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

Développement durable des communautés — Recensement des lignes directrices existantes et approches sur le développement durable et résilience dans les villes

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Foreword

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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).

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see www.iso.org/patents).

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

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*.

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

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 Eco^2 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

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

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

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

Purpose	To build a thriving city which is socially harmonious, environmentally-friendly and resource-efficient — a model for sustainable development.
Abstract	The planning and development of the eco-city is guided by a comprehensive set of key performance indicators (KPIs) covering its ecological, economic and social development. The KPIs were jointly formulated by experts from Singapore and China and endorsed by the Ministerial-level eco-city joint working committee. In formulating the KPIs, due consideration was given to the national standards in China and Singapore, and the higher of the two standards was adopted, wherever feasible. Prevailing best international practices and the local conditions in Tianjin were also taken into account.
Hyperlink	http://www.tianjinecocity.gov.sg/bg_kpis.htm

4.20 Green City index: Summary of the green city index research series

Framework	Green City index: Summary of the green city index research series
Author	Economist Intelligence Unit, Siemens AG
Publication year	2012
Applicability	Local
Theme	Environment
Purpose	To assess environmentally sustainable cities and improve resource efficiency.
Abstract	The Green City Index showcases greener city examples with the integration of efficient and intelligent technology. Key challenges as discussed in the report include traffic congestion, informal settlements, urban sprawl, and exploitation of resources.
Hyperlink	N/A

4.21 How smart is your city? Helping cities measure progress

Framework	How smart is your city? Helping cities measure progress
Author	IBM Institute for Business Value: Susanne Dirks, Mary Keeling and Jacob Dencik
Publication year	2009
Applicability	Local
Theme	Sustainable prosperity, smart solutions
Purpose	To enable cities to gather more high-quality data in a timely fashion than ever before.
Abstract	The performance of core systems of today's cities is fundamental to social and economic progress. Faced with major challenges, these systems can be improved and optimized through the application of smart solutions. In this report by the IBM Institute for Business Value on creating smarter cities, we show how cities can assess and monitor progress in optimizing core systems against a limited set of key parameters, as well as determine how they measure up to their peers.
Hyperlink	N/A

4.22 Citizen's guide to LEED®[1] for neighbourhood development: How to tell if development is smart and green

Framework	Citizen's guide to LEED® for neighbourhood development: How to tell if development is smart and green
Author	Raimi + Associates and the Natural Resources Defence Council (NRDC): Aaron Welch, Kaid Benfield and Matt Raimi
Publication year	2011
Applicability	Local
Theme	Sustainability
Purpose	To help citizens improve their community and neighbourhood by explaining a sophisticated and innovative set of environmental standards called LEED® for Neighbourhood Development (LEED-ND).
Abstract	LEED®-ND takes the green certification concept beyond individual buildings and applies it to the neighbourhood context. In particular, LEED®-ND contains a set of measurable standards that collectively identify whether a development can be deemed environmentally superior, considering the development's location and access, its internal pattern and design, and its use of green technology and building techniques. The purpose of the guide is to make LEED®-ND principles easier to understand and use in a variety of circumstances, for citizens with a wide variety of interests including smart growth, land use planning, transportation, sustainable design and livable cities, environmental advocacy and natural resource protection, housing and affordability, climate change and action, equity and social justice, and public health.
Hyperlink	https://www.nrdc.org/cities/smartgrowth/files/citizens_guide_LEED-ND.pdf

4.23 CLIMATE+ development program: Framework for climate positive communities

Framework	CLIMATE+ development program: Framework for climate positive communities
Author	C40 Cities Climate Leadership Group, Clinton Climate Initiative and US. Green Building Council
Publication year	2011
Applicability	Local
Theme	Greenhouse gas reduction
Purpose	To create large-scale models for urban development that reduce greenhouse gas emissions below zero in an economically viable manner.
Abstract	The climate positive development program is not rigidly prescriptive as there is no single path for a development to achieve a climate positive outcome. Developments in any market in the world can reach this target. Different climates, fuel supplies, and political landscapes are not impediments; they simply require different solutions. By thoroughly understanding these obstacles and harnessing unique local advantages, development partners can build developments that operate with net-negative emissions when completed.
Hyperlink	N/A

1) LEED is an example of a suitable product available commercially. This informations is given for the convenience of users of this document ans does not constitute an endorsement by ISO of this product.

4.24 Comprehensive manual for the community capital scan

Framework	Comprehensive manual for the community capital scan
Author	Centre for Sustainable Community Development (CSCD) of Simon Fraser University; Telos, the Brabant Centre for Sustainable Development of Tilburg University.
Publication year	2012
Applicability	Regional, local
Theme	Sustainable development, community involvement
Purpose	To enable the expected impact of a project or programme on the sustainable development of a community to be talked about within or with a group of stakeholders at an early stage and in a structured way.
Abstract	The community capital scan is a web application internet-based instrument that offers the opportunity to gain an advance insight in a simple way into how projects or programmes are expected to contribute to the sustainable development of a community or region. This insight is obtained by asking all the relevant stakeholders involved in a project or programme to give their opinion of it by means of a structured questionnaire.
Hyperlink	http://www.ccscan-ca.cscd.sfu.ca/file/1339771033.7903zosaCH/ccscan-comprehensive-manual.pdf

4.25 Enterprise green communities criteria

Framework	Enterprise green communities criteria
Author	Enterprise Community Partners, Inc.
Publication year	2011
Applicability	Local
Theme	Green communities, efficient use of resources, smart growth
Purpose	To provide a clear, cost-effective framework for all affordable housing development types, including new construction and rehabilitation in both multifamily and single-family projects.
Abstract	In 2004, Enterprise created the Green Communities Criteria (the Criteria) to promote the incorporation of environmentally conscious design elements and the adoption of sustainable practices into the development and rehabilitation of affordable housing. The Criteria are organized into eight criteria categories and measures different aspects of sustainable design based on all project types (single family, low-rise multifamily) and construction types (new construction, moderate rehab, and substantial rehab). Although today there are a number of green rating systems, the Criteria differentiates itself by placing special emphasis on resident health and well-being and also by considering the budget challenges that are inherent to affordable housing.
Hyperlink	http://www.enterprisecommunity.com/servlet/servlet.FileDownload?file=00Pa000000FxwvNEAR

4.26 Foundation for sustainable area development: Assessments for area developments

Framework	Foundation for sustainable area development: Assessments for area developments
Author	Wouter de Zeeuw and Lonneke van den Elshou
Publication year	2013
Applicability	Local
Theme	Sustainability

Purpose	To compare sustainable area developments worldwide using one assessment method, which will not only provide an enormous amount of knowledge, but will also encourage people to prioritize sustainability in their future projects.
Abstract	The foundation for sustainable area development arose from a lack of knowledge and an inability to compare projects, along with the expense and complexity of assessing a project with current tools. The foundation connects universities, businesses, and local authorities, and the FSA assessment tool offers a quick, compact, automated method for collecting data and involving stakeholders.
Hyperlink	http://www.i-fsa.org/template/media/fsa-introduction_general.pdf

4.27 Global city indicators facility briefing documents

Framework	Global city indicators facility briefing document
Author	Global city indicators facility
Publication year	2013
Applicability	Local
Theme	Sustainability
Purpose	To help cities monitor performance and quality of life by providing a framework to facilitate consistent and comparative collection of city indicators.
Abstract	The global city indicators facility creates a knowledge network that connects cities and builds global partnerships. The facility responds to the urgent need for a globally standardized set of city indicators, assisting cities in drawing comparative lessons from other cities globally. An online platform enables cities to compare and learn from other cities relative to their peer groups. GCIF indicators are structured around 20 themes and measure a range of city service and quality of life factors which supports and provides a framework for sustainability planning.
Hyperlink	http://www.cityindicators.org/Deliverables/GCIF%20-%20Overview%20Report_6-12-2013-155594.pdf

4.28 International eco-city framework and standards

Framework	International eco-city framework and standards
Author	Ecocity builders
Publication year	2011
Applicability	Local
Theme	Sustainable development
Purpose	To maximize the possibility that cities can sustainably meet a majority of their needs from the natural capital of their own bioregions.
Abstract	The IEFS seeks to provide an innovative vision for an ecologically-restorative human civilization, as well as a practical methodology for assessing and guiding the achievement of such vision through the lens of the eco-city. This work is predicated on over 30 years of research and concept development by ecocity thought leaders and practitioners from around the world. Designed for a wide range of users, the eco-city framework charts a city's steps forward — from existing conditions to "threshold" Ecocity status and beyond. The Framework helps people see how their city is doing on a range of important measures, charted from "unhealthy" through multiple levels of "greener city," "eco-city", and the whole earth level, "Gaia".
Hyperlink	http://www.ecocitybuilders.org/wp-content/uploads/2010/08/INTERNATIONAL-ECOCITY-FRAMEWORK-AND-STANDARDS-LR.pdf

4.29 Living building challenge 2.1: Visionary path to a restorative future

Framework	Living building challenge 2.1: Visionary path to a restorative future
Author	International Living Future Institute
Publication year	2012
Applicability	Local
Theme	Sustainability
Purpose	To create the foundation for a sustainable future in the fabric of our communities; to remove barriers to systemic change and to realign incentives and market signals that truly protect the health, safety and welfare of people and all beings; to reconcile the built environment with the natural environment, creating greater biodiversity, resilience and opportunities for life with each adaptation and development.
Abstract	The living building challenge is a cohesive standard, pulling together the most progressive thinking from the worlds of architecture, engineering, planning, landscape design and policy. It defines the most advanced measure of sustainability in the built environment possible today and acts to diminish the gap between current limits and ideal solutions. This philosophy, advocacy tool and certification program covers all building at all scales and is a unified tool for transformative design, allowing us to envision a future that is socially just, culturally rich and ecologically restorative. Whether the project is a single building, a park, a college campus or even a complete neighbourhood community, living building challenge provides a framework for design, construction and the symbiotic relationship between people and all aspects of the built environment.
Hyperlink	N/A

4.30 Common international targets

Framework	Common international targets
Author	One Planet Communities
Publication year	2011
Applicability	Local
Theme	Sustainability
Purpose	To create a future where it is easy, attractive and affordable for people to lead happy and healthy lives within a fair share of the earth's resources.
Abstract	The initiative uses 10 guiding principles as a framework to help our partners examine the sustainability challenges they face and develop appropriate solutions. These principles were developed as a result of lessons learned from BioRegional's work at the pioneering BedZED eco-village in south London. This document is aimed at both organisations starting out on the journey of joining the One Planet Communities network and as a reference document for existing members. The Common International Targets are supported by a set of detailed guidance notes and position papers, available from BioRegional, which cover the application of these targets in more detail.
Hyperlink	http://www.bioregional.us/wp-content/uploads/2010/02/Common-International-Targets-FINAL-low-res-2011.pdf

4.31 SlimCity: Cross-industry public-private initiative on urban sustainability

Framework	SlimCity: Cross-industry public-private initiative on urban sustainability
Author	World Economic Forum
Publication year	2009
Applicability	Local
Theme	Sustainability
Purpose	To explore how cities can increase energy and resource efficiency, as well as reduce emissions at the urban level.
Abstract	SlimCity is a World Economic Forum Industry Partnership initiative that provides a risk-free marketplace for cities and the private sector to exchange best practices and deliver resource efficiency within cities worldwide. The focus of this exchange is on the sustainable development of all aspects of a city to achieve reduced carbon emissions and increased resource efficiency across all sectors, and involves the following industries: chemicals, engineering and construction, energy, information technologies, mobility, and real estate. The SlimCity initiative brings together senior public sector figures who impact a city's development with senior executives of innovative private sector organizations.
Hyperlink	http://www3.weforum.org/docs/WEF_SlimCity_UrbanSustainability_Report_2009.pdf

4.32 Sustainability Tools for Assessing and Rating (STAR) community rating system

Framework	STAR community rating system
Author	STAR Communities
Publication year	2012; Version 2.0 expected to be released in late 2016
Applicability	Local Government
Theme	Livability, sustainability
Purpose	To provide government and community leaders with a framework and certification program for evaluating local sustainability.
Abstract	The STAR Community Rating System® (STAR) and corresponding certification program were developed by and for local governments as a common framework for local sustainability that encompasses a standard set of economic, environmental and social performance measures, and a recognition program to encourage competition and progress. Local leaders use STAR to set goals, measure progress and improve their communities. The Rating System comprises 7 goals, 44 objectives and more than 500 outcome and action measures. Local action measures are best practices known to move the needle on change in community-level outcomes or conditions. A community can accumulate points in STAR for implementing local actions, reaching community-level outcomes or through a combination of the two. An innovation category allows communities to get extra credit in areas where they excel and propose new credits to support the evolution of sustainability practice.
Hyperlink	http://www.starcommunities.org

4.33 Sustainable Cities Index 2010: Ranking the 20 largest British cities

Framework	Sustainable cities index 2010: Ranking the 20 largest British cities
Author	Forum for the Future: Ben Ross and Evelyn Underwood
Publication year	2010
Applicability	Local

Theme	Environment, quality of life, future-proofing
Purpose	To make cities more sustainable, helping public bodies rethink their services so they can offer people a better life without destroying the environment.
Abstract	In this report, each of Britain's 20 largest cities is analysed according to three criteria: its "environmental performance" in terms of resource use and pollution, its "quality of life" (what the city is like to live in for all its citizens); and "future-proofing" (how well the city is preparing itself for a sustainable future). We selected these index categories to reflect the sustainability of each city in a fair and balanced way. The indicators, developed in discussion with the local authorities themselves, use existing data on aspects of performance on which cities are already expected to make improvements. We hope this index will help our cities make progress towards living in a more sustainable way, towards reducing their overall impact on the environment and towards facing the multiple challenges coming down the line.
Hyperlink	http://www.forumforthefuture.org/sites/default/files/images/Forum/Projects/Sustainable_Cities_Index/Sustainable_Cities_Index_2010_FINAL_15-10-10.pdf

4.34 Sustainable communities program

Framework	Sustainable communities program
Author	Audubon International
Publication year	Unknown
Applicability	Local
Theme	Sustainability
Purpose	To help communities take steps to ensure that they are healthy, desirable and vibrant places in which to live, work and play, both today and tomorrow.
Abstract	The program is designed to support a community's previously identified priorities and build on the ongoing sustainability and planning efforts unique to each community. The program helps communities establish measurable goals and objectives, develop a comprehensive plan, and take strategic action that leads to meaningful results that benefit community residents and visitors as well as the natural environment.
Hyperlink	http://www.audubonintenational.org/

4.35 Sustainable cities program

Framework	Sustainable cities program
Author	Rede Nossa São Paulo, Rede Social Brasileira por Cidades Justas e Sustentáveis, and Instituto Ethos de Empresas e Responsabilidade Social
Publication year	2012
Applicability	Local
Theme	Sustainability

Purpose	To raise awareness, mobilize people and provide tools to develop Brazilian cities in an economically, socially and environmentally sustainable manner.
Abstract	The Sustainable Cities Platform, is a tool and agenda for the sustainability of cities which deals with the various areas of public administration, by 12 themes, and incorporates the social, environmental, economic, political and cultural dimensions in an integrated way. Participating cities will gain visibility through promotional materials and the media, will have access to strategic information and will exchange experiences with other cities, besides being part of an unprecedented movement in Brazil, representing another step in the process of building more fair, democratic and sustainable cities.
Hyperlink	N/A

