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Sustainability is more than a lofty goal: how cities can strengthen health and disaster resilience

A sustentabilidade é mais do que um objetivo grandioso: como a gestão urbana pode fortalecer a resiliência a desastres climáticos e simultaneamente melhorar a saúde e o bem-estar dos cidadãos a curto e largo prazo

Carlos Dora[1]

ABSTRACT | Urban resilience to extreme climate events depends not only on flood control measures or civil defense capacity but also on policies across various economic sectors such as transportation, land use, housing, food systems, waste management, and energy. These same policies can also help prevent leading causes of death, including noncommunicable and vector-borne diseases. However, there is limited awareness of the systemic links between urban policies and their combined benefits, resulting in unnecessary societal costs and inefficient urban investments. This paper reviews policies in the sectors mentioned above that have supported both disaster resilience and disease prevention in cities around the world. It also explores governance mechanisms that enable coordinated action across sectors and encourage broader participation in building safer and healthier urban environments. Recent floods in Porto Alegre and other cities in the Brazilian state of Rio Grande do Sul revealed the limitations of narrowly focused resilience strategies. This paper argues that adopting integrated, cross-sectoral decision-making can make cities such as Porto Alegre safer, healthier, and more livable, while also promoting health equity and more efficient resource use.

Keywords | Resilience, urban policies, health, prevention, inter-sectoral action, health impact assessment.

RESUMO | A resiliência a eventos climáticos extremos em uma cidade depende de políticas em diferentes setores econômicos, como transporte, uso do solo, habitação, alimentação, gestão de resíduos ou energia, e não apenas de medidas de resposta ou da capacidade da defesa civil. As políticas nesses mesmos setores podem igualmente prevenir as principais causas de morte, como doenças não transmissíveis e aquelas transmitidas por vetores. Há, contudo, pouco engajamento com as conexões entre políticas urbanas e seus impactos sistêmicos, ou seja, como políticas executadas em um setor específico causam riscos e benefícios em outras áreas, e qual o impacto total nas populações urbanas e na cidade. A falta de consideração desses benefícios e custos, considerados externos pelo setor que gerou a política, podem frequentemente causar custos desnecessários para a sociedade e levam à ineficiência nos investimentos urbanos. Este artigo analisa as políticas urbanas nos setores acima mencionados em diferentes países com relação à resiliência aos riscos climáticos e à prevenção de doenças, identificando onde há sinergias e antagonismos. São discutidos os mecanismos de governança que apoiam a ação sinérgica e a necessidade de um engajamento mais amplo na construção de cidades mais seguras e saudáveis para todos. A experiência recente com as enchentes em Porto Alegre e em outras cidades do Rio Grande do Sul mostrou como as medidas de resiliência que carecem de uma visão sistêmica foram insuficientes e salienta a necessidade de uma reflexão ampla. Este artigo argumenta que a implementação de uma tomada de decisão integrada e intersetorial tornaria Porto Alegre e outras cidades que enfrentam riscos climáticos lugares mais seguros, mais saudáveis e mais habitáveis, melhorando a equidade na saúde e a eficiência no uso de recursos públicos e privados.

Palavras-chave | Resiliência, políticas públicas urbanas, prevenção, ação intersetorial, avaliação de impactos na saúde.

[1] Visiting professor, Public Policies, Instituto de Filosofia e Ciências Humanas, Universidade Federal do Rio Grande do Sul (UFRGS), Porto Alegre, RS, Brazil. Clinical adjunct professor, Global and Environmental Health, New York University, New York, NY, USA.

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Correspondence: E-mail: carlos.f.dora@gmail.com

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Introduction

The recent floods in the Brazilian state of Rio Grande do Sul (RS), including in the city of Porto Alegre, highlight the urgent need for reflection. Despite a strong response from both the government and civil society, the disaster led to significant loss of life, widespread displacement, and severe damage to property and livelihoods. However, just a few months later, municipal election campaign discussions largely overlooked how to strengthen the city's resilience (1). Preparing for future challenges — whether related to climate change or other emergencies such as pandemics — was notably absent from public debate.

