

# Status of Human Settlements Statistics

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Special publication by the Global Urban Observatory Unit, Research and Capacity Development Branch, UN-Habitat.

**UN HABITAT**  
FOR A BETTER URBAN FUTURE



# Status of Human Settlements Statistics



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## About the Global Urban Observatory (GUO)

The Global Urban Observatory (GUO) unit is UN-Habitat's specialized statistical unit in charge of global monitoring of the Habitat agenda and other agendas with an urban linkage. This includes building capacities of national governments, establishing local, regional and global mechanisms for urban monitoring, and supporting data collection for urban indicators (covering economic, environment, social, health, transport and urban data), data analysis and regular dissemination of urban data. GUO carries out normative work such as developing the City Prosperity Initiative (CPI) and the urban observatory model; it further compiles, analyzes, publishes urban indicator data, and maintains the Global Urban Indicator database.

GUO leads activities pertaining to the monitoring of the New Urban Agenda and the Sustainable Development Goals (SDG) relating to human settlements, including coordinating and guiding the refinement of metadata of SDG 11 and other urban-related SDG indicators, as well as conducting capacity development of national statistical offices and cities for their computation. GUO coordinates the use of urban indicators as specified in the New Urban Agenda guidelines in the agency's main flagship reports including the State of the World Cities Report, the Global Report of Human Settlements, Water and Sanitation in Cites report, regional, youth, gender and other report. GUO also contributes to the United Nations Secretary General reports on the Sustainable Development Goals. It also ensures that reliable and up-to-date urban information is available for reports, messages and speeches of the Executive Director and other representatives of the Agency. As such, GUO has contributed to elevating the image of UN-Habitat and for the recognition of the organization as a knowledge-based Agency.

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## 1

## Introduction

## a

As the UN specialized agency on human settlements, UN-Habitat has been at the forefront of finding solutions to the urban information crisis, helping countries have access to reliable information that provides insights into urban conditions and trends worldwide, but also support the monitoring and reporting on global agendas (e.g. 2030 Agenda for sustainable development, New Urban Agenda). Over the past 20 years, the Global Urban Observatory (GUO), UN-Habitat's data and statistical unit has been leading the development of tailor-made urban monitoring solutions to understand and measure urban development trajectories and conditions. This ranges from the management of the urban indicators database; the Millennium Development Goals indicators, including the design and global monitoring of slums; the development of the City Prosperity Index; the development and refinement of methodologies for the Sustainable Development Goals (SDGs), among others. Currently, GUO is leading the methodological developments of the urban related indicators and targets that will be used by the international development community to monitor global progress towards implementation of

the New Urban Agenda (NUA) and the SDG on human settlements, and to monitor and evaluate global urban conditions and trends.

## b

The present report provides an overview of the activities carried out since 2014, including refinements for several methodologies connected to global monitoring of the urban related sustainable development goals which are available as part of a synthesis report on Sustainable Development Goal 11<sup>1</sup>. More of the methodological work is featured in the report on implementation of the New Urban Agenda (NUA)<sup>2</sup>, the progress of methodological work for urban indicators, the consultative workshops on human settlements Statistics, the advancement of the application of the framework for national sample of cities and City Prosperity Initiative (CPI) by countries worldwide, related regional training and capacity-building activities, data-collection activities and advocacy.



*Sustainable  
Development  
Goal 11*



IMPLEMENTING  
THE NEW  
URBAN AGENDA

*New Urban  
Agenda*



*City Prosperity  
Initiative*

## 2

## SDGs and Human Settlements Statistics

## a

Since 2014, the global community has embraced several urban related agendas with the most notable ones being the New Urban Agenda (NUA)<sup>2</sup> and the 2030 Agenda for Sustainable Development and its associated global indicator framework, leading to the expansion of the scope and breadth of global human settlements statistics within the whole statistical system. This has also helped to promote the engagement of a wider range of data producers and users around human settlements indicators.

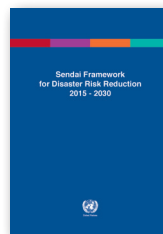
## b

The NUA and SDGs emphasize the need to ensure that progress reports are based on an analysis of the activities of national, sub-national, and local governments' levels, as well as analysis from reports of UN-Habitat, other relevant entities of the United Nations system, relevant stakeholders in support of the implementation of the NUA, and the reports of UN-Habitat's Governing Council. All the evidence should also incorporate, to the extent possible, the inputs of multilateral organizations and processes

where appropriate, civil society, the private sector, and academia, and should build on existing platforms and processes and avoid duplication and respond to local, sub-national, and national circumstances and legislation, capacities, needs, and priorities.



New Urban Agenda



The Sendai Framework



## c

Other global agendas such as the Paris Agreement and the Sendai Framework, have also introduced new sets of indicators and statistics adding onto an already expanded framework of indicators, with now over 81 indicators within the family of SDGs indicators either having a direct or indirect link to human settlements indicators and statistics. The core goal within the SDG indicators framework is SDG 11, which directly refers to cities and human settlements. The NUA, as well as all the other complimentary global agendas largely rely on the SDGs core set of human settlements indicators and statistics for global monitoring and reporting.



## 3

## Progress on reporting of human settlements statistics

## a

In line with the above mandate and spirit, UN-Habitat has coordinated three major reports detailing the progress and achievements of human settlement indicators and statistics in the last 5 years. These reports profile the latest trends on wide-ranging issues affecting human settlements as well as many global urban challenges such as; air pollution, urban transport, waste management, cost of housing, urban sprawl, climate change, urban public spaces, etc. These reports are:

- 2016 World Cities Report: Urbanization and Development: Emerging futures*<sup>4</sup>;
- The Quadrennial report of the NUA 2018*<sup>5</sup>; and
- A synthesis report of SDG 11 indicators, 2018*<sup>6</sup>.



2016 World Cities Report.

The Quadrennial report of the NUA 2018.

Synthesis report of SDG 11 indicators, 2018.

## b

In July 2018, the first of a series of five quadrennial reports that will be prepared over the period 2016-2036 was submitted to the Economic and Social Council<sup>7</sup>. This was supported by a synthesis report profiling the progress of Goal 11 which was discussed as part of the 2018 High-Level Political Forum on Sustainable Development. Jointly, these reports are a key component of the follow-up and review on the implementation of the 2030 Agenda, the NUA and other regional urban agendas.

## c

The Goal 11 synthesis report acknowledges the need for countries to monitor locally, but report progress

on cities and human settlements at the national level. Urban issues are an entry agenda and are cross-cutting for many other sustainable development goals and targets. This calls for policy coherence and the need to build vertical and horizontal systems of collaboration on monitoring, reporting and implementation.

## d

These three progress reports were shared at the 2018 High-Level Political Forum on Sustainable Development, with a view towards ensuring coherence, coordination and collaborative linkages with the follow-up and review of the 2030 Agenda for Sustainable Development and other global agenda.