4.36 BREEAM communities — Technical manual

Framework	BREEAM communities — Technical manual
Author	BRE Global Limited
Publication year	2009
Applicability	Local
Theme	Sustainable communities
Purpose	To provide a credible and holistic sustainability label for development projects and to raise the awareness of construction professionals and policy-makers to the benefits of sustainable development.
Abstract	BREEAM Communities is an independent, third-party assessment and certification standard for sustainable community. It addresses key environmental, social and economic sustainability objectives and measures the overall impacts of planning policy within the built environment. The certification standard covers eight categories: climate and energy, place shaping, community, ecology, transport, resources, business, and buildings.
Hyperlink	http://www.breeam.org/bre_PrintOutput/BREEAM_Communities_0_1.pdf

4.37 Comprehensive assessment system for built environment efficiency (CASBEE®) for Cities

Framework	Comprehensive Assessment System for Built Environment Efficiency (CASBEE®)<?> for Cities
Author	Committee for the Development of an Environmental Performance Assessment Tool for Cities and Japan Sustainable Building Consortium
Publication year	2011
Applicability	Local
Theme	Low-carbon, resilience and sustainable society

Purpose	To identify environmental, social and economic characteristics of a city and quantify the effectiveness of citywide policies.
Abstract	CASBEE® City tool enables users to comprehensively understand target cities from the following two aspects: Quality (Q), comprising environmental, social, and economic quality and activities; and Load (L), for environmental load. Total scores are given for each on a 100-point scale. For comprehensive assessment, a built- environment efficiency (BEE) value is calculated. A city that achieves high quality measures while imposing a low environmental load will receive a high BEE value and is judged to be an advanced sustainable city within the CASBEE® City framework. The tool enables users to understand the conditions and the strengths and weaknesses of their cities compared with other cities by visualizing the assessment results on easy-to-understand two dimensional graph. The assessment and visualization of the results are expected to raise the awareness of citizens and other stakeholders about their city, and thus encourages them to improve the city conditions and to contribute to sustainable city development.
Hyperlink	http://www.ibec.or.jp/CASBEE/english/document/Outline_CASBEE_City.pdf

4.38 German Sustainable Building Council

Framework	German Sustainable Building Council
Author	Deutsche Gesellschaft für Nachhaltiges Bauen (DGNB)
Publication year	2012
Applicability	Local
Theme	Sustainability
Purpose	To promote solutions in the planning, construction and operation of buildings which realize the goals of sustainable building.
Abstract	The Council is an association for sustainable building in the building and real estate sector. Its second-generation certification system is a tool for communicating, planning, increasing building quality, and promoting urban districts. It uses a holistic approach that covers all the main aspects of sustainable urban districts. The tool includes embedded life-cycle assessment, and an emphasis on life-cycle costing.
Hyperlink	http://www.dgnb-system.de/fileadmin/en/dgnb_system/schemes/120820_DGNBurbandistricts_Overviewcriteria.pdf

4.39 Eco-city development index system

Framework	Eco-city development index system
Author	Chinese Society for Urban Studies AND United Technologies Corporation
Publication year	2009
Applicability	Local
Theme	Sustainable development

Purpose	To establish a unified, effective eco-city index system that includes scientific measures of planning and construction, in order to promote the construction and management of an ecologically friendly city.
Abstract	Eco-cities are an exploration of the ways man and nature can live in harmony while making progress toward sustainable economic development. China is one of the most active countries in the world for eco-city construction, and urgently needs guidance and evaluation standards for this type of development. Thirteen cities have been selected as demonstrative projects, and each has been evaluated for its eco-city construction practices.
Hyperlink	http://www.eco-chinacity.com/events/Eco_city_brochure.pdf

4.40 Green star communities: Guide for local government

Framework	Green star communities: Guide for local government
Author	Green Building Council of Australia
Publication year	2012
Applicability	Local
Theme	Sustainability
Purpose	To provide a rating tool for governments and development teams, in order to improve the planning, design, and construction process of sustainable communities.
Abstract	The project evaluates sustainability projects at a precinct, neighbourhood, and/or community level in six categories: governance, design, livability, economic prosperity, environment, and innovation. The document is composed of a submission guideline, a rating tool scorecard, and calculators.
Hyperlink	http://www.gbca.org.au/uploads/189/2749/Green_Star_Communities_Guide_for_Local_Government_For_Web.pdf

4.41 IGBC green townships (for townships and large developments) rating system — Pilot version abridged reference guide

Framework	IGBC green townships (for townships and large developments) rating system — Pilot version abridged reference guide
Author	Confederation of Indian Industry and Indian Green Building Council
Publication year	2008
Applicability	Local
Theme	Green communities
Purpose	To enable urban designers to apply green concepts and criteria and to measure and reduce environmental impacts.
Abstract	It is estimated that nearly 70 new cities with a population of greater than 500,000 would be added to India's landscape by 2020. Against this background, Indian Green Building Council has launched the "IGBC Green Townships Rating System". The rating system is designed to address large developments and it is mandatory to include residential development as part of the township. The system is designed to address the issues of sprawl, automobile dependency, social and environmental disconnect. Developments are evaluated on the following broad aspects: environmental planning, land use planning, resources management, and community development.
Hyperlink	N/A

4.42 LEED® for neighbourhood development

Framework	LEED® for neighbourhood development
Author	US. Green Building Council
Publication year	2009
Applicability	Local
Theme	Smart growth, environmental protection
Purpose	To successfully protect and enhance the overall health, natural environment and quality of life in our communities.
Abstract	LEED® for Neighbourhood Development (LEED®-ND) integrates the principles of smart growth, New Urbanism and green building into the first national rating system for neighbourhood design. The rating system encourages smart growth and New Urbanist best practices by promoting the location and design of neighbourhoods that reduce vehicle miles travelled (VMT) and creating developments where jobs and services are accessible by foot or public transit. It also promotes an array of green building and green infrastructure practices, particularly more efficient energy and water use; especially important in urban areas where infrastructure is often overtaxed.
Hyperlink	http://www.usgbc.org/Docs/LEEDdocs/LEED-ND%20Backgrounder.pdf http://www.usgbc.org/Docs/Archive/General/Docs6423.pdf

4.43 Environmental accounting for people and places: Resources and Energy Analysis Programme (REAP)

Framework	Environmental accounting for people and places: Resources and Energy Analysis Programme (REAP)
Author	Stockholm Environment Institute: Alistair Paul.
Publication year	2008
Applicability	National, regional, local
Theme	Environmental impact monitoring
Purpose	To analyse potential environmental impacts of policies, and to monitor policies over time.
Abstract	Resources and Energy Analysis Programme (REAP) is used to answer some of the most important questions related to understanding the environmental consequences of economic activity. REAP generates ecological, carbon and greenhouse gas (GHG) footprint results for the populations of every local authority area, English Region and devolved nation in the UK. This is modelled by combining data on the consumption of goods and services with their production impact through every stage of the supply chain. Indicators measure the impact of changes in the consumption activities of individuals and households within a specific geographical area. They take account of the domestic energy used by households and the way people travel, as well as food consumption and what people buy and use.
Hyperlink	http://www.sei-international.org/mediamanager/documents/Publications/Climate/reap.pdf

4.44 Cities and biodiversity outlook — Action and policy: Global assessment of the links between urbanization, biodiversity, and ecosystem services

Framework	Cities and biodiversity outlook — Action and policy: Global assessment of the links between urbanization, biodiversity, and ecosystem services
Author	Secretariat of the Convention on Biological Diversity
Publication year	2012
Applicability	Local
Theme	Sustainability, conservation
Purpose	To emphasize challenges and opportunities in rapidly urbanizing developing countries, and to strengthen conservation and sustainable use of natural resources in an urban context.
Abstract	CBO — Action and policy provides the summary of a global assessment of the links between urbanization, biodiversity, and ecosystem services. Drawing on contributions from more than 120 scientists and policy-makers from around the world, it summarizes how urbanization affects biodiversity and ecosystem services and presents 10 key messages. It also showcases best practices and lessons learned, and provides information on how to incorporate the topics of biodiversity and ecosystem services into urban agendas and policies.
Hyperlink	http://sustainabledevelopment.un.org/content/documents/1104cbo-action-policy-en.pdf

4.45 Global assessment report on disaster risk reduction

Framework	Global assessment report on disaster risk reduction
Author	United Nations
Publication year	2013
Applicability	Global
Theme	Disaster risk reduction
Purpose	To raise extensive concerns over global risk reduction.
Abstract	The report highlights the need of disaster risk management by modelling a business case. It provides critical evidence for policymakers and businesses to promote climate change adaptation industry, mitigating the risk with technological change and create shared value.
Hyperlink	http://www.preventionweb.net/english/hyogo/gar/2013/en/gar-pdf/GAR2013_EN.pdf

4.46 UNISDR terminology on disaster risk reduction

Framework	UNISDR terminology on disaster risk reduction
Author	United Nations
Publication year	2009
Applicability	Global
Theme	Disaster risk reduction
Purpose	To disseminate international standard terminologies related to disaster risk reduction.
Abstract	The UNISDR Terminology promotes common understanding and common usage of disaster risk reduction concepts, to assist the disaster risk reduction efforts of authorities and public.
Hyperlink	http://www.unisdr.org/files/7817_UNISDRTerminologyEnglish.pdf

4.47 Global competitiveness report 2013 to 2014

Framework	Global competitiveness report 2013-2014
Author	World Economic Forum: Klaus Schwab
Publication year	2013
Applicability	National
Theme	Social sustainability
Purpose	To deliver reliable and effective public services and minimize pressures on natural resources.
Abstract	The competitiveness report defines key indicators for sustainable competitiveness of nations. The global competitiveness index 2013-2014 sustaining growth, building resilience is featured. The indicators involves 12 static and dynamic components: institutions, infrastructure, macroeconomic environment, health and primary education, higher education and training, goods market efficiency, labour market efficiency, financial market development, technological readiness, market size, business sophistication and innovation.
Hyperlink	http://www3.weforum.org/docs/WEF_GlobalCompetitivenessReport_2013-14.pdf

4.48 Partnering for service excellence: Performance measurement report

Framework	Partnering for service excellence: Performance measurement report
Author	Ontario Municipal CAO's Benchmarking Initiative
Publication year	2012
Applicability	Local
Theme	Performance measurement
Purpose	To improve public services.
Abstract	The overview presents a comprehensive checklist for public service assessment, measuring level of service, resource efficiency, customer experience and community impact.
Hyperlink	http://www.ombi.ca/wp-content/uploads/2011_OMBI_PUBLIC_REPORT.pdf

4.49 Meeting the challenge of climate change: TRCA action plan for the living city

Framework	Meeting the Challenge of Climate Change: TRCA Action Plan for the Living City
Author	Toronto and Region Conservation (TRCA)
Publication year	2008
Applicability	Local
Theme	Climate change
Purpose	To address climate change through mitigation and adaptation.
Abstract	The action plan provides a business planning framework to address the impacts of climate change at city level. It identifies the possible climate changes for southern Ontario with metrics, and proposes a quantitative migration plan.
Hyperlink	http://www.trca.on.ca/dotAsset/16642.pdf

4.50 2012 EPI: environmental performance index and pilot trend environmental performance index

Framework	2012 EPI: Environmental performance index and pilot trend environmental performance index
Author	Columbia University, Yale University
Publication year	2012
Applicability	National
Theme	Environmental sustainability
Purpose	To deliver a rigorous, data-driven environmental performance measurement system for policymaking and continuous improvement.
Abstract	The ESI aims to tackle pollution control and natural resource management challenges with quantitative metrics. The EPI ranks countries on 22 performance indicators spanning 10 policy categories reflecting facets of both environmental public health and ecosystem vitality. The ten (10) policy categories include: environmental health, water, air pollution (effects on human health and ecosystem), water resources, biodiversity and habitat, forest, fisheries, agriculture, and climate change.
Hyperlink	N/A

4.51 2012 Global cities index and emerging cities outlook

Framework	2012 Global cities index and emerging cities outlook
Author	ATKearney
Publication year	2012
Applicability	Local
Theme	Global influence
Purpose	To measure global engagement of cities.
Abstract	The global cities index measures a city's influence across five dimensions: business activity, human capital, information exchange, cultural experience and political engagement. A new analysis for emerging cities, mainly on business activity and human capita, was developed to reflect strengths and vulnerability.
Hyperlink	http://www.atkearney.com/documents/10192/dfedfc4c-8a62-4162-90e5-2a3f14f0da3a

4.52 State of the world's cities 2012/2013: Prosperity of cities

Framework	State of the world's cities 2012/2013: Prosperity of cities
Author	United Nations Human Settlements Programme
Publication year	2012
Applicability	Local
Theme	Prosperity
Purpose	To ensure social equality and financial prosperity in cities worldwide.
Abstract	The report introduces a City Prosperity Index for "people-centred" cities worldwide, highlighting the need of equity and social inclusion, environmental sustainability, quality of life, infrastructure and productivity.
Hyperlink	http://mirror.unhabitat.org/pmss/getElectronicVersion.aspx?nr=3387&alt=1

4.53 Wealthier, healthier cities: How climate change action is giving us wealthier, healthier cities

Framework	Wealthier, healthier cities: How climate change action is giving us wealthier, healthier cities
Author	CDP
Publication year	2013
Applicability	Local
Theme	Climate change
Purpose	To share best practices for mitigating the negative impacts of climate change.
Abstract	The report lists several cities with compelling evidence, showcasing how climate change initiatives can benefit the local economy with resource efficiency and improved public health. Political commitment is highlighted as a key factor for disaster preparedness and sustainability initiatives.
Hyperlink	https://www.cdp.net/CDPResults/CDP-Cities-2013-Global-Report.pdf

4.54 New York City local law 84 benchmarking report

Framework	New York City local law 84 benchmarking report
Author	City of New York
Publication year	2013
Applicability	Local
Theme	Energy-efficient buildings
Purpose	To conduct energy audits for large buildings in New York City.
Abstract	The indicators were designed to consistently improve energy efficiency of buildings in New York. The reports showcases the feasibility of applying mandatory energy saving requirement at city level, as evidence are visible with the year-on-year comparison.
Hyperlink	http://www.nyc.gov/html/gbee/downloads/pdf/nyc_ll84_benchmarking_report_2012.pdf

4.55 BREEAM-NL Area development — Label for sustainable area development: Technical manual

Framework	BREEAM-NL Area development — Label for sustainable area development: Technical manual
Author	Dutch Green Building Council
Publication year	2012
Applicability	Local
Theme	Sustainable development
Purpose	To improve operationalization and standardization of sustainable area development for all stakeholder groups.
Abstract	The label defines sustainable area development with four (4) substantive themes: sources, area climate, spatial development and welfare and prosperity. The system is applicable to greenfields and brownfields. Primary stakeholders for this label are government agencies, investors, corporations, residents, associations.
Hyperlink	N/A

