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Goal 11: Make cities and human settlements inclusive, safe, resilient and sustainable  
  
Target 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  
  
Indicator 11.2.1: Proportion of population that has convenient access to public transport, by sex, age and persons with disabilities  
  
  
  
Institutional information  
  
  
  
Organization(s):  
  
  
  
United Nations Human Settlements Programme (UN-Habitat)  
  
  
  
Concepts and definitions  
  
  
  
Definition:  
  
  
  
This indicator will be monitored by the proportion of the population that has convenient access to public transport. The access to public transport is considered convenient when an officially recognized stop is accessible within a distance of 0.5 km from a reference point such as a home, school, work place, market, etc. Additional criteria for defining public transport that is convenient include:  
  
a. Public transport accessible to all special-needs customers, including those who are physically, visually, and/or hearing-impaired, as well as those with temporary disabilities, the elderly, children and other people in vulnerable situations.  
  
b. Public transport with frequent service during peak travel times  
  
c. Stops present a safe and comfortable station environment  
  
  
  
Rationale:  
  
  
  
This indicator aims to successfully monitor the use of and access to the public transportation system and the move towards easing the reliance on the private means of transportation, improving the access to areas with a high proportion of transport disadvantaged groups such as elderly citizens, physically challenged individuals, and low income earners or areas with specific dwelling types such as high occupancy buildings or public housing and reducing the need for mobility by decreasing the number of trips and the distances travelled. The accessibility based urban mobility paradigm also critically needs good, high-capacity public transport systems that are well integrated in a multimodal arrangement with public transport access points located within comfortable walking or cycling distances from homes and jobs for all.   
  
  
  
The ability of residents including persons with disabilities and businesses to access markets, employment opportunities, and service centers such as schools and hospitals is critical to urban economic development. The transport system provides access to resources and employment opportunity. Moreover, accessibility allows planners to measure the effects of changes in transport and land use systems. The accessibility of jobs, services and markets also allow policymakers, citizens and businesses to discuss the state of the transport system in the comprehensible way. The transportation system is a critical enabler of economic activities and social inclusion. The access to transport SDG indicator addresses a significant gap that was never addressed by the MDGs, i.e. directly addressing transport as a critical enabler of economic activities and social inclusion. Already, the “externalities” associated with transport in terms of Green House Gas Emissions, traffic congestion and road traffic accidents have been increasing. Emissions from transport are now responsible for 23% of global Green House Gas Emissions and are increasing faster than any other source; outdoor air pollution alone, a major source of which is transport, is responsible for 3.7 million deaths annually, road traffic accidents kill more than 1.2 million people every year and severe traffic congestion is choking cities and impacting on GDPs. Achieving SDG 11 requires a fundamental shift in the thinking on transport- with the focus on the goal of transport rather than on its means. With accessibility to services, goods and opportunities for all as the ultimate goal, priority is given to making cities more compact and walkable through better planning and the integration of land-use planning with transport planning. The means of transport are also important but the SDG’s imperative to make the city more inclusive means that cities will have to move away from car-based travel to public transport and active modes of transport such as walking and cycling with good inter-modal connectivity.   
  
  
  
The rising traffic congestion levels and the resulting negative air quality in many metropolitan areas have elevated the need for a successful public transportation system to ease the reliance on the private means of transportation. Cities that choose to invest in effective public transportation options stand out to gain in the long-run. Cities that have convenient access to public transport, including access by persons with disabilities are more preferred as these are more likely to offer lower transportation costs while improving on the environment, congestion and travel times within the city. At the same time, improving the access to areas with a high proportion of transport disadvantaged groups such as elderly citizens, physically challenged individuals, and low income earners or areas with specific dwelling types such as high occupancy buildings or public housing also helps increase the efficiency and the sustainability of the public transport system. Public transport is a very important equalizer of income, consumption and spatial inequalities. This indicator is empirically proven that public transport make cities more inclusive, safe and sustainable. Effective and low-cost transportation is critical for reducing urban poverty and inequalities and enhancing economic development because it provides access to jobs, health care, education services and other public goods.   
  
  
  
Clean public transport is a very efficient mean for the reduction of CO2 emissions and therefore it contributes to climate change and lower levels of energy consumption. Most importantly public transport need to be easily accessible to the elderly and disabled citizens.  
  
  
  
Concepts:  
  
  
  
This indicator will be monitored by the proportion of the population that has convenient access to public transport. Because most public transport users walk from their trip origins to public transport stops and from public transport stops to their trip destination, local spatial availability and accessibility is sometimes evaluated in terms of pedestrian (walk) access, as opposed to park and ride or transfers.  
  
  
  
Hence, the access to public transport is considered convenient when an officially recognized stop is accessible within a distance of 0.5 km from a reference point such as a home, school, work place, market, etc. Additional criteria for defining public transport that is convenient include:  
  
a. Public transport accessible to all special-needs customers, including those who are physically, visually, and/or hearing-impaired, as well as those with temporary disabilities, the elderly, children and other people in vulnerable situations.  
  
b. Public transport with frequent service during peak travel times  
  
c. Stops present a safe and comfortable station environment  
  
  
  
Public transport is defined as a shared passenger transport service that is available to the general public. It includes cars, buses, trolleys, trams, trains, subways, and ferries that are shared by strangers without prior arrangement. However, it excludes taxis, car pools, and hired buses, which are not shared by strangers without prior arrangement. It also excludes informal, unregulated modes of transport (para-transit), motorcycle taxis, three-wheelers, etc.  
  
  
  
Public transport refers to a public service that is considered as a public good that has well designed ‘stops’ for passengers to embark and disembark in a safe manner and demarcated ‘routes’ that are both officially and/or formally recognized.  
  
  
  
Additional methodological comments:  
  
  
  
The method to estimate the proportion of the population that has convenient access to public transport is based on four steps:   
  
a) Spatial analysis to delimit the built-up area of the urban agglomeration:   
  
  
  
Delimit the built-up area of the urban agglomeration and calculate the total area (square kilometres). Area of delimitation should be aligned with census enumeration areas to match with demographic data.  
  
  
  
b) Inventory of the public transport stops in the city or the service area:   
  
  
  
Information can be obtained from city administration or service providers. In some cases where this information is lacking, incomplete or outdated, open sources and community-based maps, which are increasingly recognized as a valid source of information, can be a viable alternative.  
  