## 4

## Global and regional workshops related to capacity-building activities

## a

UN-Habitat and other custodian agencies (Table 1) have organized regular technical cooperation workshops in the field of human settlements statistics, which has included country advisory services, national and regional workshops and direct technical assistance<sup>8,9</sup>. In the last 5 years, technical assistance has been directed at building the institutional capacity of national statistical offices to harmonize systems for collecting human settlements statistics, refining urban related definitions and designing data collection tools. This has also included conducting routine human settlements statistics surveys that cover collection of data on composite indicators such as those that monitor slums or access to basic services or land tenure security or urban governance and civic participation. Capacity-building activities have also included the compilation of analytical and performance indicators relevant to the understanding of human settlements policy and the monitoring of programme implementation. In recent years, UN-Habitat technical assistance was provided, at different scales, to many countries such as Bahrain, Botswana, Cameroon, Colombia, Ecuador, Egypt,

Ethiopia, India, Kenya, Kuwait, Palestine, Republic of Korea, Rwanda, Saudi Arabia, Tunisia, Uganda, the United Republic of Tanzania and Viet Nam among







others. Currently, several global projects for capacity-building are being implemented in many countries across several regions of the world.

*Some of the countries that have received UN Habitat's technical assistance over the years.*



Table 1: Tier classification for Human Settlement Indicators

Target	Indicator	Tier Classification	Custodian Agency
1.4 By 2030, ensure that all men and women, in particular the poor and the vulnerable, have equal rights to economic resources, as well as access to basic services, ownership and control over land and other forms of property, inheritance, natural resources, appropriate new technology and financial services, including microfinance	1.4.1: Proportion of population living in households with access to basic services	Tier II	
	1.4.2: Proportion of total adult population with secure tenure rights to land, with legally recognized documentation and who perceive their rights to land as secure, by sex and by type of tenure	Tier II	 
6.3 By 2030, improve water quality by reducing pollution, eliminating dumping and minimizing release of hazardous chemicals and materials, halving the proportion of untreated wastewater and substantially increasing recycling and safe reuse globally	6.3.1: Proportion of wastewater safely treated	Tier II	 
11.1 By 2030, ensure access for all to adequate, safe and affordable housing and basic services and upgrade slums	11.1.1: Proportion of urban population living in slums, informal settlements or inadequate housing	Tier I	
11.2 By 2030, provide access to safe, affordable, accessible and sustainable transport systems for all, improving road safety, notably by expanding public transport, with special attention to the needs of those in vulnerable situations, women, children, persons with disabilities and older persons	11.2.1: Proportion of population that has convenient access to public transport, by sex, age and persons with disabilities	Tier II	
11.3 By 2030, enhance inclusive and sustainable urbanization and capacity for participatory, integrated and sustainable human settlement planning and management in all countries	11.3.1: Ratio of land consumption rate to population growth rate	Tier II	
	11.3.2: Proportion of cities with a direct participation structure of civil society in urban planning and management that operate regularly and democratically	Tier II	
11.4 Strengthen efforts to protect and safeguard the world's cultural and natural heritage	11.4.1 Total expenditure (public and private) per capita spent on the preservation, protection and conservation of all cultural and natural heritage, by type of heritage (cultural, natural, mixed and World Heritage Centre designation), level of government (national, regional and local/municipal), type of expenditure (operating expenditure/investment) and type of private funding (donations in kind, private non-profit sector and sponsorship)	Tier III	
11.5 By 2030, significantly reduce the number of deaths and the number of people affected and substantially decrease the direct economic losses relative to global gross domestic product caused by disasters, including water-related disasters, with a focus on protecting the poor and people in vulnerable situations	11.5.1: Number of deaths, missing persons and directly affected persons attributed to disaster per 100,000 population	Tier II	
	11.5.2: Direct economic loss in relation to global GDP damage to critical infrastructure and number of disruptions to basic services, attributed to disasters	Tier I	

Target	Indicator	Tier Classification	Custodian Agency
11.6 By 2030, reduce the adverse per capita environmental impact of cities, including by paying special attention to air quality and municipal and other waste management	11.6.1: Proportion of urban solid waste regularly collected and with adequate final discharge out of total urban solid waste generated, by cities	Tier II	
	11.6.2: Annual mean levels of fine particulate matter (e.g. PM2.5 and PM10) in cities (population weighted)	Tier I	
11.7 By 2030, provide universal access to safe, inclusive and accessible, green and public spaces, in particular for women and children, older persons and persons with disabilities	11.7.1: Average share of the built-up area of cities that is open space for public use for all, by sex, age and persons with disabilities	Tier II	
	11.7.2: Proportion of persons victim of physical or sexual harassment, by sex, age, disability status and place of occurrence, in the previous 12 months	Tier III	
11.a Support positive economic, social and environmental links between urban, peri-urban and rural areas by strengthening national and regional development planning	11.a.1: Proportion of population living in cities that implement urban and regional development plans integrating population projections and resource needs, by size of city <sup>1</sup>	Tier III	 
11.b By 2020, substantially increase the number of cities and human settlements adopting and implementing integrated policies and plans towards inclusion, resource efficiency, mitigation and adaptation to climate change, resilience to disasters, and develop and implement, in line with the Sendai Framework for Disaster Risk Reduction 2015-2030, holistic disaster risk management at all levels	11.b.1: Proportion of local governments that adopt and implement local disaster risk reduction strategies in line with the Sendai Framework for Disaster Risk Reduction 2015-2030a	Tier I	
	11.b.2: Proportion of local governments that adopt and implement local disaster risk reduction strategies in line with national disaster risk reduction strategies	Tier II	
11.c Support least developed countries, including through financial and technical assistance, in building sustainable and resilient buildings utilizing local materials	11.c.1: Proportion of financial support to the least developed countries that is allocated to the construction and retrofitting of sustainable, resilient and resource-efficient buildings utilizing local materials	Tier III	

1 Currently being measured through a proxy indicator: "Number of countries that have a National Urban Policy or Regional Development Plans that (a) respond to population dynamics, (b) ensure balanced territorial development, and (c) increase local fiscal space".

