 2012). Additionally, municipal governments feel increased pressure to develop climate adaptation and resilience solutions as urban populations continue to rise. By 2050, when climate change impacts are likely to be felt in full force, more than two-thirds of the world's population, over 7 billion people, will be living in cities (Ritchie & Roser, 2018). In this context, a rush to develop comprehensive urban resilience plans has emerged, and they have become a thriving area of academic research.

While the definition of urban resilience remains contested in academic circles (Meerow & Stults, 2016), cities have widely adopted the concept, finding it a helpful construct for anticipating and mitigating the shocks and stressors related to climate change. In the realm of urban planning, several methods and mechanisms for achieving urban climate resilience have emerged, often articulated in the form of planning documents. Local governments tend to base their plans on their unique context and challenges, leading them to their own specific definition of urban resilience that explains "Resilience for whom and to what? When? Where? And why?" (Meerow & Newell, 2016). Generally, urban climate resilience plans aim to help cities build their capacity to withstand and adapt to disruptive events, including chronic stresses (i.e. aging infrastructure, socio-economic disparities and environmental degradation) and acute shocks (i.e. sea level rise, earthquakes, floods) (Meerow, Pajouhesh, & Miller, 2019).

Across applied urban resilience literature, distinct attributes and strategies for implementing urban resilience have emerged. One of the most central themes is the development, use and enhancement of inter-institutional and cross-disciplinary partnerships and collaborations (P&Cs) (Chi, Williams, Chandra, Plough, & Eisenman, 2015; Drakaki & Tzionas, 2017; Marana, Labaka, & Sarriegi, 2018; Schauppenlehner-Kloyber & Penker, 2016). These P&Cs can be formal or informal and span a range of configurations but require that individuals and organizations come together for a common goal (Caughman, Keeler, & Beaudoin, 2020; Crowe, Foley, & Collier, 2016; Nevens, Frantzeskaki, Gorissen, & Loorbach, 2013). P&Cs are related to the concept of urban resilience in several ways. For example, they can be viewed as an intrinsic quality of urban resilience, a strategy for implementing urban resilience and an indicator of increased urban resilience itself.

Intrinsically, urban resilience is sometimes considered to be a "boundary object" or "bridging concept" that resonates with a wide variety of social worlds and, as a result, can bring together different stakeholders and disciplines (Brand & Jax, 2007; Meerow, 2017). When considering cities as complex systems that require management across countless specialties, cultures and perspectives, the malleable definition of resilience can act as a natural unifying force. However, this same definitional malleability can also confuse and is often critiqued (MacKinnon & Derickson, 2013; Tierney, 2015). However, despite concerns, there are several examples of the concept of urban resilience being used to bring people together via P&Cs to tackle multifaceted problems in transdisciplinary ways.

For instance, a cross-bureau and inter-institutional partnership was formed in Portland, OR, to understand better the city's infrastructure vulnerabilities and plan recovery strategies. In this case, Portland State University administrators and researchers came together with city leaders from the bureaus that work on water, sewer, environmental services, sustainability and disaster management. Although defined differently by all participants, the term resilience united the team and strengthened their resolve to work together, leading to an integrated infrastructure resilience planning session and the formation of an ongoing cross-bureau collaborative team in the city (Caughman, Keeler, *et al.*, 2020).

Further, forming and using P&Cs offer several advantages as an urban resilience implementation strategy, especially enhancing equity through collaborative governance and meaningful engagement. Recent work has argued that, if done well, the collaborative practices that are often articulated via P&Cs in urban resilience planning can help facilitate procedural, recognitional and distributive justice (Meerow *et al.*, 2019). In addition, this deep engagement between government and community facilitates resilience by bettering the distribution of goods and services (i.e. infrastructure and environmental amenities), enhancing respect between groups (i.e. honoring group experience and history) and by opening the doors for participation in decision-making processes (i.e. co-writing plans) (Meerow *et al.*, 2019; Schlosberg, 2003).

The act of bringing groups together is a reinforcing concept which in turn supports increased levels of urban resilience itself, via increased connectivity. When considering cities within a systems framework, collaborative approaches to urban resilience planning reduce the number of "policy silos" and can mitigate the counterproductive outcomes that arise from treating interrelated problems in isolation (Coaffee & Clarke, 2015). Alternatively, linked networks can be formed via collaborative urban resilience planning that build

multi-scale connectivity, enhance system redundancy and facilitate physical and social bonds that can be relied upon in extreme events.

When integrated and collaborative resilience planning fails, some systems may be strengthened while others remain vulnerable, leading to unforeseen cascading failures across multiple domains (Pescaroli & Alexander, 2015; Serre & Heinzlef, 2018). Urban environments are complex systems, and critical social, technological and environmental infrastructures rely upon each other to function properly (and therefore must be made resilient in relationship to each other). For instance, vulnerabilities in a municipal sewer system could cause pipes to rupture during a storm, hence contaminating drinking water and causing disease within the community. In this example, making the drinking water system more resilient necessitates the strengthening of the wastewater and public health systems simultaneously.

Making complex systems resilient necessitates working across domains via P&Cs, which is reflected in urban resilience planning and implementation. In fact, a recent study of resilience planning documents from US cities showed that "85% of strategies described partnering with external organizations and stakeholders to create and implement actions" (Fitzgibbons & Mitchell, 2019). Despite this staggeringly high number, academic studies of P&Cs' relationship to urban resilience tend to focus only on individual case studies that document specific partnership initiatives (Acosta *et al.*, 2018; Chi *et al.*, 2015; Drakaki & Tzionas, 2017; Marana *et al.*, 2018). To date, there has been little work that looks comprehensively at the proliferation of urban resilience P&Cs. Questions remain regarding the characterization of P&Cs by practitioners, including who are the actors and what are the topics, processes and visions of collaboration for urban resilience?

This paper explores urban resilience P&Cs via a thematic content analysis of urban resilience planning documents produced in 16 US cities through the 100RCs project. It aims to describe how urban resilience P&Cs are being articulated in practice and offer insight into the typology and quality of proposed P&Cs. This takes the form of two research questions:

RQ1. Are specific thematic areas related to collaborations consistently represented in the resilience plans?

RQ2. What are the characteristics of the collaborative processes, actors and topics in the plans?

A better understanding of how urban resilience P&C is described and characterized can aid in assessing their efficacy and provide a platform for learning best practices across varying geographies and experiences.

Methods

This study examines US cities' urban resilience plans and strategies and their characterization of P&Cs. This is achieved via a deductive content analysis of all 16 of the 100RC strategy documents produced in US cities (Table 1 and Figure 1).