4.56 Capacity building to integrate disaster risk reduction into coastal management in Indonesia

Framework	Capacity building to integrate disaster risk reduction into coastal management in Indonesia
Author	United Nations Environment Programme (UNEP)
Publication year	2009
Applicability	National
Theme	Disaster risk reduction
Purpose	To measure the vulnerability of coastal cities.
Abstract	The book assess the level of vulnerability, in terms of social-economic state. Indicators are listed to measure human vulnerability, in coastal cities in particular. Technical guidance is provided for complex vulnerability analysis process.
Hyperlink	http://www.unep.org/disastersandconflicts/portals/155/disastersandconflicts/docs/drr_training/Indonesia_Training_Module.pdf

4.57 GHG protocol for community-scale greenhouse gas emissions (GPC)

Framework	GHG Protocol for Community-Scale Greenhouse Gas Emissions (GPC), Pilot Version 1.0
Author	WRI
Publication year	2012
Applicability	Local
Theme	Environment
Purpose	To provide requirements and guidance for cities on preparing and publicly reporting a GHG emission inventory.
Abstract	The GPC was developed with the following objectives: — help cities prepare a comprehensive and credible GHG inventory; — help cities develop effective strategies for managing and reducing their GHG emissions through a thorough understanding of GHG impacts from their human activities; — support consistent and transparent public reporting; — harmonize existing international protocols and standards for city level GHG inventories; — support cities' ability to demonstrate the global impact of collective local actions, and to measure collective progress credibly over time; — support GHG accounting, reporting, and trading schemes at the local/subnational/national level; — facilitate access of local governments to climate finance opportunities.
Hyperlink	http://www.ghgprotocol.org/files/ghgp/GPC_PilotVersion_1.0_May2012_20120514.pdf

4.58 UK sustainable development indicators

Framework	UK Sustainable Development Indicators
Author	UK Department for Environment, Food and Rural Affairs (DEFRA)
Publication year	2013
Applicability	National, regional, local

Theme	Comprehensive
Purpose	To develop a new set of national indicators for sustainable development.
Abstract	In July 2012, Defra published a consultation on the reduced set of indicators. The government's response to this consultation was published in June 2013 and this National Statistics publication marks the first edition of the new SDIs. Each measure given a 'traffic light' for short-term and long term. Issue in that these indicators reflect the political imperatives/ context of the time and may not therefore be best at representing sustainability; however, they may reflect the political reality for many countries.
Hyperlink	https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/223992/0_SDIs_final__2_.pdf

4.59 PAS 2070 — Specification for the assessment of greenhouse gas emissions of a city: Direct plus supply chain, and consumption-based methodologies

Framework	PAS 2070 — Specification for the assessment of greenhouse gas emissions of a city: Direct plus supply chain, and consumption-based methodologies
Author	BSI
Publication year	2013
Applicability	Local
Theme	Environment, greenhouse gas emissions
Purpose	To provide a robust and transparent method for consistent, comparable, and relevant quantification, attribution, and reporting of city-scale GHG emissions.
Abstract	PAS 2070 specifies requirements for the assessment of GHG emissions of a city or an urban area using two distinct methodologies. These recognize cities as both consumers and producers of goods and services, and provide a complementary insight of a city's GHG emissions.
Hyperlink	http://shop.bsigroup.com/upload/PASs/Free-Download/PAS2070-2014_bookmarked.pdf

4.60 Water sector performance indicator system (WS-PIS)

Framework	Water sector performance indicator system (WS-PIS)
Author	German Technical and Scientific Association for Gas and Water (DVGW)
Publication year	2014
Applicability	Local
Theme	Drinking water
Purpose	To harmonize the benchmarking activities of the German water supply sector.
Abstract	This WS-PIS will be established as technical standard for benchmarking of water utilities and for information and communication in the political and public domain. It includes the following: — structural parameters in order to account for structural conditions in water supply (mainly context information for interpretation of benchmarking results and communication; — relevant key sector indicators to monitor and communicate performance on reliability, quality, sustainability, customer service and economic efficiency of the water supply sector; — relevant key performance indicators for metric benchmarking of water utilities.
Hyperlink	N/A

4.61 Climate change adaptation-related indicators

Framework	Climate change adaptation-related indicators
Author	Sniffer
Publication year	2012
Applicability	Local
Theme	Climate change
Purpose	To inform GHG emission reductions and promote the use of adaptation indicators.
Abstract	The report includes a Climate Change Risk Assessment plan and actions required for adaptation. It examines the current state of indicator development in UK and suggests stakeholder involvement. The sample list of indicators evaluate land use planning, managing water resources and the built environment.
Hyperlink	http://www.sniffer.org.uk/files/7213/4631/9842/Sniffer_ER23_Phase_1_final_report.pdf

4.62 The UK government sustainable development strategy

Framework	The UK government sustainable development strategy
Author	Secretary of State for Environment, Food and Rural Affairs, UK
Publication year	2005
Applicability	National
Theme	Sustainability
Purpose	To build a strong economy and maintain quality of life.
Abstract	The UK government defined a list of 68 strategy indicators, together with benchmarking, for sustainable development. The strategy was developed to promote sustainable ways of consumption and production, to conserve natural resources.
Hyperlink	https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/69412/pb10589-securing-the-future-050307.pdf

4.63 Ecological footprints of Canadian municipalities and regions

Framework	Ecological footprints of Canadian municipalities and regions
Author	Federation of Canadian Municipalities
Publication year	2005
Applicability	Regional, local
Theme	Ecological footprints
Purpose	To develop the first Canadian ecological footprint estimate for major municipalities and regions.
Abstract	This report measures the ecological footprint of 20 major Canadian Municipalities and regions, by calculating energy land, crop land, pasture land, forest land, sea space and built area.
Hyperlink	http://www.fcm.ca/Documents/reports/Ecological_Footprints_of_Canadian_Municipalities_and_Regions_EN.pdf

4.64 Indicators of disaster risk and risk management: Program for Latin America and the Caribbean summary report (second edition)

Framework	Indicators of disaster risk and risk management: Program for Latin America and the Caribbean summary report (second edition)
Author	Inter-American Development Bank: Omar D. Cardona
Publication year	2008
Applicability	National
Theme	Disaster preparedness
Purpose	To evaluate disaster preparedness.
Abstract	The summary paper focuses on 14 Latin American countries, collects indicators of disaster risk and risk management. It measures the potential impact of natural hazards, the key element of vulnerability and their capacity to manage risks.
Hyperlink	http://ipcc-wg2.gov/njlite_download2.php?id=9430

4.65 Cities preparing for climate change: Study of six urban regions

Framework	Cities preparing for climate change: Study of six urban regions
Author	Clean Air Partnership
Publication year	2007
Applicability	Local
Theme	Climate change
Purpose	To work in partnership to improve air quality and reduce greenhouse gases for healthy communities.
Abstract	The report examines the adaptation strategy to climate change by six (6) North American cities/municipalities. The adaptation options are designed to assess the climate change impacts and propose actions to reduce the vulnerability of public services.
Hyperlink	http://www.cleanairpartnership.org/pdf/cities_climate_change.pdf

4.66 Indicators for sustainability: How cities are monitoring and evaluating their success

Framework	Indicators for sustainability: How cities are monitoring and evaluating their success
Author	Canadian International Development Agency; Sustainable Cities International
Publication year	2012
Applicability	Local
Theme	Sustainability
Purpose	To examine sustainability indicators and monitor sustainability plans.
Abstract	The report creates a tool kit for cities to establish and track 10 (10) sustainability indicators, by comparing four (4) global reports on sustainability planning (Ecological Footprint, GCIF, Human Development Index and IPCC Assessment Reports).
Hyperlink	N/A

4.67 Climate change adaptation indicators: Logic framework assessment and indicator analysis of Sida's bilateral and regional contributions under the framework of the climate change initiative

Framework	Climate change adaptation indicators: A logic framework assessment and indicator analysis of Sida's bilateral and regional contributions under the framework of the climate change initiative
Author	Goteborgs Universitet Chalmers; SLU
Publication year	2013
Applicability	Regional
Theme	Climate change
Purpose	To assess climate change initiatives.
Abstract	The report summarizes various projects that evaluate the climate change initiatives, the projects are classified into five main categories: ecology, governance, public awareness, research capability and communication. It is noted that indicators related to climate change adaptation, ought to measure the ability of individuals, households, communities, infrastructure, etc. to cope with climate variations, extreme weather events, and climate change.
Hyperlink	http://sidaenvironmenthelpdesk.se/wordpress3/wp-content/uploads/2013/05/Final-Report-LFA-and-indicator-analysis-20130410.pdf

4.68 London's quality of life indicators: 2012 report

Framework	London's quality of life indicators: 2012 report
Author	Sustainable Development Commission, Greater London Authority
Publication year	2013
Applicability	Local
Theme	Sustainable development
Purpose	To design a sustainable development framework for London.
Abstract	The report is an evidence-based policy briefing, which reveals the progress and suggest challenges to social and economic equality. The report highlighted the need to improve childcare service, increase citizen engagement and stimulate sustainable economic growth.
Hyperlink	www.londonsdc.org/documents/research/LSDC_QoLindicators_2012_Summary.pdf

4.69 Measuring urban sustainability: Analysis of the European Green Capital Award 2010 and 2011 application round

Framework	Measuring urban sustainability: Analysis of the European Green Capital Award 2010 and 2011 application round
Author	European Green Capital
Publication year	2010
Applicability	Local
Theme	Sustainability

Purpose	To make data available to other cities in a systematic manner and to promote environmentally friendly urban living.
Abstract	The report is organized in eight (8) chapters: climate change, mobility, land use, air quality, noise pollution, waste management, water management and environmental management. The indicators highlight efficient and innovative environmental measures to facilitate sustainable urban living.
Hyperlink	http://ec.europa.eu/environment/europeangreencapital/wp-content/uploads/2013/02/egc_analysis2010-2011.pdf

4.70 Measuring city sustainability: Project Houston

Framework	Measuring city sustainability: Project Houston
Author	Shell Center for Sustainability
Publication year	2011
Applicability	Local
Theme	Sustainability
Purpose	To measure urban sustainability.
Abstract	The white paper created a list of sustainable development indicators for the Houston city. The list includes local food sourcing, obesity, green jobs and natural disaster damages.
Hyperlink	http://shellcenter.rice.edu/uploadedFiles/Shell_Center/Research/Measuring%20City%20Sustainability-11x17%281%29.pdf

4.71 Investing in sustainable growth: 2012 Rotterdam sustainability monitor

Framework	Investing in sustainable growth: 2012 Rotterdam sustainability monitor
Author	Rotterdam Climate Initiative
Publication year	2012
Applicability	Local
Theme	Sustainability
Purpose	To transform Rotterdam into a sustainable global port city.
Abstract	The report lists ten (10) sustainability tasks, the implementation plan and outlines monitoring process for successful transition. The report highlights the importance of building an international port city and ensuring resource efficiency. Key challenges discussed include emissions, air quality, noise pollution, sustainable building, mobility and political leadership.
Hyperlink	http://www.rotterdamclimateinitiative.nl/documents/Documenten/RCI_Duurzsmonitor_UK_2012%20voor%20website.pdf

4.72 National Forest City

Framework	National Forest City
Author	State Forestry Administration, People's Republic of China
Publication year	2007
Applicability	Local
Theme	Environment

Purpose	To guide the construction of forest cities.
Abstract	The report provides comprehensive indicators for managing forest city construction planning, urban ecological systems, greenbelts, water sources, forest vegetation, and energy savings.
Hyperlink	N/A

4.73 Construction index for ecological cities

Framework	Construction index for ecological cities
Author	Chinese Ministry of Environmental Protection
Publication year	2007
Applicability	National, local
Theme	Environment
Purpose	To guide the construction of ecological cities.
Abstract	The report contains a variety of indicators, including such topics as income, industrialization, energy consumption and efficiency, water quality, sewage treatment, recycling, and green area.
Hyperlink	N/A

4.74 Management referential system for a sustainable management operation (Référentiel du Système de Management d'une Opération d'aménagement durable)

Framework	Management referential system for a sustainable management operation (Référentiel du Système de Management d'une Opération d'aménagement durable)
Author	Certivéa
Publication year	2013
Applicability	Local
Theme	Sustainable development
Purpose	To describe the requirements of a system of management operations that takes into account the challenges of sustainable development by integrating the environment, the economy, and society.
Abstract	To project aims to contribute to the fight against climate change, preserving biodiversity, improving social cohesion and solidarity, fulfilling human existence, and the development of responsible modes of production and consumption. The management system can be applied to any development operation (public or private, urban or rural, large or small).
Hyperlink	http://www.eco-quartiers.fr/dl/img/referentiel-du-systeme-de-management-d-rsquo-une-operation-d-rsquo-amenagement-durable-996.pdf

4.75 How to integrate and determine the value of the three sustainable development aspects from the conception to the development of a project (Comment intégrer et valoriser les 3 aspects du développement durable de la conception à la réalisation d'un projet)

Framework	How to integrate and determine the value of the three sustainable development aspects from the conception to the development of a project (Comment intégrer et valoriser les 3 aspects du développement durable de la conception à la réalisation d'un projet)
Author	Atelier Villes and Paysages, Egis Aménagement (France)
Publication year	2012

Applicability	Local
Theme	Sustainable development
Purpose	To help communities and developers monitor and manage the sustainable development performance of projects.
Abstract	The system provides an integrated process for providing project managers with the tools needed to recognize and guide sustainable development. The system was developed using French and European guidelines and includes a sustainable development handbook that defines objectives and indicators for projects.
Hyperlink	http://www.egis.fr/sites/default/files/documents/tendem_empreinte_0.pdf

4.76 From strategy to evaluation: keys to succeed in the local Agenda 21 — Referential for the evaluation of territorial sustainable development projects (De la stratégie à l'évaluation: des clés pour réussir un Agenda 21 local — Référentiel pour l'évaluation des projets territoriaux de développement durable)

Framework	From strategy to evaluation: keys to succeed in the local Agenda 21 — Referential for the evaluation of territorial sustainable development projects (De la stratégie à l'évaluation: des clés pour réussir un Agenda 21 local — Référentiel pour l'évaluation des projets territoriaux de développement durable)
Author	Commissariat Général au Développement Durable (France)
Publication year	2011
Applicability	National, regional, local
Theme	Sustainable development
Purpose	To verify the adequacy and appropriateness of projects in light of local sustainable development issues.
Abstract	The framework highlights five critical processes when constructing a sustainable development project. The tool provides a common framework that allows municipalities, regions, and even countries to build a customized evaluation system that addresses specific issues. The tool helps with compliance with Agenda 21.
Hyperlink	http://www.developpement-durable.gouv.fr/IMG/pdf/Ref-Agendas_21_locaux.pdf

4.77 Territorial Sustainable Development Projects and Local Agenda 21

Framework	Territorial Sustainable Development Projects and Local Agenda 21
Author	Ministry of Ecology, Sustainable Development and Energy, France
Publication year	2005
Applicability	Local
Theme	Sustainable development
Purpose	To promote a local version of Agenda 21, complementary to the global programme.
Abstract	A territorial sustainable development project should meet certain requirements. It is an initiative of voluntary character, carried out by a town or other institutional grouping, which is translated into a strategy and a territorial action plan. That process commits all users of the territory, elected representatives, decision-makers and citizens, to be responsible towards others, towards the rest of the planet and future generations. At the same time, such a project is the place to build a common and attractive vision of the future for the territory in all its dimensions (physical, economic, symbolic, social, etc.).
Hyperlink	N/A