#### Tier classifications.

**Tier I:** Indicator conceptually clear, established methodology and standards available and data regularly produced by countries

**Tier II:** Indicator conceptually clear, established methodology and standards available but data are not regularly produced by countries

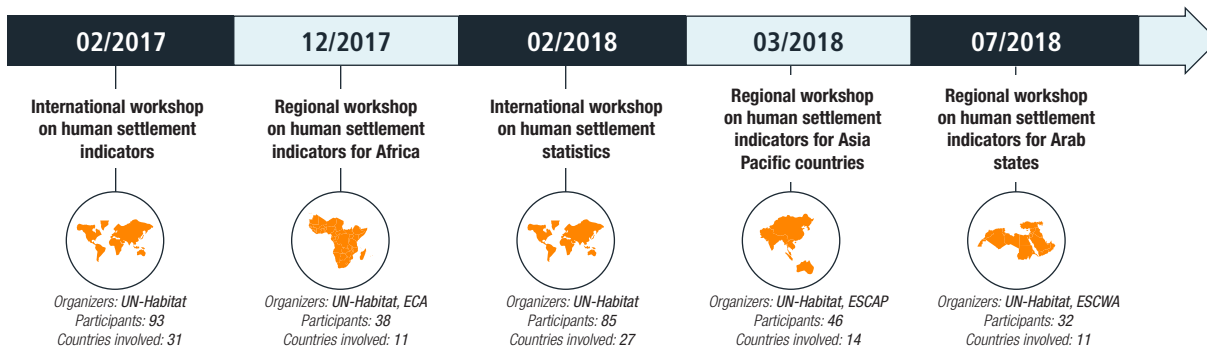
**Tier III:** Indicator for which there are no established methodology and standards or methodology/standards are being developed/tested.

## b

Since 2014, 26 capacity development workshops have been organised with nearly 1000 participants drawn from national statistical offices, local and national governments, civil society, academia, public and private institutions, and representatives from special groups such as youth, women and persons with disabilities. The regional workshops for national statistical offices have proven to be a cost-effective way to inform national statisticians about the latest international recommendations linked to human settlements statistics. Normally, the national statistical offices within a given region experience common issues. The regional workshops not only provide space for deliberations on conceptual problems but are also an excellent forum for the exchange of experiences

and best practices. In the last 4 years, UN-Habitat and partners have jointly conducted a number of regional and international workshops, including: an international workshop on human settlements indicators linked to SDGs in Naivasha, Kenya, in February 2017 (93 participants from 31 countries), a regional workshop on human settlements indicators for Africa organized together with ECA in December 2017 (38 participants from 11 countries), a regional workshop on human settlements indicators for Asia Pacific countries organized with ESCAP in March 2018 (46 participants from 14 countries), a regional workshop for Arab States organized with ESCWA in July 2018 (32 participants from 11 countries), and an international workshop on human settlements

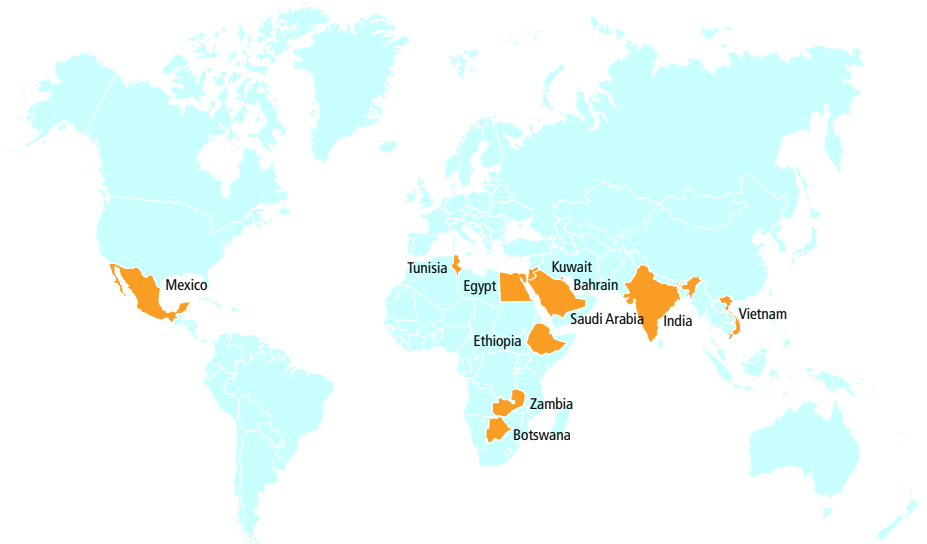
statistics in Kuala Lumpur, in February 2018 as part of the World Urban Forum (85 participants from 27 countries). In the next 2 years, more capacity development initiatives will be targeted to cities and local government, as well as national statistical organisations. Most of these will focus on how to apply the concepts of the national sample of cities, harmonizing city definitions, use of geospatial technologies in monitoring urban SDGs, establishing national statistical systems and networks to support urban monitoring of a diverse and new sets of urban SDGs indicators, data compilation and presentation at city levels, and how civil society and urban communities can contribute to global reporting on human settlements.



## C

Since 2016, UN-Habitat and all other lead custodian agencies have developed indicator-specific modules that provide step-by-step guidance on the concepts and methods of computation of several SDG 11 indicators. These modules are accessible to all countries and cities free of charge. In addition to the above capacity development initiatives, the urban observatories' network available in many regions and countries provides direct SDG-11-related capacity development. Trainings on setting up urban observatories have been conducted in several countries, including Bahrain, Botswana, Egypt, Ethiopia, India, Jordan, Kuwait, Mexico, Saudi Arabia, Tunisia, Vietnam, and Zambia. Each training resulted in the creation of several local urban observatories. Other SDG 11 custodian agencies have also been undertaking capacity development initiatives in collaboration with regional commissions.

Countries that have received training on setting up an urban observatory.



## 5

## Existing data gaps and challenges of reporting on human settlements statistics

## a

Despite the ongoing efforts of UN-Habitat and the larger network of stakeholders working on human settlements statistics, it should be noted that the need for technical assistance in human settlements statistics in all countries is much greater than the resources currently available. While some positive trends in the improvement of human settlements statistics have been observed globally, a critical gap remains in production of human settlements data in many countries especially regarding the many new and spatial-analysis dependent indicators.



There is need for technical assistance in human settlement statistics

## b

Many urban SDG targets and indicators refer directly to cities as the unit of analysis for tracking progress. Yet countries define cities differently, based on a single or combination of criteria that includes aspects such as population size or density (or both), economic function, nature of activities (agricultural versus commercial), amount of locally generated income, as well as political and administrative measures. An informed guidance on definitions, measurements, and unified standards is necessary to make sure that monitoring and reporting of urban agendas and human settlements statistics are undertaken using harmonized and mutually agreed concepts. Without a single globally applicable definition of a city as the measurement unit for selected urban and human settlements indicators, countries are likely to compute estimates using various operational concepts, which could include the city core, urban agglomeration, metropolitan area, all of which use and apply different thresholds and methods, making global comparisons difficult.

## c

Over the past two decades, UN-Habitat as a focal point for urban issues has established various tools for global urban monitoring, which have contributed to generation of urban data that is directly relevant for the SDG 11 monitoring. These include the urban observatory model, the city prosperity initiative, the urban indicators program and the national sample of cities approach. Many of these tools have been refined and modified in collaboration with other UN agencies in readiness for supporting the global monitoring of the urban SDGs. A more detailed discussion on some of these tools is provided in the next sections.



