Policy Brief

Building resilience through disaster risk management in intermediary cities

January 2026

Key messages

- With natural disasters and extreme weather events growing in frequency and intensity worldwide, resilience and disaster risk management have become global priorities to protect human lives and to ensure economic development.
- Developing countries are particularly at risk. Among them, least developed countries (LDCs) and Small Island Developing States (SIDS) face the biggest challenges in building climate-resilient infrastructure. They need targeted support.
- Effective disaster risk management requires effective planning and implementation at all levels of government, as well as local communities' engagement.
- Intermediary cities in developing countries are at the frontline. Increasing their capacities to plan, build, operate and maintain disaster risk management systems and resilient infrastructure is crucial.
- Development partners should support a shift from reactive to risk-informed action in those intermediary cities, embedding risk awareness across all sectors and levels of governance, encouraging innovation, the use of technology and collaboration, and mobilising resources at scale and where they are most needed.

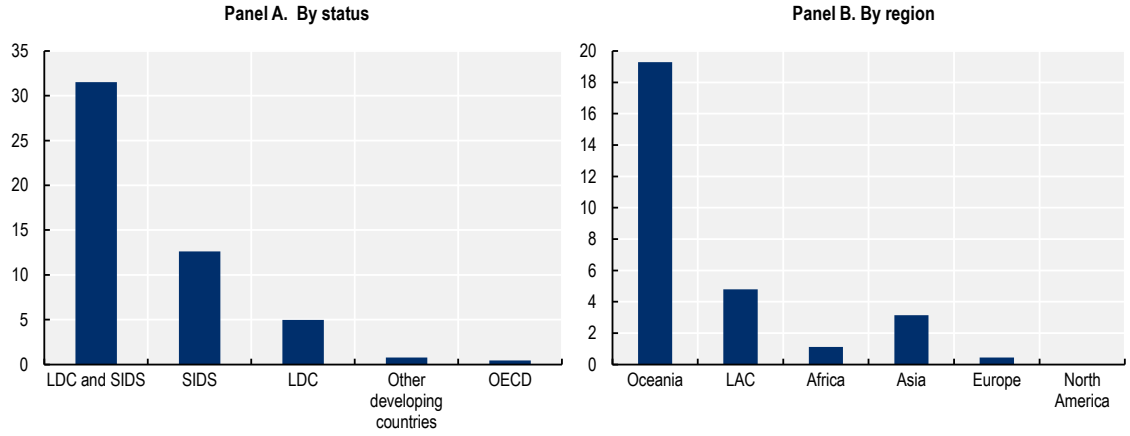
Developing countries and the poorest areas within them are the most vulnerable to natural disasters

Natural disasters have been increasing in frequency and severity worldwide. Natural disasters, such as earthquakes, floods and storms, caused 33% more economic damages on average during 2014-2024, as compared to 2002-2013 [authors' elaboration based on EM-DAT (2025[1])]. Developing countries tend to be among the most affected when it comes to natural disasters, particularly least developed countries (LDCs) and Small Island Developing States (SIDS) (Figure 1). Many developing countries are located in regions prone to natural hazards exacerbated by climate change, including hurricanes and typhoons along coastal areas (OECD, 2024[2]). For example, SIDS experienced 29 times more natural disasters per 1 000 square kilometres than OECD countries during 2000-24, and LDCs 12 times more.

Developing countries face significant and persistent gaps when it comes to transport and energy infrastructure. The limited redundancy in infrastructure amplifies risks when disasters occur. The combination of high population density in areas with poor infrastructure, also increases the vulnerability of developing countries to natural disasters (Figure 2). This is particularly true in Africa where infrastructure is twice as vulnerable on average as it is in Latin America and in Asia, and five times as vulnerable as it is in Europe, as measured by the European Commission's INFORM index.

Figure 1. SIDS and LDCs have the highest global exposure to climate change and natural disasters