  
  
When information is available, characteristics of the quality, universal accessibility for people with disabilities, safety, and frequency of the service can be ‘assigned‘ to the public transport stops’ inventory for detailed analysis and further disaggregation according to the statistical capacities of countries and cities.   
  
  
  
c) Estimation of urban area with access to public transport:  
  
  
  
To calculate the indicator it is necessary to use a map with the inventory of officially-recognized public transport stops and create a buffer area of 500m radius for each stop. Merge and clip with boundary of the boundary built-up area of the urban agglomeration.  
  
  
  
d) Estimation of the proportion of the population with convenient access out of the total population of the city:  
  
  
  
Overlay GIS demographic data on the number of dwellings within the area with access to public transport stop. Calculate the population within those dwellings. Estimate the proportion of population out of the total population of the city.  
  
  
  
Complementary to the above, other parameters of tracking the transport target include the following:  
  
  
  
a) Accessibility related to urban planning: this parameter can be measured using density (people/sq.km) from census surveys, Percentage of street space in cities and Number of Intersections / Sq.Km from analysis of earth observations and/or city maps. Density is an important determinant for the efficiency of public transport systems. The adequacy of streets and crossings determine urban accessibility to a great extent.   
  
  
  
b) Accessibility related to transport planning: this parameter can be measured using Percentage of population within 500m of mass transit stop from City maps and sample survey data.  
  
  
  
c) Affordability: this can be obtained from Percentage of household income of lowest quintile of population spent on transport from Sample surveys and WTP surveys. Poorest quintile should not spend more than 5% (TBD) on transport.  
  
  
  
d) Quality: this parameter can be measured using travel time, universal access, safety, security, comfort and user information from sample surveys.  
  
  
  
e) Modal shift to sustainable transport: this is also expressed in Modal share (cars, NMT, PT), Passenger KM travelled on EV as percentage of total passenger KM travelled in urban areas from City mobility surveys. This parameter is also important due to transport’s contribution to carbon emissions and air quality issues in cities.  
  
  
  
Comments and limitations:  
  
  
  
As the Outcome Document 2nd Meeting of the Urban SDGs Campaign in Bangalore (12-14 February 2015) recognizes that no internationally agreed methodology exists for measuring convenience and service quality of public transport. Harmonized global/local data on urban transport systems do not exist, nor are they comparable at the world level.  
  
  
  
It is recognized that convenience measured as distance does not categorize the quality of the public transport which will vary from country to country. Nevertheless, the proposed indicator is a comparable and objective measurement that can be assessed in cities across regions.  
  
  
  
Other factors of this indicator such as affordability, safety, and universal accessibility may influence the usage of public means of mobility beyond proximity to the transport stop. Yet, the provision of widely accessible public transport is a precondition for its usage.  
  
  
  
Finally, high capacity public transport, such as trains allows for a larger capture area, beyond the 0.5km of the proposed indicator.  
  
  
  
It is also recognized that there are various forms of public transport in the member countries that are not fully defined or captured in this methodology. In particular, many developing countries have access to public transport that is available anywhere on the streets and not necessarily at designated public transport stops. The creation of designated stops is a precondition of measurement in these countries.  
  
  
  
Methodology  
  
  
  
Computation Method:  
  
  
  
Method of Computation  
  
  
  
This indicator is computed based on the following criteria:  
  
  
  
The identification of service areas is typically achieved using the buffering operation (using GIS) by constructing lines of equal proximity around each public transport stop or each public transport route. The buffering operation clearly involves at least two decisions. The first decision is whether routes or stops should be used as the reference of measurement. The two approaches may lead to very different values of spatial availability. But generally, public transport stops offer a more appropriate basis than routes for estimating service area coverage because stops are the actual locations where public transport users access the system. The other decision involved in the buffering operation is the buffer size. A common practice in public transport planning is to assume that people are served by public transport if they are within 0.5km (or 500m) of either a public transport route or stop. Once a distance threshold is defined, buffers are created around the public transport features. Some studies measure the distance based on air, or Euclidean, distance, while others use network distance (that is, the walk distance computed using the street network to reach a public transport feature. Since the network distance between two locations in space is greater than, or equal to, the corresponding air distance, the size of a coverage area defined by the network distance will be smaller than, or equal to, that defined by air distance. Network distance measures are likely to be more realistic because they reflect the configuration of the street network and recognize the presence of any man-made barriers preventing direct access to public transport features. In addition to using the above mentioned distance measures, others have suggested the use of travel time to public transport features as a measure of proximity. Using travel time is preferable to distance as a measure of proximity because travel time measures account for such pedestrian-unfriendly factors such as steep terrains. However, because of the additional data requirements and the amount of processing effort involved, travel time measures are rarely used in practice. For this indicator the public transport stop will be used as the point of service.  
  
  
  
The identification of the population served  
  
  
  
Once a service buffer is constructed, the next step is to overlay the buffer onto other polygons, such as census tracts, for which socio-demographic data (such as population figures, disabled persons, type of residence area, etc. is available. These polygons are referred to as the analysis zones. Typically, a service buffer (denoted as i) intersects, either fully or partially, with more than one analysis zone j ( j=1…..J). The population served by the public transport service in buffer i, Pi, is thus equal to the sum of the population in each of the intersecting areas, Pij . Hence  
  
  
  
Pi=?\_(j=1)^J¦Pij  
  
  
  
Where, Pij is estimated based on the amount of interaction between service buffer i and analysis zone j.  
  
  
  
In estimating Pij it is assumed that the population is uniformly distributed within the analysis zones.  
  
  
  
Integrating local temporal availability.  
  
  
  
The methodology described above covers public transport service solely based on spatial access to stops or routes and does not address the temporal dimension associated with the availability of public transport. We note that temporal aspect of public transport availability is important because a service within walking distance is not necessarily considered as available if waiting times go beyond a certain threshold level that is required. This wait time for public transport is related to the frequency of the service as well as the threshold for tolerable waits for potential public transport users. We will leave out completely the temporal measurement for global comparison, but countries that can additionally capture this component are encouraged to collect and report this information as part of the disaggregation.  
  
  
  
Finally, the population with access to public transport out of the entire city population will be computed as;  
  
  
  
 Percentage with access to Public transport =100x (population with convenient access to Public transport)/(City Population)  
  
  
  
Disaggregation:  
  
  
  
Information can be disaggregated as shown below, including potential disadvantages such as disability, but it requires strong efforts and changes in mainstream mechanisms of data collection:   
  
Disaggregation by location (intra-urban).   
  
Disaggregation by income group.   
  
Disaggregation by sex (female-headed household).   
  