Measurement of City Prosperity



Guide to setting up an urban observatory



National sample of cities

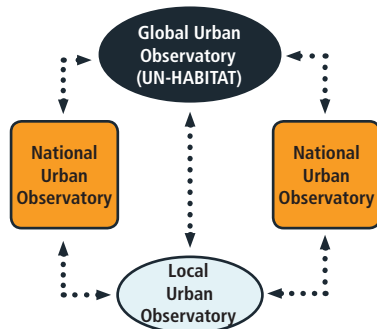


## 6

## Urban observatory model: mechanism for informed-decision making

a

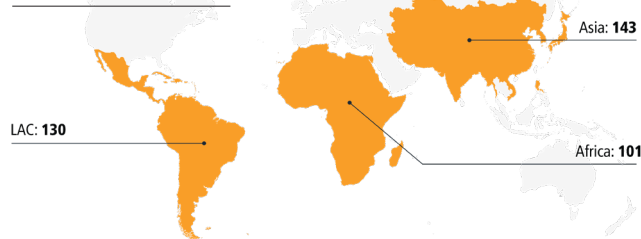
To help find creative solutions to the urban information crisis, UN-Habitat developed the urban observatory model for urban data collection and analysis, in partnership with cities<sup>10</sup>. Systematic guidance on setting up urban observatories has been provided to a number of countries leading to the development of a global network of local, national and regional urban observatories which facilitate data collection and monitoring processes at local levels, and its aggregation and/or comparison at the national and regional levels<sup>17</sup>.



b

Urban observatories are well-positioned to address the frequently expressed need for reliable, high resolution urban datasets specific to the cities and immediate city-regions in which they operate. They assist in strengthening urban data capacities at national, sub-national, and local levels, providing platforms to facilitate effective knowledge exchange and promote evidence-based governance built on a shared knowledge base. Today, UN-Habitat is overseeing and coordinating 374 urban observatories worldwide: 101 in Africa, 143 in Asia and 130 in Latin America. These local urban structures are leading the local level engagements on collecting, analysing and interpretations of data for urban indicators related to

*Number of urban observatories.*



the NUA and the urban SDGs through consultative and inclusive processes. UN-Habitat channels all newly developed tools and guides through these local urban observatories.

c

Several observatories are now being re-trained on the new sets of available global urban indicators. UN-Habitat has been working with several partners to enhance the capacities of the many urban observatories to play a continuous central role in data collection and reporting on SDGs and NUA. This critical mass of urban observatories constitutes a very important asset for the monitoring and reporting of the international urban agendas.

## 7

## National Sample of Cities: A model Approach to Monitoring and Reporting performance of Cities at National Level

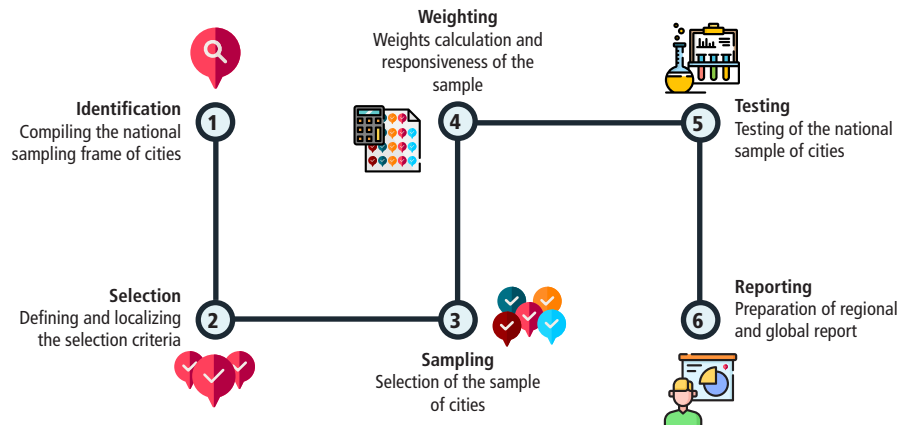
a

Many urban SDG indicators require data collection at the local/city level. This means that countries are compelled to define and identify the number of cities they have, collect data on all these cities and aggregate upwards the national level average performance of these city-specific indicators. For many countries, it is not possible to collect information and report on all their cities, and this is particularly true for those that have limited resources (financial, institutional, human and systems). For such countries, UN-Habitat recommends the application of the National Sample of Cities (NSC) approach which will allow them to systematically select a sample of representative cities from their territory and continuously track progress on these cities for national level reporting<sup>12</sup>.

b

The NSC is a carefully constructed sample of cities that considers sub-regional and city specific characteristics and variances to monitor the dominant urban patterns in a given country. The NSC is one of the mechanisms that will create conditions to monitor and report on a consistent set of cities that can enable them to produce time series analysis to measure national progress in

a more systematic and scientific manner. The sample of cities must be drawn using sound statistical and scientific methodologies based on several relevant national and city-specific criteria/characteristics that capture the diverse urban contexts of countries, ensuring consistency, and representativeness of a given country's territory, geography, size, history, etc.



**Box 1:**

The below procedures describe the main steps proposed for the selection of national sample of cities

- a). *A complete listing of all cities in country is compiled creating a national sampling frame of cities.*
- b). *Relevant city descriptive data is collected for each city (geographical location, population size, importance categorization, counts of women/youth, etc.*
- c). *Cities are grouped using major categories of interest defined at the national level and a simple random sampling of cities applied in each category.*
- d). *A final list of sampled cities is reviewed and agreed upon by selected stakeholders under the guidance of the national statistical agency.*

The adoption of a NSC brings the following advantages:

- a). *Integrates cities of all sizes, functions and types as part of a national system of cities that can help to amalgamate the disjointed energies and potential of urban centres;*
- b). *Assists in the aggregation of locally produced city indicators for national monitoring and reporting, and for the production of regional and global reports and analysis;*
- c). *Provides a platform for collecting different layers of data with a unified methodology that can be used to report on national progress on the SDGs or other elements of the urban agenda;*
- d). *Allows the calculation of an un-weighted national average as well as weighted national averages on the overall urban SDGs indicators;*
- e). *Creates baseline data and establishes benchmarks and national targets with the same technique of standardization that will enable for comparisons of indicators and city measurements;*
- f). *Facilitates a systematic disaggregation of information at national, sub-national and city levels along key SDGs indicators and dimensions of development needed to address territorial disparities.*

**C**

Data collection across all SDG 11 indicators requires significant resources. These vary from financial, institutional, human resources to investing in new systems. Assessments undertaken by several custodian agencies including UN-Habitat since 2016 revealed that most countries are challenged with the level of available resources to support quality data systems and resources to support monitoring on all SDG 11 indicators. However, a few countries, particularly those from developed regions, have well-established urban data collection structures, and enough resources to cover all the needs of monitoring and reporting on progress of Goal 11 for all their urban areas/cities.