The gap between the urgent need for cities to become more resilient to recurring climate events (e.g., the recent floods) and the lack of public debate on the role of urban policies in achieving this goal is concerning. Local resilience is largely built through local action. When local governments, businesses, and communities fail to prioritize measures that strengthen resilience to climate-related and other disasters, they ultimately bear the consequences of inaction.

This disconnect may stem from the tendency to attribute responsibility for climate-related disasters to the legacy of the Industrial Revolution and the ongoing pollution caused by high-income countries. However, this does not change the fact that building resilience is a local imperative. It cannot be postponed while the world awaits broader changes from fossil fuel dependency, though such global shifts are also urgently needed.

Misperceptions of urban environmental risks and of the potential benefits of local action may stem from limited awareness of the multiple synergies between health and resilience in urban policies, as well as the cost savings that can result from integrated approaches. These misperceptions may, in turn, be linked to a lack of systematic assessments of risks and benefits, or to unclear accountability regarding who bears the costs and who reaps the benefits of urban policy decisions.

This paper reviews international experiences and lessons in building urban health and resilience. It examines policies and interventions within the scope of urban decision-makers, including those in both government and the private sector. The analysis centers on how urban policies influence human health, infrastructure, and livelihoods — three interconnected dimensions of resilience — and how these elements interact to reduce cities' vulnerability to future disasters.

Background

Until recently, Porto Alegre was considered a model of urban resilience. In 2013, the city joined the Rockefeller Foundation's 100 Resilient Cities program (2), appointed a Chief Resilience Officer, and convened a multi-stakeholder group. This process led to the development of a resilience strategy, published in 2017 (3). A municipal resilience plan was formally adopted through municipal law in 2019 (4), and its implementation was regulated by municipal decree in 2023 (5). In 2022, civil defense teams from the 14 cities that make up the greater Porto Alegre area used the United Nations Office for Disaster Risk Reduction (UNDRR) resilience self-

assessment tool — comprising 200 indicators (6) — and concluded they had a "solid capacity for risk management."

A qualitative analysis of the resilience measures described above, conducted prior to the 2024 floods (7), found that the strategy identified important priorities (e.g., community empowerment) and addressed relevant focus areas, including urban agriculture, recycling, environmental education, mobility, effluent control, greenhouse gas (GHG) emissions reduction, and flood control. However, civil society and academic stakeholders considered the implementation process stagnant. They also noted that, despite the government's expressed satisfaction with its progress, the strategy had not been updated in response to the COVID-19 pandemic. During the 2022 UNDRR meeting, participants highlighted the need to scale up existing actions, extend outreach to all communities, and better integrate food security and public health into emergency response plans.

Is Porto Alegre's resilience trajectory an example of ambitious goals with limited follow-through? Could it be dismissed as greenwashing? Indeed, the city's experience reflects the broader challenges of adopting and implementing cross-sectoral sustainability strategies. It highlights that building resilience requires the sustained involvement of multiple local stakeholders — not only civil defense — since risk prevention spans a wide range of sectors, alongside the need for effective disaster response. It also underscores the importance of accountability and transparency in decision-making. Porto Alegre's history with participatory budgeting illustrates the value of ongoing public oversight of public policies across different areas of society.

There is a clear and urgent need to strengthen urban resilience strategies and improve their implementation to address the growing threat of climate change impacts, such as extreme weather events. To support this effort, the paper explores the factors that make cities either vulnerable or resilient to climate change impacts, along with key dimensions of resilience. It examines the intersections between urban policies, health, and resilience, drawing on the experiences of cities that have implemented effective strategies in these areas. The paper concludes by outlining the challenges and opportunities for advancing urban resilience while promoting and protecting human health in Porto Alegre and beyond.