4.78 Referential: A Sustainable Development for Paris (Référential: Un Aménagement Durable Pour Paris)

Framework	Referential: A Sustainable Development for Paris (Référential: Un Aménagement Durable Pour Paris)
Author	Mayor of Paris
Publication year	2010
Applicability	Local
Theme	Sustainable development
Purpose	To apply principles of sustainable development when tracking each development project.
Abstract	From the design phase onwards, projects benefit from a "sustainable development profile" that includes a diagnostic and prioritization tool. The system identifies problems, organizes actors, encourages public participation, conducts life-cycle analyses, and considers issues over a project's entire operating lifetime.
Hyperlink	http://www.paris.fr/viewmultimediadocument?multimediadocument-id=73080

4.79 Sustainable development indicators: Indicators for the sustainable development national strategy 2010–2013 (Les indicateurs de développement durable: Les indicateurs de la stratégie nationale de développement durable 2010–2013)

Framework	Sustainable development indicators: Indicators for the sustainable development national strategy 2010-2013 (Les indicateurs de développement durable: Les indicateurs de la stratégie nationale de développement durable 2010–2013)
Author	CGDD – Ministry of Sustainable development (France)
Publication year	2011
Applicability	Local
Theme	Sustainable development
Purpose	To assist with complying with the national sustainable development strategy.
Abstract	The document lists indicators that cover such topics as consumption, education, governance, climate change, transport, health, biodiversity, and demographics. The tool is designed to help municipalities measure their ecological footprints.
Hyperlink	N/A

4.80 Sustainable development indicators for the evaluation of urban renewal projects: INDI model – RU 2015 (Des indicateurs de developpement durable pour l'evaluation des projets de renouvellement urbain: Le modèle INDI – RU 2005)

Framework	Sustainable development indicators for the evaluation of urban renewal projects: INDI model - RU 2015 (Des indicateurs de developpement durable pour l'evaluation des projets de renouvellement urbain: Le modèle INDI – RU 2005)
Author	Catherine Charlot-Valdieu and Philippe Outrequin
Publication year	2004
Applicability	National, regional, local
Theme	Sustainable development

Purpose	To develop an operations tool adapted to urban redevelopment in France.
Abstract	The tool contains indicators for all stages of a project, including analysis before construction, development pressure, project impact, mitigation, and follow-up.
Hyperlink	http://atelierdeprojets.saone-et-loire.equipement.gouv.fr/fichier/pdf/436_SUDEN_Indicateurs-_0271_cle2acfc3.pdf?arg=86666546&cle=4d9c724f1b8009357bb9da82b0d37953ba6ad3a3&file=pdf%2F436_SUDEN_Indicateurs-_0271_cle2acfc3.pdf

4.81 Some regional approaches and indicators and some indicators related to social cohesion (Quelques démarches et indicateurs régionaux and Quelques indicateurs en lien avec la cohésion sociale)

Framework	Some regional approaches and indicators and Some indicators related to social cohesion (Quelques démarches et indicateurs régionaux and Quelques indicateurs en lien avec la cohésion sociale)
Author	CETE Ouest (France)
Publication year	2011
Applicability	National, regional
Theme	Social cohesion
Purpose	To compile social cohesion indicators.
Abstract	Indicators include regional social health, income, education, housing, poverty, discrimination, equality, electoral participation, and accessibility.
Hyperlink	http://www.developpement-durable.gouv.fr/IMG/pdf/RAP_VF_A21CS_BPDL.pdf

4.82 Reference framework for sustainable cities

Framework	Reference framework for sustainable cities
Author	Reference framework for sustainable cities
Publication year	2011
Applicability	Local
Theme	Sustainable development
Purpose	To translate the common sustainability goals and the recommendations in the Leipzig Charter into practice.
Abstract	RFSC is an online toolkit for European local authorities working towards integrated sustainable development. More than 60 cities in al Europe participated in the testing phase in 2011. Their contribution to the tool was a major step in the building of the "final" version of the tool, available for European cities in January 2013. All European cities and municipalities are encouraged to sign up as RFSC Cities.
Hyperlink	http://www.rfsc.eu/

4.83 Urban sustainable development diagnostic (Diagnostic developpement durable urbain)

Framework	Urban sustainable development diagnostic (Diagnostic developpement durable urbain)
Author	Conseil Régional Midi-Pyrénées; Ministere de l'Aménagement du Territoire et de l'Environnement (France)
Publication year	2001
Applicability	Local

Theme	Sustainability
Purpose	To assist municipalities with an urban sustainable development diagnostic tool.
Abstract	An original large number of indicators was reduced to 27, constituting an effective measurement tool for sustainable development. It is aimed at medium-term projects, and offers ways to evaluate whether objectives are being met.
Hyperlink	http://www.arpe-mip.com/files/indicateursDD.pdf

4.84 Guide for environmental quality in architecture and urbanism (Guide de la qualité environnementale dans l'architecture et l'urbanisme)

Framework	Guide for environmental quality in architecture and urbanism (Guide de la qualité environnementale dans l'architecture et l'urbanisme)
Author	Grenoble
Publication year	2005
Applicability	Local
Theme	Environmental quality
Purpose	To set in motion the act of developing and building sustainably and in an environmentally friendly manner.
Abstract	The guide groups three kinds of building operations: renovations, new constructions, and rehabilitations. Environmental themes such as water, air, energy, waste, and pollution are considered. Objectives are defined for each category.
Hyperlink	http://infos.grenoble.fr/hqe/abcQE_Grenoble2010_Intro.pdf

4.85 Sustainable cities and neighbourhoods (Ville and quartiers durables)

Framework	Sustainable cities and neighbourhoods (Ville and quartiers durables)
Author	Grand Lyon
Publication year	2011
Applicability	Local
Theme	Sustainability
Purpose	To inform about sustainable territorial development, to define a methodology and evaluation criteria, and to capitalize on experiences and successful approaches.
Abstract	The sustainable neighbourhoods approach takes into account all economic, social, and environmental issues in a territory, integrating stakeholders in a clear governance approach aimed at taking action.
Hyperlink	http://www.grandlyon.com/fileadmin/user_upload/Pdf/developpement_durable/20111212_gl_guide_villeetquartiersdurables.pdf

4.86 Baro'Metropole: Our Territory in Focus (Baro'Metropole: Notre Territoire à la Loupe)

Framework	Baro'Metropole: Our Territory in Focus (Baro'Metropole: Notre Territoire à la Loupe)
Author	Audiar; Metropole Rennes (France)
Publication year	2013
Applicability	Local
Theme	Sustainable development

Purpose	To ensure monitoring of the implementation of urban sustainable development strategies.
Abstract	Rennes Métropole has set up the Baro'Métropole to monitor and manage its sustainable development strategy. This barometer is based on the use of aggregate indicators inspired by the Human Development Index created by the UN. It will be used by Rennes Métropole to monitor the implementation of targets set by the Strategic Plan, provide information on the sustainability of the region's development, and identify the strengths and weaknesses of the region and how they evolve.
Hyperlink	http://www.miniwaste.eu/mediastore/11/14779_1_FR_original.pdf

4.87 Eco-neighbourhoods Charter: Project subject to consultation and experimentation (Charte des éco quartiers: Project soumis à concertation et expérimentation)

Framework	Eco-neighbourhoods Charter: Project subject to consultation and experimentation (Charte des éco quartiers: Project soumis à concertation et expérimentation)
Author	2007
Publication year	Lille Métropole Communauté urbaine (France)
Applicability	Local
Theme	Sustainability
Purpose	To build a sustainable city that is pleasant to live in.
Abstract	The eco-districts charter is a document that specifies standards and priority targets for the environment, and the steps necessary to achieve them. Short-term projects may not become eco-districts/eco-neighbourhoods, but it is likely that in the long term most new projects will achieve the charter's objectives.
Hyperlink	http://ddata.over-blog.com/xxxyyy/2/03/05/02/2008-CHARTE-ECO-DEF-1-20.pdf

4.88 Charter for sustainable development and habitat (Charte de l'aménagement et de l'habitat durables)

Framework	Charter for sustainable development and habitat (Charte de l'aménagement et de l'habitat durables)
Author	Strasbourg and Communauté Urbaine
Publication year	2012
Applicability	Local
Theme	Sustainability
Purpose	To significantly enhance urban and architectural quality, the environment, and social housing projects.
Abstract	The charter represents the construction of a sustainable urban model that reaches beyond current regulations to meet the challenges of tomorrow's cities. It brings together key players in construction and housing, and provides the focus for a shared approach that is community-supported. The charter involves developers, landlords, and even suburban districts in order to extend the practices of sustainable urban planning.
Hyperlink	http://media.strasbourg.eu/alfresco/d/a/workspace/SpacesStore/a2820a13-8c85-45d3-9ea7-48bbeec396b4/charteAmenagmtHabitatDurables.pdf

4.89 UNISDR Disaster Resilience Scorecard for Cities

Framework	Disaster Resilience Scorecard for Cities
Author	United Nations Office for Disaster Risk Reduction
Publication year	2014
Applicability	Local
Theme	Disaster resilience
Purpose	To allow cities to understand how resilient they are to natural disasters.
Abstract	The Disaster Resilience Scorecard (hereafter, "the scorecard") is intended to enable cities to establish a baseline measurement of their current level of disaster resilience, to identify priorities for investment and action, and to track their progress in improving their disaster resilience over time. It consists of 85 disaster resilience evaluation criteria and focuses on the following aspects: — research, including evidence-based compilation and communication of threats and needed responses; — organization, including policy, planning, coordination and financing; — infrastructure, including critical and social infrastructure and systems and appropriate development; — response capability, including information provision and enhancing capacity; — environment, including maintaining and enhancing ecosystem services; — recovery, including triage, support services and scenario planning.
Hyperlink	http://www.unisdr.org/2014/campaign-cities/Scorecard%20FAQs%20March%2010th%202014.pdf

4.90 UNISDR Indicators of progress

Framework	Indicators of progress: Guidance on measuring the reduction of disaster risks and the implementation of the hyogo framework for action
Author	United Nations Office for Disaster Risk Reduction
Publication year	2008
Applicability	National, region and local
Theme	Reduction of disaster risks (resilience)

Purpose	Assist all states, regardless of their initial familiarity with indicators, with practical guidance on the development of nationally relevant indicators for application in policy, programming, monitoring, evaluation and review processes.
Abstract	The guide's main objective is to provide key principles and basic information to consider when identifying and applying relevant indicators to implement the Hyogo Framework's priority actions, and assess overall progress. The guide builds on the extensive work already underway to measure disaster risk reduction, rather than prescribing a single solution or set of solutions. Users are encouraged to apply the specific indicators provided in this guide to the relevant stages of policy, programming, monitoring and evaluation, reviews or reporting, but at the same time they may wish to develop different or additional indicators of their own design related to their particular circumstances, hazard types, population, geographic areas and sectors of activity. The guide explains the basic rationale of indicators and their use, describes the features of "good indicators", provides advice on how they can be measured, and discusses the factors to consider when tailoring generic indicators to particular contexts. The idea of benchmarks for indicators is also discussed. A simple assessment tool is proposed as a means to measure qualitative progress on indicators. The relationship of indicators and benchmarks to the Millennium Development Goals is considered in Annex 4 and Annex 6. An important contribution of the guide is its proposed set of indicators for the main elements of the Hyogo Framework. The guidance is expected to contribute to enhancing disaster risk reduction knowledge and expertise and action to reduce risks. The systematic use of indicators will strengthen mechanisms for recording, analysing, summarizing and disseminating statistical information on disaster occurrence, impacts and losses, and will assist in the provision of transparent guidance and evaluation of policies and programmes by policy makers, decision makers and the public.
Hyperlink	http://www.unisdr.org/files/2259_IndicatorsofProgressHFA.pdf

4.91 UNISDR Post-2015 Framework for Disaster Risk Reduction: A proposal for monitoring progress

Framework	Post-2015 Framework for Disaster Risk Reduction: A proposal for monitoring progress
Author	United Nations Office for Disaster Risk Reduction
Publication year	2014
Applicability	National, region and local
Theme	Reduction of disaster risks (resilience)
Purpose	The document has been produced as a technical background paper to support countries' negotiations during the preparatory process of the Third United Nations World Conference on Disaster Risk Reduction, to be held in Sendai, Japan, from 14 to 18 March 2015, which will adopt the new framework.
Abstract	The present document provides guidance on how appropriate indicators and targets can facilitate monitoring progress in disaster risk reduction and the implementation of a Post-2015 framework for disaster risk reduction.
Hyperlink	http://www.wcdrr.org/documents/wcdrr/prepcom1/Indicator%20system%20for%20Post%202015%20Framework%20June%202015_v2.pdf

4.92 UNISDR local government self-assessment tool

Framework	UNISDR local government self-assessment tool
Author	United Nations Office for Disaster Risk Reduction
Publication year	2009 - 2010
Applicability	National, region and local
Theme	Reduction of disaster risks (resilience)
Purpose	Using the Local Government Self-Assessment Tool will help to set baselines, identify gaps, plan actions and have comparable data across local governments, within the country and globally, to measure advancements over time. By using this universal tool, cities and local governments can argue for priority setting and budget allocations within the city council and with the national government. The main purpose of the Local Government Self-Assessment Tool is to: — help local governments engage with different stakeholders to map and understand existing gaps and challenges in disaster risk reduction in their city or locality; — set a baseline and develop status reports for cities and municipalities that have committed to the making cities resilient campaign and its ten essentials; — complement information gathered through the national Hyogo Framework for Action (HFA) monitoring system by providing local-level information. Cities can chose to share their results with national HFA focal points as part of the national reporting process.
Abstract	Progress reviews in disaster risk reduction are taking place at local, national, regional and international levels. The LGSAT enables local governments, in partnership with local civil society and other actors, to contribute to progress reviews against the HFA at national and regional levels. This is an entirely voluntary exercise and local governments will be able to decide to undertake the reviews for their own monitoring and planning purposes and/or to submit their findings to national governments and to UNISDR for further analysis. The process of the local progress reviews incorporates a feedback loop that facilitates the integration of findings from the reviews into local development planning. For this feedback loop to be successful, all relevant actors from within government and from the local community need to be part of the review process.
Hyperlink	N/A

4.93 Making Cities Resilient Report 2012 (UNISDR)

Framework	Making Cities Resilient Report 2012 (UNISDR)
Author	United Nations Office for Disaster Risk Reduction
Publication year	2012
Applicability	National, region and local
Theme	Reduction of disaster risks (resilience)

