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ISO copyright office
CP 401 • Ch. de Blandonnet 8
CH-1214 Vernier, Geneva
Phone: +41 22 749 01 11
Email: copyright@iso.org
Website: www.iso.org

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Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular, the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

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For an explanation of the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT), see www.iso.org/iso/foreword.html.

This document was prepared by Technical Committee ISO/TC 292, *Security and resilience*.

This document cancels and replaces ISO/TR 22370:2020.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.

Introduction

The resilience of urban areas is vital for protecting, sustaining and enhancing economic, social, physical and environmental value, now and for the future. Resilience is defined as the “ability to absorb and adapt in a changing environment”. In the context of urban areas, this means the ability to survive, adapt, overcome and thrive in the face of the chronic stresses and acute shocks they experience. Urban resilience includes the resilience of:

1. People and communities
2. Governance and public services
3. Trade and business services
4. Environment, infrastructure, and resources

We are living in an increasingly complex and changing world and urban areas are becoming ever more dynamic and influential. Concurrently, as our urban environments evolve and grow in complexity, so do the risks and challenges they face.

More resilient urban areas are better able to realize their strategic ambitions, protect their critical resources, capitalise on investment, create and sustain opportunities for enterprise, and empower individuals, communities, institutions and businesses to not only survive, but adapt and prosper.

With 68 % of the global population set to be urban dwelling by 2050 according to the UN¹⁾, urban resilience is becoming ever more essential in meeting the increasing social, economic and environmental challenges that come with this level of growth.

In order to meet UN Sustainable Development Goal 11^[1] – ‘make cities inclusive, safe, resilient and sustainable’, urban areas need to adopt strategies that take a proactive and integrated approach to resilience, transcend departmental and organisational boundaries and, are grounded in a comprehensive understanding of the challenges facing the urban environment.

Urban resilience requires an integrated, system-based approach, drawing on the knowledge contained across a broad range of disciplines to deliver the resilience of our urban areas. Committing to a comprehensive approach facilitates shared understanding and learning for adapting in complex and dynamic environments, promoting a collective and inclusive approach to change.

Urban resilience is a collective responsibility and is enhanced when the whole of society is enabled and empowered to act and engage in support of those in a decision-making capacity, such as local government.

This document has been developed in response to increasing global demand for guidance on the development and implementation of strategies which seek to improve urban resilience in the face of the social, environmental and economic challenges they face, now and in the future.

1) 2018 Revision of World Urbanization Prospects, un.org

Security and resilience — Community resilience — Principles and framework for urban resilience

1 Scope

This document provides principles and a framework on how to enhance resilience in urban areas to protect communities, people and businesses and improve people's lives. It describes:

- a) how to build capacity to better manage change and disruptive events, whilst minimizing the impact on the most disadvantaged and vulnerable groups;
- b) the benefits of urban resilience;
- c) how to organize for, assess, plan, implement and continually improve urban resilience.

This document is applicable to all urban contexts and governance structures and stakeholders for all identified levels of risk.

It is for use by all organizations that have accountability for resilience of services in urban communities.

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 22300, *Security and resilience — Vocabulary*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 22300 and the following apply.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

- ISO Online browsing platform: available at <https://www.iso.org/obp>
- IEC Electropedia: available at <http://www.electropedia.org/>

3.1

capacity

combination of all the strengths, capabilities and resources available within an organization, community or society that can reduce the level of risk or the effects of a crisis and has the ability to deal with uncertainty and adapt to change

Note 1 to entry: Capacity can include physical, institutional, social, or economic means as well as skilled personnel or attributes such as leadership and management.

[SOURCE: ISO 22300:2021, 3.1.25, modified — added “capabilities” and “and has the ability to deal with uncertainty and adapt to change”]

3.2 resilience

ability to absorb and adapt in a changing environment

Note 1 to entry: In the context of urban resilience the ability to absorb and adapt to a changing environment is determined by the collective capacity to anticipate, prepare and respond to threats and opportunities by each individual component of an urban system.