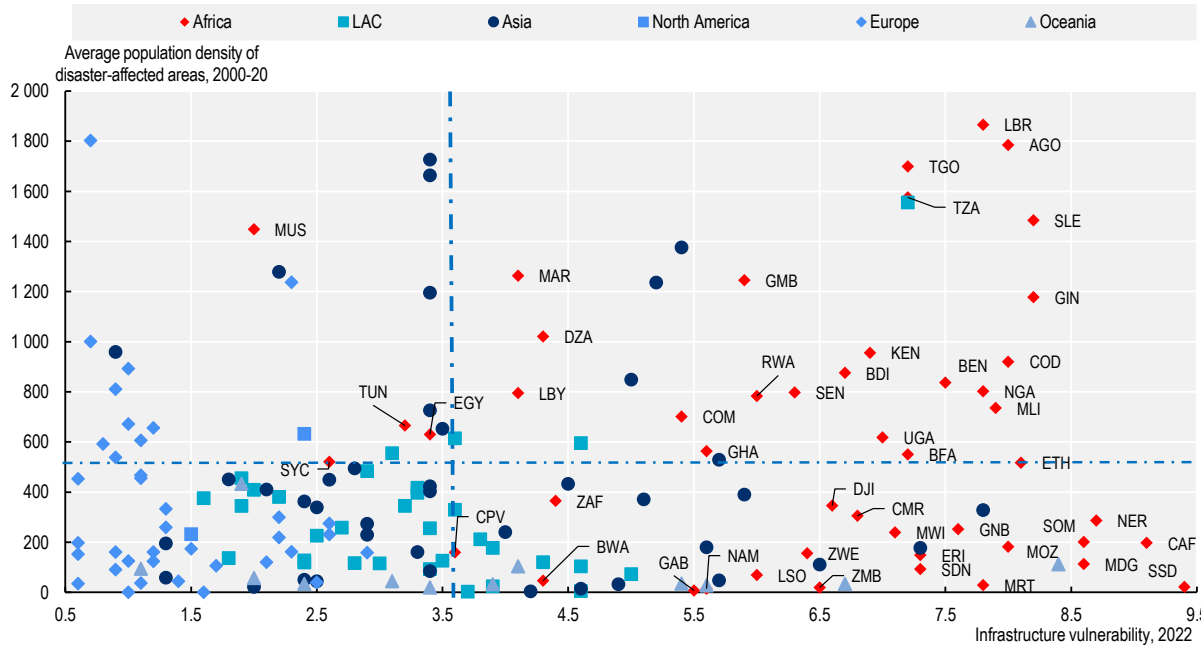
Average number of natural disasters per 1 000 sq Km, 2000-2024



Note: Panel A. 1) The categories are not mutually exclusive 2) Other developing countries include all DAC recipient countries that are non-LDCs, including lower middle-income and upper middle-income countries. Analysis follows the UN Geographical and Income Classification System.
Source: Updates from OECD (2024[2]), *Compendium of Good Practices on Quality Infrastructure 2024: Building Resilience to Natural Disasters,* OECD Publishing, Paris, https://doi.org/10.1787/54d26e88-en. Based on EM-DAT (2025[1]) and World Bank (2025[3]).

Figure 2. Poor infrastructure coupled with population density increases Africa's vulnerability to natural disasters

Average population density of areas most affected by natural disasters and infrastructure vulnerability, 2000-2020



Note: The dotted lines reflect the global averages of the respective variables. The average population density is calculated within a 1 km radius of the disaster event. Infrastructure vulnerability is the normalised arithmetic average of three categories that give equal weight to 11 indicators including: access to electricity, internet users, adult literacy, road density, access to water sources, access to health facilities, health expenditure per capita and population density. It takes a value between 1 to 10, with 10 being the most vulnerable. Based on European Commission (2022[4]), INFORM GRI 2022: Index for Risk Management and CIESIN-Columbia University (2017[5]), Gridded Population of the World, Version 4 (GPWv4).
Source: OECD (2024[2]), *Compendium of Good Practices on Quality Infrastructure 2024: Building Resilience to Natural Disasters,* OECD Publishing, Paris, https://doi.org/10.1787/54d26e88-en.

Disaster risk reduction (DRR) is a priority for governments and the international community. The Sendai Framework for DRR 2015-2030 adopted at the 3rd UN World Conference on DRR (WCDRR) in 2015 in Sendai, Japan, is a milestone in this respect. The first-ever Ministerial Declaration on DRR in the framework of the G20 was issued in 2024 under the Brazilian G20 Presidency, elevating the issue to a policy priority for the G20 and reaffirming the Sendai Framework, in line with the SDGs and the Paris Agreement. Building on this, the South African G20 Presidency put emphasis on the role of global co-operation and solidarity to build resilience in developing countries, particularly in LDCs. It also promoted inclusive development planning and localisation of disaster risk management. During the South African Presidency G20 Ministers endorsed High-Level Voluntary Principles for Investing in DRR. The relevant Ministerial Declaration also calls for more investments in quality infrastructure, in line with the 2019 G20 Principles for Quality Infrastructure Investment. Building resilience in cities is also a priority for the Global Urban Monitoring Framework which is aligned with the Sendai Framework.

Intermediary cities should be empowered to increase disaster resilience

Effective disaster risk management requires adequate planning and implementation at all levels of government, as well as the engagement of local communities. It is essential to strengthen local capacities

in terms of planning, implementation and funding for disaster risk management by, among other measures, encouraging the integration of DRR in spatial planning, land-use regulation and building codes.