Vulnerabilities of cities and urban populations

The latest Intergovernmental Panel on Climate Change (IPCC) report on cities highlights that the impacts of climate change fall disproportionately on urban populations, including those in small and medium-sized cities in low- and middle-income countries (LMICs) (8). These risks include more frequent and intense heatwaves, droughts, and floods; increased exposure to disease vectors; and rising sea levels. Collectively, these threats can weaken or overwhelm social and physical systems, rendering them less effective or even inoperative.

Insurance companies also recognized the importance of urban exposure to climate and other interconnected risks (9). These include risks linked to epidemics — amplified by high population density — and growing reliance on technology (e.g., in smart cities), which increases the vulnerability of critical systems such as power grids to large-scale disruptions or cyberattacks. Insurers also

highlight socio-economic inequality and the expansion of informal settlements — common features in many urban areas — as persistent challenges for municipal authorities. They note that neglect, poor planning, weak enforcement (e.g., of building codes), corruption, and negligence significantly increase the losses caused by climate hazards. From their perspective, resilience remains undervalued. They emphasize that multi-sectoral cooperation is essential to reduce risks and improve the value and functioning of climate-vulnerable urban areas (10). To address these gaps, insurers recommend identifying the co-benefits of resilience investments — benefits that can be realized even in the absence of disaster events.

Urban populations face overlapping and intersecting vulnerabilities (11). Multiple risks (e.g., noncommunicable diseases [NCDs], malnutrition, heatwaves, air pollution, and floods) often affect the same individuals. People living in low-income neighborhoods are more vulnerable to behavioral risk factors such as tobacco use, poor diet, obesity, and physical inactivity. They are also more likely to reside in areas prone to floods or landslides, with limited access to green spaces that help reduce the urban heat island effect. Their homes are often poorly insulated, leaving them exposed to extreme temperatures — both cold in winter and heat in summer — which are associated with increased mortality. Insecure land tenure discourages investment in durable housing, while informal settlements typically lack adequate water supply, waste management, and other essential infrastructure. Residents of these areas are also more likely to have precarious jobs, work in the informal sector, or be unemployed. Moreover, they often live closer to major sources of air pollution and are more exposed to harmful air pollutants such as particulate matter and nitrogen dioxide (NO_2), both of which are major contributors to NCDs.

Understanding vulnerability is essential but not sufficient to protect citizens from disasters. Building the capacity to respond, adapt, and transform the urban environment (12) is equally important. Addressing the multiple, overlapping vulnerabilities outlined above requires identifying interventions that can simultaneously reduce different types of risk and benefit the broader population — especially those facing cumulative exposures.

The dimensions of resilience

Resilience is a dynamic process of adaptation that involves individual, community, and systemic capacities to achieve positive health and social outcomes while responding to threats and hazards (13). Four types of resilience capacity have been identified (14): i) adaptive capacity refers to the ability to adjust to and endure adverse conditions and shocks; ii) absorptive capacity is the ability to recover from and manage challenges using existing resources and skills; iii) anticipatory capacity involves the ability to foresee risks and reduce vulnerabilities; iv) transformative capacity is the ability to implement systemic changes that support improved responses to evolving conditions.

Community resilience refers to a community's ability to endure, adapt, and grow in the face of adversity, supported by social structures, networks, and interdependencies (15). Social capital is a key element of community resilience (16),

reflecting the strength of social networks, mutual support, and trust in both people and institutions (17). Social capital is closely linked to mental health outcomes (13). In turn, good health is a fundamental component of resilience, enabling effective emergency responses and supporting individuals' capacity to engage in transformative efforts to build more resilient environments (18). These protective factors help communities collectively adapt to threats. Other core aspects of community resilience include local knowledge, communication systems, governance and leadership, resource availability, economic investment, and a positive mental outlook (19).