Disaggregation by race (head of household).   
  
Disaggregation by ethnicity (head of household).   
  
Disaggregation by migratory status (head of household).   
  
Disaggregation by age (households inhabitant).   
  
Disaggregation by mode of public transport.  
  
  
  
Quantifiable Derivatives:   
  
- Proportion of urban area that has convenient access to public transport.   
  
- Proportion of population/urban area that has convenient access to public transport stop with universal accessibility for people with disabilities.   
  
- Proportion of population/urban area that has frequent access to public transport during peak hours.   
  
- Proportion of population/urban area that has frequent access to public transport during off-peak hours.   
  
- Proportion of urban central/suburban area that has convenient access to public transport.  
  
  
  
Treatment of missing values:  
  
  
  
At country level  
  
  
  
Missing data is anticipated in the first few years of collection of data for this indicator, and this will be largely as a result of the slow adoption of the proposed methodology by the national governments and statistical systems. The spatial nature of the indicator and the variations in the definitions of what is public transport by countries will all affect the availability of data. Hence missing data for selected countries will be scored incrementally based initially on whether an existing public transport system is in place or not.  
  
  
  
At regional and global levels  
  
  
  
If public transport is in place, then a modelled level of availability will be used to estimate a score instead of reporting zero for missing data. This methodology will be further developed and refined at the first technical working group/EGM for this indicator.  
  
  
  
Sources of discrepancies:  
  
  
  
For this indicator, national data complemented with internationally available spatial data sources will be used to derive final estimates for reporting at national and global figures. As national agencies are responsible for data collection, no differences between country produced data and international estimated data on the indicator are expected to arise. Where such discrepancies exist, these will be resolved through planned technical meetings and capacity development workshops.  
  
  
  
Data Sources  
  
  
  
Description:  
  
  
  
The actual and recommended data sources for this indicator are the following:  
  
- Data on location of public transport stops in city: city administration or service providers, GIS data  
  
- Dwelling units within 500m of public transport stops: Census, GIS data  
  
- Number of residents per dwellings unit: Census/household survey  
  
- Household surveys that collect information on the proportion of households that declare they have access to public means of transport within 0.5 km. These surveys can also collect information about the quality of the service.  
  
  
  
Due to its spatial nature, the use of the urban agglomeration is a precondition for the measurement and comparability of this indicator.  
  
  
  
Collection process:  
  
  
  
At the Global level, all this data will be assembled and compiled for international consumption and comparison by the UN-Habitat and other partners. UN-Habitat and partners will explore several capacity building options to ensure that uniform standards for generation, reporting and analysing data for this indicator are applied by all countries and regions.  
  
  
  
Data Availability  
  
  
  
This indicator is categorized under Tier II, meaning the indicator is conceptually clear and an established methodology exists but data is not easily available.   
  
  
  
No internationally agreed methodology exists for measuring convenience and service quality of public transport. In addition, global/local on urban transport systems do not exist. Moreover, data is not harmonized and comparable at the global level. Obtaining this data will require collecting it at municipal/city level with serious deficiencies in some areas such as data on mass transit and on transport infrastructure. In addition, an open-source software platform for measuring accessibility, the Open Trip Planner Analyst (OTPA) accessibility tool, will be available to government officials and all urban transport practitioners. This tool was developed by the World Bank in conjunction with Conveyal (http://conveyal.com), this tool leverages the power of the OTPA engine and open standardized data to model block-level accessibility. The added value of the tool (free and user friendly) is its ability to easily calculate the accessibility of various opportunities and transportation scenarios. An Expert group meeting is planned later in 2016 that will harmonize the tools and existing data to ensure a more uniform and standard format for reporting on this indicator.  
  
  
  
Calendar  
  
  
  
Data collection:  
  
  
  
The monitoring of the indicator can be repeated at an annual interval, allowing several reporting points until the year 2030. Monitoring at annual intervals will allow to determining whether the proportion of the population with convenient public transport is increasing significantly over time, as well as monitor what is the share of the global urban population living in cities where the convenient access to public transport is below the acceptable minimum. The proposed indicator has the potential to measure improvement within short term intervals. Moreover, the disaggregated monitoring for this indicator will provide increasing attention on the access to transport especially among the vulnerable populations such as women, children, persons with disabilities and older persons.   
  
  
  
Data release:  
  
  
  
Two year to five year windows will be applied, based on availability of new data.   
  
  
  
  
  
Data providers  
  
  
  
National Focal points as designated by respective Governments underpins the governance framework for monitoring the Transport Target. Such focal points could be the ministries themselves, NSOs, academic or research institutions, Civil Society Organisations, operators or a combination of these working under an agreement facilitated by the National Government. A secretariat or resource centre, comprising UN-Habitat and its partner organizations will work with the National Focal Points, providing capacity building and quality assurance support. The resource centre will also ensure the exchange of knowledge and experience between participating countries. Specific agreements will be drawn up with respective countries and cities for collaboration in the monitoring. The monitoring framework will be disseminated in UITP and other transport events. A dedicated team combining UN-Habitat and the International Association of Public Transport (UITP) staff will be set up and these will lead the annual monitoring and reporting. Comprehensive reporting will be undertaken on a biennial basis. Reports will be published in the public domain with data available in the UN-Habitat global databases.  
  
  
  
Data compilers  
  
  
  
UN-Habitat  
  
  
  
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Goal 11: Make cities and human settlements inclusive, safe, resilient and sustainable  
  
Target 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  
  
Indicator 11.6.1: Proportion of municipal solid waste collected and managed in controlled facilities out of total municipal waste generated, by cities  
  
  
  
Institutional information  
  
  
  
Organization(s):  
  
United Nations Human Settlements Programme (UN-Habitat)  
  
  
  
Concepts and definitions  
  
  
  
Definition:  
  
Proportion of municipal solid waste regularly collected and with adequate treatment and disposal out of total municipal solid waste generated.  
  
   
  
The goal of this indicator aims to generate the proportion of municipal solid waste regularly collected and that is adequately treated and disposed out of all the total municipal waste generated by the city.   
  
  
  
Rationale:  
  
Urban households and businesses produce substantial amounts of solid waste that must be collected regularly, recycled or treated and disposed properly in order to maintain healthy and sanitary living conditions. Many cities are increasingly facing solid waste management challenges due to rapid urbanization, lack of technical and financial capacity or low policy priority. As urbanization and population growth will continue, it is expected that municipal solid waste generation will double by 2025. In addition, the higher the income level of a city, the greater the amount of the solid waste produced. Therefore, the economic growth to be experienced in the developing and emerging countries will pose greater challenges in solid waste management to local governments in the next decades.  
  