Countries are making progress in localising DRR. In South Africa, the 2002 Disaster Management Act mandated co-ordination at the national, provincial and municipal levels. The country has invested in strengthening early-warning systems and capacity to use real-time data in prevention, reaction and rebuilding after natural disasters. South Africa's multi-hazard early warning system (MHEWS) includes impact-based forecasting for local communities. South Africa is also paying attention to using traditional knowledge and engaging indigenous communities in resilience strategies and disaster risk management. In Brazil, the Law establishing the national policy on protection and civil defence in 2012 was a milestone in implementing greater prevention and mitigation policies, creating the Centre for Monitoring and Early Warning of Natural Disasters (CEMADEN) and clarifying a role for municipalities in organising and implementing DRR policies locally.

Intermediary cities – agglomerations, usually of small and medium size, that intermediate within urban systems as well as with rural areas – are often on the front lines of managing the consequences of natural hazards, including floods, droughts, landslides and wildfires. Intermediary cities are those agglomerations, usually of small and medium size, that play a key intermediation role within urban systems, as well as with rural areas. Since they usually host the primary sources of emergency and reaction responses, they can play a key role in prevention. As connecting nodes between urban and rural areas in developing countries, intermediary cities are well-positioned to blend formal disaster risk management systems with indigenous knowledge and grassroots practices, making them key actors to ensure effective prevention and response on the ground. For example, participatory hazard mapping, local early warning networks and school-based disaster education can be more readily implemented and scaled in these cities than in mega-urban agglomerations. Depending on the level of decentralisation, some intermediary cities have responsibility for land-use planning, service delivery and disaster response, but often lack technical and financial capacities.

Strengthening disaster risk management capacities in intermediary cities is crucial, particularly in developing countries, as they tend to suffer from limited capacity to design and implement risk-informed policies. Confronted with informal settlement growth, weak enforcement of building codes, co-ordination challenges among government levels and insufficient data, many lack climate-sensitive urban planning tools, or trained emergency personnel.

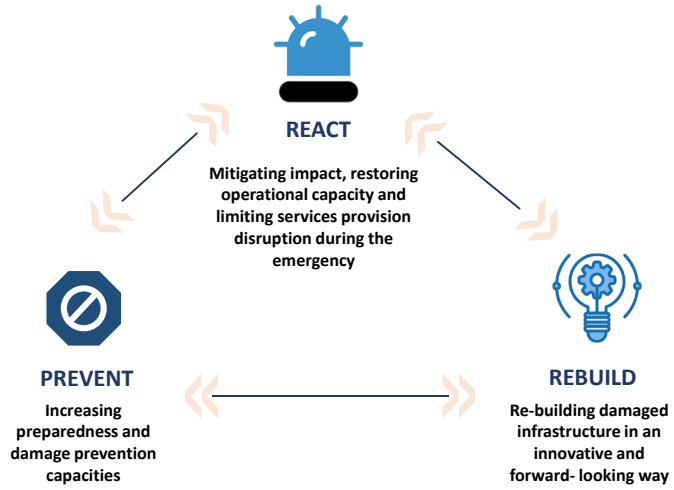
The international community is increasingly aware of the need to effectively integrate intermediary cities in disaster risk management systems and to provide them with adequate technical assistance and financing, including facilitating access to climate adaptation financing. In South Africa, the District Development Model (DDM), initiated by the President in 2019 and then rolled out nationally by the Department of Cooperative Governance and Traditional Affairs, includes intermediary cities as focal points for co-ordination between national and local governments. In this model, cities including intermediary ones, are tasked with driving local disaster planning, facilitating stakeholder engagement, and aligning local development with broader climate and resilience objectives.

A three-pillar action framework, PRR (Prevent-React-Rebuild) (OECD, 2024[2]), guides effective policy and private sector responses to ensure infrastructure resilience to natural disasters. All levers of government need adequate institutional capacities, financing and data, to effectively address infrastructure resilience in three interconnected areas:

- **Prevent,** i.e. proactive measures that reduce the likelihood or impact of disasters. It includes early-stage disaster risk assessments, strategic infrastructure design (e.g. flood levees), preventive maintenance, and the integration of early warning systems and social safety nets. Emphasis is placed on enhancing governments' capacity to anticipate risks, including the need to update modelling tools to reflect climate change realities. Preventive action helps minimise damage before disasters strike.