Purpose	To provide a global snapshot of local-level resilience building activities and identify trends in the perceptions and approaches of local governments toward disaster risk reduction, using the Ten Essentials for Making Cities Resilient developed by the campaign as a framework. This report also analyses the factors that enable urban disaster risk reduction activities, including how the campaign has helped improve local knowledge of disaster risk and support capacity building.
Abstract	The Making Cities Resilient Campaign seeks to encourage and support all urban centers to reduce risks and become resilient to disasters. This includes urban centers that meet the conventional definition of a "city" in terms of land size and population, as well as other sub-national administrations of different sizes and levels, including regional, metropolitan and provincial areas, as well as municipalities and townships. The report is based on the wealth of material that cities involved in the campaign have self-reported to UNISDR and shared publicly since 2010. This includes detailed presentations for events, award documents, and results of the Local HFA: Local Government Self-Assessment Tool. A number of individual interviews were also conducted with city leaders in preparation for this report. The report is divided into six chapters, featuring a combination of analysis of cities' resilience activities and short stories from cities on good practice in urban disaster risk reduction. Chapters one and two draw conclusions on the core building blocks and enabling factors for urban resilience and the Campaign's role in driving disaster risk reduction awareness and action. Chapter three identifies key trends in resilience building at local level. Chapter four reviews cities' activities against the Ten Essentials developed by the Campaign. In a look toward the future, Chapter five proposes ideas to measure cities' progress and performance as they embark on a path toward strengthening their resilience to natural hazards and more extreme climatic events. Chapter six covers the conclusions of the report and offers guidance for the future. The Annexes feature supplementary and detailed information on the methodology and various sources used to prepare this report.
Hyperlink	N/A

4.94 UNISDR Ten New Essentials for Making Cities Resilient

Framework	UNISDR Ten New Essentials for Making Cities Resilient
Author	United Nations Office for Disaster Risk Reduction
Publication year	2015
Applicability	National, region and local
Theme	Reduction of disaster risks (resilience)

Purpose	The new Ten Essentials for Making Cities Resilient have been designed by a group of distinguished city and expert partners passionate in disaster risk reduction, to be launched following the adoption of the new Post 2015 Framework for Disaster Risk Reduction. The main objective of these is to move forward from its predecessors that focused on initiating advocacy activities towards urban resilience, to now, be operational, adaptive and applicable to all, encouraging cities towards their implementation. These new Ten Essentials build upon the previous, just as the Post 2015 framework for Disaster Risk Reduction builds upon the Hyogo Framework for Action (2005-2015), being interlinked with priorities for action, representing a transition to a stage of implementation. Cities progress with the Ten Essentials will be reviewed through a newly developed City Disaster Resilience Scorecard and Local Government Self-Assessment Tool (LGSAT), providing key questions and measurements against the Ten Essentials for Making Cities Resilient and building upon the priorities of the Post 2015 framework for Disaster Risk Reduction. Through the monitoring of progress, needs of cities can be identified and thereafter, sought to form partnerships with those in a position, and with the expertise to assist with improvements. These Ten Essentials for cities also contribute to Goal 11 of the Sustainable Development Goals that sets out to "make cities and human settlements inclusive, safe, resilient and sustainable", due to be adopted in September 2015.
Abstract	The Making Cities Resilient Campaign focuses on disaster resilience; that is, the ability of a city to plan for, mitigate, respond, recover, adapt and grow after major in the light of its unique physical, economic, environmental and social circumstances. On a spectrum ranging from chronic stresses (environmental, social or economic imbalances) through to acute stresses, disasters are at the acute pole, but may be exacerbated by a background of chronic stress; where, for example, upstream deforestation increases the propensity for flash flooding, or where economic imbalances hinder the recovery process. The Ten Essentials listed in the document need to be viewed as the key and interdependent steps that need to be undertaken to build and maintain resilience. The first three Essentials are the foundation blocks from which all other Essentials can be acted upon in parallel. Essentials 4 to 10 are therefore not presented in a specific sequential or prioritized order.
Hyperlink	N/A

4.95 University of Notre Dame Global Adaptation Index

Framework	University of Notre Dame Global Adaptation Index
Author	University of Notre Dame
Publication year	2013
Applicability	National, region and local
Theme	Resilience

Purpose	The ND-GAIN Index, a project of the University of Notre Dame Global Adaptation Index (ND-GAIN), summarizes a country's vulnerability to climate change and other global challenges in combination with its readiness to improve resilience. It aims to help businesses and the public sector better prioritize investments for a more efficient response to the immediate global challenges ahead.
Abstract	Notre Dame-Global Adaptation Index (ND-GAIN) is a free open-source index that shows which countries are best prepared to deal with super storms, droughts, security risks and other vulnerabilities caused by climate disruption, as well as their readiness to successfully implement adaptation solutions. This report describes and provides detailed information on the framework, data sources, and data compilation that constitutes ND-GAIN.
Hyperlink	N/A

4.96 Resilient Cities Research Report (Grosvenor)

Framework	Resilient Cities Research Report
Author	Grosvenor
Publication year	2014
Applicability	National, region and local
Theme	Resilience
Purpose	This report aims to advance its readers' thinking about long term investment, to provide a robust risk management tool to ensure its business sustainability, and to play a role in the evolution of cities. It asserts that the ability of cities to thrive as centres of human habitation, production and cultural development, despite the challenges posed by climate change, population growth and globalization, is determined by their resilience.
Abstract	Grosvenor Group Limited has ranked major cities around the world for vulnerability and adaptive capacity, to determine the best cities for long term real estate investment. From a real estate investor's perspective, resilience allows cities to preserve capital values and generate sustainable rental income in the long term. In human terms, cities are resilient if they absorb shocks (like Hurricane Sandy), maintain their output of goods and services and continue to provide their inhabitants with a good quality of life according to the standards of the time. The report describes how it measures resilience and provides its world city ranking for vulnerability, adaptive capacity, and an overall ranking. It further includes case studies from New York, Shanghai, London, Vancouver and Mexico City.
Hyperlink	http://www.grosvenor.com/getattachment/194bb2f9-d778-4701-a0ed-5cb451044ab1/ResilientCitiesResearchReport.pdf

4.97 City Resilience Framework

Framework	City Resilience Framework
Author	Arup International Development and the Rockefeller Foundation
Publication year	2014
Applicability	National, region and local
Theme	Resilience

Purpose	The aim of the City Resilience Framework is to understand what does and doesn't contribute to urban resilience. It presents an inclusive method for articulating city resilience and a framework that reflects a city's lived reality: resilience depends not only on physical assets, but also policies, social capital, and institutions.
Abstract	This framework will form the basis of a tool that should enable all people interested in city resilience to convene around a common understanding of that idea, and begin to "baseline" what matters most for making cities more resilient. Both the framework and the index are intended to facilitate a process of engagement with and within cities that generates dialogue and deeper understanding. Ultimately, this will lead to new ideas and opportunities to engage new actors in civil society, government and business on what makes a city resilient.
Hyperlink	http://www.rockefellerfoundation.org/uploads/files/e4830599-c2a7-4049-a002-4031f82850e3.pdf

4.98 2014 FM Global Resilience Index

Framework	2014 FM Global Resilience Index
Author	FM Global
Publication year	2014
Applicability	Company level
Theme	Resilience
Purpose	The FM Global Resilience Index is the first data-driven tool and repository that ranks the business resilience of 130 countries. It is designed to help executives evaluate and manage supply chain risk.
Abstract	The FM Global Resilience Index provides an annual ranking of 130 countries according to their business resilience to supply chain disruption. Supply chain risk is of significant and growing concern to senior-level business executives as supply chains become more global, complex and interdependent. The FM Global Resilience Index provides a usable additional tool for business executives as they assess the supply chain risk associated with physical investments around the world. The index is an equally-weighted composite of nine core variables that affect business resilience to supply chain disruption. Nine key drivers of supply chain risk are grouped into three categories: economic, risk quality and supply chain factors. These combine to form the composite index. Scores are bound on a scale of 0 to 100 with 0 representing the lowest resilience and 100 being the highest resilience.
Hyperlink	N/A

4.99 Global Climate Risk Index 2015

Framework	Global Climate Risk Index 2015
Author	Germanwatch
Publication year	2014
Applicability	National, region and local
Theme	Resilience

Purpose	The Germanwatch Global Climate Risk Index is an analysis based on one of the most reliable data sets available on the impacts of extreme weather events and associated socio-economic data. The Germanwatch Climate Risk Index 2015 is the 10th edition of the annual analysis. Its aim is to contextualize ongoing climate policy debates (especially the international climate talk) with real world impacts of the last year and the past 20 years.
Abstract	The Global Climate Risk Index 2015 analyses to what extent countries have been affected by the impacts of weather-related loss events (storms, floods, heat waves etc.). The most recent data available (from 2013 and 1994 to 2013) were taken into account. The countries affected most in 2013 were the Philippines, Cambodia and India. For the period of 1994 to 2013, Honduras, Myanmar and Haiti rank the highest. This year's 10th edition of the analysis reconfirms that, according to the Climate Risk Index, less developed countries are generally more affected than industrialised countries. Regarding future climate change, the Climate Risk Index may serve as a red flag for already existing vulnerability that may further increase in regions where extreme events will become more frequent or more severe due to climate change. While some vulnerable developing countries are frequently hit by extreme events, there are also some others where such disasters are a rare occurrence. Lima is a stepping-stone in the preparation of the Paris Agreement. It will provide the framing for the pivotal Paris Conference in 2015, and it will have to issue decisive guidance (national and international for the Paris preparation). Furthermore, in Lima countries should make concrete decisions to advance the implementation of National Adaptation Plans, and to develop the work plan for the Warsaw International Mechanism to support countries in addressing climatic loss and damage.
Hyperlink	http://www.preventionweb.net/files/40976_103331.pdf

4.100 Index for Risk Management — InfoRM

Framework	Index for Risk Management — InfoRM
Author	European Joint Commission Research Centre
Publication year	2014
Applicability	National, region and local
Theme	Resilience

Purpose	The InfoRM index is designed to convey the followingiInformation. a) Which countries are at risk for a need of humanitarian assistance in response to humanitarian crises? b) Which countries are prone to humanitarian crisis? c) Which are the underlying factors that may lead to humanitarian crisis requiring humanitarian assistance? d) How does the country's risk change with time?
Abstract	This report describes the concept and methodology of the composite Index For Risk Management (InfoRM). The InfoRM initiative began in 2012 as a convergence of interests of UN agencies, donors, NGOs and research institutions to establish a common evidence-base for global humanitarian risk analysis. InfoRM identifies the countries at a high risk of humanitarian crisis that are more likely to require international assistance. The InfoRM model is based on risk concepts published in scientific literature and envisages three dimensions of risk: hazards and exposure, vulnerability and lack of coping capacity. The InfoRM model is split into different levels to provide a quick overview of the underlying factors leading to humanitarian risk. The InfoRM index supports a proactive crisis management framework. It will be helpful for an objective allocation of resources for disaster management, as well as for coordinated actions focused on anticipating, mitigating, and preparing for humanitarian emergencies.
Hyperlink	http://www.preventionweb.net/english/professional/publications/v.php?id=36977

4.101 Risk Reduction Index in West Africa

Framework	Risk Reduction Index in West Africa
Author	DARA
Publication year	2013
Applicability	National, region and local
Theme	Resilience
Purpose	To inform and guide practitioners and policy-makers about underlying risk drivers and how they influence or contribute to the generation of risks within determined geographical areas. To offer recommendations that will improve risk management at local, national and regional levels. To generate baseline data for measuring progress (or setbacks) of how underlying risk drivers are addressed over time.
Abstract	The Risk Reduction Index (RRI) provides in-depth analysis, carried out within geographically well-defined risk prone areas, of the existing conditions and capacities that either hinder or enable local and national actors to carry out effective risk management. It identifies aspects of development processes and institutional structures that need to be addressed and engaged in risk management. The RRI aims to influence development processes and promote better integration of DRR into development and poverty reduction strategies and policies.
Hyperlink	http://daraint.org/wp-content/uploads/2013/12/RRI_ING.pdf

4.102 Toolkit for Resilient Cities — Infrastructure, Technology and Urban Planning

Framework	Toolkit for Resilient Cities — Infrastructure, Technology and Urban Planning
Author	Arup Group, Regional Plan Association (RPA), Siemens AG— Infrastructure and Cities Sector
Publication year	November 2013
Applicability	City-level
Theme	Urban resilience
Purpose	Research on creating resilient cities, providing insights on the role of technology in enhancing urban infrastructure resilience, providing resilience KPIs, case study of the New York City electrical grid with regards to resilience.
Abstract	This paper explores how the resilience of critical urban infrastructure systems might be enhanced to prepare cities more effectively for major weather-related hazards and the co-benefits resiliency actions have, e.g. environmental performance, energy efficiency, safety and security, etc.
Hyperlink	http://w3.siemens.com/topics/global/en/sustainable-cities/resilience/Documents/pdf/Toolkit_for_Resilient_Cities_Summary.pdf

4.103 The Oregon Resilience Plan

Framework	Reducing Risk and Improving Recovery for the Next Cascadia Earthquake and Tsunami
Author	Legislative Assembly from Oregon Seismic Safety Policy Advisory Commission (OSSPAC)
Publication year	2013
Applicability	State
Theme	Resilience
Purpose	To identify steps needed to eliminate the gap separating current performance from resilient performance and to initiate that work through capital investment, new incentives, and policy changes so that the inevitable natural disaster of a Cascadia earthquake and tsunami will not deliver a catastrophic blow to Oregon's economy and communities
Abstract	The Oregon Resilience Plan reviews policy options, summarizes relevant reports and studies by state agencies, and makes recommendations on policy direction to protect lives and keep commerce flowing during and after a Cascadia earthquake and tsunami. The following chapters make up the plan: a) Cascadia: Oregon's Greatest Natural Threat; b) Business and Workforce Continuity; c) Coastal Communities; d) Critical and Essential Buildings; e) Transportation; f) Energy; g) Information and Communications; h) Water and Wastewater Systems.
Hyperlink	http://www.oregon.gov/OMD/OEM/osspac/docs/Oregon_Resilience_Plan_Final.pdf

4.104 Planetary Boundaries Framework

Framework	Planetary Boundaries Framework
Author	Will Steffen, et al.
Publication year	2015
Applicability	Global
Theme	Sustainability
Purpose	To update and strengthen the scientific underpinnings of the planetary boundary framework (PBF).
Abstract	The relatively stable, 11,700-year-long Holocene epoch is the only state of the Earth system (ES) that is known for certain to be capable of supporting contemporary human societies. But there is increasing evidence that human activities are affecting ES functioning to a degree that threatens the resilience of the ES, i.e. its ability to persist in a Holocene-like state in the face of increasing human pressures and shocks. The PBF is based on critical processes that regulate ES functioning. By combining improved scientific understanding of ES functioning with the precautionary principle, the PBF identifies levels of anthropogenic perturbations below which the risk of destabilization of the ES is likely to remain low, a "safe operating space" for global societal development.
Hyperlink	http://dx.doi.org/10.1126/science.1259855

4.105 Doughnut economics

Framework	A Safe and Just Space for Humanity: Can We Live Within the Doughnut?
Author	Kate Raworth (Oxfam)
Publication year	2012
Applicability	Global, National, Regional, Local
Theme	Sustainability