**d**

To support countries with limited resources for systematic data collection on SDG 11 indicators, UN-Habitat and other partners developed the national sample of cities (NSC) approach. The approach helps countries to select a non-biased sample of representative cities. The national sample of cities is drawn using sound statistical and scientific methodologies based on, but not limited to national importance, geographic location, size of the city, population in the city, economic and political importance, youth/children and women representation, etc. The advantages and main steps proposed for selection of national sample of cities are provided in Box 1.

## 8

## The City Prosperity Index: an efficient tool for measuring cities performance using comprehensive urban data analytics

## a

The challenge of creating inclusive growth and sustainable urban development requires a commitment to partnership and cooperation, supported by a strong monitoring mechanism that measures policies and investments based on close to real-time evidence. Such a mechanism should serve to prioritize activities, ensure strategic investments, monitor coverage of plans and measure impact articulated at national, regional (territorial and municipal levels) and global levels. UN-Habitat has developed a global monitoring framework called the City Prosperity initiative (CPI) that enables member states to monitor and evaluate their efforts towards implementation of the urban components of the sustainable development agenda both domestically and internationally using a unified and sound mechanism that measures success, but also assesses failures at different government levels.

### *City Prosperity Initiative dimensions*



**Productivity**



**Infrastructure  
Development**



**Quality of life**



**Equality and Social  
Inclusion**



**Environmental  
Stability**



**Urban Governance  
and Legislation**

## b

The CPI integrates tools and mechanisms for monitoring Goal 11 and other urban related SDGs indicators that are aligned with international and national guidance on gender, youth and human rights monitoring strategies at all levels. Specifically, tools such as the national sample of cities methodology are well integrated in the CPI which allows for measurement and assessment of urban performances in a representative manner. Already, UN-Habitat has been working with the City Prosperity Index which is part of the CPI for monitoring cities performance globally with a core set of indicators that feature tracking inclusiveness —such as monitoring urban infrastructure, environment, productivity, etc. Also, CPI indicators such as access to adequate housing, water and sanitation, access to quality education, as well as access to internet and citizen participation, or any other civic, cultural, economic, political and

social right metrics link directly to many human rights agendas. With a monitoring system of national sample of cities, youth, gender and human rights inclusiveness aspects will be strengthened for local and national monitoring levels. While the global indicator framework adopted by the General Assembly is the authoritative list of indicators for the global monitoring of SDG 11, the CPI provides complementary information and analysis to the global indicator framework. It can be used as an additional tool in the process of implementation of the agenda.



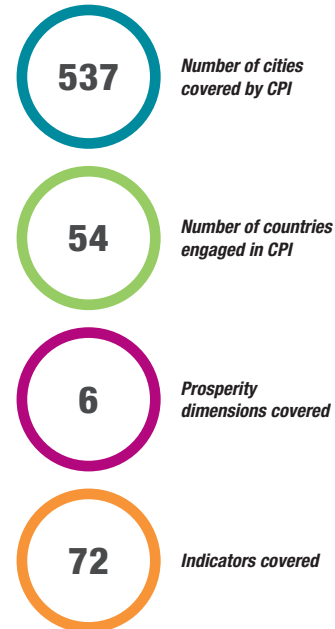
## c

The CPI integrates indicators for urban SDGs to address in a single framework the environmental, social and economic components of city prosperity and sustainability. Indeed, all 10 targets and indicators of Goal 11 are integrated in the CPI. The CPI has therefore the potential to be a global monitoring platform for Goal 11 indicators and other SDGs with an urban component. It is estimated that around one third of urban-related indicators can be measured at the local level, having a direct connection to urban policies, and a clear impact on cities and human settlements. Also, 23% of all SDG targets that can be measured at local level are covered by the CPI. Countries which apply CPI are able to identify, quantify, evaluate, monitor and report on progress they and their cities are making in achieving Goal 11. To date, UN Habitat has supported more than 400 cities across the world to implement the CPI. Experiences from deploying CPI shows that countries and cities that have adopted this unified and standardized platform for SDGs monitoring and reporting of urban indicators are saving time and resources.

## d

The adoption by national Statistics office of an integrated approach of the city measurements through the CPI, offers the following advantages:

- a). Provides a single value of the state of the city;
- b). Establishes benchmarks for local, national and global monitoring;
- c). Creates city baseline and information;
- d). Generates a local monitoring mechanism, and;
- e). Identifies priorities and transformative actions to achieve sustainable urban development<sup>13</sup>.



Linkages between CPI and SDG 11 Targets



GOAL 11 TARGETS

- 11.1 Adequate, safe and affordable housing
- 11.2 Accessible and sustainable transport systems for all
- 11.3 Inclusive and sustainable urbanization
- 11.4 Safeguard the world's cultural and natural heritage
- 11.5 Reduce the number of people affected by disasters
- 11.6 Reduce the environmental impact of cities
- 11.7 Provide universal access to safe public spaces
- 11.a Support links between urban, peri-urban and rural areas
- 11.b Increase integrated policies and plans towards mitigation and adaptation to climate change
- 11.c Building sustainable and resilient buildings utilizing local materials

CPI SUB-DIMENSIONS

- 1. Local Economic Development
- 2. Employment
- 3. Municipal Finance
- 4. Adequate Housing
- 5. Energy and ICT
- 6. Urban Mobility
- 7. Urban Form
- 8. Urban Land
- 9. Public Space
- 10. Social Development
- 11. Economic Inclusion
- 12. Gender and Youth Inclusion
- 13. Safety and Security
- 14. Resilience
- 15. Environmental Sustainability
- 16. Climate Change
- 17. Urban Rules and Regulations
- 18. Urban Governance

CPI DIMENSIONS

- Productivity**
- Infrastructure**
- Quality of Life**
- Equity and Social Inclusion**
- Environmental Sustainability**
- Governance and Legislation**

SDG WITH URBAN BASED TARGETS

- 8.1.1 City product per capita
- 8.2.1 Growth rate per employment
- 8.3.1 Informal employment
- 8.5.2 Unemployment rate
- 9.2.1 Manufacturing employment
- 3.6.1 Traffic fatalities
- 6.1.1 Access to improved water
- 6.2.1 Access to electricity
- 9.c.1 Mobile network coverage
- 17.8.1 Internet Access
- 15.1.2 Forest (green areas) as a percentage of total land area
- 16.1.1 Homicide rate
- 16.1.3 Population subjected to violence
- 1.1.1 Poverty rate
- 5.5.1 Women in local government
- 8.5.1 Gender wage gap
- 8.6.1 Youth unemployment
- 10.1.1 Growth rate 40%
- 3.9.1 Population exposed to outdoor air pollution
- 6.3.1 Waste water treatment
- 7.2.1 Share of renewable energy
- 12.5.1 Solid waste recycling share
- 9.a.1 Investment capacity
- 16.6.1 Local expenditure efficiency
- 17.1.1 Public-private partnership