While one dimension of resilience focuses on the capacity of individuals and communities to adapt to adversity, another emphasizes tackling the root causes of adverse conditions, including those found in the social and built environment (20). Reducing vulnerability to floods, droughts, heatwaves, or epidemics requires structural and collective action. Cities, in particular, present both challenges and opportunities for advancing resilience and achieving sustainable development. Local actors are often the first to respond to emergencies (21). At the same time, the close proximity and interdependence among residents, governments, civil society, and businesses can foster faster collective responses to threats as well as long-term engagement in transformative efforts to strengthen urban resilience.

Thus, a city's resilience depends on an integrated systems approach that spans individual, community, and structural levels (22). Rather than being dictated by external decision-makers, community members must be actively involved in defining and shaping how resilience is measured and implemented (23).

These connections are reflected in the Sustainable Development Goal on cities (SDG 11), particularly in the urgency of achieving target 11.B, which focuses on sustainability and resilience (Chart 1). Notably, this is the only target within SDG 11 that was originally set to be achieved by 2020, while the remaining targets are expected to be met by 2030.

Chart 1. SDG 11, target 11.B

> "By 2020, substantially increase the number of cities and human settlements adopting and implementing integrated policies and plans toward inclusion, resource efficiency, mitigation and adaptation to climate change, resilience to disasters, and develop and implement, in line with the Sendai Framework for Disaster Risk Reduction 2015-2030, holistic disaster risk management at all levels" (12).

Urban policies that create resilience, prevent diseases, and improve health.

There is extensive scientific evidence showing that policies in economic sectors such as transportation (24), housing (25), waste management, and energy (26) have a direct impact on health and well-being (27). These same sectors play a crucial role in building disaster resilience and responding to climate-related emergencies or epidemics. They also offer opportunities to achieve health co-benefits through climate action in urban settings (28). Urban policy decisions in these areas therefore hold significant potential for creating synergies between health and resilience, while also improving overall efficiency.

For example, ensuring access to healthy food where people live and work is essential for preventing obesity and supporting cardiovascular health. Urban zoning and

land use plans (29,30) can promote urban agriculture and support local businesses that improve food security, address "food deserts," and increase the availability of healthy food options. These measures help reduce reliance on highly processed foods that are high in sugar, fat, and refined carbohydrates, while also contributing to the reduction of food waste.

Green areas within cities (e.g., spaces for urban agriculture or public parks) help reduce urban temperatures and mitigate the heat island effect, offering protection during heatwaves (31). These green spaces also support rainwater drainage and flood protection, help filter air pollution, provide opportunities for recreation and social interaction, and contribute to better mental health (32,33). Greater distance from green and blue spaces has been directly linked to an increase in mental health symptoms (34).

Transportation and urban mobility systems that prioritize high-quality public transport and dedicate street space to pedestrians and cyclists are associated with increased physical activity, fewer traffic injuries, and lower levels of noise, air pollution, and climate emissions from combustion engine vehicles (35). This approach supports better respiratory, cardiovascular, and mental health, and contributes to improved survival rates. It can also reduce traffic congestion, foster social interaction, and create space for local businesses to thrive. Such benefits go well beyond those offered by mobility policies that focus solely on replacing combustion vehicles with electric ones.

Improving insulation and ventilation in homes can protect residents during heatwaves while also reducing energy demand for cooling or heating, leading to cost savings and lower greenhouse gas emissions. Retrofitting homes with better insulation, heating systems, and hazard remediation (36) also supports mental health and helps prevent respiratory illnesses linked to temperature extremes, mold, and damp conditions.

Access to clean energy sources, such as solar panels, avoids the heavy pollution caused by coal and oil energy sources, and increases the energy autonomy of homes, workplaces, and health facilities, helping to ensure energy availability during power outages. Reliable energy is essential for maintaining hygiene, performing medical procedures, supporting communication systems, and enabling educational activities.