A description of an observed phenomenon's distinctive nature and features must be generated to characterize it. Therefore, a document content analysis was used to analyze proposed P&Cs within the 16 US city's resilience planning documents following methods outlined by Vaismoradi, Turunen, and Bondas (2013). The urban resilience planning documents were closely read to find sections where the documents discussed P&Cs, and this identified text was analyzed. Coded categories were derived directly from the text data and then sorted into sub-theme and overall category groups (Table 2). Five district category groups emerged where P&Cs were mentioned and defined: actors (who is involved in the

Table 1.
List of all 16 urban resilience plans produced in the USA through the 100RCs project, including city population and population density as of 2020

Identifier	City, state	Population	Population density (per sq. mi)	Plan title	Length	Date released
1	Atlanta, Georgia	498,715	3,685	Resilient Atlanta: Actions to Build an Equitable Future	78 pages	Nov 2017
2	Berkeley, California	124,321	11,917	Resilience Strategy: A strategic preparedness plan for Berkeley, a community known for inclusiveness and innovation	56 pages	Apr 2016
3	Boston, Massachusetts	675,647	13,976	Resilient Boston: An equitable and connected city	154 pages	Jul 2017
4	Boulder, Colorado	108,250	4,112	City of Boulder Resilience Strategy	52 pages	April 2016
5	Chicago, Illinois	2,746,388	12,059	Resilient Chicago: A plan for inclusive growth and a connected city	162 pages	Feb 2019
6	Dallas, Texas	1,304,379	3,840	Resilient Dallas	79 pages	Jun 2018
7	El Paso, Texas	678,815	2,626	Resilient El Paso	114 pages	Feb 2018
8	Los Angeles, California	3,898,747	8,304	Resilient Los Angeles	91 pages	Mar 2018
9	New Orleans, Louisiana	383,997	2,029	Resilient New Orleans: Strategic actions to shape our future city	90 pages	Aug 2015
10	New York, New York	8,804,190	29,302	One New York: The plan for a strong and just city	354 pages	Apr 2015
11	Norfolk, Virginia	245,000	4,525	Norfolk's Resilience Strategy	60 pages	Oct 2015
12	Oakland, California	440,646	7,878	Resilient Oakland: Collaborative. Data-driven. Equitable.	62 pages	Oct 2016
13	Pittsburgh, Pennsylvania	302,971	5,470	ONE PGHL Resilient Pittsburgh; Pittsburgh's Resilience Strategy: Together we move forward as one Pittsburgh	61 pages	Mar 2017
14	San Francisco, California	873,965	18,634	Resilient San Francisco: Stronger today, stronger tomorrow	71 pages	Apr 2016
15	St. Louis, Missouri	301, 578	4,885	Preliminary Resilience Assessment	19 pages	Mar 2018
16	Tulsa, Oklahoma	413,066	2,088	Resilient Tulsa: An equitable, action-oriented, and collaborative roadmap for all of Tulsa	69 pages	Jun 2018

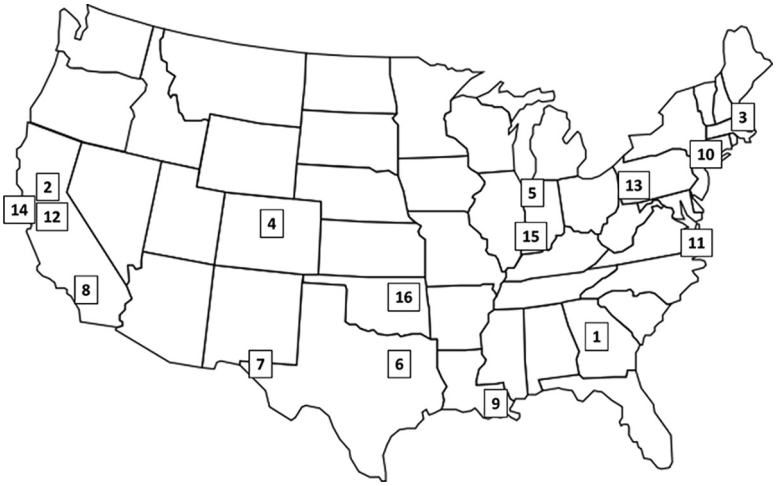


Figure 1.
Map of all 16 US cities with resilience plans from the 100RCs program Numbers correspond with list in Table 1

partnership action), process (how the partnership is implemented), focus (what is the topic area of the partnership) and futures (why the partnership is needed). Co-occurrence tables were generated to understand better the full context of the proposed P&Cs, as well as a cross-city comparison to draw out the most prevalent similarities and differences in approach to resilience P&Cs across the 16 cities in the USA.

Results

Analysis showed that across the 16 resilience planning documents, P&Cs were mentioned over 2,000 times. When P&Cs are discussed, the most commonly co-occurring codes fall into four separate theme groups. In order of prevalence, these themes include: focus (what topic the P&C targets), actors (who is involved in the P&C), process (how P&C activities unfold) and futures (why the P&C has value) (Figure 2).

When looking at occurrences by category, it is clear that P&Cs are most commonly discussed in relation to the focus or topic area of the work; therefore, they less often define the specific actors, processes or transformative future-oriented visions involved. However, each theme offers insights into how practitioners characterize urban resilience partnerships and, as such, results from each category are explored in further detail below.

Partnerships and collaborations focus

Analysis revealed that nearly all mentions of P&Cs in the urban resilience planning documents noted a specific topic area for the work. In total, 16 areas emerged, the focus on health being the most prevalent. The 16 focus areas were, in order of prevalence: health, technology, disaster, water, jobs, infrastructure, transportation and mobility, housing, energy, environment, ecosystem, food, school, education, equity/justice and culture. Health was noted as a focus area for P&Cs nearly 300 times, followed by technology, mentioned over 200 times, with all other topics being mentioned fewer than 200 times (Figure 3).

