

Teknisk rapport

SIS-ISO/TR 37121:2020

Inventering och översyn av befintliga indikatorer för hållbar utveckling och resiliens i städer (ISO/TR 37121:2017)

Inventory and review of existing indicators on sustainable development and resilience in cities (ISO/TR 37121:2017)



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This Technical Report is not a Swedish Standard. This document contains the English language version of ISO/TR 37121:2017, edition 1.

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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 on 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 the following URL: www.iso.org/iso/foreword.html.

This document was prepared by Technical Committee ISO/TC 268, *Sustainable cities and communities*.

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Introduction

This document is the second in a new series of International Standards on indicators for sustainable development, resilience and smartness in cities.

ISO 37120 was published in May 2014 and became the first ever International Standard for cities to be published. The main objective of ISO 37120 was to establish a set of standardized indicators to track and monitor progress on city performance.

In the time since the publication of ISO 37120, cities have increasingly identified a need to measure the implementation and efficacy of resilience initiatives. The well-being of societies and communities relies daily on a web of institutions, infrastructure and information. Uncertainty, pressures and extreme events (caused by climate change, natural disasters, food, water and energy insecurity, disease, economic fluctuation, terrorism and social unrest) all pose threats and challenges to functioning of these systems and the well-being of citizens. The capability of cities to prepare for, respond to, and recover from these threats and challenges with minimum damage to public safety and health, the economy, and security is increasingly referred to as resilience.

Many of the indicators in ISO 37120 address sustainable development and resilience; however, it is recognized that these two subjects require a more in depth study. For this reason, ISO/TC 268 has approved the publication of this document with the objective of developing an inventory of existing guidelines and approaches on sustainable development and resilience in cities which can be used in the future to complement ISO 37120.

The guidelines and approaches in this document are the contribution of experts from ISO/TC 268 and have been selected based on their social, economic and environmental contributions towards building more sustainable and resilient cities. This document is not intended to be an exhaustive inventory and is currently only to the date of publication. As a second phase and considering the urgent need to address resilience in cities, TC 268 intends to develop an International Standard to define and establish definitions and methodologies for indicators for resilient cities. The objective of this new standard in the series will be to establish a set of indicators that can be used with any resilience framework to help cities with their resilience planning and will be built upon the guidelines and approaches contained in this document.

A gap analysis with ISO 37120 and an analysis and correlation with the UNISDR Ten New Essentials has been carried out in [Clause 5](#). This work will be considered and further expanded in the development of a future new International Standard on Indicators for Resilient Cities.

Sustainable development in communities — Inventory of existing guidelines and approaches on sustainable development and resilience in cities

1 Scope

This document provides an inventory of existing guidelines and approaches on sustainable development and resilience in cities.

This document focuses on resilience understood as the ability of a city, system, community, local government or society exposed to hazards to resist, absorb, accommodate to and recover from the effects of a hazard in a timely and efficient manner, including through the preservation and restoration of its essential basic structures and functions.

Resilience indicators are intended to assess the extent to which cities are helping residents, businesses, institutions, and infrastructure resist, absorb, accommodate to and recover from the effects of hazards in a timely and efficient manner.

2 Normative references

There are no normative references in this document.

3 Terms and definitions

No terms and definitions are listed in this document.

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

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

4 Compilation of guidelines and approaches

This document is designed to provide cities, researchers, experts, international organizations, industry leaders and other interested parties with a compilation of documents containing resilience and sustainable development indicators. The documents considered in this document were provided and selected by TC 268 experts on city indicators, sustainability and resilience from 20 countries and they are not considered to be an exhaustive list. TC 268 experts provided examples of frameworks and indicators based on their knowledge of work being completed by organizations within their countries or international agencies. Note that hyperlinks are current as of March 24, 2016.