Cities worldwide implementing healthy and resilient urban policies

Many cities around the world are developing urban policies that align health, climate, and resilience goals. Such efforts often begin with an issue of public concern (e.g., air pollution, housing or transportation pressures, high obesity rates, or the desire to improve early childhood development) where local stakeholders can see both immediate and long-term benefits from action. For example, London has established an ultra-low emission zone (ULEZ), which restricts access to only cleaner vehicles and uses congestion charges to reduce traffic. A renewed bus fleet, improved bus flow, and expanded space for pedestrians and cyclists have contributed to better air quality, fewer cardiovascular diseases and traffic accidents (37), and increased physical activity. Children living within ULEZs are twice as likely to walk, cycle, or use public transport to get to school compared with children living outside the zone (38). More

than 300 other cities in Europe have also implemented clean air zones (CAZs). In Paris, the LEZ eliminated the urban highway along the banks of the Seine in the city center, transforming it into a space for pedestrians and leisure. The city has built over 300 km of separate bicycle lanes, and cyclists now outnumber motorists in the town center. By 2030, Paris plans to have half its surface area covered with trees. Barcelona has created "superblocks" by closing several streets to vehicle traffic and redesigning them with trees, benches, and play areas for children (39). The city also implemented buffer zones to limit vehicle traffic near schools and hospitals, protecting vulnerable populations. In the Nordic countries, cities are expanding natural spaces with elements such as sand, ponds, and trees to support early childhood development through outdoor play. These green spaces also provide protection from heatwaves and flooding. In New Zealand, national regulations were introduced to improve home insulation and ventilation after studies revealed significant health risks and costs related to temperature extremes in poorly insulated homes (36). Warsaw and other Polish cities are phasing out coal-burning heaters and transitioning to geothermal district heating systems. Such measures aim to reduce respiratory and cardiovascular diseases linked to coal pollution (40) and to strengthen energy security by lowering dependence on Russian gas.

Utrecht, in the Netherlands, is developing transportation nodes on the urban fringe to help distribute services and strengthen local markets and food production, aiming to reduce reliance on imported goods (41). This proximity-based lifestyle supports local businesses, improves service delivery for dependent groups, and enhances self-sufficiency during emergencies. These nodes operate with a degree of independence and are connected by public transport and cycling infrastructure. In Helsinki, Finland, clean energy production is being decentralized to reduce the risk of blackouts from centralized power sources during emergencies (42).

To reduce resistance to changes in urban space, many cities have adopted tactical urbanism — using temporary or pop-up street infrastructure to demonstrate what urban areas could look like with more space dedicated to pedestrians (43,44). In Tirana, Albania, the municipality used episodic occupation of roads and parking spaces by children and families to reclaim public space. This led to the creation of green areas and child-friendly zones, including safe spaces around schools that support early childhood development (45). This same approach was used by Jaime Lerner during his tenure as mayor of Curitiba, Brazil, to gain public support for implementing the first bus rapid transit (BRT) system. Similar tactics have been applied in cities across Colombia to expand cycling infrastructure and establish BRT systems. Green areas also play a structural role in urban resilience. As porous surfaces, they help absorb excess rainfall and are part of China's "sponge cities" strategy to build urban resilience against flooding (46).

The examples above illustrate action on the upstream social and environmental determinants of health (47). Cities are a key setting for addressing these determinants, and urban policies across different sectors offer a resource-efficient and equitable way to advance disease prevention, control, and health promotion. However,

those who plan, build, manage, and govern cities — while exerting significant influence over population health — are not formally responsible for health outcomes. Additionally, the use of public space often involves negotiation and conflict among competing interest groups. Clarifying the role of public spaces in disease prevention, mortality reduction, mental and physical health promotion, and climate resilience is therefore essential. It can help build support for public policies that deliver these health and resilience benefits.

What are the challenges to achieving integrated decision-making?

Cities are complex systems in which numerous factors influencing health and resilience are interconnected and often react to changes in other parts of the system. This complexity can make it difficult to elevate cross-sectoral actions to the policy agenda (48).

Decision-making power is distributed among various government and private sector actors, and competing views and ideologies can further complicate coordination. These divisions may be intensified by misinformation and manipulation on social media platforms.