P&Cs focused on health tended to be cross-cutting with several other focus areas, as can be seen in this quote:

Table 2.
Description of the coding scheme developed via analysis of the 100 RC documents

Category group	Sub-themes	Codes	Details
Focus	Environmental Social Technical Economic Other	Extreme Environmental Events; Natural Disaster; Ecosystem; Environment; Water; Other environmental Education; Culture; Equity; Justice; Health; Housing; Infrastructure; School; Mobility; Other social Technology; Transportation; Energy; Infrastructure; Other technical Workforce; Jobs; Economy; Other economic Other general	Describes the topic area of the stated partnership or collaboration. The "what"
Actors	Government Community Education Private Sector Hospital Non-governmental Organization (NGO) Other	City; Bureau; Department; Municipal; Government; Agency; Other government actor Community; Community organization; Identity-based group; Neighborhood; Other community actor College; University; Academic; School; Other educational actor Business; Industry; Hospital; Church; Private sector; Other private sector actor Hospital; Doctor; Healthcare; Other health actor Non-profit; Non-governmental organization; Other NGO actor Other general actor	Describes who is involved in the stated partnership or collaboration. The "who"
Processes	Planning Engagement Evaluation/ Monitoring Process (general) Research	Planning; Plans; Policy; Other planning Outreach; Engagement; Communication; Other engagement Assessment; Monitor; Evaluate; Data; Report; Other assessment Scenario; Workshop; Activity; Other general process Study; Research; Other research	Describes the processes involved in implementing the partnership or collaboration. The "how"
Futures	Vision Transformation Transition	Vision; Visioning; Future; Other vision Transformation; System Change; Other transformation Transition; Other transition	Describes systemic changes and visions of the future to be achieved via partnership and collaboration or visions of partnership and collaboration itself. The "why"

> [. . .] Chicago's multi-pronged approach acts as a platform on which local residents of various backgrounds can work creatively together toward more equitable decisions about Chicago's built environment through the collaboration of public health, climate resilience, and the arts.

Generally, most P&Cs mentioned more than one focus area at a time.

Partnerships and collaborations actors

When actors are mentioned in relation to partnership and collaboration, *community* appears far more often than any other actor group (Figure 3). This shows that when practitioners are discussing urban resilience P&Cs, they often imagine community involvement. Because of this articulation, urban resilience P&Cs can be seen as a community engagement strategy. However, for each group of actors, a distinct breakdown of focus areas, other actors, processes and visioning emerges, highlighting the structure of desired urban resilience partnerships and collaborations (Figure 4).

A few key findings emerge when we examine the distributions of co-occurrences for each actor group. For instance, partnerships focus on a broad distribution of topics between community, government and private sector when exploring community as an actor. Besides, the processes for collaboration are often discussed. For each actor group, a similar sort of signature pattern of P&C format arises. These findings are summarized in Figure 5 and Table 3.

In Figure 5, see in the item a); the symbols and associated meanings that describe how often a category were defined. In the item b); it is detailed a breakdown of each actor group and how often partnership focus area, other actors, processes and futures were defined in the description of the partnership.

These charts show that, collectively, focus areas and other actors are defined far more often than the processes or visions of the future related to any given P&C. This indicates that the resilience planning documents tend to define who ought to be involved in a P&C

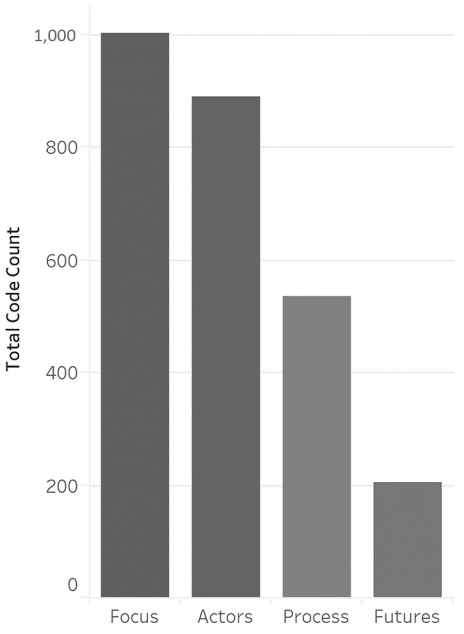


Figure 2.
Total code counts showing how often each category group was mentioned when the documents were describing resilience P&Cs. Note that for each mention of a P&C, multiple actors, topics, processes and futures could be articulated (making the total count for each category higher than the total number of times P&C were mentioned)

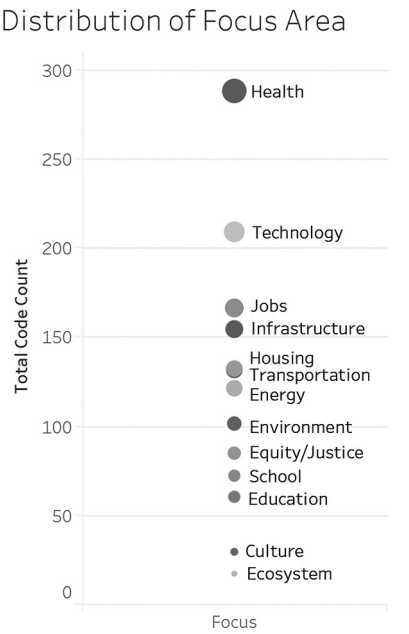


Figure 3.
Health is the most common code mentioned related to the focus area of the P&Cs

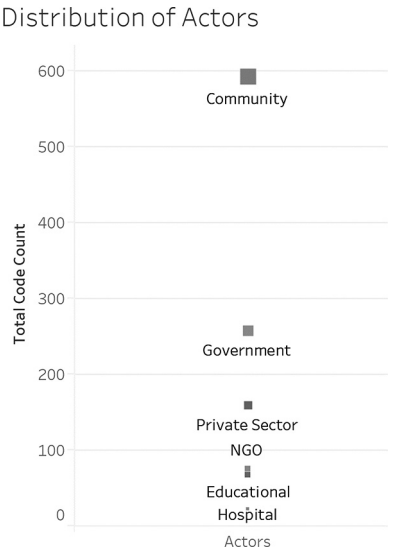
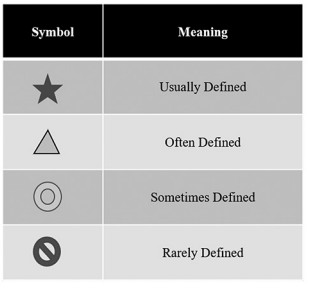


Figure 4.
Count of all codes mentioned related to the actors of a P&C, with *community* being the most prevalent actor mentioned

and what they ought to complete together but fails to recognize how the work should be accomplished or the bigger picture of why it should be done. Additionally, the results show how certain actors are often mentioned as partnering together, but only on specific tasks (i.e. educational actors to partner with governmental and community actors on collaborative resilience research). This indicates that specific actors are seen to have value in mostly



Symbol	Meaning
★	Usually Defined
△	Often Defined
◎	Sometimes Defined
⊘	Rarely Defined

(a)

	Focus	Actor	Process	Futures
Education	★	◎	△	⊘
Community	★	◎	◎	⊘
Government	★	◎	△	◎
Hospital	★	◎	⊘	⊘
Private Sector	★	△	◎	⊘
NGO	★	△	◎	⊘