[SOURCE: ISO 22300:2021, 3.1.206]

3.3 shock

uncertain, abrupt or long-onset event, that has the potential to impact upon the purpose or objectives of an urban system

Note 1 to entry: [Table 3](#) addresses the evaluation of shocks, stresses and trends.

[SOURCE: ISO 22300:2021, 3.1.263]

3.4 stress

chronic and ongoing dynamic pressure originated within an urban system, with the potential for cumulative impacts on the ability and capacity of the system to achieve its objectives

Note 1 to entry: [Table 3](#) addresses the evaluation of shocks, stresses and trends.

[SOURCE: ISO 22300:2021, 3.1.269]

3.5 urban area

geographic area containing populated, built environment

Note 1 to entry: Urban areas usually include cities or towns and their outlying suburbs.

3.6 urban resilience

ability of any urban system, with its inhabitants, in a changing environment, to anticipate, prepare, respond to and absorb shocks, positively adapt and transform in the face of stress and uncertainty, while facilitating inclusive and sustainable development

Note 1 to entry: A more resilient urban system is characterized by its ability to continue through disruption in the short- to medium-term, combined with a capacity to reduce pressures and adapt to changes, risks and opportunities. Urban resilience, therefore, is dependent upon the ability of urban systems not just to deal with shocks, but also with chronic stresses and uncertainties.

Note 2 to entry: Urban resilience is dependent upon the individual and collective resilience of the separate components of a complex urban system. Although a city, town or community within an urban area can individually demonstrate enhanced resilience within its respective boundaries, urban resilience encompasses the broader geographic scope of urban agglomeration. Resilience of an urban system is measured by the capacity for resilience of each individual system component and dependent upon the resilience of the weakest performer among the urban agglomeration within the system scope.

Note 3 to entry: In order to assess, plan and act accordingly in the face of shocks, stresses and uncertainty, an urban system's resilience capacity should be measured and analysed through qualitative and quantitative data.

[SOURCE: ISO 22300:2021, 3.1.284]

3.7

urban system

human settlement, integrated and complex set of system components, characterized by universal and interdependent dimensions: physical, functional, organizational and spatial; comprised of people, processes and assets managed through effective governance mechanisms in order to deliver the urban societal values.

Note 1 to entry: Being dynamic, the composition and elements of an urban system changes with time.

Note 2 to entry: Every urban area has characteristics of an urban system, regardless of its size, culture, location, economy and/or political environment.

Note 3 to entry: Characterized as urban systems, urban areas have the objectives (3.1.162) of managing the complex interactions and interdependencies among its multiple components, with the purpose of fulfilling a variety of functionalities including social, economic, cultural and environmental.

[SOURCE: ISO 22300:2021, 3.1.285]

3.8

vulnerable group

individuals who share one or several characteristics that are the basis of discrimination or adverse social, economic, cultural, political or health circumstances and that cause them to lack the means to achieve their rights or, otherwise, enjoy equal opportunities

[SOURCE: ISO 22300:2021, 3.1.292]

4 Principles for urban resilience

In order to deliver urban resilience, the responsible body and stakeholders should be guided by the principles listed in [Table 1](#) that underpin resilient urban systems. They should be at the core of all resilience behaviours, strategies, and outcomes.

