The Rise of the Chief Resilience Officer

Lessons from 100 Resilient Cities

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As cities continue to grow, urban areas have become more exposed to cross-cutting shocks and chronic stressors, such as the impacts from climate change and rising inequalities exacerbated by the pandemic. In the face of these vulnerabilities, many cities have been unable to adequately plan for and respond to emergencies due to fragmented urban governance structures and limited political leadership (Huck, Monstadt, and Driessen 2019). To build urban resilience, cities need leaders who can make connections among disparate stakeholders—including government departments, civil society, and private sector actors—to mitigate vulnerabilities. The Rockefeller Foundation launched the 100 Resilient Cities (100RC) program in 2013 to transform city governments, specifically by establishing the role of chief resilience officer (CRO)—a senior leader in city government working to break down silos to build a more resilient city.

In nearly 100 cities, 100RC funded a CRO position and provided a network of supportive resources, technical assistance, and access to fellow CROs from around the world. The CROs were tasked with breaking down barriers between governmental departments and community stakeholders, engaging community members in a resilience strategy planning process, and overseeing the implementation of projects to address cities' underlying vulnerabilities.

At the start, the vast majority of cities did not have a CRO position. But by October 2021, 97 percent of participating cities had a CRO at some point during the program.[1] The CRO concept has also spread outside of the formal 100RC network. Many nonparticipating cities have added CRO positions,

and several state governments in the United States have created CRO roles to oversee statewide resilience issues (Rupp, Sheets, and Hanson 2021). Cities are also drawing from the CRO experience by developing roles tied to specific shocks or stressors in their communities. For example, Miami-Dade County in Florida created chief heat officer and chief bay officer roles last year, with each officer overseeing county-level issues as they relate to rising heat and issues affecting the bay.

100RC provided funding for the first two years of the CRO role, after which cities were expected to transition to local funding. Most were able to make that transition, but some cities lost their CROs (table 3). CROs have become increasingly popular positions for city governments, but the role is unique and often faces specific challenges that could contribute to turnover or lack of buy-in. In this brief, we aim to better understand the CRO role and identify lessons learned from 100RC about the capacity and support they need to be successful. We examine the following questions that may be useful for cities considering a CRO within their city structures:

- What are the characteristics of a CRO?

- How do CROs fit within city governments?

- What resources and supports do CROs need?

Over nearly seven years of monitoring and evaluation, the Urban Institute tracked a sample of 21 cities to assess the degree to which city governments institutionalized urban resilience in their practices.[2] Working with partners from across the world, the evaluation of 100RC involved semiannual in-depth data collection of key indicators on resilience planning and operations. This brief draws from the data collected in this evaluation, particularly from indicators relevant to the experience of CROs throughout the life of the 100RC program (McTarnaghan et al. 2022).

The 100 Resilient Cities Program

The Rockefeller Foundation launched the 100 Resilient Cities Program in 2013 to support the transformation of public institutions, functions, and operations in 100 global cities with the goal of enabling them to "survive, adapt, and grow in the face of chronic stresses and shocks."

Core features of the program included:

- two years of financial assistance to cities to hire a chief resilience officer;

- support in the form of a strategy partner to develop a resilience strategy;

- access to a global network of CROs to share best practices; and

- access to technical support for the strategy implementation.

The Rockefeller Foundation terminated funding for the 100RC program in July 2019, and 100RC's offices closed two months later. The Urban Institute tracked progress in 21 of the 96 cities that participated in three cohorts launched in 2013, 2014, and 2015. These cities spanned the globe and ranged from small to large and low-income to high-income statuses. Urban periodically checked the sample to ensure it was representative of the 100RC population and to address areas of bias.

What Are the Characteristics of a CRO?