  
  
Adverse environmental impact of uncollected waste in a city is significant. Uncollected solid waste can end up in drains leading to blocked drainages and cause unsanitary conditions that have a direct health impact on residents. Open burning of uncollected waste produces pollutants that are highly damaging locally and globally. Vectors such as mosquitos usually breed in blocked drainages and blocked drainage contributes to the cause of flooding. In 2015, the Global Waste Management Outlook estimated that at least 2 billion people do not have access to regular waste collection. This is particularly worse in informal settlements and the UN-Habitat’s report Solid Waste Management in World Cities published in 2010 estimated only 5% of waste in squatter areas is regularly collected.   
  
  
  
Even when solid waste is collected, it is not uncommon that recycling and treatment facilities or landfill sites are not operated in an environmental sound manner, especially when lacking a pollution control system. Particularly in developing countries lacking technical and financial capacity, open dumping or uncontrolled landfill is the common way of disposal. Leachate generated in dumping sites pollutes surface and groundwater. Frequent fire and explosions caused by the high temperature inside the accumulated waste is a source of air pollution. Composting and recycling facilities and incineration plants lacking pollution control systems are the one of the largest pollution source. Open dumpsites are major source of greenhouse gasses (GHG) emission in urban settings, and if the situation follows the business as usual together with the rapid urbanization, dumpsites will account for 8-10% of the global anthropogenic GHG emission by 2025.  
  
  
  
Improper waste management accelerates poverty and social exclusion. In an open dumpsite, waste pickers or scavengers are regularly collecting recyclables without any protection measures. They are exposed to extreme health threats and it is estimated that 20% of these waste pickers are children missing school. The frequent explosion or landslides in open dumpsites often kill these waste pickers working on the pile of waste. It is also not unusual that gangs or cartels are involved in these informal recycling activities or open dumpsites operations.   
  
  
  
The indicator 11.6.1 is the quotient of municipal solid waste regularly collected and with adequate treatment and disposal divided by total municipal solid waste generation of a city. This can effectively address the key aspects in the waste stream from generation to disposal. Municipal solid waste management is generally the mandate of sub-national or local governments and has four stages: waste generation; waste collection and transport; recycling and treatment; and disposal. In these four stages, environmentally sound way of management and operation are essential to reduce the adverse environmental impact of cities. Also, the environmentally sound management of solid waste contributes to the formalisation of informal sector and improves waste pickers lives in many cases. For example, the improvement of solid waste disposal operation through upgrading open dumpsites to sanitary landfills creates jobs in waste separation or landfill site operation. This can empower waste pickers who currently work under extreme conditions.   
  
  
  
The indicator 11.6.1 will also promote Integrated Solid Waste Management (ISWM). An integrated solid waste management system is strongly connected to three dimensions: urban environmental health, the environment and resource management. Moreover, a regular solid waste management strategy is a clear indicator of the effectiveness of a municipal administration. Good waste governance that is inclusive, financially sustainable and based on sound institutions is one of the key challenges of the 21st century, and one of the key responsibilities of a city government.  
  
  
  
Many developing and transitional country cities still have an active informal sector and micro-enterprise recycling, reuse and repair; often achieve recycling and recovery rates comparable to those in the west, resulting in savings to the waste management budget of the cities. There is a major opportunity for the city to build on these existing recycling systems, reducing some unsustainable practices and enhancing them to protect and develop people’s livelihoods, and to reduce still further the costs to the city of managing the residual wastes. The formal and informal sectors need to work together, for the benefit of both. Promoting this indicator also can help formalization of the informal sector in the process of increasing the portion of ‘solid waste with adequate discharge’.   
  
  
  
The indicator 11.6.1 has strong linkages to other SDG indicators such as 6.3 (proportion of wastewater safely treated), 12.4.2 (Hazardous waste generated per capita and proportion of hazardous waste treated and by type of treatment) and 12.5 (National recycling rate). It is important to harness synergies and manage potential conflicts or trade-offs both within and between the indicators. This will require collaboration across institutions that are traditionally structured in silos that focus on specific sectors. New ways of collaborative working in partnerships with either informal or formal mechanisms are needed to facilitate collaboration such that policy makers, managers and experts with different responsibilities are able to harness the synergies between goals and targets. This will be a major challenge in implementation of the 2030 Agenda.   
  
  
  
Concepts:  
  
It will be necessary to define the following components to compute the proportion of municipal solid waste regularly collected with adequate treatment and disposal out of all the total municipal solid waste generated by the city.   
  
  
  
Municipal Solid Waste is waste generated by households, and waste of a similar nature generated by commercial and business establishments, industrial and agricultural premises, institutions such as schools and hospitals, public spaces such as parks and streets and construction sites. Generally, it is non-hazardous wastes composed of food waste, garden waste, paper and cardboard, wood, textiles, nappies (disposable diapers), rubber and leather, plastics, metal, glass, and refuse such as ash, dirt and dust. Sewage sludge and faecal sludge is also included in the category of municipal solid waste but it excludes wastewater. This will be the monitoring scope of the indicator.   
  
  
  
Regularly Collected Municipal Solid Waste refers to municipal solid waste that is routinely collected from specific addresses or designated collection points. Waste collection is conducted directly by municipal authorities or private contractors licensed/commissioned by municipal authorities with a regular schedule of the day of the week and time of collection. In some cases, private waste collection companies have contracts with clients individually and provide collection services.   
  
  
  
Uncollected Municipal Solid Waste refers to waste generated in a city but uncollected due to the lack of collection services. In many cities informal settlements areas do not have access to this basic service. The amount of uncollected waste can be estimated by waste generation per capita in the city multiplied by the population who does not have access to the solid waste collection service.   
  
  
  
Total Municipal Solid Waste Generated by the City is sum of municipal solid waste, or the sum of regularly collected municipal solid waste and uncollected municipal solid waste.   
  
  
  
Municipal Solid Waste with Adequate Final Treatment and Disposal refers to the total municipal solid waste destined for treatment or disposal facilities that at least reached an intermediate level of control. The level of adequacy for a particular facility can be assessed using the qualitative criteria including 1) degree of control over waste reception and general site management; 2) degree of control over waste treatment and disposal and 3) degree of monitoring and verification of environmental control. A score of at least 10 on each criterion is the threshold required to be considered as ‘adequate final treatment and disposal’.  
  