## 9

## Spatial data integration into the SDG 11 monitoring framework

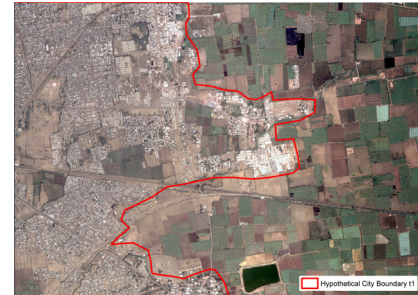
a

At least seven SDG 11 indicators require data collection at city level using non-conventional methods that go beyond censuses or household surveys. A common feature cutting across the non-traditional sources of data required for these (7+) indicators is inclusion of a spatial component, whether as the main unit of analysis or a determinant of indicator results. SDG Indicator 11.3.1, for example, adopts spatial metrics as one of its main units of analysis (rate at which land is consumed by urban growth) while results for SDG indicator 11.6.2 greatly vary from one area of a city to another based on concentration of air pollution intensities. Geospatial techniques offer countries effective systems for integrated management of (spatially referenced) data across all areas of development, and advancements in geospatial science - with more open source applications and datasets - creates a unique opportunity for countries and cities to collect and/or compile data at higher spatial and temporal resolution, as well as to generate information that is more visual and connected to the physical space, and which is key for informed decision making.

b

Since 2014, UN-Habitat has established partnerships with diverse stakeholders working in the geospatial field to support development of modern approaches to urban data generation, to leverage the resources of the geospatial community for enhanced generation of SDG 11 relevant data, and to continuously ensure that the appropriate technologies, approaches and methods are channelled to countries and cities. Some of the key partnerships established include those with the UN-GGIM, the scientific arms of the European Commission (DG-REGIO, JRC), the European Space Agency (ESA), NASA, GEO, AfriGEOSS, among others. In addition, collaborations have been established with entities within countries working on geospatial data to pilot various data collection tools at the local levels, and with national statistical agencies for incorporation of related technologies to the conventional data architecture.

*Measuring the rate at which land is consumed by urban growth (Indicator 11.3.1) requires adoption of spatial metrics.*



*Some of the key partners in the Geospatial community*



United Nations Initiative  
on Global Geo-spatial  
Information Management



European Space Agency



National Aeronautics and  
Space Administration



Group on Earth  
Observations



Group on Earth  
Observations



Joint Research Centre



KTH Royal Institute of  
Technology

**c**

To support data generation on the spatially dependent SDG 11 indicators, UN-Habitat and partners have developed several tools which utilize both commercial and openly available data sources (e.g satellite imagery) and applications (software). Some of these include step by step training manuals on indicator computations and executable applications for automated workflows, which are openly available to countries and cities. These tools have been shared with countries during various regional workshops, and directly piloted in partnership with national statistical offices and country-based spatial data agencies e.g.s in Botswana, Colombia, Tunisia, among others. In addition, UN-Habitat has developed technical documents which explain how each indicator measures a specific component linked to sustainable development, and how policies should respond to reported indicator values to achieve progress towards the related goals.

**d**

While there has been progress towards adoption of geospatial data approaches in countries, and acknowledgement of the importance of the technologies to future data structures, the prevailing legal and policy frameworks in many countries is prohibitive, especially with regard to the adoption of data collected using these approaches to official statistics. In addition, many countries are facing challenges such as lack of resources to put in place the proper systems, limited capacities in human resources, as well as those related to lack of, or high costs associated with generation of spatially referenced baseline data. UN-Habitat is working in collaboration with other UN agencies and partners to support countries in these areas, with a series of workshops and training sessions planned and some already completed. Other strategic partnerships are being established with various service providers of relevant systems/ software e.g with ESRI for support to cities directly.



## 10

## City definition

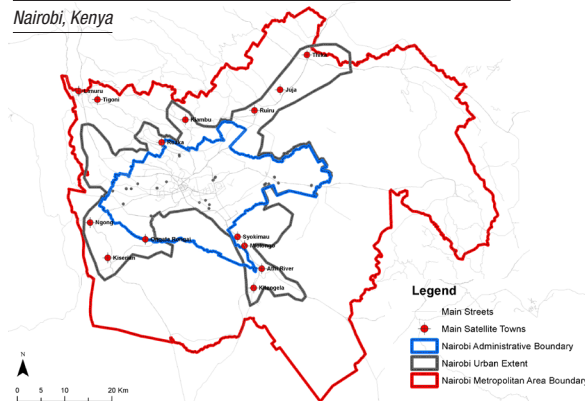
a

Several SDGs targets and indicators refer directly to cities as the units of measurement, away from the traditional reference to urban areas that also exclusively cover cities. But what exactly is a city or an urban area? What is the size threshold for an area to qualify as a city? What type of administrative, legal or historical status defines a city? How do we distinguish an urban area from a town or a village? These are some of the many questions that have been asked since the adoption of the 2030 Sustainable development agenda where some indicators refer directly to the unit of a city. A global definition of the city as a unit of analysis and for monitoring purposes is critical to overcoming comparison challenges among cities performances. But even at the urban level, a tighter global definition of what constitutes urban area away from rural areas is needed for purposes of global monitoring and reporting. For example, some countries define their urban areas using a population threshold, or an administrative demarcation, or population density, or economic function of an area, while others use a combination of the above criteria. Thresholds for each criterion vary widely depending on country specific guidelines and local definitions. Equally, a

diversity of concepts is often used interchangeably to refer to a form of urban area. Examples of these terms include “city proper”, “urban agglomeration”, “metropolitan area” among others – each of which represents a different kind of functional urban entity. A concrete guidance on concepts, measurements, and unified standards is necessary to make sure that we work with harmonized and mutually agreed notions on city and urban definitions.

*Concepts is often used interchangeably to refer to a form of urban area,*

*Nairobi, Kenya*



b

As a result, and in line with its custodian role for several indicators that depend and require a definition of a city, UN-Habitat has worked with various institutions and organizations globally towards agreeing on a global definition of a city. These efforts are not meant to change how countries define their urban areas but rather to support the global monitoring and reporting in a more systematic and harmonized manner.

*Criteria used for city definition*



**Area characteristics**



**Population density**



**Population size**



**Economic function**



**Administrative function**

c

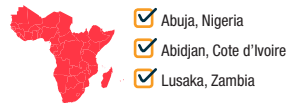
After review of hundreds of existing city definitions at the country, regional and global levels, the Degree of Urbanization (DEGURBA) approach, which has been used in the Europe since 1991 was identified as a potential candidate for a harmonized global city definition, because of its architecture, which uses the character of an area - which is defined by the contiguity of settlements within 1 km<sup>2</sup> grids – to distinguish urbanized and non-urbanized areas. UN-Habitat in collaboration with European Commission, OECD, and FAO designed the project **“Assessing the feasibility of applying a global definition of cities/urban areas in support of global monitoring of SDGs and NUA urban targets”** to test and apply the DEGURBA approach in defining city boundaries in selected countries in Africa, Asia including Arab States, and Latin America. This is part of an international voluntary commitment to develop a global, people-based definition of cities and settlements which was launched at the Habitat III conference in 2016.

d

In total, a series of seven (7) workshops have been planned in 2018-2019, whose main goal is to introduce the DEGURBA approach to city definition to countries and get feedback on its applicability and/or required revisions to make it more applicable across the globe. So far, 4 consultative regional workshops in Africa (3) and Arab States (1) have been completed with participation of 50 countries. For each consultative workshop, participants include representatives from national statistical offices, line ministries overseeing SDG monitoring, civil societies, academia and local government teams and other UN agencies and UN regional commissions.