(b)

Figure 5.
a) Symbols and associated meanings that describe how often a category was defined; b) A breakdown of each actor group and how often partnership focus area, other actors, processes, and futures were defined

Primary actor group	Focus	Actor	Process	Futures
Education	Health; Technology	Community; Government	Planning; Research	Vision
Community	Health; Technology; Jobs	Government; Private sector	Planning; Engagement	Vision; Transformative
Government	Health; Technology;	Community; NGO	Planning; Engagement	Vision; Transition
Hospital	Health	Community; Education	Planning	Vision
Private sector	Health; Technology; Disaster; Jobs; Energy; Infrastructure; other	Community; Government	Planning; Engagement	Vision; Transformative
NGO	Health; Culture	Government; Community	Planning; Engagement	Vision; Transformative

Table 3.
Actor groups and the most commonly co-occurring codes mentioned in relation to partnership focus, actors, processes and futures in the partnership description

limited and discrete roles. Intriguingly, the private sector actors were the most comprehensive in terms of P&C focus areas, spanning health, technology, disaster, jobs, energy, infrastructure and other categories. While other actor groups did have some diversity in the focus area, they tended to be dominated by a specific category. The private sector was more evenly distributed without a clear topic leader. This could mean that the

private sector is considered well-positioned to partner on resilience efforts across domains compared to other actor groups, or it could be an indication that the resilience plan writers have limited conceptions of the range of interests and capacities of other actor groups and erroneously confine them to a particular P&C focus area.

Partnerships and collaborations process

Analysis of the 16 US 100RC documents also showed how practitioners describe the processes that resilience P&Cs will undertake. Five process categories emerged, which include, in order of prevalence: planning, engagement, evaluation and monitoring, research and process (general) (Figure 6).

Planning was perceived as the most dominant process, mentioned alongside P&Cs over 1,000 times (almost more than the number of times all other processes were mentioned combined). Planning was most often discussed in relation to community, health, disaster, water, jobs, transportation and visioning. Table 4 summarizes the results from each process category and the most often co-occurring codes within the actors, topics and futures categories.

Partnerships and collaborations futures

Of all categories, futures or "the why" of P&Cs, was mentioned the least. Futures captures where the documents describe systemic changes and visions of the future to be achieved via partnership and collaboration or visions of partnership and collaboration itself. Three main sub-themes emerged, including vision (in general) and then, less often mentioned, but more specifically, transformations and transitions (Figure 7).

Mentions of visions typically accompanied community and government actors and planning processes focused on health. Meanwhile, discussions of transitions were more often related to the topic areas of planning for transport and mobility and disaster with government actors, and transformation was related to the topics of planning and engagement between community and government with a focus on health and jobs (Figure 8).

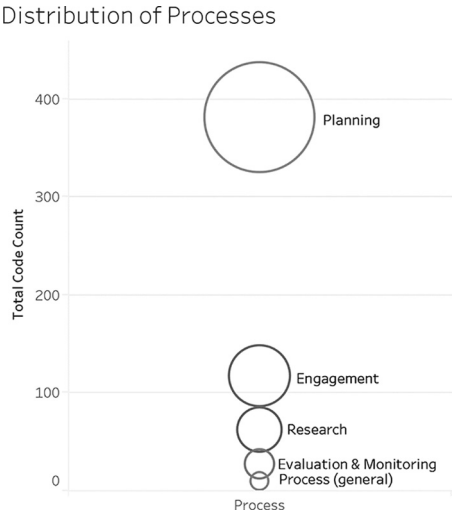


Figure 6.
Count of all codes mentioned related to the processes of a P&C

Cross-city comparison

As noted in Table 1 above, the cities included in the analysis are vastly different in terms of population size, geographic location, economics and environmental risk. The 100RC resilience planning documents also varied significantly in length, ranging from 19 pages (St. Luis, MO) to 354 pages (New York, NY), as demonstrated in Figure 9 below.

Therefore, the analysis accounted for document length to obtain an accurate understanding of which city's documents prioritized P&Cs the most. To accomplish this, the rate at which cities mentioned P&Cs was attained by calculating the average number of P&Cs mentioned per page. Using this metric, it becomes clear that Los Angeles and Pittsburgh mentioned aspects of P&Cs at the highest rate proportional to document length, roughly 3–3.5 times per page, whereas New York mentioned P&Cs at the lowest rate despite

Table 4.
Process categories and most commonly co-occurring themes, which define who (the actors), what (focus areas), and why (futures) each process should be used within a resilience P&C

Process category	Co-occurring themes defining the P&C
Planning	Community, health, disaster, water, jobs, transportation, infrastructure, vision
Engagement	Community, government, technology, jobs, vision, transformative
Evaluation and Monitoring	Community, health, technology, infrastructure, disaster, environment, water, vision, transition
Research	Academia, community, technology, health, transportation, housing, jobs, vision, transition, transformative
Process (general)	Community, technology, housing, equity/justice

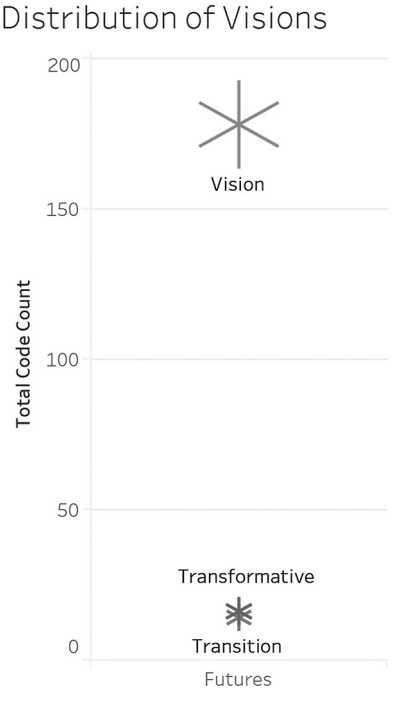


Figure 7.
Count of all codes mentioned related to the *futures* category of resilience P&Cs

(or perhaps because of) having the longest document with the highest absolute count of P&Cs (Figure 10).

Overall, the City of Los Angeles mentioned P&Cs at a higher rate than any other city. Additionally, Los Angeles consistently defined key aspects of the P&Cs, often including the specific focus areas of the P&Cs and the processes that would both establish and govern the P&Cs. For instance, on page 68, the document states:

> The City [Los Angeles] will partner with agencies such as the Mountains Recreation and Conservation Authority and Los Angeles Conservation Corps to continue the seasonal Recreation Zone program and expand the River Rangers and River Ambassadors programs, which provide critical in-person public education opportunities within river-adjacent communities.