Urban transformation often faces resistance from the status quo. Achieving meaningful change requires engaging with diverse perspectives and building consensus around the need for action.

Responses to different sources of risk are often compartmentalized across disciplines, government departments, and economic sectors, each guided by its own technical expertise and financial interests in offering solutions. As a result, the responses may be inefficient — or even contradictory — when viewed from the perspective of individuals and communities facing multiple, overlapping risks. Addressing one problem may unintentionally create new risks, a situation known in economics as an external cost or externality. This narrow, siloed approach undermines the identification of co-benefits for health and misses opportunities for synergy and efficiency in decision-making. Such outcomes are considered a form of market failure, as market mechanisms do not account for the external costs or vulnerabilities they produce. These external costs are absorbed by society, not by the sectors responsible for the decisions. In effect, society is subsidizing decisions that harm public health and weaken urban resilience by allowing those unchecked, fragmented actions to persist.

The impacts of urban policies on public health are often overlooked, in part because they are rarely assessed. At the same time, the health sector tends to focus on its own policy domain — disease prevention and treatment interventions — which cannot be delivered by other sectors.

In effect, cross-sectoral action can be promoted by improving the understanding of health impacts and externalities, identifying stakeholders' interests and priorities, and engaging them in policy objectives that add value to each sector's core mandate.

What mechanisms can be used to make cities both healthy and resilient, and what are examples of global practice?

A range of mechanisms and tools can support decision-making across sectors to improve urban resilience, public health, and

equity in ways that are context-specific and resource-efficient. While not exhaustive, the list of approaches below include technical analyses, access to relevant knowledge, assessments of stakeholders' interests, and structured engagement mechanisms.

- Use established Health Impact Assessment (HIA) methodologies to evaluate the health impacts of sectoral interventions (e.g., in land use, housing, transport, food systems) (49,50). HIAs compare the health effects of various interventions, including the option of taking no action (Chart 2).
- Apply established cost-benefit analysis (CBA) methods to assess the external costs of current or proposed urban interventions, and to estimate the costs of inaction—including those affecting public health (see Chart 3 regarding use of CBA in public health) (53).
- Map where different population groups live in relation to urban resources (55), such as green spaces, access to public transport, or exposure to risks such as flooding. This can help citizens and stakeholders identify gaps and opportunities to improve urban health and resilience. Involving citizens in developing these maps strengthens engagement, public debate, and follow-up actions.
- Identify stakeholders in sectors relevant to urban policymaking (56), including their interests, narratives (e.g., disinformation or social media use), investment and policy plans, and past decisions. Develop strategies to gain their cooperation.
- Explore local knowledge and lived experiences to better understand the context, local history, past actions, power dynamics, and community priorities.
- Access knowledge from other cities that have faced similar challenges as well as from scientific studies analyzing the health and resilience outcomes of urban policies.
- Identify entry points to initiate change in a specific location. For instance, look

Chart 2. Health Impact Assessments (HIA)

HIA combines scientific evidence, lessons learned from policy decisions elsewhere, and stakeholder input gathered through consultations to evaluate the expected health impacts of a plan, policy, or project. HIA helps bridge the gap between knowledge and practice, while fostering transparency and trust in public decision-making.
The World Health Organization (WHO) recommends using HIA as a method for working across sectors and addressing the social and environmental determinants of health (SDH) (51). Many countries apply HIA methods and tools to examine the health effects of urban policies. Some governments and cities have established HIA technical units that advise administrations or parliaments on the potential health implications of policies, laws, or regulations (52). Additionally, universities, consulting firms, and civil society organizations often provide HIA services.

