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Security and resilience — Community resilience — Principles, framework and guidelines on urban resilience

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Foreword

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

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Introduction

Urban resilience is vital for protecting, sustaining and enhancing economic, social, physical, technical and environmental value. Resilience is defined as the ability to absorb and adapt in a changing environment. Urban resilience is the 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. This relies on the shared understanding and awareness of risks, ensuring prevention rather than cure and adopting a whole of society approach to resilience, where everyone plays their part.

Urban resilience includes the resilience of:

a) People and communities

b) Governance and public services

c) Trade and business services

d) Environment, infrastructure and resources

In an increasingly complex and changing world, urban areas are becoming ever more dynamic and influential. Concurrently, as urban environments evolve and grow in complexity, so do the risks and challenges they face, such as those due to climate change, increased reliance on technology and global supply chains.

Urban areas that are more resilient can better realize their strategic ambitions, protect their critical resources, capitalize on investment, create and sustain opportunities for enterprise, and empower individuals, communities, institutions and businesses to not only survive, but to adapt and prosper.

With 68 % of the global population set to be urban dwelling by 2050,[1] 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 Goal 11 of the United Nations Sustainable Development Goals[1] – to make cities inclusive, safe, resilient and sustainable – urban areas should adopt strategies that:

— take a proactive and integrated approach to resilience;

— transcend departmental and organizational 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. This 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 and communities.

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, technical and economic challenges the world faces, now and in the future.

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Security and resilience — Community resilience — Principles, framework and guidelines on urban resilience

1 Scope

This document provides principles, framework and guidelines on how to enhance urban resilience to protect communities, people and organizations and improve residents' quality of life. It describes:

a) how to build capacity to better manage change and disruptive events, minimizing the impacts on the residents, including the most disadvantaged and vulnerable persons;

b) the benefits of urban resilience;

c) how to organize, assess, plan, implement and continually improve urban resilience.

This document is applicable to all urban contexts, governance structures and stakeholders for all identified levels of risk. It is intended to be used by all organizations that have accountability for resilience of services in urban communities.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. 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 terminology databases for use in standardization at the following addresses:

— ISO Online browsing platform: available at https://www.iso.org/obp

— IEC Electropedia: available at https://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 that has the ability to deal with uncertainty and adapt to change

Note 1 to entry: Capacity can include physical, institutional, social, technical 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 that has the ability to deal with uncertainty and adapt to change” to the definition.]

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3.2
resilience
ability to absorb and adapt in a changing environment

Note 1 to entry: Urban resilience is the 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.

[SOURCE: ISO 22300:2021, 3.1.206, modified — the note 1 to entry has been modified to reflect the scope of this document.]

3.3
shock
abrupt or acute event that has the potential to impact upon the purpose or objectives of an urban system

Note 1 to entry: Table 2 addresses the evaluation of shocks, stresses and trends.

[SOURCE: ISO 22300:2021, 3.1.263, modified — "uncertain" deleted; "long onset" changed to "acute"; note 1 to entry has been added.]

3.4
stakeholder
interested party
person or organization that can affect, be affected by, or perceives itself to be affected by a decision or activity

[SOURCE: ISO 31073:2022, 3.3.2]

3.5
stress
chronic and ongoing dynamic pressure with the potential for cumulative impacts on the ability and capacity of the system to achieve its objectives

Note 1 to entry: Table 2 addresses the evaluation of shocks, stresses and trends.

[SOURCE: ISO 22300:2021, 3.1.269, modified — "originated within an urban system" deleted; note 1 to entry has been added.]

3.6
urban area
geographic area containing a populated, built environment

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

3.7
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 providing services 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, uncertainties and change.

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.

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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, modified — notes 1 to 3 to entry have been modified]

3.8
urban system
human settlement, integrated and complex set of system components, characterized by physical, functional, organizational and spatial dimensions; comprised of people, processes and assets managed through effective governance mechanisms in order to deliver the urban societal objectives

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 of managing the complex interactions and interdependencies among its multiple components, with the purpose of fulfilling a variety of functionalities including social, economic, technical, cultural and environmental.

[SOURCE: ISO 22300:2021, 3.1.285, modified — deleted "universal and interdependent"; "in order to deliver the urban societal objectives" has been added to the definition]

3.9
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]

3.10
vulnerable person
individual who is less able to anticipate, prepare, respond to and absorb shocks, or positively adapt and transform in the face of stress and uncertainty

Note 1 to entry: In this document, a vulnerable person is not defined by the nature of the vulnerability but by their personal circumstances.