Additionally, on page 73, they write:

> The City [Los Angeles] will also support local food businesses in developing resilience plans through the following actions: Partner with researchers to further study food resilience in Los Angeles by developing case studies, identifying additional key distribution and retail vulnerabilities, and highlighting opportunities to build and sustain food resilience.

This excerpt may indicate that Los Angeles sees urban resilience as an innately collaborative undertaking and that the city has the most comprehensive experience with collaborations, which could mean other cities can look to Los Angeles and learn from their practices when establishing their own resilience P&Cs (Figure 11).

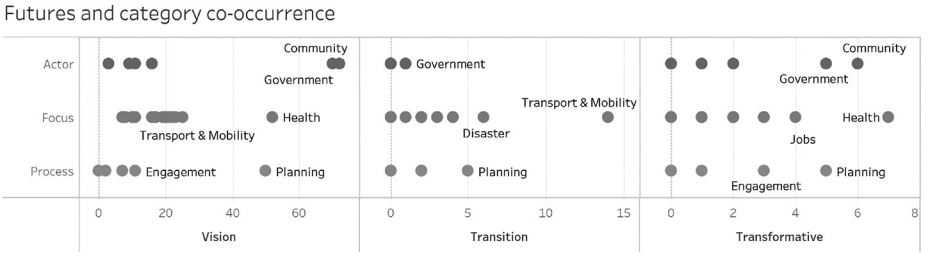


Figure 8.
Counts of code co-occurrence across categories for mentions of P&C futures

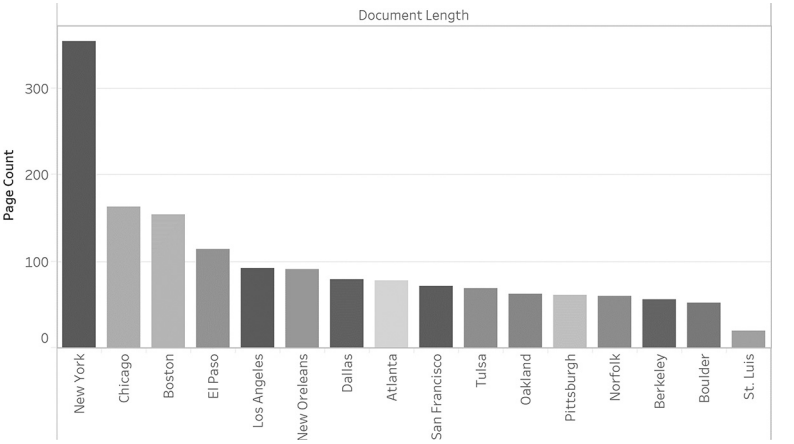


Figure 9.
Page count of the 100RC resilience plans for each city included in the analysis

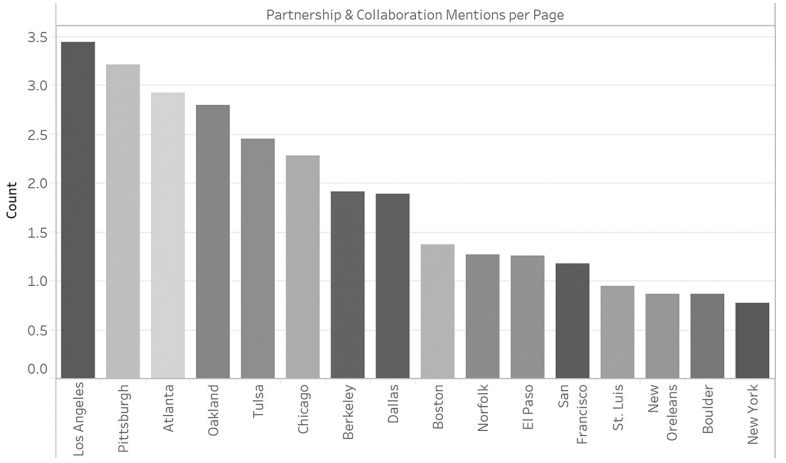


Figure 10. Average rate of P&C mentions per page for each city

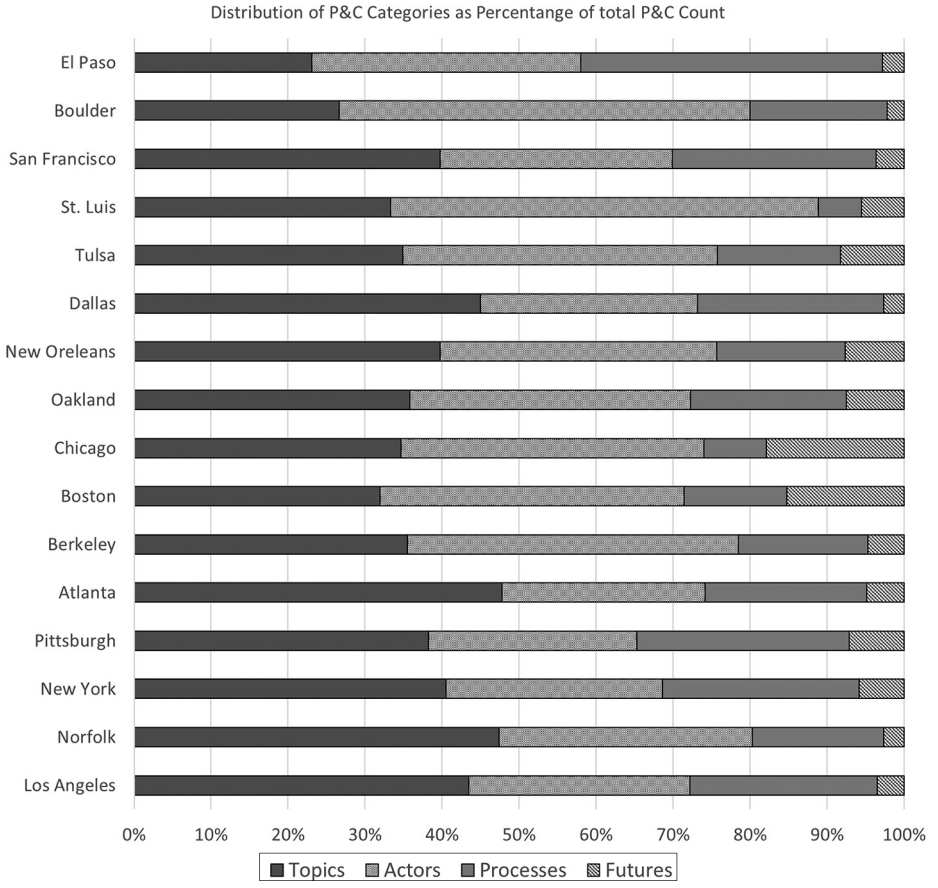


Figure 11. Chart showing the distribution of topics, actors, processes and futures for each city when P&Cs were mentioned