4.1 ASEAN/ESC model cities programme

Framework	Association of Southeast Asian Nations (ASEAN) Environmentally Sustainable Cities (ESC) Model Cities Programme
Author	Japan-ASEAN Integration Fund
Publication year	2011 to 2014
Applicability	National, regional, local
Theme	Environmental sustainability

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Purpose	To promote the development of environmentally sustainable cities across ASEAN countries.
Abstract	The ASEAN ESC Model Cities Programme is a regional initiative aimed at promoting the development of Environmentally Sustainable Cities (ESC) across ASEAN countries. It provides seed funding, technical assistance and other forms of support to raise local capacity for implementing innovative and voluntary bottom-up initiatives, as well as to strengthen national ESC guidelines and approaches and actions that facilitate the replication and scaling up of good practices and policies within and across countries.
Hyperlink	http://aseanmodelcities.org/

4.2 Citizen's guide to biosphere eco-cities: Finding a balance between people and nature for your city and countryside

Framework	Citizen's guide to biosphere eco-cities: Finding a balance between people and nature for your city and countryside
Author	UNESCO
Publication year	2009
Applicability	Local
Theme	Environment
Purpose	To protect the biosphere from increasing impacts of human activities by addressing natural and human needs together.
Abstract	A biosphere eco-city is a region containing an urban area and its surrounding countryside where people and organizations demonstrate innovative ways to adjust human activities in order to support nature while improving the quality of urban and rural life. These urban-centred regions share ideas and results with each other and together form the World Network of Biosphere Eco-Cities. Through their collective efforts to reduce human impacts on nature, they help to sustain the biosphere.
Hyperlink	http://www.unesco.org/mab/doc/icc/2009/e_ecoCities.pdf

4.3 User's manual for the city biodiversity index

Framework	User's manual for the city biodiversity index
Author	Participants at the first expert workshop on the development of the city biodiversity index
Publication year	2012
Applicability	National, local
Theme	Biodiversity

Purpose	To develop the City Biodiversity Index (CBI), as a self-assessment tool, to assist national governments and local authorities in benchmarking biodiversity conservation efforts in the urban context, and help evaluate progress in reducing the rate of biodiversity loss in urban ecosystems.
Abstract	The CBI comprises a profile of the city, listing background information relevant to biodiversity conservation, indicators to be evaluated, and a calculation of the index. The manual contains the rationale for selection of indicators, how to calculate the indicators, where to get data for the calculations, and the basis for the scoring. The method of scoring is quantitative in nature. To ensure that the scoring is unbiased and fair to a broad spectrum of cities of different characteristics over a wide geographical range, statistical analysis will be applied to the data provided by the cities.
Hyperlink	http://www.cbd.int/authorities/doc/User's%20Manual-for-the-City-Biodiversity-Index18April2012.pdf

4.4 Eco² cities guide: Ecological cities as economic cities

Framework	Eco ² cities guide: Ecological cities as economic cities
Author	World Bank: Sebastian Moffatt; Hiroaki Suzuki; Ryoko Iizuka
Publication year	2012
Applicability	Regional, Local
Theme	Ecological and economic sustainability
Purpose	To help cities in developing countries achieve greater ecological and economic sustainability in synergy.
Abstract	Eco cities is a sustainable urban development initiative launched by the World Bank as an integral part of its urban and local government strategy. An integrated approach across sectors appears to overcome many barriers to urban sustainability, and offers communities a path towards increased well-being for short and long terms. The guide starts with an overview of the principles, and a self-assessment exercise that can help identify where a city is strong or needs improvement. The guide then highlights essential, practical elements of planning and implementing Eco2 cities.
Hyperlink	http://siteresources.worldbank.org/INTURBANDEVELOPMENT/ Resources/336387-1270074782769/Eco2_Cities_Guide-web.pdf

4.5 European common indicators: Towards a local sustainability profile

Framework	European common indicators: Towards a local sustainability profile
Author	Ambiente Italia Research Institute: Maria Berrini; Lorenzo Bono; Giulia Ferrari; Valentina Tarzia; Michele Merola
Publication year	2003
Applicability	Local
Theme	Sustainability

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Purpose	To develop and test indicators reflecting local actions towards sustainability in as much an integrated way as possible.
Abstract	The ECI initiative was started off in May 1999 with the setting up of a working group on sustainable indicators with the task to develop common (harmonized) indicators for local sustainability, in close collaboration with a wider group of local authorities. ECI is characterized by a good level of complementarity with respect to existing local, national and sectorial indicators' sets, since it was not defined to displace or compete with any local/national priority therein reflected. In fact, the ECIs aim at representing local action towards sustainability in as much an integrated way as possible.
Hyperlink	N/A