Table 1 — Principles

Principles	Description
Accountable	Upholds methods for effective governance that promote clear responsibilities, accountability, unity of vision and transparency; delivering long-lasting resilience benefits that go beyond electoral cycles and avoid fragmentation, ensuring that there are long-term, sustainable financing mechanisms in place to provide ongoing support to resilience-building projects.
Adaptive	Builds flexibility and resourcefulness; creating urban systems that can evolve and manoeuvre quickly in a changing landscape – addressing risks and capitalising on opportunities. It is accepting of ever-increasing uncertainty and change and has the ability to apply existing resources to new purposes. Rapidly finds different ways to achieve desired outcomes or meet needs during a shock or when under stress, mobilising human, financial and technical resources inside or outside of traditional response structures to deliver innovative solutions in the face of adversity.
Aware	Gathers information, harnesses real-time data and conducts horizon scanning to improve awareness, anticipate change and inform evidence-based decision making. Assesses, builds knowledge capital, learns and continually improves for better future outcomes.
Inclusive	Conducts broad consultation and co-creation with communities, including those which are identified as vulnerable - creating community cohesion, strengthening social contracts and empowering people to participate. All parts of the community agree on a vision for its future, and are aware of the shocks and stresses it faces and their respective and complementary roles in protecting and strengthening the city's resilience. Benefits and impacts are distributed justly and equitably across urban networks; reducing social stresses and disproportionately poor outcomes for vulnerable groups.

Table 1 (continued)

Principles	Description
Integrated	Integrates and aligns urban systems to reduce silos and bring together decision makers, sectors, departments, budgets, activities, and agendas. Maintain a system- thinking approach, looking at the whole system rather than focusing on its individual parts to better understand the complexity and interdependencies between multiple stakeholders with divergent perspectives, allowing for solutions that provide multiple benefits and prevent cascading and disproportionate failures across the system.
Prepared	Addresses identified system vulnerabilities through robust design, redundancy, spare capacity and fail-safe measures, balancing risk, performance and cost. Responds quickly to mitigate adverse impacts of events on social, ecological and health systems and to accelerate recovery.
Sustainable	Pursues and commits to sustainable, resource efficient solutions for long-term, whole system urban resilience that do not compromise the well-being and quality of life for future generations and ecosystems. Implement climate mitigation and adaptation measures.
Transformative	Bounces forward following disasters so that ecological, social and health systems can thrive, not just survive. Rapidly finding different ways to achieve their goals or meet their needs under changing circumstances. Able to transcend traditional ideas, roles, and patterns to create something new by using originality of thought and demonstrating imagination.

5 Framework for delivering urban resilience

The framework provides the foundation for successful urban resilience and is iterative and continuous. Urban areas will be at various stages in this process. Existing local and international initiatives should be aligned with and integrated into this programme. The framework's 5 key steps are set out in this document in the following Clauses:

- **Organize & define:** Establishing governance structures, key stakeholders, shared vision, values and goals and data collection for managing urban resilience ([Clause 6](#)).
- **Assess & prioritize:** Performing a systems-based urban resilience assessment and prioritizing new or existing urban areas requiring capacity building ([Clause 7](#)).
- **Strategy development:** Developing ([Clause 8](#)) and maintaining a prioritized schedule of resilience activities needed to achieve goals and objectives.
- **Implementation:** Programme development, management and project delivery of prioritised resilience activities ([Clause 9](#)).
- **Continual improvement:** Monitoring, measuring, analyzing, adjusting, learning and innovating continuously ([Clause 10](#)).

The responsible body should:

- a) follow the framework described in [Figure 1](#), and the 5 steps and key activities when developing strategies for, and delivering urban resilience;
- b) consider the principles (see 4.2) in every step of the process.