The idea behind the CRO reflects an understanding of cities as complex systems of actors and systems in need of better connectivity and a framework for collective action to build urban resilience.[3] 100RC saw CROs as taking the following roles, which closely match more recent literature on good resilience governance (Fastiggi, Meerow, and Miller 2021):

- **Serve as the point person for the city's resilience plans, policies, and programs.** Resilience is a broad, multidimensional concept that can offer co-benefits across different projects (Meerow and Newell 2019). CROs work to ensure that city governments incorporate resilience thinking across all planning efforts and activities; while the CRO does not oversee every single activity, they can serve as a source of synergy across projects.

- **Break down silos in city government.** CROs work across departments to improve communication, collaboration, and integration of plans and policies to meet resilience goals. They promote synergy and work to reduce dysfunction and unnecessary duplication. Enhancing internal collaboration can make it easier for projects to better deliver on resilience co-benefits that span issue areas.

- **Bring key stakeholders together from various sectors.** CROs are expected to promote meaningful and robust community engagement to learn from multiple stakeholders, identify resilience opportunities, and build public support for city initiatives.

- **Lead the development of a resilience strategy.** CROs develop a deep grasp of cities' resilience needs, from challenges such as shocks and stressors to opportunities. They build on the strengths that stakeholders bring to the table to conduct a resilience needs assessment and develop a framework of multisector actions the city can take to lead and build urban resilience. CROs in 100RC used the City Resilience Index, which generates a resilience profile for the city based on four dimensions—health and well-being, economy and society, infrastructure and environment, and leadership and strategy—among other diagnostic and prioritization tools. [4]
- **Oversee strategy implementation.** After finalizing a strategy, CROs work to ensure that the government implements the outlined actions and that these actions lead to planned resilience co-benefits. They also work to identify the funding and technical resources needed for project implementation and ongoing management.

In this sense, the CRO role differs from that of traditional planning directors, emergency managers, public works directors, and other roles because it encompasses a wider breadth of responsibilities. Unlike other city staff, the CRO works with managers across government to help them identify and institutionalize resilience principles under their respective purviews and collaborate across their work. In 100RC's midterm evaluation, we found that CROs saw themselves—and were seen by others—as "conveners," "facilitators," "articulators," or as the locus point for resilience conversations (Martin and McTarnaghan 2018). In our final evaluation, most interviewees saw CROs as valuable staff in local government, as they raised awareness, built connections, initiated projects, and were knowledgeable about important aspects of city planning, politics, and policy (McTarnaghan et al. 2022).
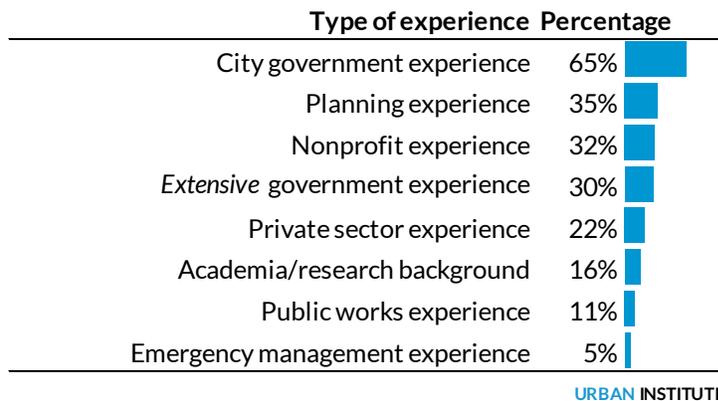
Professional Background

Leading urban resilience initiatives in a city requires a background that can meet the cross-cutting demands of the CRO role. In early program documents, 100RC emphasized three important "qualities for CRO success": the ability to work with key political actors with ease, engage with multisector stakeholders comfortably, and have an enterprising, resourceful, and innovative spirit.