4.6 Global urban indicators — Selected statistics: monitoring the habitat agenda and the millennium development goals

Framework	Global urban indicators — Selected statistics: monitoring the habitat agenda and the millennium development goals
Author	United Nations Human Settlements Programme
Publication year	2009
Applicability	National, local
Theme	Poverty, health, equality, education, environmental sustainability
Purpose	To ensure a common assessment and appreciation of the status of MDGs at global, national and local levels.
Abstract	The millennium development goals (MDG) adopted by the UN member states in the year 2000 are broad goals for the entire world. They address essential dimensions of poverty and their effects on people's lives attacking pressing issues related to poverty reduction, health, gender equality, education and environmental sustainability. In order to assist member states realize the eight goals of the Millennium Declaration, the United Nations System has set numerical targets for each goal. Further, it has selected appropriate indicators to monitor progress on the goals and attain corresponding targets. A list of 18 targets and more than 40 indicators corresponding to these goals are included.
Hyperlink	N/A

4.7 Cities and green growth: A conceptual framework

Framework	Cities and green growth: A conceptual framework
Author	Organization for Economic Co-operation and Development: Stephen Hammer, Lamia Kamal-Chaoui, Alexis Robert, and Marissa Plouin
Publication year	2011
Applicability	Local
Theme	Green growth

Purpose	To promote an urban green growth agenda by examining the economic and environmental conditions that have pushed the green growth agenda to the forefront of policy debate and assessing the critical role of cities in advancing green growth.
Abstract	This report examines the current state of knowledge about green growth in cities and outlines the key research questions and protocols that will guide the OECD green cities programme. The report includes suggestions for future research, including recommendations on how national policymakers responsible for regional and urban policies can advance an urban green growth agenda.
Hyperlink	http://www.oecd.org/gov/regional-policy/49330120.pdf

4.8 Reference framework for sustainable cities (RFSC): Testing results and recommendations

Framework	Reference framework for sustainable cities (RFSC): Testing results and recommendations
Author	European Union, member states and local authorities
Publication year	2012
Applicability	Local
Theme	Sustainability
Purpose	Reference framework is an online toolkit to assist actors of urban management and development to improve dialogue and action on sustainability. It offers a multi-purpose decision-making and communication tool for promoting sustainable urban development. It is not place-specific and can be adapted to suit local priorities and different circumstances. The tool shows and explains step-by-step what actions are possible or necessary to organize the process in a city or municipality, that is to say to help the city develop in an integrated manner. The users are guided through a series of questions to explore their city's approach to sustainability and provide them with tools for improving this.
Abstract	The RFSC is a voluntary, adaptable, flexible, non-binding, and free of access tool to stimulate sustainable and integrated urban development in European cities and in line with the Europe 2020 goals. The RFSC will provide a generally accepted common framework for sustainable urban development, create and promote a common understanding about the benefits of integrated urban development policy approaches, provide practical instruments for cities that encourage and facilitate skills and capacity building to better manage urban development, provide a set of quality material and instruments that allow for communication within and between cities on the basis of a common format, and encourage the dialogue and exchange within and beyond Europe's cities on the implementation of integrated urban development approaches at city-level and facilitating the European dialogue on sustainable urban development policies at all levels.
Hyperlink	http://rfsc.eu/

4.9 Eco-model city project (EMCP): Regional revitalization project, eco-model cities leading the transformation to the low-carbon society

Framework	Eco-model city project (EMCP): Regional revitalization project, eco-model cities leading the transformation to the low-carbon society
Author	Regional Revitalization Bureau, Cabinet Secretariat, Government of Japan
Publication year	2009
Applicability	Local
Theme	Low-carbon society

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Purpose	To establish a local model that realizes simultaneously the pursuit of a low-carbon society and sustainable development, through the united efforts of local communities.
Abstract	The Eco-model city project is an innovative regional revitalization project taking actions to achieve a low-carbon society. Thirteen selected Eco-Model cities (EMCs) are supported by the Japanese national government, and serve as leaders of the Promotion Council for the Low-Carbon Cities (PCLCC), which is a platform for local governments seeking to create low-carbon cities. Actors from PCLCC, the consortium of local governments, prefectures, national governments and public agencies are producing best practices and expand them to other cities in Japan and abroad.
Hyperlink	N/A