Chart 3. The use of economic analyses in health decision-making

The health sector typically uses cost-effectiveness analyses (CEAs), which compare a range of interventions (e.g., medicines or vaccines) against a single outcome, usually a specific disease (54). In contrast, CBA evaluates the costs and benefits of one or more interventions across a broader set of health and non-health outcomes. CBAs can help reveal the full range of external costs and benefits associated with urban policy decisions, thereby supporting more informed and balanced decision-making. For example, an urban transport policy may affect travel time, fuel use, job accessibility, air pollution, traffic injuries, physical activity, heart disease, flood protection, and greenhouse gas emissions. Despite their usefulness, such comprehensive CBA estimates are not yet routinely integrated into health and urban governance.

for policy opportunities arising from the convergence of a problem, a potential solution, and political will (see multiple streams theory [57]).
- Strengthen existing policy networks and build new ones (58). These networks reflect local governance structures, organizational cultures, languages, assumptions, and other contextual factors. They are essential for promoting a shared understanding of the contributions of different sectors.
- Involve economic stakeholders (e.g., those involved in clean energy, sustainable transport, healthy food, or well-insulated housing) as well as local businesses that benefit from integrated policies (e.g., from pedestrian-friendly and low-traffic areas where people enjoy spending time).
- Facilitate visioning exercises (59) to reflect on evidence and experiences and collaboratively imagine what a neighborhood or city could look like in the future.
- Develop systems for tracking and accountability to monitor the inputs into policymaking, policy decisions, and their outcomes. Health indicators are particularly valuable in this context, as they are easy to interpret, widely available, and backed by strong scientific evidence linking health to its determinants (60).

The mechanisms outlined above can support the development of policies that improve health and resilience in cities by enabling cross-sectoral planning, establishing rules, and promoting transparency in decision-making.

The mechanisms above should help resolve constraints in resilience faced by Porto Alegre. The city had legislation, regulations, and infrastructure in place to support resilience, as well as an active private sector involved in shaping the city. However, these measures were not sufficient to anticipate or protect residents from severe climate events that are likely to occur again. This highlights the need for additional mechanisms, informed by international experience, to strengthen preparedness and response.

Conclusion

The post-disaster period offers a timely opportunity to reflect on the recent experience of Porto Alegre — and that of other cities — to better prepare for future disasters and address existing vulnerabilities. This paper advocates for an integrated approach to urban health and resilience policies, as such alignment can enhance effectiveness and promote more efficient use of resources by jointly addressing health and resilience. It examined how urban policies shape vulnerability and resilience to both diseases and disasters, and presented examples of cities that are putting these policies into practice. The paper also explored the challenges to integrated decision-making in this area and proposed a set of strategies, mechanisms, and tools to overcome them — including the unique role that the health system can play. Overall, it offers a strategic framework for cities and neighborhoods to prepare for and respond to climate threats through urban policies that fully account for their co-benefits to health and the prevention of major diseases.

The implementation of this health and resilience approach creates opportunities to engage a wide range of actors — including those from academia, government, the private sector, and local communities — in visioning and planning the transformation needed at both neighborhood and city levels. This would strengthen the city's ability to respond to disasters and other emergencies. The approach also serves as a valuable asset for cities and communities, fostering awareness among urban population groups and stakeholders about existing risks and the actions needed to prevent them. It encourages shared responsibility for supporting and monitoring preventive efforts. In practical terms, this approach could be supported by local networks and a city-wide commission on health and climate resilience, working in coordination with civil defense, economic sectors, urban stakeholders, and health system actors.

Ultimately, local population groups — including health systems — will be at the forefront of responding to crises, whether epidemics such as COVID-19 or climate events such as the recent floods. Involving these groups from the outset is not only fair, but also a matter of foresight. While the responsibility for actions such as maintaining flood control systems or providing vaccines remains with the government or designated authorities, frontline actors — including communities, health professionals, and other stakeholders — must be empowered with systems that keep them informed about local risks and opportunities for promoting health and resilience, as well as the preventive measures being taken.

If adopted, this health and climate resilience approach could become a lasting contribution from Porto Alegre — a city that has already made a meaningful impact on sustainable urban governance through its pioneering work in participatory budgeting.

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