*Workshops on city definition approaches scheduled between 2018 - 2019.*

#### Sub-Saharan Africa



#### Arab States



#### Central & Southern Asia



#### Latin America and the Caribbean



e

For the completed workshops, participants also had an opportunity to learn more about the urban related SDGs and how they should be measured, and how the degree of urbanization approach works, and how it differs from other national and global definitions. National and subnational level urban definitions were examined for participating countries, and lessons and challenges of these definitions discussed. In addition, the main lessons from the experiences of implementing the degree of urbanization definition in the EU for more than 10 years was shared and such lessons contrasted or compared with the experiences of working with global urban definitions in many contexts.

## 11

## Progress on supporting countries to report on Human settlements indicators

## a

UN-Habitat remains a custodian agency for a large set of indicators under Goal 11. What is clear so far is that Goal 11 monitoring and reporting presents major challenges that other SDGs do not necessarily confront. A mixed-bag of approaches has been proposed to address the data needs for city/urban tagged indicators under SDGs, particularly where the city is the unit of analysis. Out of the 15 or more urban/city related SDGs indicators, 7 are being collected at local city level and not by routine data collection mechanisms such as census or household surveys: 11.2.1 on public transport; 11.3.1 on land consumption; 11.3.2 on civil society participation; 11.5.1 on disaster risk reduction; 11.6.1 on solid waste; 11.6.2 on Air quality; and 11.7.1 on public space. In addition, from the 15 indicators, 6 require some form of spatial data collection and analysis at local/urban level with a clear method at the urban agglomeration level: 11.2.1 on public transport; 11.3.1 on efficient land use; 11.5.1 on people affected by disasters; 11.6.1 on urban solid waste and air quality location; 11.7.1 on public space; and 11.b.1 on climate change and resilience.

Target	Indicator
 <b>11.1</b> Housing and Slum upgrading	11.1.1
 <b>11.2</b> Public transport	11.2.1
 <b>11.3</b> Participatory and inclusive urbanization	11.3.1 11.3.2
 <b>11.4</b> World's cultural and natural heritage protection	11.4.1
 <b>11.5</b> Protection of the poor and people in vulnerable situations	11.5.1 11.5.2
 <b>11.6</b> Capital environmental impact of cities reduction	11.6.1 11.6.2
 <b>11.7</b> Access to safe and inclusive public spaces	11.7.1 11.7.2
 <b>11.a</b> Urban - Rural Linkages	11.a.1
 <b>11.b</b> Sustainable and resilient buildings	11.b.1 11.b.2
 <b>11.c</b> Implementation of mitigation and adaptation plans and policies	11.c.1

## b

Of the 15 SDG 11 indicators, 6 require special aggregation techniques to generate the desired data at the national level from city-based data. In some instances where countries have so many cities, this requires working with a representative National Sample of Cities for each country selected in such a manner that it reflects the country's territory, geography and history, and any other dimensions as discussed in section 7. In addition, some cities and countries recognize the difficulty to integrate a city-wide approach in policy formulation when monitoring and reporting on Goal 11 indicators that are very sectoral in nature. This is even further complicated by the silo-approach of ministries and government departments found in many member state's governance systems across the world. UN-Habitat has been working with many partners and member states to finalize relevant guides that offer solutions to these challenges<sup>14</sup>.



10 Targets

15 Indicators

## C

All countries that have succeeded to report on the human settlement indicators of the SDGs have noted the value of having national statistical systems that need to coordinate with local authorities and service providers to collect information at city level as the unit of analysis, using conventional (i.e. communities, municipalities, etc) and modern (satellite imagery and ICT) forms of data collection techniques. The use of innovative geospatial tools in data collection systems, including census and surveys to measure and to track performance of cities towards many urban related SDG targets is new for many national statistical agencies and institutions. Equally, the aggregation of city level data for reporting performance at national/ country level is new and of paramount importance to many national statistical agencies.

SDG 11 Indicators that require some form of spatial data collection and analysis at local/ urban level with a clear method at the urban agglomeration level



## 12

## Distinguishing slum from non-slum areas

a

UN-Habitat continues to advocate for and monitor the global populations who live in slums. Today, UN-Habitat's estimates show that nearly a billion people live in areas generally referred to as slums as per the UN-Habitat definition i.e. "Any specific place, whether a whole city, or a neighbourhood, is a slum area if half or more of all households lack improved water, improved sanitation, sufficient living area, durable housing, secure tenure, or combinations thereof". A significant hindrance to making slum dwellers count remains an apparent lack of a global definition of what characterizes a and ensuring that this definition is mainstreamed in all global data collection processes (surveys, census, etc) through labels directly attached to enumeration areas within the national sampling frames.

b

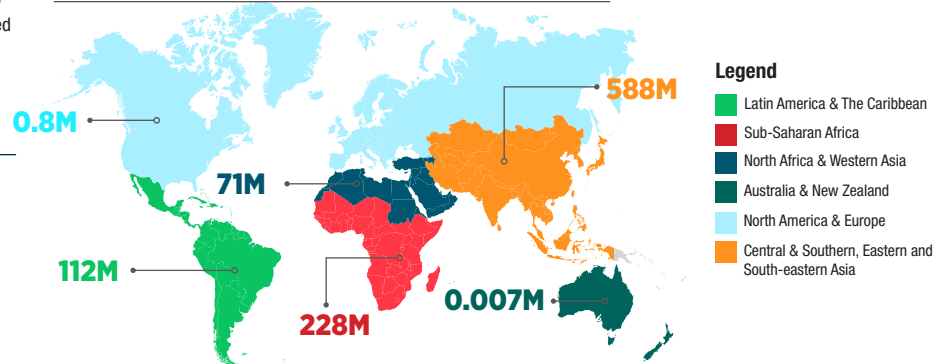
UN-Habitat continues to spearhead further refinements of slum area based definitions, and institute work with several National Statistical offices on testing the concept of detecting slums areas through three options: (1) *innovative*

*digital-based satellite imagery analysis, coupled with ground-truthing and local observation techniques, and slum space mapping; (2) census-based slum mapping at enumeration area (EA) level, leveraging existing census data and UN-Habitat's slum definition at household-level; and (3) incorporating slum area definitions into upcoming 2020 Round Census by tagging each EA with "slum", "non-slum" and "rural" area.*

c

Ultimately, this process will allow surveys and other data collection processes in low and middle-income countries to examine differences in services, access, housing, and deprivations across slum and non-slum urban areas. Examining these area-based differences will help to formally recognize that slum challenges are not the same as urban challenges, improving visibility for a currently marginalized and vulnerable slum population which is aligned with the spirit of leaving no one behind.