But not all CROs are created equal: just as cities face unique challenges and opportunities, CROs bring unique skills and experiences to the role. Resilience challenges can change within a city over time, and certain backgrounds may be more useful for a particular chapter in a city's resilience story. For example, Los Angeles's first CRO had land-use planning consulting experience and led the development of the city's resilience strategy. After her departure, the new CRO had deep city government experience that spanned multiple departments, and his role focused more on using his connections to break down silos and implement strategy. We analyzed administrative data and media reports on 37 current and former CROs' backgrounds to assess peoples' previous job experiences and issue areas before they became CROs.

Most CROs had some form of government experience before becoming CROs: 65 percent had some prior work experience in city government, and 30 percent had worked in government at any level for at least a decade (table 1). A little more than a third were in the planning profession, and a little less than a

third had nonprofit experience. Regardless of their backgrounds, the CROs in Urban's midterm evaluation report said that deep and longstanding relationships in their cities, which helped them build trust with diverse stakeholders, were key to their successes (Martin and McTarnaghan 2018).

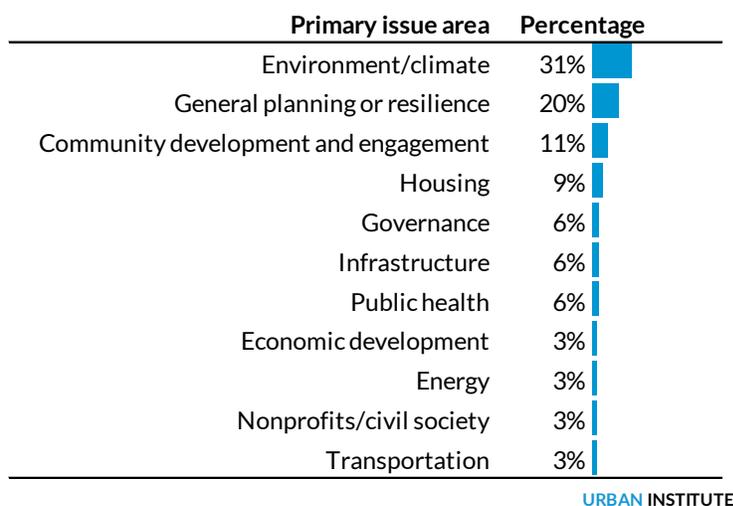TABLE 1

CROs Have Considerable City Government Experience

Type of experience	Percentage	
City government experience	65%	
Planning experience	35%	
Nonprofit experience	32%	
Extensive government experience	30%	
Private sector experience	22%	
Academia/research background	16%	
Public works experience	11%	
Emergency management experience	5%	

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Source: Authors' analysis of sample CRO bios.
Notes: N = 37.

CROs focused on a variety of issue areas before taking on the role, but almost a third had worked on environmental and climate issues (table 3). The next most common issue areas included general planning and cross-sectoral resilience (20 percent) and community development and engagement (11 percent).

TABLE 2

CROs Primarily Worked on Environmental Issues before Becoming CROs

Primary issue area	Percentage	
Environment/climate	31%	
General planning or resilience	20%	
Community development and engagement	11%	
Housing	9%	
Governance	6%	
Infrastructure	6%	
Public health	6%	
Economic development	3%	
Energy	3%	
Nonprofits/civil society	3%	
Transportation	3%	

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Source: Authors' analysis of sample CRO bios.
Notes: N = 35.

How Do CROs Fit within City Government?

Cities participating in 100RC approached the CRO position differently. For example, city governments might situate the CRO in different places in their organizational charts—a decision involving trade-offs between greater authority and insulation from politics and flexibility. Cities also determined the composition of the resilience office, if applicable, as well as any staffing support for the CRO.

Place in City Government Structure

CROs were split on the merits of fully integrating the CRO or resilience office within the structure of city governments, with some arguing in favor of the flexibility from a less-integrated body (Martin and McTarnaghan 2018). Cities opted for different placements of the CRO in their city government organizational charts, mostly differing in terms of proximity to the mayor or city manager.