Looking at the distribution of defining P&C categories (topics, actors, processes and futures) for each city, a similar pattern emerges across all cities. In general, P&C topics are defined most frequently, followed by the actors, then the processes and, least often, the futures. However, there is some variation across the cities. For example, Atlanta and Norfolk lead in defining the focus areas and topic of P&Cs, specifying this information nearly 50% of the time. For instance, on page 33 of the Norfolk resilience document, they state:

> Vibrant Spaces [in partnership with the city of Norfolk] provides grants to energize street-level businesses' storefronts, improve signage, add outdoor seating, activate sidewalks and rooftops, and house a new business collaboration.

When considering who is involved in proposed P&Cs, the cities of St. Luis and Boulder lead in defining actors, doing so over 50% of the time. For example, on Page 32, the city of Boulder explains:

> The AmeriCorps VISTAs will assist Boulder in developing and piloting a citizen corps disaster preparedness training initiative by partnering with 100RC network city, Wellington, New Zealand, and aligning these emerging efforts with deliberate ties to community volunteerism and civic ownership opportunities that already exist.

Meanwhile, El Paso leads in defining processes and procedures associated with P&Cs, which happens in their document roughly 40% of the time. For instance, on Page 17, they define teams and planning horizons:

> This ensures cross-functional collaboration as goal teams identify and produce measurable outcomes while pursuing strategic opportunities spanning over a one-year (short-term) and three-five year (longer-term) planning horizon.

Additionally, on Page 102, El Paso talks about how they will frame partnerships and build them into the planning culture:

> By embedding resilience thinking into the city's organizational approach, El Paso will ensure that municipal practices and policies always take an interdisciplinary approach to facing regional challenges, maximizing the value of its investments.

Finally, Chicago leads in defining futures related to P&C work, closely followed by Boston; they are the only cities to mention this more than 15% of the time. For instance, Boston mentions transformation on Page 54:

> Adopting this transformational approach is no simple task; changing Boston's decision-making culture will take time and effort, but the impacts of this approach will be much more significant than those that may result from smaller-scale interventions.

Chicago tends to link their partnerships and collaboration activities to visions of the future, as demonstrated on Page 33:

> In this vein, Resilient Chicago envisions a safer Chicago for its residents by focusing on initiatives that improve communication between government and residents, promote affordability, and increase access to jobs and mobility.

This cross-city analysis shows that no city has a perfectly equal distribution of defining all parts of a proposed resilience P&C. However, it also indicates that some cities have more strength in defining particular aspects of resilience P&Cs than others, meaning that there is an excellent opportunity for learning amongst these cities to strengthen all of their resilience P&C endeavors.

Discussion

The results of the document analysis offer insight into how urban resilience P&Cs are being characterized and articulated by practitioners in planning documents. The analysis shows that P&Cs are defined broadly, taking several forms to meet various objectives. This analysis also suggests that urban resilience P&Cs are indeed acting as boundary objects with the aim of engagement across social groups. However, the critical defining details of the P&Cs (focus area, actors, processes and futures) are inconsistently articulated, which is potentially problematic for their implementation and success.

Topically, the P&Cs mentioned in the documents spanned a wide range of focus areas. This spread is unsurprising because of the disciplinary-defying nature of urban resilience itself. However, it appears that P&Cs are being suggested as planning and implementation strategies across all urban resilience topic areas, and the sheer number of P&Cs mentioned across all cities highlights their relevance to urban resilience planning as a whole. This supports the notion that the diverse definitions and understandings of urban resilience form a sort of boundary object, where social actors from widely varying perspectives can see their interests represented within the idea. While this might be advantageous in bringing people together to form P&Cs and could potentially increase connectivity, thus enhancing resilience, it also poses serious challenges.

Research on P&Cs shows that they are most successful at reaching their intended outcomes when the initiatives have well-defined shared goals, agreed-upon processes and appropriately chosen actors (Liliana Caughman, Keeler, *et al.*, 2020). Unfortunately, these details were rarely delineated for each proposed partnership across the planning documents. This can be seen, for example, in the fact that the most commonly cited process for P&Cs articulated in the planning documents was to make additional plans. This "plan to plan" approach is sometimes appropriate but also may indicate that the proposed P&C is no more than a suggestion that has not been fully considered for its applicability, usefulness or buy-in. Therefore, it is unclear if all of the P&Cs mentioned within the documents are serious endeavors or simply well-intentioned ideas that will likely never materialize.

Additionally, this lack of specificity could inhibit the actualization of equity in urban resilience implementation. Across all documents, community organizations and individual members of specific communities were the most commonly proposed actors for participation in P&Cs. This highlights that the P&Cs are often seen by plan writers (primarily government officials) as community-engagement methods. While this could lead to more collaborative governance that supports the well-being and prosperity of commonly under-severed groups like people of color and low-income residents, these outcomes are not guaranteed. Social justice, environmental justice and community-led participatory planning literature consistently demonstrate that achieving procedural, recognitional and distributive justice requires transparency, trust and follow-through. Considering the high number of community-based P&Cs proposed in these documents and the general lack of specification, there is concern that several of these P&Cs could perpetuate harm rather than mitigate it.

Adequate implementation of P&Cs for equitable, just and generally successful outcomes also requires close attention to the outcomes and impacts of the work. Therefore, processes that support accountability, adjustment and learning must be included in the P&C process. Unfortunately, descriptions of monitoring and evaluation approaches were incredibly sparse across all the P&Cs mentioned throughout the 16 analyzed documents. This again causes concern about the efficacy of the proposed P&Cs and their ability to enhance equity in urban resilience.

Additionally, P&Cs may not be the most appropriate implementation strategies for all aspects of urban resilience. The immense number of P&Cs as urban resilience strategies seen throughout these documents is over-promising at best and could lead to severe community fatigue at worst. It is hard to imagine that all of the proposed P&Cs will be given

the time, resources and energy needed to be actualized; and there is an assumption that community organizations and individuals would like to engage in urban resilience partnerships. These problems can quickly compound other equity challenges, leading to failed P&Cs, continued injustice and ultimately little improvement in urban resilience.