*Population (Per region) living in slums and informal settlements (2016 estimates)*



## 13

## Conclusion and recommendations

a

The challenges of collecting and monitoring human settlements statistics seem to constrain the ability of policymakers in government and of leaders to formulate effective national urban and human settlements development policies, and guide urbanization from the basis of evidence. The emergence of new sets of indicators dependent on spatial analysis technologies and systems may constrain the ability of many countries to report, at least in the early years of the current global frameworks. However, many countries have now updated their human settlements and urban indicators database, but the data collection of some of the new and spatially challenging indicators will take a while to be collected at the lowest layers of the cities before aggregating at the national level.



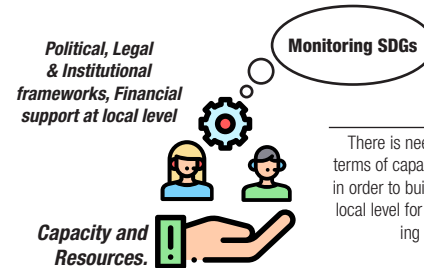
New sets of spatial indicators which need to be collected at city level may take some time to collect as well as to aggregate to national level.

b

Considering the above, scaling up capacity building and more resources are needed to build data systems that offer alignments in data collection processes, methodological development work, including addressing definitions of new urban concepts. Enhancing political, legal and institutional frameworks as well as financial support at the local levels is also needed. In total, Goal 11 has 10 targets and 15 associated indicators that need to be reported on by cities and national governments. In addition, most of the 234 SDG indicators have a direct connection to urban policies and a clear impact on cities and human settlements, since nearly one third of indicators are being measured at the local level.

c

Monitoring and reporting of SDG 11 presents major challenges that need to be addressed at global, national and local levels. Many countries acknowledge the challenges related to the implementation of SDG 11 and are requesting for technical support for effective monitoring and reporting. In the last 4 years, the custodian agencies have witnessed an increased demand from Member States and local governments for technical support related to building their capacities to collect, analyse and draw policy formulation from their local data.



There is need for support in terms of capacity and resources in order to build data systems at local level for effective monitoring of SDGs

**d**

As a result, UN Habitat and other custodian agencies have invested a significant amount of time and resources in supporting Member States to set up the required monitoring systems for Goal 11. Custodian agencies have developed new and relevant guides, materials and clarified definitions that are needed for global urban monitoring for SDG 11, in collaboration with various stakeholders.



Technical support for effective monitoring and reporting of the SDGs is required.

**e**

A few urban related SDGs indicators require a new reporting territorial level—the city—as a unique entity of analysis. Several of the Goal 11 indicators must be collected / computed at city level although the monitoring/reporting will be done at the national level. Agreeing on an operational definition of a city from a statistical and spatial perspective has been a major pre-occupation of the many expert group meetings that UN-Habitat and partners organized in the last two years. This issue has also been a major factor in decisions of IAEG-SDGs on whether to reclassify some indicators from Tier III to Tier II. Following concerted rounds of discussions with partners and custodian agencies, two global definitions of cities are now available. These definitions will support the global monitoring and reporting of the performances of cities in a more systematic way. It is however important to note that a common definition does not mean that countries will have to change how they define a city or urban area in their own countries.

**f**

UN-Habitat will continue working with local urban observatories worldwide as the local interlocutors for urban data collection and feeding evidence directly into local urban policies and plans. Observatories in high income and middle-income countries have the resources, both technical and financial to sustain the roll-out and implementation of SDGs urban monitoring. New tools for enhancing their capacities and knowledge on SDGs monitoring have been shared. Regional workshops were organized to disseminate the new tools to urban observatories, and subsequent feedback was used to address and refine the tools.

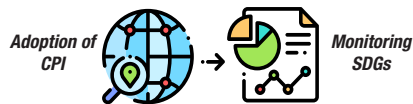
**Guides, materials and clarified definitions.**



New and relevant guides, materials and clarified definitions that are needed for global urban monitoring for SDG 11

## g

The CPI – a flexible framework for the formulation, implementation and monitoring of policies and practices on sustainable development to increase prosperity levels in cities – can be leveraged for monitoring Goal 11 indicators as it integrates indicators for urban SDGs to address in a single framework the environmental, social and economic components of city sustainability. Countries and cities that have adopted the CPI for SDGs monitoring and reporting of urban indicators are saving time and resources.



Countries and cities that have adopted the CPI for SDGs monitoring and reporting of urban indicators are saving time and resources.

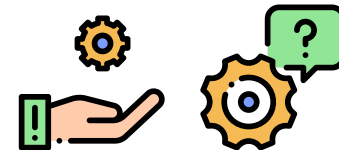
## h

Despite significant progress in developing the monitoring tools and methods for SDG 11, further work is needed especially in terms of reaching out to all countries in all regions. Localizing the urban monitoring tools sometimes raises a few refinements which UN-Habitat and partners are addressing in parallel. Results from capacity building efforts aimed at aligning data collection processes, methodological work, including definitions of concepts to SDG 11 requirements takes time. As such, additional resources are needed to allow custodian agencies to reinforce their coordination and for efficient monitoring for the next 2 years. Enhancing political, legal and institutional frameworks as well as financial support at the local levels is needed.

## i

At the city level, urban management and development process involve many actors and at different levels (political bodies, national, subnational and local), and in a few countries we continue to work directly with countries to demonstrate how this should be done for urban monitoring. Because different stakeholders are involved in the production of various supporting indicators required for monitoring progress towards the SDG 11, we recommend enhancing the role of urban observatories as focal points for urban data and reporting. Also, a formalized coordination mechanism involving all data producers, with clear mandate and specified role and responsibility at all levels is required.

**Tools and methods for data collection**



Localization of tools and methods for data collection takes time and additional resources are required.



## *j*

Many countries are facing the challenge of prohibitive policy frameworks for integration of data generated from alternative sources as required by the SDGs monitoring framework, and which, despite the sources being proven to be reliable and accurate, and the data itself offering important information that can influence positive policies towards sustainability, cannot be incorporated into official statistics. While some countries cite lack of clear verification mechanisms for specific sets of data (such as that

collected by communities), others acknowledge that sources such as those based on geospatial analysis provide accurate and up to date data which can complement conventional statistics. There is need for development of guidelines on how countries can streamline and update their data collection processes to modern approaches such as those required by the SDGs monitoring framework, which should be attained through multi-stakeholder engagement methods.



Need for development of guidelines for streamlining and updating data collection processes in countries

## 14

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