- **React,** i.e. immediate response measures taken during or right after a disaster to minimise disruption and restore essential services. It includes deploying temporary infrastructure, activating emergency finance mechanisms and applying regulatory and economic tools that enable rapid decision-making. The goal is to maintain continuity of services and quickly stabilise affected communities.
- **Rebuild,** i.e. reconstruction efforts that not only restore infrastructure but improve it. This involves rebuilding with future risks in mind – using efficient, low-emission technologies, enhancing infrastructure design and incorporating ecosystem restoration. It also encourages stakeholder participation to ensure resilience, accessibility and quality are strengthened, moving beyond simple restoration to transformative recovery.

Figure 3. A three-pillar action framework for infrastructure resilience to natural disasters



Source: OECD (2024[2]), *Compendium of Good Practices on Quality Infrastructure 2024: Building Resilience to Natural Disasters,* OECD Publishing, Paris, https://doi.org/10.1787/54d26e88-en.

Box 1. Infrastructure resilience to natural disasters: Guiding principles from the OECD *Compendium of Good Practices on Quality Infrastructure 2024*

Ensuring infrastructure resilience to natural disasters is highly context-specific, but some universal principles apply. Based on global good practices and in-depth analyses of infrastructure projects in Colombia, Ghana, India, Indonesia, Japan, Mozambique and the United States, the OECD *Compendium of Good Practices on Quality Infrastructure 2024* identified seven guiding principles for enhancing infrastructure resilience to natural disasters:

- adopting a life cycle approach
- ensuring interests' alignment through effective collaboration
- conducting risk assessment

- measuring impacts
- investing in capacity building and knowledge management
- carrying out strategic preventive maintenance
- deploying cutting-edge technology and fostering new design and innovation.

Source: OECD (2024[2]), *Compendium of Good Practices on Quality Infrastructure 2024: Building Resilience to Natural Disasters*, OECD Publishing, Paris, https://doi.org/10.1787/54d26e88-en

What can development policymakers do?

Development actors must work together to ensure that DRR becomes a foundation for building safer, more equitable and resilient societies. In particular, the G20 could foster updated and enhanced forms of international co-operation in the following areas:

- *Foster a shift from reactive to risk-informed development policies*, from responding to disasters to anticipating, preventing and mitigating their impact. This requires updating policies to embed disaster risk management (DRM) and infrastructure resilience into planning at all levels of government and sectors; encouraging local solutions tailored to geographic and social contexts; and recognising developing countries as co-creators of climate-resilient innovations and solutions, not just recipients of aid, through participation in international standard-setting and policy fora.
- *Embed risk awareness across all sectors and levels of governance*. Resilience starts with capable institutions, empowered governments at the local level, including intermediary cities, and effective co-ordination across levels of government. The G20 could support:
  - Scaling up international co-operation and knowledge sharing on disaster risk management and on infrastructure resilience, including by fostering South-South co-operation and exploring partnerships between intermediary cities.
  - Fostering effective governance and updated legal mandates to clarify responsibilities in prevention, reaction and rebuilding; facilitating access to risk data for municipalities; and involving them in collecting data.
  - Building institutional capacity for risk and impact assessments, land-use planning and emergency preparedness at the local level, particularly in intermediary cities.
- *Encourage innovation, the use of technology and collaboration*. Developing countries lack access to the timely and accurate information needed for both prevention and rapid response. Priorities include improving the coverage and effective rollout of early warning systems and investing in geolocalised data generation. Increased international development co-operation is key to providing targeted support at the local and city level. While considering local specificities and cultural and geographic contexts is essential, it is equally important to align technical guidelines, methodologies and regulatory frameworks to facilitate cross-border emergency response, data sharing and joint monitoring.
- *Mobilise resources at the right scale and where they are most needed*. Annual disaster-related losses during 2002-2024 averaged 7% of GDP in SIDS and 3% in LDCs, compared to 1% in OECD [authors' elaboration based on EM-DAT (2025[1])]. The cost of capital is often higher in developing countries, making infrastructure investment riskier and more expensive. Within countries, rural areas face the highest financing gaps and intermediary cities could play a key

role in ensuring resources are effectively deployed where and when they are most needed. In line with the recent outcome document of the Fourth International Conference on Financing for Development, international development policy could support initiatives to:

- Ensure access to long-term, affordable financing for disaster prevention, response and resilient infrastructure in particular for LDCs and SIDS.
- Mobilise multilateral development banks (MDBs) and development finance institutions (DFIs) for lending, project preparation, risk assessment and de-risking private investment.
- Promote innovative instruments such as risk pooling, insurance mechanisms and climate finance tools that support national and local DRM efforts.

Further information

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World Bank (2025), *Indicators*, https://data.worldbank.org. [3]

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