It may be advantageous for urban resilience planners and practitioners to consider the application of P&Cs more deeply. While P&Cs have huge potential for enhancing equitable urban resilience implementation, they require real forethought, commitment and resources. Our document analysis revealed that P&Cs' characterizations often failed to describe "the why" behind the work; in other words, they failed to communicate whether critical thought and reasoning contributed to the decision to use P&Cs to facilitate transformations toward future visions. Few mentioned how the P&Cs would contribute to a proposed future state of enhanced urban resilience or related them to visions of more significant urban transformations or societal transitions. Perhaps deeper consideration of why P&Cs should be used in a particular context will lead to fewer but more comprehensive and attainable P&Cs being proposed and developed.

The cross-city analysis highlighted that each of the 16 cities discussed P&C urban resilience strategies at varying rates and tended to define key aspects of each P&C (focus area, actors, processes and futures) to differing extents. This shows that collectively the interest in using P&Cs to obtain urban resilience outcomes is a high priority, but that each city has its own capacities and deficits. These findings could be used as a tool for city resilience planners to build cross-city relationships and enhance cross-city learning when successfully implementing urban resilience programs and policies that rely on P&Cs. For instance, the analysis exposed that Los Angeles and Pittsburgh use P&Cs the most and might therefore have the most in-depth experience with P&Cs, which could position them as mentors and leaders for other cities that are just beginning to enhance their P&C initiatives. Additionally, Chicago most consistently connected P&Cs to transitions, transformations and their visions for the future, which may indicate that Chicago has clarity about the future vision of resilience and has put effort into understanding both why and how P&Cs are a valuable approach to get there. As other cities attempt to implement their proposed P&Cs, it could be advantageous to look to Chicago's approach for future-oriented thinking.

Finally, this high-level analysis can be a starting point for more in-depth research into how P&Cs are used in urban resilience planning and implementation. Prior to this work, it was clear that P&Cs were becoming more popular within resilience planning, but the focus area, actors, processes and futures related to resilience P&Cs had not been comprehensively explored. This analysis exposed severe deficits in articulating P&C strategies and casts doubt on whether the proposed urban resilience P&Cs will succeed. It is clear that cities may not have all the tools needed to articulate their P&Cs fully, and follow-up studies should explore which of these P&Cs are implemented and how successful there are at meeting their intended goals. Follow-up research should also be completed to understand why the details of P&Cs were not often fully articulated in the planning documents. This could take the form of interviews with Chief Resilience Officers in each of the 16 US 100RC cities. Beyond that, more work should be done to understand if the popularity of P&Cs relates to achieving intended outcomes and enhancing urban resilience. Additionally, future research should compare how often P&Cs are proposed as urban resilience strategies in the US versus cities in other parts of the world, which could offer insights into the varying governance approaches for urban resilience globally and provide potentially new and innovative models for community engagement.

Conclusion

Cities are increasingly identifying P&Cs as mechanisms for implementing urban resilience, which is crucial for achieving the SDG 13. This study confirms results from other reports that

find that P&Cs are mentioned alongside other resilience strategies in US cities more often than any other approach. This is valuable for understanding how partnership-based work is being used to actualize and accelerate SDG target 13.1, which focuses on strengthening resilience and adaptive capacity to climate-related disasters. As the desire to form and implement P&Cs continues to grow, it is becoming increasingly important to understand what exactly P&C means in the context of urban resilience. Like the term resilience itself, P&Cs can have different meanings depending on the context, which can be benign, harmful or helpful.

This article explores how municipal practitioners in the USA are characterizing P&Cs within their urban resilience planning documents, supporting research on SDG 13.2, which aims to integrate climate change measures into policies and planning across scales. Understanding and categorizing the who, what, when and why of P&Cs for urban resilience provide a deeper knowledge of how these strategies are being described and offer a starting point for further research into urban resilience P&Cs, including how they are tangibly actualized outside planning documents, connecting policy and planning to action.

The cross-city analysis showcases each city's strengths and weaknesses concerning their ability to articulate the details of their P&C strategies fully and offers a guide for cross-city learning and innovation. The findings support the idea that connected P&C networks can promote SDG target 13.3 (building knowledge and capacity to meet climate change) by facilitating enhanced learning and increasing human and institutional capacity. This analysis is a starting point for understanding urban resilience P&Cs, but highlights that future research must be done to understand why cities are failing to define aspects of their partnership-based resilience work consistently and whether or not the proposed P&C strategies are implemented successfully, leading to the type of climate action and enhanced resilience that are critically needed.

References

Acosta, J. D., Burgette, L., Chandra, A., Eisenman, D. P., Gonzalez, I., Varda, D., & Xenakis, L. (2018). How community and public health partnerships contribute to disaster recovery and resilience. *Disaster Medicine and Public Health Preparedness*, *12*(5), 635–643, doi: https://doi.org/10.1017/dmp.2017.130.

Adger, W. N., Arnell, N. W., & Tompkins, E. L. (2005). Successful adaptation to climate change across scales. *Global Environmental Change*, *15*(2), 77–86, doi: https://doi.org/10.1016/j.gloenvcha.2004.12.005.

Pescaroli, G., & Alexander, D. (2015). A definition of cascading disasters and cascading effects: Going beyond the "toppling dominos" metaphor. *Planet@ risk*, *3*(1), 58–67.

Baker, I., Peterson, A., Brown, G., & McAlpine, C. (2012). Local government response to the impacts of climate change: An evaluation of local climate adaptation plans. *Landscape and Urban Planning*, *107*(2), 127–136, doi: https://doi.org/10.1016/J.LANDURBPLAN.2012.05.009.

Brand, F. S., & Jax, K. (2007). Focusing the meaning(s) of resilience: Resilience as a descriptive concept and a boundary object. *Ecology and Society*, *12*(1), 23.

Caughman, L., Keeler, L. W., & Beaudoin, F. (2020). Real-time evaluation of city–university partnerships for sustainability and resilience. *Sustainability*, *12*(21), 8796.

Chi, G. C., Williams, M., Chandra, A., Plough, A., & Eisenman, D. (2015). Partnerships for community resilience: Perspectives from the Los Angeles county community disaster resilience project. *Public Health*, *129*(9), 1297–1300, doi: https://doi.org/10.1016/j.puhe.2015.07.004.

Coaffee, J., & Clarke, J. (2015). Viewpoint: on securing the generational challenge of urban resilience. *Town Planning Review*, *86*(3), 249–256, doi: https://doi.org/10.3828/tpr.2015.16.