100RC envisioned that the optimal place for the CRO was as a senior-level official directly reporting to the mayor or city manager, or at most within two degrees of separation from the city executive. Eleven of the 23 local governments (48 percent) in our sample first placed their CRO within one degree of separation from the city executive. Interviewees noted that placing the CRO this close to city leadership enhanced the legitimacy of the position and resilience agenda. As one CRO noted, "The perception is that when I'm explaining something, that this is an initiative of the mayor." Respondents also noted that this enabled the CRO to more easily work horizontally across departments and sectors. Under this model, some perceived the CRO as a political role, meaning support from the city executive was key to their legitimacy and authority. One drawback of a CRO who is closely tied to the mayor, then, is that they can be limited by political pressures or vulnerable to administration transitions.

Some CROs reported directly to a cabinet-level official or deputy mayor (two degrees of separation from the city leader) or to a department lead (three degrees of separation). Eight out of the 23 local governments (35 percent) had their CRO two degrees from the city leader, and two (9 percent) had the CRO at three degrees from the city leader. Some common departmental homes for CROs included planning, public works, and emergency management. CROs in this placement are generally more technical than political, and respondents saw them as engaging less in high-level policymaking than in policy implementation. These less-politicized positions allow for a more stable CRO who is less vulnerable to changing administrations. In fact, the most stable CROs in the sample—cities that had no turnover in the CRO position—were all situated two or three degrees from their city leader. However, CROs with more degrees of separation from the mayor tended to have lower levels of authority, and some respondents advocated for moving the CRO up in their city's hierarchy.

One city—Medellín, Colombia—established its resilience office as an independent nonprofit institution tied to the city government as an advisory council on the direction of the city's resilience agenda. This advisory council or "resilience committee" was a formal body of the city government but had no administrative authority over governmental decisions. City respondents saw this structure as independent from political pressures, giving the CRO leeway to explore areas outside of the mayor's agenda as well as seek external funding sources. Respondents also viewed this structure as more likely

to ensure continuity of the CRO and resilience office. While this structure is more technical than political, its success relies more on the political ability and connections of the CRO given their limited authority and influence over city decisions.

It is important to note that these models are not static over time. CROs' positions within their respective governments changed in most sample cities and varied significantly. Only two cities—Paris, France, and Belfast, United Kingdom—elevated the position or permanently institutionalized it in their government structure. Two other cities—Athens, Greece, and Chennai, India—would later adopt a similar model to that of Medellín by establishing the resilience office as a nongovernmental entity.

Resilience Office

Regardless of where CROs were placed in the city's organizational chart, many cities (though not all) established offices for them to lead. In its call for applications, 100RC offered four recommendations or models for new cities looking to establish the CRO position and office:

- **Model A:** An existing government official becomes the CRO and assumes a new resilience portfolio. For example, the government might combine the emergency management and climate change departments to become a resilience office.

- **Model B:** An existing government official becomes the CRO and takes on the resilience portfolio in addition to their existing responsibilities. For example, the sustainability director becomes the CRO and incorporates a new resilience portfolio into their work. In the case of Montreal, Canada, the director of civil security also became a CRO and oversaw both roles.

- **Model C:** The city government hires a new staff member to become the CRO with a new resilience portfolio. For example, the government creates a new office of resilience without altering existing offices. Several cities in 100RC took this approach, such as Norfolk, Virginia, which created a new office of resilience and hired a new CRO.

- **Model D:** The city government hires a new staff member as the CRO, who will lead an existing or merged resilience portfolio. For example, as in model A, the government merges the emergency management and climate change departments into a resilience office and hires a new employee to lead the merged office as CRO. In the case of Santiago Metropolitan Region, Chile, the new CRO also took on the role of regional coordinator—a position similar to a city manager.