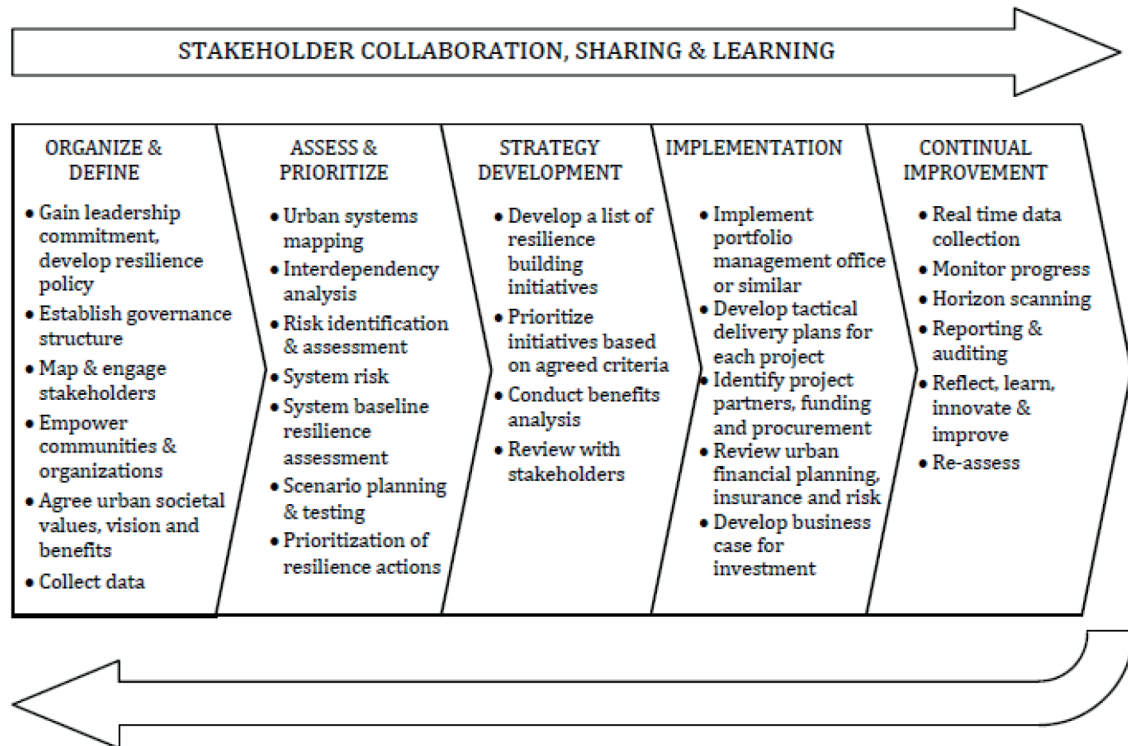


Figure 1 — Framework for urban resilience

[Annex A](#) provides a checklist of the expected activities in developing and implementing the urban resilience strategy, which sit within the framework given in [Figure 1](#).

6 Organize and define

6.1 Governance, leadership and commitment

6.1.1 General

To enable local authorities to support the enhancement of resilience in urban areas, adequate governance arrangements should be established to build an environment of trust, transparency and accountability to deliver the urban resilience policy and strategy.

Entities may use existing governance frameworks or apply the governance structure outlined in this document.

6.1.2 Leadership

To enhance resilience capacity across the urban environment, a mandate or “authority to act” should be provided by the responsible body (see 6.1.4.3) which has the authority to appoint an urban resilience lead. A clear definition for this role should be created reflecting the appropriate qualifications, life experiences and capabilities to ensure an appropriately competent person is selected to hold this position.

To demonstrate the importance of this role, this appointment should be formally recognized through a public announcement, launch event and strategic social media campaign to spread the message across the community.

6.1.3 Commitment

The responsible body should:

- a) demonstrate a strong and sustained commitment to adapt the components of the policy and strategy and support the commitment necessary to ensure effective implementation and continual improvement;
- b) expect the support of all other responsible parties who take on formal roles and responsibilities within the strategy and implementation team.

NOTE ISO 22316^[2] provides guidance to enhance organizational resilience for any size or type of organization irrespective of industry or sector.

6.1.4 Urban resilience policy

The responsible body should:

- a) develop an urban resilience policy that sets out the rules of engagement, expectations, and governance structure for the urban resilience process;
- b) use the policy as a central resource and agreed code of conduct to guide the organizations and individuals who engage in the resilience capacity building process.

6.1.5 Governance structure

6.1.5.1 General

Figure 2 provides a governance structure for delivering urban resilience. This can vary depending on the size and resources of the urban area.