Crowe, P. R., Foley, K., & Collier, M. J. (2016). Operationalizing urban resilience through a framework for adaptive co-management and design: five experiments in urban planning practice and policy. *Environmental Science & Policy*, *62*, 112–119, doi: https://doi.org/10.1016/J.ENVSCI.2016.04.007.

Drakaki, M., & Tzionas, P. (2017). Community-based social partnerships in crisis resilience: A case example in Greece. *Disaster Prevention and Management: An International Journal*, *26*(2), 203–216, doi: https://doi.org/10.1108/DPM-09-2016-0190.

Fastiggi, M., Meerow, S., & Miller, T. R. (2020). Governing urban resilience: Organisational structures and coordination strategies in 20 North American city governments. *Urban Studies*, *58*(6), 1262–1285, doi: https://doi.org/10.1177/0042098020907277.

Fitzgibbons, J., & Mitchell, C. L. (2019). Just urban futures? Exploring equity in '100 resilient cities'. *World Development*, *122*, 648–659, doi: https://doi.org/10.1016/J.WORLDDEV.2019.06.021.

MacKinnon, D., & Derickson, K. D. (2013). From resilience to resourcefulness. *Progress in Human Geography*, *37*(2), 253–270, doi: https://doi.org/10.1177/0309132512454775.

Marana, P., Labaka, L., & Sarriegi, J. M. (2018). A framework for public-private-people partnerships in the city resilience-building process. *Safety Science*, *110*, 39–50, doi: https://doi.org/10.1016/J.SSCI.2017.12.011.

Meerow, S. (2017). The contested nature of urban resilience: meaning and models for green infrastructure and climate change adaptation planning. Retrieved from https://deepblue.lib.umich.edu/handle/2027.42/138739

Meerow, S., & Newell, J. P. (2016). Urban resilience for whom, what, when, where, and why? *Urban Geography*, *40*(3), 1–21, doi: https://doi.org/10.1080/02723638.2016.1206395.

Meerow, S., & Stults, M. (2016). Comparing conceptualizations of urban climate resilience in theory and practice. *Sustainability*, *8*(7), 701, doi: https://doi.org/10.3390/su8070701.

Meerow, S., Pajouhesh, P., & Miller, T. R. (2019). Social equity in urban resilience planning. *Local Environment*, *24*(9), 793–808, doi: https://doi.org/10.1080/13549839.2019.1645103.

Moloney, S., Scott, H., & Macdonald, F. (2018). Tracking progress on climate change: developing a tool for monitoring and evaluation for local governments. *Proceedings of the 4th NCCCARF Practical Responses to Climate Change Conference: Climate Adaptation 2018: Learn, Collaborate, Act*, 8-10 May 2018, *Melbourne*. Barton, ACT: Engineers Australia, 2018: At: Melbourne, Australia. Retrieved from www.researchgate.net/publication/327172586

Muñoz-Erickson, T. A., Meerow, S., Hobbins, R., Cook, E., Iwaniec, D. M., Berbés-Blázquez, M., Grimm, N.B., Barnett, A., Cordero, J., Gim, C. and Robles-Morua, A. (2021). Beyond bouncing back? Comparing and contesting urban resilience frames in US and Latin American contexts. *Landscape and Urban Planning*, *214*, 104173, doi: https://doi.org/10.1016/J.LANDURBPLAN.2021.104173.

Nevens, F., Frantzeskaki, N., Gorissen, L., & Loorbach, D. (2013). Urban transition labs: Co-creating transformative action for sustainable cities. *Journal of Cleaner Production*, *50*, 111–122, doi: https://doi.org/10.1016/J.JCLEPRO.2012.12.001.

Ritchie, H., & Roser, M. (2018). Urbanization - our world in data. Retrieved from https://ourworldindata.org/urbanization (accessed 28 February 2020).

Schauppenlehner-Kloyber, E., & Penker, M. (2016). Between participation and collective action – from occasional liaisons towards long-term co-management for urban resilience. *Sustainability*, *8*(7), 664, doi: https://doi.org/10.3390/SU8070664. Page 664.

Schlosberg, D. (2003). The justice of environmental justice: reconciling equity, recognition, and participation in a political movement. Retrieved from https://books.google.com/books?hl=en&lr=&id=EumtnLONgAAC&oi=fnd&pg=PA77&dq=Schlosberg,+David+(2003).+The+Justice+of+Environmental+Justice:+Reconciling+Equity,+recognition,+and+participation+in+a+political+movement&ots=bqc2jM6O77&sig=L5ZayQ307KyZzbZ16q2hrh (accessed 6 January 2019).

Serre, D., & Heinzlef, C. (2018). Assessing and mapping urban resilience to floods with respect to cascading effects through critical infrastructure networks. *International Journal of Disaster Risk Reduction*, *30*, 235–243, doi: https://doi.org/10.1016/J.IJDRR.2018.02.018.

Spaans, M., & Waterhout, B. (2016). Building up resilience in cities worldwide-Rotterdam as participant in the 100 resilient cities programme. *Cities*, *61*, 109–116, doi: https://doi.org/10.1016/j.cities.2016.05.011.

Tierney, K. (2015). Resilience and the neoliberal project: discourses, critiques, Practices-and Katrina. *American Behavioral Scientist*, *59*(10), 1327–1342, doi: https://doi.org/10.1177/0002764215591187.

United Nations Sustainable development goals. (2017). Retrieved from https://sustainabledevelopment.un.org/sdgs (Accessed 7 Jun 2022).

United Nations Framework Convention on Climate Change (UNFCCC). (2015). Retrieved from https://unfccc.int/sites/default/files/english_paris_agreement.pdf (Accessed 7 Jun 2022).

Vaismoradi, M., Turunen, H., & Bondas, T. (2013). Content analysis and thematic analysis: Implications for conducting a qualitative descriptive study. *Nursing & Health Sciences*, *15*(3), 398–405, doi: https://doi.org/10.1111/nhs.12048.

Woodruff, S. C., Meerow, S., Stults, M., & Wilkins, C. (2018). Adaptation to resilience planning: Alternative pathways to prepare for climate change. *Journal of Planning Education and Research*, *42*(1), 64–75, 0739456X1880105, doi: https://doi.org/10.1177/0739456X18801057.

Further reading

Caughman, L., Plemmons, N., Beaudoin, F., Crim, M., & Shandas, V. (2020). The scenario collaboratory: a framework for integrating environmental assessments and scenarios into municipal planning. *Environmental Assessments*, (pp. 215–230), Edward Elgar Publishing.

United Nations Sustainable development goals (UNSDG). (2015). Retrieved from https://sustainabledevelopment.un.org/sdgs (Accessed 7 Jun 2022).

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