Purpose	To propose a model of prosperity that delivers economic development, respects planetary boundaries, and has equity at its heart.
Abstract	Achieving sustainable development means ensuring that all people have the resources needed (such as food, water, health care, and energy) to fulfil their human rights. And it means ensuring that humanity's use of natural resources does not stress critical Earth system processes (by causing climate change or biodiversity loss, for example) to the point that Earth is pushed out of the stable state, known as the Holocene, which has been so beneficial to humankind over the past 10,000 years. In the lead-up to the UN Conference on Sustainable Development in June 2012 (known as Rio+20), and the High-Level Summit on the Millennium Development Goals in 2013, there is a growing debate on how to draw up renewed and expanded global development goals which bring together the twin objectives of poverty eradication and environmental sustainability. This paper brings them into a single framework. The social foundation forms an inner boundary, below which are many dimensions of human deprivation. The environmental ceiling forms an outer boundary, beyond which are many dimensions of environmental degradation. Between the two boundaries lies an area (shaped like a doughnut) which represents an environmentally safe and socially just space for humanity to thrive in. It is also the space in which inclusive and sustainable economic development takes place.
Hyperlink	https://www.oxfam.org/sites/www.oxfam.org/files/file_attachments/dp-a-safe-and-just-space-for-humanity-130212-en_5.pdf

4.106 Recovery Strategy for Greater Christchurch

Framework	Recovery Strategy for Greater Christchurch
Author	Canterbury Earthquake Recovery Authority
Publication year	2012
Applicability	Regional, Local
Theme	Recovery
Purpose	To guide the reconstruction, rebuilding and recovery of greater Christchurch.
Abstract	The Recovery Strategy for Greater Christchurch: — defines "recovery"; — establishes principles to guide how government agencies will work together towards recovery; — describes in broad terms the pace and phases of recovery; — identifies work programmes, and which organisations will lead specific projects; — identifies priorities for recovery efforts; — sets up governance structures to oversee and coordinate the work programmes and links them to wider initiatives; — commits to measuring and reporting on progress towards recovery.
Hyperlink	http://cera.govt.nz/sites/default/files/common/recovery-strategy-for-greater-christchurch.pdf

4.107 Private Sector Investment Decisions in Building and Construction: Increasing, Managing and Transferring Risks: Case study of Lagos, Nigeria

Framework	Private Sector Investment Decisions in Building and Construction: Increasing, Managing and Transferring Risks: Case study of Lagos, Nigeria
Author	Ibidun Adelekan
Publication year	2013
Applicability	Local
Theme	Case Study
Purpose	To inform the 2013 Global Assessment Report.
Abstract	Describes the impact of private sector investment decisions in building and construction in Lagos, Nigeria.
Hyperlink	http://www.preventionweb.net/english/hyogo/gar/2013/en/bgdocs/Adelekan,%202012.pdf

4.108 Tourism Investment Choices and Flood Risk: Illustrative Case Study on Denarau Island Resort in Fiji

Framework	Tourism Investment Choices and Flood Risk: Illustrative Case Study on Denarau Island Resort in Fiji
Author	Karen Bernard and Samantha Cook
Publication year	2013
Applicability	Local
Theme	Case Study
Purpose	To inform the 2013 Global Assessment Report.
Abstract	Many small island developing states rely heavily on the tourism industry as a key source of national income and employment, as they have a comparative advantage in this sector due to luxurious sandy beaches and picturesque coastlines. However, this reliance on tourism creates pressure to offer investors concessions and incentives to undertake construction projects which may exacerbate the risk exposure of the local population. One case in which this dynamic can be seen is the development of the Denarau island tourist area in Fiji.
Hyperlink	http://www.preventionweb.net/english/hyogo/gar/2013/en/bgdocs/Bernard%20and%20Cook,%202012.pdf

4.109 Flood risk management and the roles of the private sector in England

Framework	Flood risk management and the roles of the private sector in England
Author	Dr. Lee Bosher
Publication year	2013
Applicability	National, Regional
Theme	Case Study
Purpose	To inform the 2013 Global Assessment Report.
Abstract	Presents some insights into the how the private sector plays a key role in development processes across England and considers Disaster Risk Reduction (DRR) matters generally, and flood risk issues specifically.
Hyperlink	http://www.preventionweb.net/english/hyogo/gar/2013/en/bgdocs/Bosher,%202012.pdf

4.110 The Value of Seismic Risk Mitigation in Canterbury, New Zealand

Framework	The Value of Seismic Risk Mitigation in Canterbury, New Zealand
Author	David Johnston
Publication year	2013
Applicability	Regional
Theme	Case Study
Purpose	To inform the 2013 Global Assessment Report.
Abstract	Seismic risk mitigation programs can have a significant impact on reducing future losses from earthquake events, both in terms of reduced losses and of facilitating a faster response and recovery. The local electricity distribution company, for example, had been undertaking detailed seismic risk assessment and mitigation over the decade before the earthquake, spending over $NZ 6 million on seismic strengthening of their network. It is estimated that this work saved them in excess of $ 60 million in direct asset replacement costs and repairs. This and other positive examples contrast with that of Christchurch's history of land-use decisions, which allowed residential development on land that had been identified as susceptible to liquefaction, lateral-spreading and subsidence in the event of earthquakes.
Hyperlink	http://www.preventionweb.net/english/hyogo/gar/2013/en/bgdocs/Johnston,%202012.pdf

4.111 Uncorrected land-use planning highlighted by flooding: The Alba case study (Piedmont, Italy)

Framework	Uncorrected land-use planning highlighted by flooding: The Alba case study (Piedmont, Italy)
Author	F. Licino, L. Turconi, C. Petrea, and G. Nigrelli
Publication year	2012
Applicability	Local
Theme	Flood resilience
Purpose	To inform the 2013 Global Assessment Report.
Abstract	Describes efforts to use historical data, river corridors identified by hydraulic calculations, geomorphological aspects and land-use planning to indicate with good accuracy flood-prone areas and mitigate flood risks.
Hyperlink	http://www.nat-hazards-earth-syst-sci.net/12/2329/2012/nhess-12-2329-2012.pdf

4.112 Private Sector Investment Decisions in Building and Construction: Increasing, Managing, and Transferring Risks: A Case Study of Thailand

Framework	Private Sector Investment Decisions in Building and Construction: Increasing, Managing, and Transferring Risks: A Case Study of Thailand
Author	Dr. Wijitbusaba Ann Marome
Publication year	2013
Applicability	National
Theme	Resilience

Purpose	To inform the 2013 Global Assessment Report.
Abstract	Presents some information on how the Thai government perceives disaster risk and regulates building and construction in the private sector, particularly industry.
Hyperlink	http://www.preventionweb.net/english/hyogo/gar/2013/en/bgdocs/Marome,%202012.pdf

4.113 UNISDR Case Study Report

Framework	UNISDR Case Study Report
Author	Meghan Orie and Walter R. Stahel
Publication year	2013
Applicability	National, Regional
Theme	Natural disasters
Purpose	To inform the 2013 Global Assessment Report.
Abstract	This paper uses case studies to research the links between the different players involved in natural catastrophes. It further looks into which forms of cooperation between these players have in the past, and could in the future, mitigate the effects of extreme natural events.
Hyperlink	http://www.preventionweb.net/english/hyogo/gar/2013/en/bgdocs/Stahel%20and%20Orie,%202012.pdf

4.114 REDi Rating System

Framework	REDi Rating System
Author	Arup
Publication year	2013
Applicability	Local
Theme	Earthquake resilience
Purpose	Proposes a framework for owners, architects, and engineers to implement "resilience-based earthquake design".
Abstract	Describes design and planning criteria to enable owners to resume business operations and provide liveable conditions quickly after an earthquake, according to their desired resilience objectives. Also presents a loss evaluation methodology for assessing the success of the adopted design and planning measures in meeting the resilience objectives.
Hyperlink	http://publications.arup.com/Publications/R/REDi_Rating_System.aspx

4.115 IFRC Framework for Community Resilience

Framework	IFRC Framework for Community Resilience
Author	International Federation of the Red Cross and Red Crescent Societies
Publication year	2014
Applicability	Local, Regional, National
Theme	Resilience

Purpose	The Framework for Community Resilience establishes a foundation on which all IFRC programmes, projects, interventions and actions which contribute to the strengthening of resilient communities can be created, developed and sustained.
Abstract	The Framework for Community Resilience seeks to guide and support the following. a) National Societies' efforts to assist communities as they adopt risk-informed, holistic approaches to address their underlying vulnerabilities. b) National Societies' efforts that encourage communities to adopt demand-driven, people-centred approaches to community resilience strengthening. c) National Societies to be connected to communities — being available to everyone, everywhere to prevent and reduce human suffering. The IFRC defines a resilient community as one which: — is knowledgeable, healthy, and capable of meeting its basic needs; — is socially cohesive; — has economic opportunities; — has well-maintained and accessible infrastructure and services; — can manage its natural assets; — is connected. The Framework for Community Resilience identifies contributions that national societies can make to strengthen each of the aforementioned aspects of a resilient community and proposes indicators to evaluate the effectiveness of those contributions.
Hyperlink	https://www.ifrc.org/Global/Documents/Secretariat/201501/1284000-Framework%20for%20Community%20Resilience-EN-LR.pdf

4.116 Copenhagen Climate Adaptation Plan

Framework	Copenhagen Climate Adaptation Plan
Author	City of Copenhagen
Publication year	2011
Applicability	Local
Theme	Climate Resilience
Purpose	The *Copenhagen Climate Adaptation Plan* establishes a strategy to guide local investments in adaptive measures that recognizes the uncertainty in climate projections and leaves room to accommodate new knowledge and technology.
Abstract	The *Copenhagen Climate Adaptation Plan* identifies measures that can be taken to prevent, reduce the scale of, or reduce vulnerability to climate-induced accidents (e.g. floods). Measures are prioritized based on risk, where risk is evaluated with respect to both likelihood of occurrence and cost. Adaptive measures are defined for three levels of adaptation – likelihood reduction, scale reduction, and vulnerability reduction – and five levels of geography – region, municipality, district, street, and building.
Hyperlink	http://en.klimatilpasning.dk/media/568851/copenhagen_adaption_plan.pdf

4.117 Risk-Based Land-Use Guide

Framework	Risk-Based Land-Use Guide: Safe Use of Land Based on Hazard Risk Assessment
Author	Struik et al.
Publication year	2015
Applicability	Local
Theme	Land-Use Planning
Purpose	The *Risk-Based Land-Use Guide* walks municipal staff through the steps required to determine whether land use proposals will be safe for their intended use.
Abstract	The *Risk-Based Land-Use Guide* defines a land-use risk management scheme that cities can use to identify, monitor, and mitigate hazards arising from the use of land.
Hyperlink	http://dx.doi.org/10.4095/295981

4.118 Enhancing Distribution Resiliency

Framework	Enhancing Distribution Resiliency: Opportunities for Applying Innovative Technologies
Author	Electric Power Research Institute
Publication year	2013
Applicability	Local, Regional
Theme	Resilience
Purpose	*Enhancing Distribution Resiliency* reviews innovative technologies that the Electric Power Research Institute and electricity sector stakeholders are developing to make the electricity distribution system more resilient to storms and terrorist attacks.
Abstract	Technologies that can be applied to prevent damage to the electricity distribution system, rapidly restore service after a system outage, and aid consumers, communities, and institutions in continuing some level of normal function without complete access to the grid are described in this report.
Hyperlink	http://www.epri.com/Pages/Grid-Resiliency.aspx

4.119 Smart City Pilot Project

Framework	Smart City Pilot Project
Author	Ministry of Housing and Urban-Rural Development(MOHURD), China
Publication year	2012 to 2015
Applicability	Local
Theme	Smart city

Purpose	To promote city smartness through strategic planning and infrastructure improvement, as well as explore effective approaches and development mode at urban level.
Abstract	The initiative used four guiding indicators, 11 secondary indicators and 57 third indicators as a framework to illustrate what is and how to build a smart city. Pilot cities needed to propose development goals and plan of action and get through the qualification test for joining the initiative. In the construction phase, pilot cities executed the action plan. In the final test phase, MOHURD evaluated the performance of pilot cities based on the goals proposed initially, and awarded designations. The Smart City Pilot Project encourages cities to introduce advancing IT technologies, helping improve competitiveness of enterprises and the life quality of citizens.
Hyperlink	http://www.mohurd.gov.cn/zcfg/jsbwj_0/jsbwjjskj/201212/t20121204_212182.html

4.120 Haimian City Pilot Project

Framework	Haimian City Pilot Project
Author	Ministry of Housing and Urban-Rural Development (MOHURD), Ministry of Water Resources (MWR), China
Publication year	2014 to 2015
Applicability	Local
Theme	Urban flood control and water resource management
Purpose	To perform cities' functions of water absorption, storage, purification and release, by improving city capacities on flood control, water resource management and disaster prevention.
Abstract	Haimian means sponge in Chinese and a Haimian city maintains its nature environment's ability of reserving, penetrating, and purifying water. Haimian City Pilot Project aims to conduct urban construction in a way of protecting urban ecological system, rehabilitating damaged ecological environment and low-impact development, to enhance cities' resilience for environmental change and nature disaster. The initiative provided a set of indicators, technological guidance and financial funds to facilitate constructions of Haimian cities.
Hyperlink	http://www.mof.gov.cn/zhengwuxinxi/caizhengwengao/wg2015/wg201502/201506/t20150611_1256072.html http://www.mohurd.gov.cn/zcfg/jsbwj_0/jsbwjcsjs/201411/t20141102_219465.html http://www.mohurd.gov.cn/wjfb/201507/t20150715_222947.html

4.121 Low-carbon regions and cities experimental project

Framework	Low-carbon regions and cities experimental project
Author	National Development and Reform Commission (NDRC), China
Publication year	2010 to 2015
Applicability	Regional, Local
Theme	Low-carbon regions and cities

Purpose	To promote constructions of low-carbon regions and cities, and explore effective approaches for regions and cities at different development level and of resource endowment.
Abstract	Effective approaches to control greenhouse gases emissions are various for regions and cities of different characteristics. Pilot cities should formulate low-carbon development plan, design policies in favour of low-carbon green development, promote low-carbon industries, establishes greenhouse gases inventories and management systems, inspire low-carbon life style and consumption pattern, and explore approaches reflecting regional characteristics. NRDC evaluates the progress of low-carbon regions and cities regularly, summarize and popularize successful experiences.
Hyperlink	http://qhs.ndrc.gov.cn/dtjj/201008/t20100810_365271.html http://qhs.ndrc.gov.cn/gzdt/201212/t20121205_517419.html

4.122 Guide for comprehensive assessment of local government

Framework	Guide for comprehensive assessment of local government
Author	AENOR – Spanish Association for Standardization and Certification
Publication year	2009
Applicability	Local
Theme	Sustainability
Purpose	To provide a comprehensive system of indicators and a tool for the diagnosis of the local government management.
Abstract	Spanish standard that, inspired by ISO 18091, establishes a complete set of sustainability indicators related to the legal competences of Spanish city councils and a tool for self-assessment.
Hyperlink	www.aenor.es

4.123 Spanish Sustainable Development Strategy

Framework	Spanish Sustainable Development Strategy
Author	Interministerial Group, under the coordination of the Economic Office of the Spanish Government
Publication year	2007
Applicability	Local
Theme	Sustainability
Purpose	Revision for Spain of the European sustainable development strategy.
Abstract	Diagnosis, challenges and main objectives of sustainability in Spain to understand the action lines.
Hyperlink	http://www.magrama.gob.es/es/ministerio/planes-estrategias/estrategia-espanola-desarrollo-sostenible/

4.124 Spanish Standardization Work Programme

Framework	Spanish Standardization Work Programme
Author	AENOR
Publication year	2015
Applicability	Local
Theme	Smart Cities

Purpose	Overview of the specific standardization work.
Abstract	Detailed scope of national standards on city indicators and metrics based on ISO/TS 37151.
Hyperlink	http://www.aenor.es/DescargasWeb/normas/normas_ciudades_inteligentes.pdf

4.125 Gradual Development of Austrian Smart City Profiles

Framework	Gradual Development of Austrian Smart City Profiles
Author	Climate and Energy Fund
Publication year	2013
Applicability	Local
Theme	Smart cities
Purpose	To intensify a "smart city" information exchange between cities and municipalities and to facilitate informed decision-making on smart urban development based on quantitative facts.
Abstract	12 Austrian cities actively participated in the development of smart city indicators and city profiles. The project resulted in the development of 21 indicators focused on climate change mitigation and energy efficiency in five areas of activity in urban development: buildings and settlement structures, transport and mobility, technical infrastructure, economy and population and policy, administration and governance. The resulting city profiles provide information about relevant factors for all urban development activities, including business and economy, demography, strategic urban planning, governance etc., and especially about the use of energy and resources, as well as about potentials for increasing efficiency. The results enable cities to make better evaluations of their own current status and their development with respect to energy and climate change mitigation, and with respect to other aspects which are of relevance to the quality of living and competitiveness. Clearly structured online visualization and folders about the city profiles help to enhance the benefits and understanding of smart urban development.
Hyperlink	https://www.klimafonds.gv.at

5 Analysis of indicators

5.1 ISO 37120 Gap analysis — Resilience indicators

Resilience is defined in ISO 37101 as "the adaptive capacity of a community in a complex and changing environment".