In addition to hiring a CRO, many cities hired supporting staff. A deputy CRO, responsible for supporting the technical and operational aspects of the resilience portfolio, was the most common role. In several cases, deputy CROs were also natural successors to CROs in the event of their departures. Other technical staff included communications leads and program managers. The size of resilience offices varied considerably and did not always depend on the size of the city. For example, Miami-Dade County's resilience office grew to more than 10 staff across three work streams: mitigation, adaptation,

and communication. On the other hand, the Los Angeles resilience office had only one staff member (the CRO).
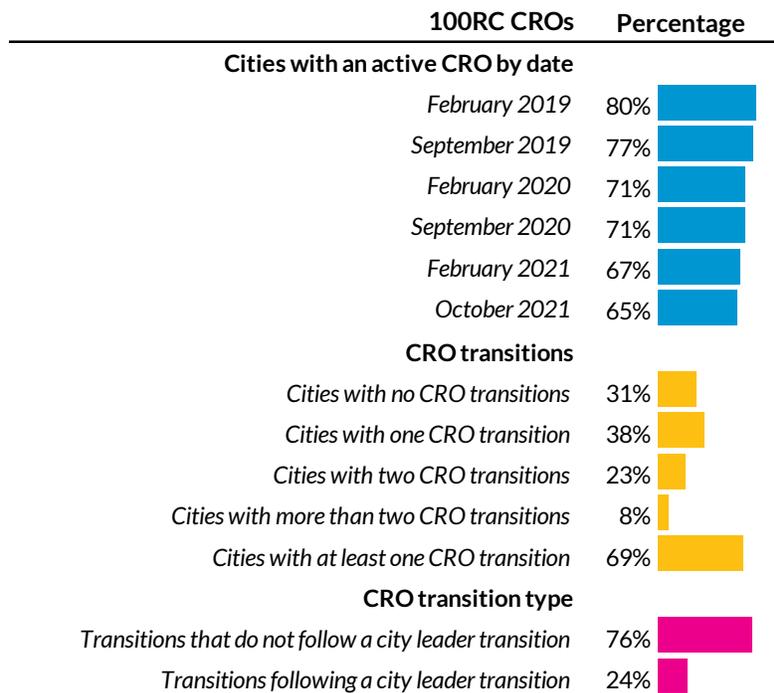
In one instance in our sample, Los Angeles appointed key city staff across departments to build and champion resilience under their purviews. Despite the city's one-person resilience office, the government created departmental CROs—representatives from each department who led efforts to integrate resilience into department plans, policies, and programs and to coordinate across departments. The city's resilience strategy outlined the process of establishing departmental CROs, and many interviewees lauded this approach as key to the city's de-siloing efforts (Office of Los Angeles Mayor Eric Garcetti 2018).

Stability of the CRO Position

When asked how they measure success in their roles, CROs identified surviving political transitions as a key marker (Martin and McTarnaghan 2018). Resilience building is ultimately a long-term process that can benefit from a stable presence in leadership. Recently, scholars have suggested new concepts of resilience and incorporated a political dimension: "the interplay of political will, leadership, commitment, community support, multilevel governance, and policy continuity" (Torabi, Dedekorkut-Howes, and Howes 2021). Although 97 percent of 100RC member cities instituted a CRO position at some point in their program participation, the number of cities with an active CRO has fallen in the past two years (table 3).

Cities may decide to replace their CROs or terminate the position for various reasons, including lack of available funding for the role, limited political commitment from the city leader to the role, and CROs' discontent with their level of authority or influence, among others. As of October 2021, 69 percent of cities had experienced at least one CRO transition (whether because of a replacement or termination of the role), and only 65 percent of cities had an active CRO. Between 2019 and 2021, there were 75 CRO transitions. Although 19 of 21 sample cities have maintained CROs, many of their positions within cities' governments have changed significantly (McTarnaghan et al. 2022).