  
  
Comments and limitations:  
  
Collection of data for the indicator is not infeasible but it will require training and capacity development. The data on total municipal solid waste generation is globally available although the precision of data is disputable. In general, developed countries have solid waste data collection systems but most of the middle and low income countries do not have data. In these countries and cities, household survey and other complimentary surveys can be conducted for the estimation of municipal waste generation per capita. However, one of the key challenges of data precision in the middle to low income countries is the lack of accurate population data in their jurisdiction, particularly regarding slums, where usually no waste collection service is taking place. Also the collection of the data, such as the amount of waste adequately treated and disposed, will be a challenge for many of national and local governments. The judgement on the adequacy of treatment and disposal of all the waste management facilities, including composting, recycling, incineration facilities in a city, requires high level of technical capacity and large investment in human resources.   
  
  
  
Considering the various situations on waste data availability in different countries, it would be better to have different methods to collect data from countries. For OECD or developed countries that already have data, distributing and collecting questionnaire to national officials from responsible ministries such as ministry of environment or urban development would be sufficient to collect legitimate data. For middle to low income countries without legitimate data, baseline survey by waste management professionals together with monitoring capacity development will be necessary.   
  
  
  
Methodology  
  
  
  
Computation Method:  
  
The numerator of this indicator is ‘municipal solid waste regularly collected with adequate final treatment and disposal’ and the denominator is ‘total municipal solid waste generated by the city’.   
  
  
  
  
  
  
  
Multiplication of the municipal solid waste generation per capita and population of the city can estimate total municipal solid waste generated by the city. When the municipal solid waste generation per capita is not available, household survey for a daily waste generation in household and other premises (e.g. restaurants, hotels, hospitals, schools, etc.) should be conducted. Since the waste generation can differ according to the seasons, the survey should be conducted at least two times a year to estimate the municipal solid waste generation per capita.  
  
  
  
Municipal solid waste regularly collected with adequate final treatment and disposal is estimated through qualitative judgement of the degree of environmental control of facilities where the city’s municipal waste is collected and transported. The judgement of environmental control can be conducted in line with the criteria below. Another important thing is to deduct residue amount from treatment facilities to avoid double count.  
  
(1) Degree of control over waste reception and handling at each site. This criterion should be applied to all treatment and disposal sites, whatever the specific process being used.  
  
Factors affecting the assessment include:  
  
Vehicular access to the site (high level of control: hard surfaced access roads of adequate width and load-bearing capacity, kept clean and free of mud)  
  
 Traffic management (high level of control: any queues for site access kept short in time and contained within the site; little impact of traffic on neighbours).  
  
Site security (high level of control: site fenced; no unauthorised site access; gates locked when site closed).  
  
Waste reception and record keeping (high level of control: reception office; staffed during all opening hours; all vehicles logged and loads checked; weighbridge installed and all weights logged). Note that the procedures for monitoring the records thus collected are assessed under (3).   
  
Waste unloading (high level of control: waste directed to a designated area; unloading supervised by site staff).  
  
Control over nuisance (high level of control: successful control of windblown litter, flies, vermin, birds and of ‘mud’ leaving the site on vehicle tyres)   
  
Control of fires (high level of control: no routine burning of wastes; no ‘wild’ fires; active fire prevention and emergency response systems in place in case of accidental fire)  
  
  
  
a. No control   
  
b. Low level of control  
  
c. Medium level of control  
  
d. Medium/High level of control  
  
e. High level of control  
  
0 is scored  
  
5  
  
10  
  
15  
  
20  
  
(2) Degree of control over both the waste treatment and disposal process in use at each site and over any potential emissions.  
  
This criterion covers both the presence of the necessary technologies, and the operating procedures for their proper use.  
  
The nature of controls required will depend on both the process employed and on the potential emissions. As an example, the table below provides guidance on how the general principles can be applied to land disposal and thermal treatment (using the specific example of mass-burn incineration).  
  
For biological treatment, the detail will vary with the type of process (e.g. windrow composting, in-vessel composting, anaerobic digestion). However, in all cases a ‘high level’ of control would imply a high degree of control over: the incoming waste (to avoid hazardous waste or contrary materials); processing temperature to ensure pathogen destruction; retention time in the process; mixing in the process (including turning of windrows); atmospheric emissions including odours and bio aerosols; and leachate collection and treatment.  
  
Similar principles can be applied to other facilities, including mechanical-biological treatment (MBT) plants, advanced thermal treatment and new technologies for valorisation of organic waste in developing countries. In each case, the user may use the following scoring tables as a ‘best judgment’ guideline for scoring.  
  
Where a fuel is being made from waste to be burnt elsewhere, then the assessment should include the process and emission controls at the user facilities.  
  
(3) Degree of monitoring and verification of environmental controls (Includes the existence and regular implementation of: robust environmental permitting/ licensing procedures; regular record keeping, monitoring and verification carried out by the facility itself; AND monitoring, inspection and verification by an independent regulatory body)  
  
The environmental monitoring programme and process control record keeping required will be specific to the type of facility.  
  
All sites must comply with the federal/national/local environmental legislation, have conducted an Environmental Impact Assessment (EIA) where necessary, have obtained the most recent permit/license and kept it up-to-date.  
  
Permitting processes should be supportive of initiatives that improve environmental performance of the system. A lower score should be assigned if permitting processes for improved facilities have been unduly long and complex, while existing facilities continued to operate with much lower levels of (or no) environmental control.  
  
For all sites it should include incoming waste volumes, weights and categories; at least occasional monitoring of waste composition and relevant properties; control of ‘nuisance’ (including windblown litter, flies, vermin, birds and ‘mud’ leaving the site on vehicle tyres); and control of odour, site fires, and emission of potential greenhouse gases (particularly methane and nitrous oxides, as well as carbon dioxide).  
  
For all land disposal: ground and surface water.  
  
For engineered and sanitary landfills: leachate and landfill gas management.  
  
For thermal treatment: moisture content and calorific value of incoming wastes; temperature, residence time, emissions to air (including those of nitrogen oxides (NO), sulphur dioxide (SO2), hydrogen chloride (HCl), heavy metals and dioxins), effluent treatment and disposal, and the quantities and management methods of both fly ash and bottom ash.  
  
For biological treatment: input waste controls (to protect both the process and the product quality); process control (temperature, residence time, mixing); product quality control; emissions controls; and greenhouse gas controls (particularly methane and nitrous oxides).  
  