4.10 ÉcoQuartier

Framework	ÉcoQuartier
Author	Ministry of Housing and Territorial Equality (France)
Publication year	2012
Applicability	Local
Theme	Sustainable development
Purpose	To promote social diversity by undertaking new, more sustainable development projects incorporating local expertise.
Abstract	An “ÉcoQuartier” is an urban development project that includes principles of sustainable development while adapting to the characteristics of its surroundings. These districts promote the responsible management of resources, integrate into existing cities and surrounding areas, encourage economic growth, providing housing for all, encourage social diversity, and offer residents a role in developing a shared vision for their community.
Hyperlink	http://www.territoires.gouv.fr/

4.11 Pearl rating system for Estidama: Emirate of Abu Dhabi

Framework	Pearl rating system for Estidama: Emirate of Abu Dhabi
Author	Abu Dhabi Urban Planning Council
Publication year	2010
Applicability	Regional, local
Theme	Sustainability
Purpose	To create more sustainable communities, cities and global enterprises and to balance the four pillars of sustainability: environmental, economic, cultural and social.
Abstract	Estidama, which means ‘sustainability’ in Arabic, is the initiative which will transform Abu Dhabi into a model of sustainable urbanization. The aspirations of Estidama are incorporated into Plan 2030 and other Urban Planning Council (UPC) policies such as the Development Code. Estidama began two years ago and is the first program of its kind that is tailored to the Middle East region. In the immediate term, Estidama is focused on the rapidly changing built environment. One of Estidama’s key initiatives is the Pearl Rating System, which provides design guidance and detailed requirements for rating a project’s potential performance in relation to the four pillars of Estidama.
Hyperlink	http://estidama.upc.gov.ae/template/estidama/docs/PBRS%20Version%201.0.pdf

4.12 Green communities assistance kit

Framework	Green communities assistance kit
Author	United States Environmental Protection Agency
Publication year	2013
Applicability	Regional, local
Theme	Green communities, environment, socioeconomics, sustainability, health
Purpose	To enable communities to utilize the knowledge, technology and resources available to live sustainably, and to show trends and to measure progress towards goals.
Abstract	It is important to connect people with the ecosystems that support them, and communities need some order to the chaotic possibilities of indicators. Several guidelines and approaches are being used by communities to help develop sustainable indicators: domain-based, goal-based, sectoral, issue, causal, and combination. Guidelines and approaches not only sort indicators but they also help balance the many issues facing communities. Gaps and duplications in collection efforts can be identified. A summary of domain-based and goal-based indicators with examples of each are presented.
Hyperlink	N/A

4.13 China's development of low-carbon eco-cities and associated indicator systems

Framework	China's development of low-carbon eco-cities and associated indicator systems
Author	China energy group: Nan Zhou, Gang He, and Christopher Williams
Publication year	2012
Applicability	Local
Theme	Low-carbon society
Purpose	To review and analyse major indicator systems used in China to identify low-carbon eco-cities.
Abstract	In the years to come, cities in China will face major challenges as their rapidly increasing populations burden already crowded infrastructure systems and exacerbate environmental and climate change issues, threatening public health and quality of life. Low-carbon cities may be key to addressing those challenges, especially with regards to mitigating and adapting to climate change. Despite the multiple guidelines that have been developed, it remains unclear what defines a low-carbon eco-city. Additionally, although more than 100 indicators have been used or proposed for assessing such cities, few relate directly to energy use or carbon emissions. This paper gives recommendations for future development, research, and policy design to support low-carbon eco-cities in China and the world.
Hyperlink	http://china.lbl.gov/sites/all/files/china_eco-cities_indicator_systems.pdf

4.14 National eco-garden city evaluation standards

Framework	National eco-garden city evaluation standards
Author	Ministry of Housing and Urban-Rural Development (People's Republic of China)
Publication year	2012
Applicability	Local
Theme	Environment, green cities

SIS-ISO/TR 37121:2020 (E)

Purpose	To promote job creation, harmony with nature, conservation, environmental awareness, and good reporting and to strengthen supervision and management of the Eco-garden city program.
Abstract	The Eco-garden city has been developed as a higher standard of urban development, in order to promote the development of an environmentally friendly society. Eco-garden cities should develop comprehensive ecological urban development strategies, include a complete green space system, promote a good urban environment, and display exemplary implementation of all planning, ecological, and environmental laws and regulations.
Hyperlink	N/A