TABLE 3
CRO Transitions

	100RC CROs	Percentage	
Cities with an active CRO by date			
February 2019		80%	
September 2019		77%	
February 2020		71%	
September 2020		71%	
February 2021		67%	
October 2021		65%	
CRO transitions			
Cities with no CRO transitions		31%	
Cities with one CRO transition		38%	
Cities with two CRO transitions		23%	
Cities with more than two CRO transitions		8%	
Cities with at least one CRO transition		69%	
CRO transition type			
Transitions that do not follow a city leader transition		76%	
Transitions following a city leader transition		24%	

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Source: Authors' analysis of CRO transitions in the 100RC population of member cities.
Notes: Greater Miami and the Beaches counts as three separate jurisdictions in our CRO analysis. N = 98 cities for active CRO calculations. N = 95 for CRO transitions, which excludes three cities that never appointed a CRO during the 100RC program or Urban's data collection period: Guadalajara, Mexico; Luxor, Egypt; and Nairobi, Kenya. N = 75 CRO transitions for transition type calculations. We analyzed CRO transitions from the start of the program in 2013 (and the start of each city's participation in the program) to October 2021. Transitions indicate the replacement or termination of a CRO within a year following a city leader transition. We do not assume causation.

Changing administrations can influence whether a city government will replace or terminate its CRO. As detailed earlier, CROs can be more vulnerable to political transitions depending on how closely tied the role is to the city leader. Nevertheless, of the 75 CRO transitions, only 24 percent of transitions followed a changing administration (within a year of a city leader transition), while the remaining 76 percent were potentially independent from a city leader transition, as they did not follow a city leader transition.

What Resources and Supports Do CROs Need?

Several factors play a role in CROs' effectiveness. Some relate to the support of dedicated actors who are invested in resilience building and are willing to collaborate with the CRO, including full-time resilience staff, staff in other departments, politicians, community members, and strategic advisers. Other factors involve non-personnel resources such as access to tools or trainings, a healthy budget, and data. Lastly, informed by the preferences of and access to personnel as well as the availability of

other resources, CROs can benefit from a clear mandate. The enabling factors for CROs' success are listed in more detail below:

Supporting staff in the resilience office. Cities with supporting staff contributed to resilience analyses, collaborated across departments, and engaged in community outreach. Some resilience offices employed a staff member specifically to ensure integration and compliance across plans. CRO offices varied in structure and size: sometimes the CRO position was placed in a new office, while at other times it was a new role in an existing office. Regardless of the office structure, several cities reported that carrying out their resilience work was difficult because the CRO did not have enough supporting staff. Creating additional supporting roles or reassigning existing staff to work closely with the CRO can help amplify the influence and impact of the CRO.

Capacity for resilience projects in other departments. One function of the CRO position is to coordinate resilience planning across departments to break down silos. However, several CROs in the sample reported that it was difficult to coordinate across departments because staff were busy or had other priorities. In some cities, bureaucracy made coordination difficult, and in at least one city, other departments were not even aware of the CRO position or the city's participation in the 100RC program. Some cities addressed this issue by appointing points of contact in other departments (for example, departmental CROs in Los Angeles). Some CROs had cross-functional working teams that brought together staff from different departments to focus on a project. Successful coordination across departments may require making space in others' schedules to collaborate on resilience matters, as well as allocating funds from other departmental budgets toward resilience projects.

In addition, the CRO's role often involves overseeing coordination of projects across departments and sectors, but they do not always oversee projects on a day-to-day basis once implemented. After project implementation, CROs may need a commitment from others in the city to maintain projects on an ongoing basis so that the CRO can refocus on new coordination efforts. Cities should prepare to support CROs in transitioning projects from their planning and coordination domain to a technical overseer elsewhere in the government or community.

Political commitment across administrations to actively support resilience efforts. Some CROs benefited from city leaders' public support for their resilience work, which offered legitimacy and better access to funding, whether from the city budget or elsewhere. Without a serious commitment from city leaders to provide resources to the CRO position and resilience activities, their impact may be limited. More than a quarter of the cities in our sample reported that lack of support from the mayor presented a challenge to carrying out their work.