  
  
No compliance  
  
Low compliance  
  
Medium Compliance  
  
Medium/High compliance  
  
High compliance  
  
0 is scored  
  
5  
  
10  
  
15  
  
20  
  
  
  
  
  
  
  
Level of Control  
  
Score  
  
Land disposal  
  
Thermal treatment  
  
a.  
  
None  
  
0  
  
Uncontrolled dumping–no controls  
  
Uncontrolled burning lacking most ‘control’ functions  
  
b.  
  
Low (Semi-controlled facility)  
  
5  
  
Site staffed; waste placed in designated area; some site equipment  
  
Site staffed; some containment and management of combustion process; basic operating procedures to control nuisance  
  
c.  
  
Medium (Controlled facility)  
  
10  
  
Waste compacted using site equipment; waste covered (at least irregularly)  
  
Emission controls to capture particulates; trained staff follow set operating procedures; equipment properly maintained; ash properly managed  
  
d.  
  
Medium/high (Engineered facility)  
  
15  
  
Engineered landfill site: use daily cover material; some level of leachate containment and treatment; collection of landfill gas  
  
High levels of engineering and process control over residence time, turbulence and temperature; emission controls to capture acid gases and capture dioxins; active management of fly ash.  
  
e.  
  
High (State-of-the-art facility)  
  
20  
  
Fully functional sanitary landfill site: properly sited and designed; leachate containment (naturally consolidated clay on the site or constructed liner); leachate & gas collection; gas flaring and/or utilization; final cover; post closure plan  
  
Built to and operating in compliance with international best practice including e.g. EU or other similarly stringent stack and GHG emission criteria Fly ash managed as a hazardous waste using best appropriate technology.  
  
  
  
All the treatment and disposal facilities that receive municipal solid waste of the city are checked against the criteria above and scored. Facilities that are scored above 10 for all the criteria are accounted as facilities that can deliver ‘adequate treatment and disposal’. Therefore, the amount of municipal solid waste received by the facilities that has capacity of delivering ‘adequate treatment and disposal’ is accounted as the amount of Municipal solid waste regularly collected with adequate final treatment and disposal.  
  
  
  
Disaggregation:  
  
Data for this indicator can be disaggregated at the city and town levels.   
  
Disaggregation by location (intra-urban)   
  
Disaggregation by source of waste generation e.g. residential, industrial, office, etc.   
  
Disaggregation by type of final treatment and disposal   
  
  
  
Treatment of missing values:  
  
At country level  
  
Missing values may arise at the reporting of the city level estimates. At the national level, estimates will be derived from the nationally representative sample of cities, in which case then there will be very few missing entries.  
  
  
  
At regional and global levels  
  
NA  
  
  
  
Regional aggregates:  
  
Population survey sheet are used for the data collection  
  
Population served by solid waste collection sheet is also used  
  
Population unserved by solid waste collection sheet  
  
Total population in the jurisdiction is also collected.  
  
  
  
Sources of discrepancies:  
  
Data on formal solid waste collection and management may be available from municipal bodies and/or private contractors. Informal collection data may be available from NGOs and community organizations. It is important that all data sources are used for reporting, otherwise discrepancies are likely to introduce inconsistencies in reported figures.  
  
  
  
Data Sources  
  
  
  
Municipal Solid Waste Generation Per Capita   
  
For countries and cities that have the data already, data can be collected through questionnaire. For countries and cities that do not have the data, a household survey to identify daily waste generation should be done, at least two times a year in different seasons. In the household survey, liner bags will be distributed to each household to be surveyed and ask head of household to put 7 days of waste generated. Then the liner bags are collected and its weight is measured. Household to be surveyed should be picked up according to the income levels. Municipal waste from other sources such as market, restaurants, hotels, schools and so on also should be measured.  
  
  
  
Population in the City  
  
Population census  
  
  
  
Municipal Solid Waste Regularly Collected with Adequate Final Treatment and Disposal  
  
Survey on the qualitative judgement of waste treatment and facility as well as daily amount of waste received by the facilities is required. The sheet below can be utilised.  
  
  
  
Survey Sheet Example for Recycling and Treatment Facilities  
  
Treatment facility name  
  
Degree of control score  
  
Process employed  
  
Type of waste  
  
Amount of solid waste received  
  
Amount of sewage sludge   
  
Amount of residue  
  
Where residue is exported  
  
  
  
(1)  
  
  
  
  
  
  
  
 (t)  
  
  
  
(t)  
  
  
  
(t)  
  
  
  
  
  
(2)  
  
  
  
  
  
  
  
  
  
  
  
  
  
  
  
(3)  
  
  
  
  
  
  
  
  
  
  
  
  
  
  
  
(1)  
  
  
  
  
  
  
  
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(2)  
  
  
  
  
  
  
  
  
  
  
  
  
  
  
  
(3)  
  
  
  
  
  
  
  
  
  
  
  
  
  
  
  
Survey Sheet Example for Disposal Facilities  
  
Landfill sites name  
  
Landfill type  
  
Operation start year  
  
Degree of control score  
  
Amount of MSW received  
  
Amount of sewage sludge received  
  
  
  
  
  
  
  
(1)  
  
  
  
 (t)  
  
  
  
(t)  
  
  
  
  
  
  
  
(2)  
  
  
  
  
  
  
  
  
  
  
  
(3)  
  
  
  
  
  
  
  
  
  
  
  
(1)  
  
  
  
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(t)  
  
  
  
  
  
  
  
(2)  
  
  
  
  
  
  
  
  
  
  
  
(3)  
  
  
  
  
  
  
  
  
  
Data Availability  
  
  
  
The existing global waste data collection system includes the UNSD/UN Environment Questionnaire on Environment Statistics (waste statistics), the OECD/Eurostat Questionnaire on Waste Statistics and UN-Habitat’s CPI. The existing data collection system provides many necessary statistics for calculation of this indicator; nevertheless, further work remains to be done to provide all of the basic statistics necessary for the indicators. The UNSD/UNEP Questionnaire on Environment Statistics covers the non-OECD/Eurostat countries while the OECD/Eurostat Questionnaire covers the remaining countries. They both include statistics on waste generated at the national level, municipal waste collected and treated at the national level, the composition of municipal waste, and the generation and treatment of hazardous waste. In addition, the UNSD/UNEP Questionnaire on Environment Statistics include municipal waste collected and treated at the city level. Some waste data are being collected at the city level by UN-Habitat and UNEP and published in reports such as the Status of Solid Waste Management in the World Cities (2010) by UN-Habitat and Global Waste Management Outlook (2015) by UNEP. These reports include solid waste data such as total waste generation, collection coverage and % of waste by treatment and disposal types, which have been collected in 39 cities.  
  