[SOURCE: ISO 22300:2021, 3.1.293, modified —definition and note 1 have been modified]

4 Principles for urban resilience

In order to improve urban resilience, the responsible body and stakeholders should be guided by the principles listed in Table 1 that underpin resilient urban systems. The responsible body is the council, governing body, board or the person or body with ultimate decision-making authority in regard to urban resilience. They should be at the core of all resilience behaviours, strategies and outcomes.

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Table 1 — Principles

Principles	Description
Accountable	Upholding methods for effective governance that promote clear responsibilities, accountability, unity of vision and transparency; delivering long-lasting urban resilience benefits that go beyond short-term decision-making cycles (for example, electoral cycles, annual budgets, short-term investment plans and programmes) and avoid fragmentation, ensuring that there are long-term, sustained financing mechanisms in place to provide ongoing support to urban resilience-building projects.
Adaptive	Building flexibility and resourcefulness; creating urban systems that can evolve and manoeuvre quickly in a changing landscape – addressing risks and capitalizing on opportunities. Accepting of ever-increasing uncertainty and change and having the ability to apply existing resources to new purposes. Rapidly finding different ways to achieve desired outcomes or meet needs during a shock or when under stress, mobilising human, financial, technical and material resources inside or outside of traditional response structures to deliver innovative solutions in the face of adversity.
Aware	Gathering information, harnessing real-time data and conducting horizon scanning to improve awareness, anticipate change and inform evidence-based decision-making. Assessing, building knowledge capital, learning and continually improving for better future outcomes.
Inclusive	Conducting broad consultation and co-creating with communities, including those which are identified as vulnerable – creating community cohesion, strengthening social contracts and empowering people to participate and create a whole society approach to resilience. 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 urban resilience. Benefits and impacts are distributed justly and equitably across urban networks; reducing social stresses and disproportionately poor outcomes for vulnerable groups.
Integrated	Integrating and aligning urban systems to reduce silos and bring together decision makers, sectors, departments, budgets, activities, and agendas. Maintaining a systems-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	Addressing identified system vulnerabilities through robust design, redundancy, spare capacity and fail-safe measures, balancing risk, performance and cost. Responding quickly to mitigate adverse impacts of events and to accelerate recovery.
Sustainable	Pursuing and committing 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 – building on the recommendations of the United Nations Sustainable Development Goals.
Transformative	Bouncing forward following disasters so that systems can thrive, not just survive. Rapidly finding different ways to achieve their goals or meet their needs under changing circumstances. Transcending traditional ideas, roles, and patterns to create something new by using originality of thought and demonstrating imagination.

5 Framework for delivering urban resilience

This framework provides the foundation for successful urban resilience, and is iterative and continuous. Urban areas will be at various stages of maturity and development with regard to the steps laid out in this section. Existing local and international initiatives should be aligned with and integrated into the urban resilience strategy. The framework's five key steps are set out in the following clauses:

a) Organize and define: Establishing governance structures, engaging key stakeholders, developing a shared vision, objectives and goals and data collection for managing urban resilience (Clause 6).

b) Assess and prioritize: Performing a systems-based urban resilience assessment and prioritizing urban resilience needs (Clause 7).

c) Strategy development: Developing (Clause 8) and maintaining a prioritized schedule of urban resilience initiatives needed to achieve goals and objectives.

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d) Implementation: Developing detailed resilience projects, and managing their delivery (Clause 9).

e) Continual improvement: Monitoring, measuring, analysing, adjusting, learning and innovating continuously (Clause 10).

The responsible body should:

— follow the framework described in the five steps above [a) to e)], along with the activities described in Figure 1 under each step when developing strategies for and delivering urban resilience;

— consider the principles specified in Table 1 in every step of the process.