The United Nations International Strategy for Disaster Reduction (UNISDR) defines resilience as "the ability of a system, community 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 should therefore 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.

Table 1 highlights those documents contained in Clause 4 which directly address resilience.

Table 1 — Documents addressing resilience

Organization	Document title	Number of categories	Number of indicators	Purpose
UNISDR	Indicators of progress	9	32	Disaster resilience
UNISDR	Post-2015 Framework for Disaster Risk Reduction: A Proposal for Monitoring Progress	54	215	Disaster resilience
UNISDR	Local Government Self-Assessment Tool	10	41	Disaster resilience
UNISDR	Disaster Resilience Scorecard for Cities	10	82	Disaster resilience
UNISDR	Making Cities Resilient Report: My City is Getting Ready!	6	30	Disaster resilience
University of Notre Dame	University of Notre Dame Global Adaptation Index	9	45	Climate resilience
Grosvenor	Resilient Cities	10	Unknown	General resilience
Committee for the Development of an Environmental Performance Assessment Tool for Cities; Japan Sustainable Building Consortium	CASBEE® for Cities	2	25	Environmental resilience
Arup International Development and the Rockefeller Foundation	City Resilience Framework	4	12	General resilience
FM Global	2014 FM Global Resilience Index	3	9	Business resilience
Germanwatch	Global Climate Risk Index 2015	0	4	Climate resilience
European Joint Commission Research Centre	Index for Risk Management – InfoRM	6	50	General resilience
DARA	Risk Reduction Index in West Africa	10	60	General resilience

These documents contained over 100 potential resilience indicators that are not included in ISO 37120. Not all these indicators are quantitative indicators; for example, many of UNISDR's indicators are intended to measure progress against the implementation of the Hyogo Framework for Action (HFA).

Of the indicators remaining, some appear to be particularly worthy of consideration in a new standard on Resilient Indicators. Those resilience indicators that fall under themes in ISO 37120 but that are not already in the standard are listed in Table 2. Resilience indicators falling under themes that are not in ISO 37120 are listed in Table 3.

Table 2 — Gap analysis — Indicators falling under themes in ISO 37120

Subject	Proposed indicator
Economy	Vulnerable employment (percentage of the labour force in vulnerable employment)
	Net ODA received (percentage of GNI)
	Private sector debt ratio
	Insurance penetration (percentage of population with life insurance, health insurance, property insurance, etc.)
	GDP per capita growth
	Disaster losses per unit of GDP
	Ease of doing business (there are indices for this)
	Foreign direct investment (e.g. as a percentage of GDP)
	Wage standards (i.e. the existence, strength, and/or enforcement of wage standards)
	Safe working conditions (i.e. the existence, strength, and/or enforcement of safe working conditions)
	Social security (i.e. the existence and strength of social security protections)
	Savings (i.e. the savings rate in the population)
	Pensions (i.e. the existence and strength of pension payouts)
	Asset ownership (e.g. debt-to-asset ratio)
Education	Total or public education expenditure per capita
	Adult literacy rate
Energy	Dependency on imported energy (percentage of primary or final energy that is imported)
	Energy source diversification (e.g. indicators for percentage of energy derived from oil, biomass, etc.)
Environment	Projected change of annual runoff
	Projected change of annual groundwater recharge
	Fresh water withdrawal rate
	Water dependency ratio
	Dependency on natural capital
	Ecological footprint
	Projection of sea level rise impacts
	Deforestation rate
	Forest area under sustainable forest management
Governance	Government effectiveness and regulatory quality
	Political stability
Health	Prevalence or incidence of select diseases (e.g. HIV/AIDS, malaria, tuberculosis)
	Prevalence of undernourishment
	Immunization rates for select vaccine-preventable diseases (e.g. measles, polio, mumps, rubella)
	Total or public health expenditure per capita
Safety	Rule of law
	Population exposed to conflict

Table 3 — Gap analysis — Indicators falling under new themes

Subject	Proposed indicator
Food	Food production
	Domestic food price level index
	Domestic food price volatility index
	Food import dependency
Hazards	Percentage of population exposed to earthquakes
	Percentage of population exposed to floods
	Percentage of population exposed to tsunamis
	Percentage of population exposed to tropical cyclones
	Percentage of population affected by droughts
Infrastructure	Percentage of roads that are paved
	Road density (km of road per 100 km^2 of land area)
	Quality of trade and transport-related infrastructure
Planning	Has a risk assessment been performed? (scored 0 to 5)
	Does the city have a disaster risk reduction plan? (scored 0 to 5)
	Have critical assets been identified? (scored 0 to 5)
	Is there protective infrastructure in place? (scored 0 to 5)
	Is there an early warning system in place? (scored 0 to 5)
	Is there a public education and awareness plan? (scored 0 to 5)
	Is there disaster risk training available? (scored 0 to 5)
	Are there post-recovery plans in place? (scored 0 to 5)
	Do building codes reflect the risk identified? (scored 0 to 5)
	Does the city have disaster reserve funds? (yes or no)
Population	Net migration
	Percentage of population living in areas where elevation is below 5 m
	Displaced people (% of population)

5.2 Analysis and correlation of guidelines and approaches with purposes and issues from ISO 37101

5.2.1 General

ISO 37101 is designed to empower communities and to build on local initiatives. It targets environmental, social and economic issues which includes improved community services and socioeconomic benefits and satisfies its compliance obligations. It supports clear sustainable purposes of a community and promotes sound planning systems to achieve them.

The standard requires communities to establish an organizational framework and provide resources to underpin the management of sustainable environmental, economic and social performance outcomes as indicated in ISO 37101.

ISO 37101:2016, 4.5 states that communities need to identify, review and document all the purposes and issues that contribute to achieve the goals of their management system for sustainable development,

smartness and resilience. The following sustainability purposes need to be considered by the community.

Attractiveness	Appeal to citizens and other interested parties (e.g. investors, belonging, culture, place, sense of identity).
Preservation and improvement of environment	Improved environmental performance, including climate change impacts; protection, restoration and enhancement of biological diversity and ecosystem services, including protection of ecosystems, plant and animal diversity and migration, as well as genetic diversity; reduced health hazard.
Resilience	Adaptation; anticipation; economic shocks and stresses preparedness, including climate change; social evolution.
Responsible resource use	Improved land management; reducing, reusing and recycling of materials; respect for scarcity of all types of resources (natural, human, financial); sustainable production, storage, transport, distribution and consumption.
Social cohesion	Accessibility, culture, equity, inclusiveness and inequalities reduction.
Well-being	Access to opportunities, education, happiness, healthy environment, human capital improvement, liveable city, prosperity, quality of life, security, and welfare.

Communities also need to consider all the issues presented below. They may, however, consider additional issues, if relevant and suitable, bearing in mind that issues are likely to change or evolve over time. Refer to ISO 37101:2016, 4.7 for further details.

— governance, empowerment and engagement;

— education and capacity building;

— innovation, creativity and research;

— health and care in the community;

— culture and community identity;

— living together, interdependence and mutuality;

— economy and sustainable production and consumption;

— living and working environment;

— safety and security;

— community smart infrastructures;

— mobility;

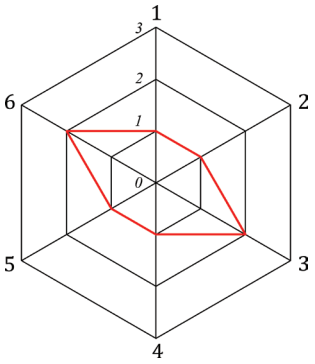
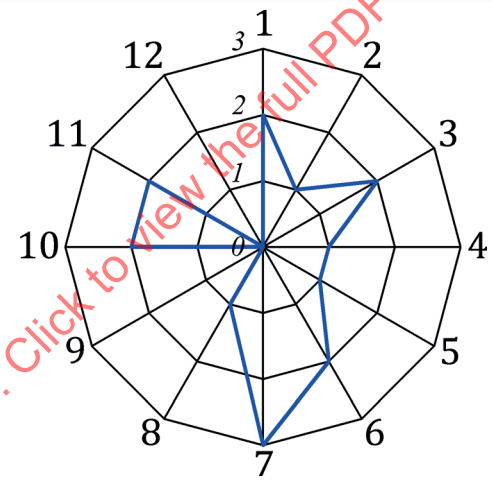
— biodiversity and ecosystem services.

This subclause is intended to provide few examples of the type of analysis that can be carried out with the documents identified and contained in this document to determine how well they correlate and support the aspects and issues from ISO 37101 and determine their applicability and relevance to achieve sustainable development, resilience and smartness as established in the scope of the standard.

5.2.2 Reference framework for European sustainable cities

Name	Reference framework for European sustainable cities
Actor	European Union, member states and local authorities
Scale	City
Date	2012–2013

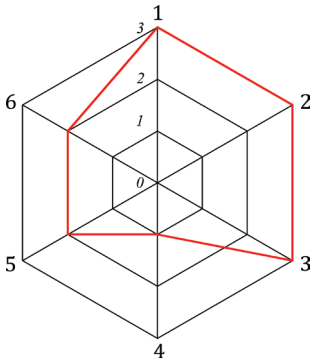
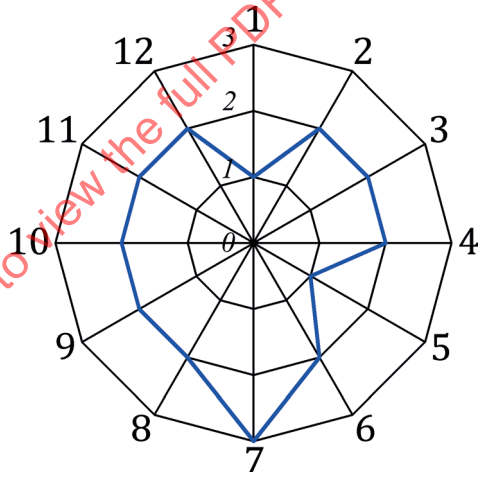
Objective	The reference framework is an online toolkit to assist actors of urban management and development to improve dialogue and action on sustainability. It offers a multi-purpose decision-making and communication tool for promoting sustainable urban development. It is not place-specific and can 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.
Vision of sustainable urban development	1) Reinforce the economic attractiveness of the city/region/territory. 2) Develop the local economy through knowledge and skills provision. 3) Ensure city connectivity and the provision of efficient infrastructures. 4) Develop/promote/support appropriate sustainable local production and consumption of goods and services. 5) Meet the needs of the population in terms of employment types and access and jobs. 6) Maintain or develop a more diversified local economy. 7) Improve the quality and accessibility of public services for everyone. 8) Ensure that everyone can benefit from a good level of education and training. 9) Promote good public health for everyone. 10) Ensure high-quality housing and neighbourhoods for everyone. 11) Promote social inclusion and access to opportunities for everyone. 12) Promote cultural and leisure opportunities and ensure access for everyone. 13) Mitigate, and adapt to, the effects of climate change. 14) Protect and promote biodiversity. 15) Reduce pollution. 16) Preserve the quality and availability of natural resources. 17) Preserve and promote the high quality and functionality of the built environment, public spaces and urban landscape. 18) Develop an integrated vision for the sustainable development of your city. 19) Pay special attention to deprived neighbourhood areas. 20) Organize the management structures of your city to achieve sustainable urban 21. Take steps to ensure the financing of the integrated sustainable development of your city. 22) Monitor and evaluate progress. 23) Cooperate with other authorities from different levels. 24) Promote active stakeholder and citizen participation. 25) Promote networking and exchange of knowledge.
Indicators	28 key recommended indicators and 338 secondary indicators

Analysis	 **Key** 1 attractiveness 2 social cohesion 3 well-being 4 resilience 5 responsible resources uses 6 preservation and improvement of environment
	 **Key** 1 governance, empowerment and engagement 2 education and capacity building 3 innovation, creativity and research 4 health and care in the community 5 culture and community identity 6 living together, interdependence and mutuality 7 economy and sustainable production and consumption 8 living and working environment 9 safety and security 10 biodiversity and ecosystem services 11 community smart infrastructure 12 mobility

5.2.3 Baro Metropole (City of Rennes)

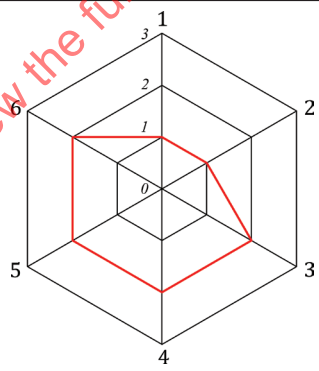
Name	« BARO'METROPOLE »
Actor	Rennes Métropole (City- France)
Scale	City
Date	2013
Objective	*Assurer un suivi transversal de la mise en œuvre des principales orientations de la stratégie de développement durable du territoire et positionner l'évolution du territoire au regard d'un panel d'agglomérations comparables* *Un outil original, construit à partir des objectifs fixés par le projet de territoire.* *Choix de mesurer des résultats et des impacts plutôt que des moyens mis en place* *Trois types d'indicateurs :* *— des indicateurs synthétiques (construits à partir des indicateurs de positionnement pondérés)* *— des indicateurs de positionnement situant Rennes métropole en référence à un panel d'agglomérations françaises* *— des indicateurs locaux spécifiques à Rennes Métropole.* *Un outil concerté avec les élus, les services et les partenaires de Rennes Métropole, qui s'appuie le plus possible sur les données des observatoires existants.* Ensure a cross-cutting supervision of the implementation of the main orientations in sustainable development local strategy and evaluate the territory evolution in relation to similar cities. An original tool built on the quantifiable objectives of the territory project. Choice of measuring outcomes and impact rather than inputs. 3 types of indicators: — weighted composite indicators (built on benchmark indicators) — « benchmark » indicators, links with similar cities — « local » indicators, specific to Rennes métropole A tool built with local councillors, the town services and partners and based as much as possible on data from existing observatories