  
  
Time series:  
  
The indicator can be updated annually or biennially depending on the data source stated above.  
  
  
  
Calendar  
  
  
  
Data collection and releases:  
  
The data can be released annually and the monitoring of the indicator can be repeated at annual intervals, allowing for several (15) reporting points until the year 2030. The Initial data is planned for release at the city level in April 2018. Thereafter annual releases of data will be undertaken every April.   
  
  
  
Data compilers  
  
  
  
Name:  
  
UN-Habitat, National statistical agencies and city management teams  
  
  
  
Description:  
  
National statistical agencies and city management teams will lead the compilation and reporting at a national level. Global and regional reporting will be done by UN-Habitat. The collection of the data is possible through the collaboration of international institutions (UN-Habitat, UNEP, The World Bank, AfDB, IDB, EBRD and ADB) and bilateral donors (JICA, GDZ, etc.) by conducting survey and capacity development on data collection system.  
  
  
  
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Related indicators as of February 2020  
  
  
  
6.3.1: Proportion of wastewater safely treated   
  
12.3: Global food loss index  
  
12.4.2: Hazardous waste generated per capita and proportion of hazardous waste treated and by type of treatment   
  
12.5.1: National recycling rate

Last updated: November 2018  
  
  
  
Goal 11: Make cities and human settlements inclusive, safe, resilient and sustainable  
  
Target 11.3: By 2030, enhance inclusive and sustainable urbanization and capacity for participatory, integrated and sustainable human settlement planning and management in all countries  
  
Indicator 11.3.2: Proportion of cities with a direct participation structure of civil society in urban planning and management that operates regularly and democratically  
  
  
  
Institutional information  
  
  
  
Organization(s):  
  
UN-Habitat  
  
  
  
Concepts and definitions  
  
  
  
Definition:  
  
Civil society organizations (CSOs) make a difference in international development. They provide development services and humanitarian relief, innovate in service delivery, build local capacity and advocate with and for the poor. Acting alone, however, their impact is limited in scope, scale and sustainability. CSOs need to engage in government policy processes more effectively. The development of sustainable human settlements calls for the active engagement of all key stakeholders with particular attention to project/programme beneficiaries and vulnerable groups. Therefore local and national governments should strive to: a) facilitate and protect people’s participation and civic engagement through independent civil society organizations that can be from diverse backgrounds - local, national, and international; b) promote civic and human rights education and training programmes to make urban residents aware of their rights and the changing roles of diverse women, men, and young women and men in urban settings; c) remove the barriers that block participation of socially marginalized groups and promote non-discrimination and the full and equal participation of women, young men and women and marginalized groups. To monitor this indicator fully, it is important to define cities as unique entities and define what constitutes direct participation structures of civil society. Urban planning and management are more clear concepts that UN-Habitat has worked on developing for the last few decades and these are well articulated in the urban agenda documents. Experts who have worked on the methodological developments of this indicator have there put forth the below definitions to help guide the work on this indicator.  
  
  
  
Rationale:  
  
This indicator measures the progress and willingness of elected officials, urban managers and planners to integrate resident and civil society participation in urban planning and management at various levels. Local authorities and governments, along with the international community, are increasingly recognizing the value of civil society and residents’ participation in strengthening the urban development processes. This people-centered approach is key in guiding urban development processes for local ownership, and the implementation of community projects at citywide or local levels.  
  
  
  
Civil society and public participation fosters a positive relationship between government and the public by communicating effectively and solving the conflicts in a cooperative manner. In many cases when urban planning decisions are made without consultation, the desired results are not achieved and there is a negative impact on society, due to inefficient allocation and use of resources. Ensuring that wide varieties of opinions are considered assists the decision makers with understanding the interlinkages and nature of problems and potential solutions facing different urban settings.   
  
  
  
Urban development is a reflection of ideology and national institutions. Public participation means a broader consensus is built and this greatly enhances political interaction between citizens and government, and enhances the legitimacy of the planning process and the plan itself. A plan is more effective if a broad coalition supports the proposal and works together to deliver it.   
  
  
  
Civil society and public participation in urban management and governance also shows respect to participants’ opinion, needs, aspirations and assets. It can boost their enthusiasm for citizenship and politics, and strengthens their influence in urban planning and public life. When conflicting claims and views are considered, there is a much higher possibility that public trust and buy-in increases in the outcome. This has broader implications for building an active, inclusive and equitable society and more inclusive and sustainable urban environments.  
  
  
  
Concepts:  
  
Many urban related SDGs require global monitoring with the ‘city’ as the unit of analysis. In order to monitor the urban SDGs in particular, it is necessary to agree on a global/common definition of what constitutes a ‘city’. A standard city definition will assist in the monitoring of the SDGs by ensuring that the study areas for the spatial urban SDGs are standardized and easily reproducible, and will add clarity to the methodologies and approaches to the collection of data to support the land and rural related indicators. UN-Habitat in collaboration with New York University and European Commission’s Joint Research Centre has adopted two definitions of cities.   
  
  
  
City as defined by its Urban extent (built-up and urbanized open space) - New York University  
  
Urban extent is defined as the total area occupied by the built-up area and the urbanized open space. The built-up area is defined as the contiguous area occupied by buildings and other impervious surfaces, but excluding urbanized open space, both public and private, as well as vacant lands.  
  
  
  
Landsat imagery is used to identify and classify the built-up pixels into 3 types depending on the share of built-up density (urbanness) in a 1-km2 circle of a given building:  
  
Urban built-up area: built-up pixels where the walking distance circle has a built-up density greater than 50%.   
  
Suburban built-up area: built-up pixels where the walking distance circle has a built-up density between 25%-50%. It also includes subdivided land, whether it is wholly unbuilt or not.  
  
Rural built-up area: built-up pixels where walking distance circle has a built-up density of less than 25% and that are not on subdivided land.   
  
The urbanized open space (mainly refers to unbuilt areas including open countryside, forests, crop fields, parks, unbuilt urban areas, cleared land) is classified into 3 types:  
  
Fringe open space consists of all open space pixels within 100 meters of urban or suburban pixels;  
  
Captured open space consists of all open space clusters that are fully surrounded by urban and suburban built-up pixels and the fringe open space pixels around them, and that are less than 200 hectares in area; and  
  
Rural open space consists of all open spaces that are not fringe or captured open spaces.  
  