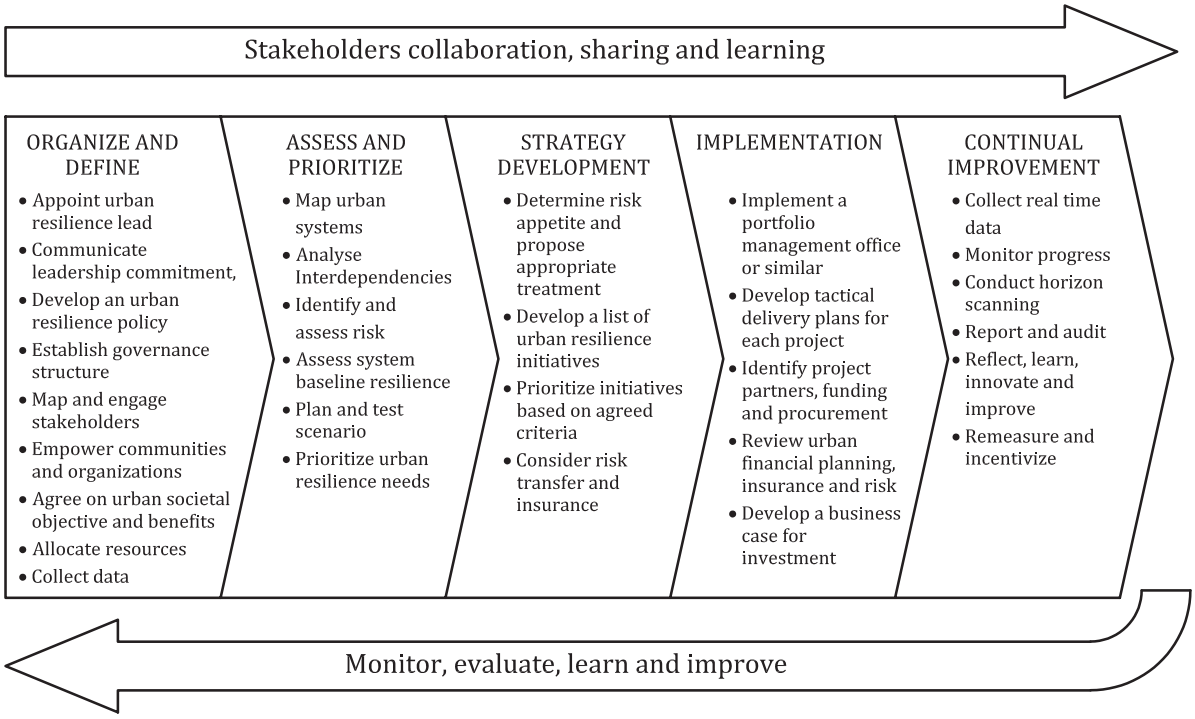

Figure 1 — Framework for urban resilience showing steps and associated activities

Annex A provides a checklist of the expected activities for 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 responsible authorities to support the enhancement of urban resilience, adequate governance arrangements should be established to build an environment of trust, transparency and accountability to deliver the activities outlined in 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 urban resilience capacity, a mandate or "authority to act" should be provided by the responsible body (see 6.1.5.2) which has the authority to appoint an urban resilience lead. A clear definition for this role

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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 urban resilience;

b) appoint and support the urban resilience lead;

c) mobilize the support of all other responsible parties who take on formal roles and responsibilities within the strategy and implementation team.

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 urban resilience.

6.1.5 Governance structure

6.1.5.1 General

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

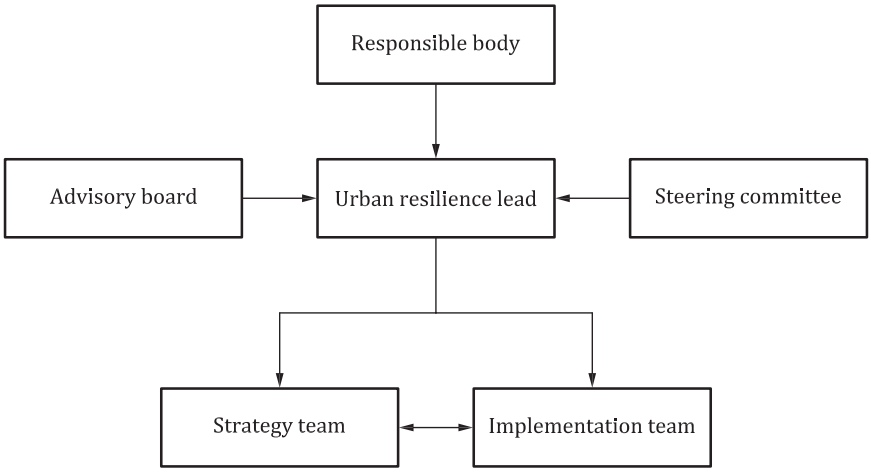

Figure 2 — Model governance structure

NOTE ISO 37000 gives guidance for the effective delivery of governance of organizations.

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