Vision of sustainable urban development	*Partie 1 : Rennes Métropole, créatrice et apprenante* *1. L'enseignement supérieur et la recherche ouverts sur le monde* *2. Le droit à la formation : une même chance pour tous* *3. Echanges culturels et citoyens au cœur de la cité* *Partie 2 : Rennes Métropole, accueillante et solidaire* *4. Une exigence de solidarité envers les plus vulnérables* *5. Des logements accessibles à tous* *6. Construire l'avenir avec les jeunes générations* *7. Des services disponibles pour tous* *8. Facilitre la mobilité en privilégiant les modes des déplacements durables* *9. Agir ensemble pour un environnement de qualité* *10. Maitriser l'énergie pour lutter contre le réchauffement climatique* *Partie 3 : Rennes Métropole, entreprenante et ouverte* *11. Evolution démographique et consommation d'espace* *12. Un avenir professionnel pour le plus grand nombre* *13. L'innovation au service d'une économie diversifiée et compétitive* *14. Un territoire favourisant le dynamisme économique* *15. Rayonnement et accessibilité du territoire* Part 1 : Rennes Métropole, a creative and learning community 1. Higher education and research open to the world 2. The right to training : the same opportunities for everybody 3. Cultural exchanges and citizens in the heart of the city Part 2 : Rennes Métropole, a welcoming and inclusive community 4. A demand for solidarity towards the most vulnerable 5. Housing for all 6. Building the future with young people 7. Accessible services 8. Facilitating mobility by focusing on the sustainable modes of transport 9. Acting together for a quality of environment 10. Bringing energy under control to fight climate change Part 3 : Rennes Métropole, an entrepreneurial and open community 11. Demographic trend and land consumption 12. A professional future for the largest number of people 13. Innovation for a diversified and competitive economy 14. A territory which promotes economic dynamism 15. Influence and land accessibility
Indicators	13 synthetic indicators 79 positioning indicators 99 local indicators

Analysis	 **Key** 1 attractiveness 2 social cohesion 3 well-being 4 resilience 5 responsible resources uses 6 preservation and improvement of environment  **Key** 1 governance, empowerment and engagement 2 education and capacity building 3 innovation, creativity and research 4 health and care in the community 5 culture and community identity 6 living together, interdependence and mutuality 7 economy and sustainable production and consumption 8 living and working environment 9 safety and security 10 biodiversity and ecosystem services 11 community smart infrastructure 12 mobility

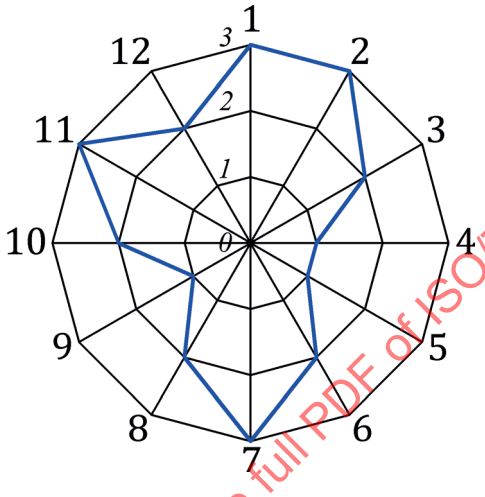
5.2.4 Reference framework for territorial sustainable development projects and local Agenda 21

Name	Reference framework for territorial sustainable development projects and local Agenda 21
Actor	Ministry of sustainable development (France)
Scale	City/Territory
Date	2011
Objective	Intended for local authorities that have already entered into territorial sustainable development projects or local Agenda 21 and want to ensure continuous improvement. This framework, drafted by the French ministry of sustainable development, answers a strong request of local stakeholders who want to share a flexible and evaluative tool to assess the relevance and the impact of their sustainable development strategy.
Vision of sustainable urban development	Five purposes Each of the following has a transverse character across social, environmental and economic issues and stakes. 1) Fighting climatic change and protecting atmosphere. 2) Preserving biodiversity, protecting eco-systems and ressources. 3) Social cohesion and solidarity among territories and generations. 4) Fulfilment of all human beings through access to a good quality of life. 5) Development dynamics based on responsible production and consumption patterns. Five determining elements Sustainable development is above all, a process: a true cultural change for the community or institution responsible for the activity, it implies new transversal and more collective working methods: 1) participation on local interveners and population; 2) steering; 3) transversality; 4) evaluation; 5) strategy for continuous improvement.

	The expression of sustainable development goals in territorial projects: — tourism; — habitat, housing and town planning; — sports and leisure; — solidarity and cooperation; — safety; — health; — responsible management and services; — agriculture and forest; — culture; — access to knowledge; — travel, transportation and infrastructures; — economic development; — employment and social inclusion; — energy; — biodiversity management and natural resources development.
Indicators	40 key indicators and 193 secondary indicators
Analysis	

Key

1 attractiveness
2 social cohesion
3 well-being
4 resilience
5 responsible resources uses
6 preservation and improvement of environment



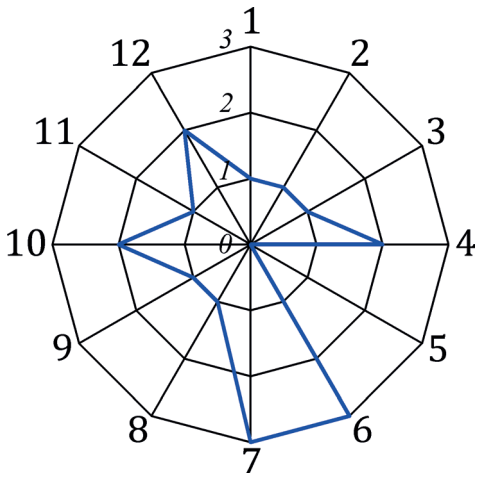
Key

1 governance, empowerment and engagement
2 education and capacity building
3 innovation, creativity and research
4 health and care in the community
5 culture and community identity
6 living together, interdependence and mutuality
7 economy and sustainable production and consumption
8 living and working environment
9 safety and security
10 biodiversity and ecosystem services
11 community smart infrastructure
12 mobility

5.2.5 Green communities

Name	Green communities
Actor	United States Environmental Protection Agency
Scale	—
Date	2012
Objective	Reduce your environmental footprint. A 5-step environmental planning framework leads you to a greener, sustainable future.

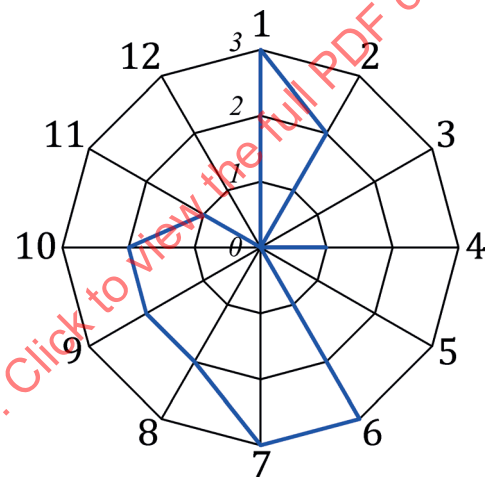
Vision of sustainable urban development	***Check List for a Green Community*** A Green Community strives to: — Environment: — comply with environmental regulations; — practice waste minimization and pollution prevention; — conserve natural resources through sustainable land use; — Economic: — promote diverse, locally-owned and operated sustainable businesses (profitable, non- polluting, socially responsible); — provide adequate affordable housing; — promote mixed-use residential areas which provide for open space; — promote economic equity; — Social: — actively involve citizens from ALL sectors of the community through open, inclusive public outreach efforts; — ensure that public actions are sustainable, while incorporating local values and historical and cultural considerations; — create and maintain safe, clean neighbourhoods and recreational facilities for ALL; — provide adequate and efficient infrastructure (water, sewer, etc.) that minimizes human health and environmental harm, and transportation systems that accommodate broad public access, bike and pedestrian paths; — ensure equitable and effective educational and health-care systems.

Indicators	36 indicators
Analysis	 **Key** 1 governance, empowerment and engagement 2 education and capacity building 3 innovation, creativity and research 4 health and care in the community 5 culture and community identity 6 living together, interdependence and mutuality 7 economy and sustainable production and consumption 8 living and working environment 9 safety and security 10 community smart infrastructure 11 mobility and accessibility 12 biodiversity and ecosystem services

5.2.6 Urban indicators guidelines

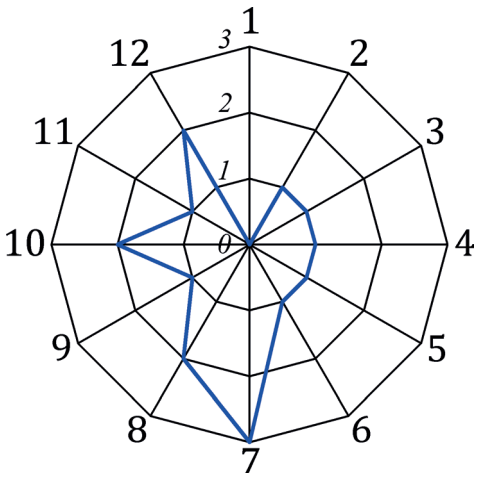
Name	Urban indicators guidelines
Actor	United Nations Settlements Programme
Scale	City level
Date	August 2004
Objective	In order to assist Member States realize the eight goals of the Millennium Declaration, the United Nations System has set numerical targets for each goal. Further, it has selected appropriate 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 ensure a common assessment and appreciation of the status of MDGs at global, national and local levels.

Vision of sustainable urban development	*1. Shelter* — Promote the right to adequate housing — Provide security of tenure — Provide equal access to credit — Provide equal access to land extensive — Promote access to basic services *2. Social development and eradication of poverty* — Provide equal opportunities for a safe and healthy life — Promote social integration and support disadvantaged groups — Promote gender equality in human settlements development — Key indicator 10: literacy rates *3. Environmental management* — Promote geographically-balanced settlement structures — Manage supply and demand for water in an effective manner — Reduce urban pollution — Prevent disasters and rebuild settlements — Promote effective and environmentally sound transportation systems — Support mechanisms to prepare and implement local environmental plans
	4. Economic development — Strengthen small and microenterprises, particularly those developed by women — Encourage public-private sector partnership and stimulate productive employment opportunities *5. Governance* — Promote decentralization and strengthen local authorities — Encourage and support participation and civic engagement — Ensure transparent, accountable and efficient governance of towns, cities and metropolitan areas

Indicators	The habitat agenda indicators are composed of the following. — 20 key indicators which are both important for policy and relatively easy to collect. They are either numbers, percentages or ratios. — 9 checklists which give an assessment of areas which cannot easily be measured quantitatively. They are audit questions generally accompanied of checkboxes for yes or no answers. — 13 extensive indicators which are intended to complement the results of the key indicators and qualitative data in order to make a more in-depth assessment of the issue. The habitat agenda indicators are the grouped into two clusters for ease of data collection. — CLUSTER A: indicators to be obtained from censuses and national households surveys, including demographic and health surveys and multiple indicators cluster surveys. — CLUSTER B: indicators to be obtained from other sources such as official record and published studies of government institutions, housing boards and agencies, service parastatals, finance institutions, police, NGOs, as well as using informed estimates made by small groups of experts on specific issues.
Analysis	 Key 1 governance, empowerment and engagement 2 education and capacity building 3 innovation, creativity and research 4 health and care in the community 5 culture and community identity 6 living together, interdependence and mutuality 7 economy and sustainable production and consumption 8 living and working environment 9 safety and security 10 community smart infrastructure 11 mobility and accessibility 12 biodiversity and ecosystem services

5.2.7 Low-carbon eco-cities

Name	Low-carbon eco-cities
Actor	Nan Zhou, Gang He and Christopher Williams China Energy Group
Scale	City-level
Date	2012
Objective	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. Nonetheless, policy makers and leaders continue to demand comprehensive toolboxes to facilitate development of low-carbon eco-cities. This paper presents the results of an extensive literature review of the development of low-carbon eco-cities in China. The paper also qualitatively and quantitatively analyzes 11 major indicator systems that researchers, planners, governments, and city managers in China have used to identify low-carbon ecocities. Finally, the paper gives recommendations for future development, research, and policy design to support low-carbon eco-cities in China and the world.
Vision of sustainable urban development	This concept combines the low-carbon city and eco-city in support of energy-saving and environmentally friendly cities, with an emphasis on low energy consumption, pollution, and carbon emissions. Major systems: — energy use — water use — solid waste — water environment — air quality — landscape — sonic environment — transportation — thermal environment — services — industry and economy — green building

Indicators	147 indicators
Analysis	 Key 1 governance, empowerment and engagement 2 education and capacity building 3 innovation, creativity and research 4 health and care in the community 5 culture and community identity 6 living together, interdependence and mutuality 7 economy and sustainable production and consumption 8 living and working environment 9 safety and security 10 community smart infrastructure 11 mobility and accessibility 12 biodiversity and ecosystem services

5.2.8 Star community rating system

Name	Star community rating system
Actor	STAR Communities
Scale	Local
Date	2012
Objective	The STAR Community Rating System® (STAR) is a comprehensive framework and certification program for evaluating local sustainability, encompassing economic, environmental and social performance measures. STAR was developed by and for local governments as a common framework for sustainability, with a standard set of metrics, and a recognition program to encourage competition and progress. Local leaders use STAR to set goals, measure progress and improve their communities. The Rating System comprises 7 goals, 44 objectives and more than 500 outcome and action measures. Local action measures are best practices known to move the needle on change in community-level outcomes or conditions. A community can accumulate points in STAR for implementing local actions, reaching community-level outcomes or through a combination of the two. An innovation category allows communities to get extra credit in areas where they excel and propose new credits to support the evolution of sustainability practice.

Vision of sustainable urban development	— Built environment — Ambient noise and light — Community water systems — Compact and complete communities — Housing affordability — Infill and redevelopment — Public spaces — Transportation choices — Climate and energy — Climate adaptation — Greenhouse gas mitigation — Greening the energy supply — Industrial sector resource efficiency — Resource efficient buildings — Resource efficient public infrastructure — Waste minimization — Education, arts and community — Arts and culture — Community cohesion — Educational opportunity and attainment — Historic preservation — Social and cultural diversity — Economy and jobs — Business retention and development — Green market development — Local economy — Quality jobs and living wages — Targeted industry development — Workforce readiness

	— Equity and empowerment — Civic engagement — Civil and human rights — Environmental justice — Equitable services and access — Human services — Poverty prevention and alleviation — Health and safety — Active living — Community health and health system — Emergency prevention and response — Food access and nutrition — Indoor air quality — Natural and human hazards — Safe communities — Natural systems — Green infrastructure — Invasive species — Natural resource protection — Outdoor air quality — Water in the environment — Working lands