4.15 Sustainable approach for social housing in Brazil (Selo Casa Azul CAIXA)

Framework	Sustainable approach for social housing in Brazil (Selo Casa Azul CAIXA)
Author	Cristina Hana Shoji, Christiano Pereira and Lourdes Cristina Printes
Publication year	2013
Applicability	Local
Theme	Social sustainability
Purpose	To encourage the rational use of natural resources in the construction of housing, to reduce the maintenance costs of developments and the monthly expenses of dwellers, and to promote the awareness of developers and dwellers on the advantages of sustainable construction.
Abstract	Selo Casa Azul CAIXA is the first system for classifying sustainable projects in Brazil and was developed for Brazilian housing construction projects. The system incorporates six categories: urban quality, thermal comfort, energy efficiency, materials and resources, water efficiency, and social practices. The system offers benefits including improved quality of life and health, better conditions for employment and economic growth, and heightened energy efficiency and savings.
Hyperlink	http://www.worldgbc.org/files/8813/6909/2853/Brazil_Presentation_Sustainable_Social_Housing.pdf

4.16 Public environmental accounting: International context, trends and concrete examples [City and Local Environmental Accounting and Reporting (CLEAR)]

Framework	Public environmental accounting: International context, trends and concrete examples (CLEAR: City and Local Environmental Accounting and Reporting)
Author	Les Eco Maires association
Publication year	2004
Applicability	Regional, local
Theme	Sustainability
Purpose	To present trends and public administration tools for fostering sustainable development.
Abstract	The Eco Maires association participates in the CLEAR program and its mission is to propagate the project and promote it internationally. CLEAR is a program for improving local governance and integrating environmental policies with socioeconomic policies. Because in the environmental sciences every piece of knowledge, every action, and every term take on meaning through the system of relationships in which they are used, it becomes essential to understand not only what is being done, but also why, i.e. what are the concepts, principles and values on which actions are based.
Hyperlink	http://www.agenda21.ra.it/clear-life/CLEARen/contest/synth-en.pdf

4.17 Making EcoDistricts: Concepts and methods for advancing sustainability in neighbourhoods

Framework	Making EcoDistricts: Concepts and methods for advancing sustainability in neighbourhoods
Author	Ethan Selzter, Tim Smith, Joe Cortright, Ellen M. Bassett and Vivek Shandas
Publication year	2010
Applicability	Local
Theme	Sustainability
Purpose	To craft scalable relationships and connect various sustainability initiatives to each other in order to make the citywide promise of sustainability a reality.
Abstract	A neighbourhood or district approach offers the most likely and effective scale at which the overall goals for city sustainability can be addressed. Knowing more about what neighbourhoods want will be key to better understanding whether the EcoDistricts Initiative is a useful vehicle for accomplishing their goals. If the EcoDistricts Initiative can demonstrate its ability to advance neighbourhood aspirations as defined by the neighbourhoods themselves, the potential is great for making a major impact on citywide sustainability since the effort can then be applied to every neighbourhood in the city.
Hyperlink	N/A

4.18 GreenClimateCities program: Pathway to urban low-carbon development

Framework	GreenClimateCities program: Pathway to urban low-carbon development
Author	International Council for Local Environmental Initiatives (ICLEI) — Local governments for sustainability
Publication year	2014
Applicability	Local
Theme	Climate change mitigation, greenhouse gas reduction
Purpose	To assist local governments in responding to the global challenge of climate change by involving people across all sectors and exploring green economy and green infrastructure development options.
Abstract	The GreenClimateCities (GCC) program builds on more than 20 years' expertise and ICLEI's Cities for Climate Protection (CCP) Campaign — the first and largest global campaign of Local Governments addressing climate change. The program offers local governments a tailor-made process, a clear and flexible methodology outlining how low emission options can be identified and integrated into urban processes, and a wide range of tools and guidance for delivering effective local climate action step by step.
Hyperlink	http://www.iclei.org/fileadmin/PUBLICATIONS/Brochures/ICLEI_GreenClimateCities_Brochure.pdf

4.19 Tianjin eco-city

Framework	Tianjin eco-city
Author	Government of Singapore
Publication year	2007
Applicability	Local
Theme	Sustainable development