In a similar vein, some CROs faced challenges due to changing administrations, staff turnover, or government restructuring that disrupted progress and changed levels of commitment. CRO–led projects benefit from being independent from politics and shielded from political turnovers given the long-term nature of the work. However, striking the balance between maintaining both political support and political independence can be difficult.

Long-term technical and local advisers with resilience and community expertise. Trusted advisers—whether technical experts or community partners—offer critical insights to CROs. This third-party perspective can come in the form of advisory boards or "brain trusts," often comprising a mixture of scholars and local nonprofit leaders. These advisers often contribute to the overall framing and priorities of a strategy. However, individual projects might also require technical advisers from a specific sector or profession.

In many cities, informal advisers played a pivotal role in developing resilience strategies, and some had long-term involvement through regular meetings. However, in most cities, advisers who were consulted during the strategy development did not continue to have ongoing advisory roles once the strategies launched, especially when there was CRO turnover. More permanent advisory positions might be a helpful channel for facilitating ongoing community connections and continuity across leadership.

Connections to community groups and resilience champions. Connections to the community are important both to inform resilience needs and to strengthen relationships with partners who might fund, lead, or validate projects. The CRO alone cannot build resilience in a city—there must be additional intervention points at the grassroots level that the CRO can leverage or support. Some CROs entered their positions with strong community networks; others might have benefited from more opportunities to connect with local community leaders or from more introductions and fluid relationship handoffs in cases where there was turnover in the CRO position.

A dedicated resilience budget allocation. Through the 100RC program, cities received two years of funding for CRO salaries. Most cities continued to fund some form of the CRO position, but not all CROs were equally resourced. CROs are most likely to be successful if their city has a committed budget to fund the position, support staff, and projects led or facilitated by a CRO. A few cities instituted formal methods for allocating funds for resilience projects, such as applying a "resilience lens" in project funding approval processes or reviewing the city budget for a resilience focus. Most cities received funding from external regional, state, national, and local or nonlocal nongovernmental organizations; CROs also have a prominent role in fundraising, so the position does not rely on city government funding alone. But more than half of the cities in the 100RC program monitoring and evaluation sample reported that lack of funding or a dedicated budget hindered their work.

Training and involvement in a global network dedicated to urban resilience building. As part of the 100RC program, CROs newly starting in their positions benefited from support from 100RC staff resources and analytical tools that were available to guide them in their early planning efforts. These supports emphasized identifying resilience priorities and implementable resilience-building projects. But CROs who were onboarded after the initial two years of the program may not have interacted as substantively with 100RC staff or the available tools. In fact, at least one CRO observed that there was not a good onboarding process when they took the job over from the original CRO. Cities thinking about

establishing CRO positions might consider engaging urban resilience practitioners, such as CROs in other cities, to support their onboarding and early planning.

With a growing number of personnel in CRO–like roles across the country, CROs may be able to rely on support from staff in similar positions in other cities to share ideas and receive advice. As part of the 100RC program, CROs participated in a network for sharing best practices, which several CROs cited as one of the primary benefits of the program. Benefits included access to supports such as informal groups chats, peer-learning webinars, trainings, and working groups. Following the termination of 100RC, the network reconstituted as the Resilient Cities Network. Levels of involvement in the network range from members who show up to listen and learn to members who want to distinguish themselves as thought leaders. Support for CRO involvement in such a network can yield many benefits.

There are multiple programs focused on urban resilience building outside of 100RC that offer technical assistance in multiple areas, including needs assessment guidance, planning support, and sector-specific support. Some programs focus on a few priority sectors, geographies, or populations and can serve as a resource to CROs who are trying to formalize an approach to resilience building.