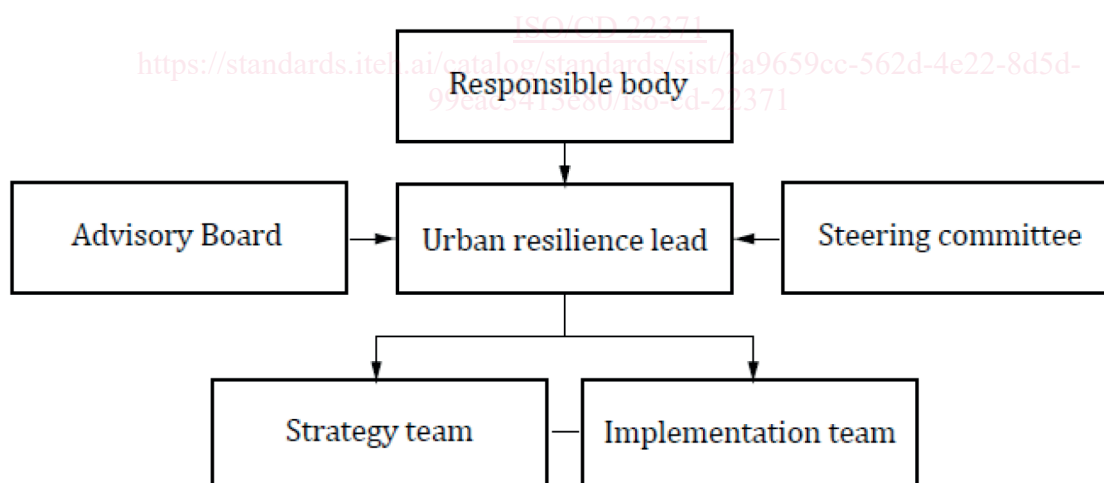


Figure 2 — Governance structure

6.1.5.2 Responsible body

The responsible body is the council, governing body, board or the person or body with ultimate decision-making authority in regards to urban resilience.

The responsible body should:

- a) perform a champion role for enabling the urban resilience strategy;
- b) remove any barriers to progressing the programme and provide commitment and support;

- c) provide regular updates, both formal and informal across various media channels to encourage the development of an overall urban resilience culture.

6.1.5.3 Steering committee

The steering committee is a cross- sectoral stakeholder group that co-develops and delivers the urban resilience strategy.

The steering committee should:

- a) be diverse and represent all significant aspects of the community it serves through a balanced and appropriate representation from the community;
- b) have the appropriate experience, skills and knowledge to give the programme the effective direction it requires;
- c) employ effective governance practices.

NOTE ISO 37000^[3] gives recommendations and guidance for the effective delivery of governance of organizations.

6.1.5.4 Urban resilience lead

The urban resilience lead is the programme leader and facilitator who acts on behalf of the responsible body in respect to all aspects of the urban resilience strategy and its implementation.

The urban resilience lead should:

- a) report to the responsible body (6.1.5.2) and the steering committee (6.1.5.3);
- b) propose an urban resilience strategy developed through a process involving official members of the programme team, key organizations and stakeholders from across the urban community;
- c) propose a plan of action to seek the agreement of a diverse representation of the urban community for successful programme and project delivery;
- d) regularly assess the performance of the urban resilience programme against expectations, objectives and agreed milestones whilst responding to changing risks and requirements;
- e) act as the conduit and engage all formal team members to provide regular feedback to adapt, improve and continue positively supporting the strategy;
- f) prepare and manage a central remedial action table to guide the performance improvement process as the programme progresses from the formal start to conclusion.

6.1.5.5 Advisory board

The urban resilience lead should:

- a) assemble an advisory board of knowledgeable people and experienced experts responsible for providing governance and scrutiny of the strategy and its implementation;
- b) consider including representatives from other cities that have implemented urban resilience programmes.

6.1.5.6 Strategy team

The urban resilience lead should assemble a strategy team to manage, develop and lead the development of the urban resilience strategy.