Access to scientific, socioeconomic, and performance-related data and data analysis partners. CROs with more and better information can make better decisions. To that end, some cities are working toward improving city-level data collection, transparency, and analytics independently or as part of their resilience strategies. Universities located across 100RC cities have been essential partners in strengthening these data initiatives. Their contributions include data collection and analyses on which CROs can base their resilience strategies, as well as efforts to develop clearer metrics, feedback loops, and evaluation mechanisms to measure progress and improve resilience planning.

A clear resilience-building mandate. In addition to a commitment from city leadership, a clear mandate from leadership can be helpful to CROs to the extent that it does not preclude them from carrying out community-informed activities. Without guidelines, CROs risked developing strategies that were too broad and ambitious or that had too many initiatives. Unclear mandates can also translate into unclear ownership of projects under the strategy. Mandates should not be overprescriptive, but some CROs felt that some specificity in expectations and authority was important to move from theory to implementation.

Conclusion

In the face of daunting shocks and stressors, CROs have the potential to effectively lead resilience activities in city governments. They have proven to be valuable assets in city governments across the world, including those that participated in the 100RC program (where 64 of the 96 participating cities still have a CRO as of October 2021) and in cities that have independently decided to hire CROs, such as Austin, Texas, and Jacksonville, Florida.[5] The role is even gaining attention at the state level, and the coordinator concept has taken new forms.

CROs as a collective are a diverse group of professionals who come from a variety of backgrounds and exhibit a multitude of skills, such as community building, planning, fundraising, project management, and technical expertise. They are often fluent across sectors and audiences and adept at building trust and facilitating collaboration. As such, actors inside and outside of government see them as helpful partners and as the point person for the city's resilience agenda.

Cities considering establishing a CRO position should have clear expectations for their CROs and ensure that they receive the necessary support to successfully build urban resilience. Making adequate space for CROs, a resilience office, and resilience initiatives in local governments is a first step. This means bringing on full-time staff to support their work and lending department staff's time to collaborations related to resilience building. It also means giving the CRO the financial and social capital resources to help them align local communities and politicians on resilience-building goals to ensure that the CRO's work has a budget and broad support. Given the long-term nature of resilience planning and implementation, CROs and their collaborative initiatives should be insulated from political turnovers so that their office remains a reliable constant that can help navigate tumultuous situations across administrations.

Notes

1. The data collection efforts from Urban's evaluation of 100RC (see box 1) ended in October 2021.

2. The sample for Urban's evaluation included 21 cities, one of which was Greater Miami and the Beaches, which contains three jurisdictions: City of Miami, City of Miami Beach, and Miami-Dade County. Given that each jurisdiction had its own CRO, we are counting these as separate experiences for the purpose of this brief. The full list of cities in the evaluation is as follows: Addis Ababa, Ethiopia; Athens, Greece; Belfast, United Kingdom; Boston, Massachusetts, United States; Byblos, Lebanon; Cần Thơ, Vietnam; Chennai, India; Colima, Mexico; Lagos, Nigeria; Los Angeles, California, United States; Medellín, Colombia; Melaka, Malaysia; Montreal, Canada; Norfolk, Virginia, United States; Paris, France; Rotterdam, Netherlands; Santiago Metropolitan Region, Chile; Semarang, Indonesia; Washington, DC, United States; and Wellington, New Zealand.

3. Michael Berkowitz, "What a Chief Resilience Officer Does," Rockefeller Foundation, September 7, 2014, https://www.rockefellerfoundation.org/blog/what-a-chief-resilience-officer-does/.

4. "City Resilience Index," City Resilience Index, accessed July 20, 2022, https://www.cityresilienceindex.org/#/.

5. City of Austin, Texas (website), "City of Austin announces Chief Resiliency Officer," news release, March 15, 2022, https://www.austintexas.gov/news/city-austin-announces-chief-resiliency-officer; Brendan Rivers, "Mayor Curry hires Jacksonville's Chief Resiliency Officer," News4JAX, July 8, 2021, https://www.news4jax.com/community/2021/07/08/mayor-curry-hires-jacksonvilles-chief-resiliency-officer/.

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