  
  
The fringe open space and captured open space together, make up the urbanized open space in a given study area. In other words, the urban extent consists of all the buildings and the small open space areas (<200 ha) that are surrounded by buildings and the open space fringe that is within 100 meters of urban and suburban areas.  
  
  
  
City as defined by its Degree of Urbanisation (DEGURBA) - European Commission  
  
The Degree of urbanisation (DEGURBA) is a classification that indicates the character of an area. Based on the share of the local population living in 3 different types of clusters, local administrative units (LAUs) are classified into three types of area: thinly populated area (rural area); intermediate density area (towns and suburbs/small urban area), and densely populated area (cities/large urban area) following a 2-step procedure.   
  
  
  
In a first step, grid cells of 1 km2 are classified into one of the three following clusters, according to their population size and density:  
  
High-density cluster/urban centre: contiguous grid cells of 1 km2 with a density of at least 1 500 inhabitants per km2 and a minimum population of 50 000;  
  
Urban cluster: cluster of contiguous grid cells of 1 km2 with a density of at least 300 inhabitants per km2 and a minimum population of 5 000;  
  
Rural grid cell: grid cell outside high-density clusters and urban clusters.  
  
  
  
In a second step, local administrative units are then classified into one of three types of areas:  
  
Densely populated area (alternative names: cities or large urban area): at least 50 % live in high-density clusters; in addition, each high-density cluster should have at least 75 % of its population in densely-populated LAUs; this also ensures that all high-density clusters are represented by at least one densely-populated LAU, even when this cluster represents less than 50 % of the population of that LAU;  
  
Intermediate density area (alternative name: towns and suburbs or small urban area): less than 50 % of the population lives in rural grid cells and less than 50 % live in high-density clusters;Thinly populated area (alternative name: rural area): more than 50 % of the population lives in rural grid cells.  
  
  
  
Other concepts  
  
Democratic participation: Structures allow and encourage participation of civil society representing a cross-section of society that allows for equal representation of all members of the community with equal rights for participation and voting.   
  
  
  
Direct participation: Structures allow and encourage civil society accessing and actively engaging in decision-making, without intermediaries, at every stage of the urban planning and management process.  
  
  
  
Regular participation: Structures allow and encourage civil society participation in urban planning and management processes at every stage, and at least every six months.  
  
  
  
Marginalized groups: Groups of people that are not traditionally given equal voice in governance processes. These include, but are not limited to, women, young men and women, low-income communities, ethnic minorities, religious minorities, people with disabilities, the elderly, and sexual and gender identity minorities and migrants.  
  
  
  
Structures: Any formal structure that allows for participation of civil society. This can include, but is not limited to national or local legislation, policy, town council meetings, websites, elections, suggestion boxes, appeals processes, notice period for planning proposals etc.   
  
  
  
Civil Society: The combination of non-governmental organizations, community groups, community-based organizations, regional representative groups, unions, research institutes, think tanks, professional bodies, non-profit sports and cultural groups, and any other groups that represent the interests and wills of the members and wider community.   
  
  
  
Urban Management: The officials, including elected officials and public servants, that are responsible for city-management, across all sectors, such as roads, water, sanitation, energy, public space, land title etc.  
  
Urban Budget decision making: The process by which money is allocated to various sectors of urban management, including roads, roads, water, sanitation, energy, public space, land title etc.  
  
  
  
Urban Planning, including Design and Agreements: The technical and political process that concerns the development and use of land, how the natural environment is used etc. Design includes over-arching and specific design of public space, as well as zoning and land use definitions. Agreements refer to specific contract/arrangements made with various groups in regard to their land, e.g. Indigenous groups, protected natural environments etc.  
  
  
  
Comments and limitations:  
  
The indicator measures the availability of structures for civil society participation in urban planning and management, which is a reflection of structures for citizen voices/participation. The fact that informed evaluators conduct the evaluation can introduce biases. These biases and discrepancies have been examined in the pilot phases and so far the experiences is that the marginal differences are not as large as we were expecting. Overall, the evaluators’ assessments sometimes do not reflect a full analysis of the effectiveness or accessibility of these structures in its totality, but gives a local idea of how these evaluators view the inclusiveness and openness on these structures to accommodate the participation of citizens and civil society. Changes in data will be examined for intra-city differences and within country differences over time to understand more sources for variations and internal consistencies.   
  
Within the civic society landscape, there are many types of players including civil societies led by individuals, community groups, advocates, corporations and foundations. Similarly, there are many different views about the relevance and importance of civil society participation particularly, perhaps, among different groups as listed above and for these different structures at the urban level maybe available for involvement or not.   
  
  
  
Finally, civic society engagement in urban planning and management involves overlapping pathways, and goals as well as a mix of planned and unpredicted elements. Advancing toward a measurement frame is intended to help sort out theories and pathways – not to set hard boundary lines, but rather to help both urban managers and communities better understand what they are trying to achieve, and how they are getting there.  
  
  
  
Methodology  
  
  
  
Computation Method:  
  
To measure existence of direct participation structures of civil society in urban planning and management at the city level, a scorecard approach will be used to evaluate the available structures for civil society participation in urban planning and management, as evaluated by five (5) local experts from government, academia, civil society and international organizations. The identifications and selection of these 5 local evaluators/experts will be guided by local urban observatories teams that are available in many cities. In the pilot exercises, these urban observatories as local custodians of urban data at the city level are able to coordinate the assessments, and check for consistencies and relevant local references that guide the decisions and scores of the evaluators.  
  
  
  
A questionnaire with a 4-point Likert scale (strongly disagree, disagree, agree, and strongly agree) will be used to measure and test the existence of structures for civil society participation in urban governance and management. As experts, we agreed that these structures are examined through four core elements and these were assessed in the completed pilot exercises as follows:  
  
Are there structures for civil society participation in urban planning, including design and agreements, that are direct, regular and democratic?  
  
Are there structures for civil society participation in local urban budget decision-making, that are direct, regular and democratic?  
  
Are there structures for civil society evaluation and feedback on the performance of urban management, that are direct, regular and democratic?  
  
Do these structures promote the participation of women, young men and women, and/or other marginalized groups?  
  
  
  
The evaluators score each of the questions on the Likert Scale, as below:   
  
1 - Strongly disagree, 2 - Disagree, 3 - Agree, 4 - Strongly agree  
  
  
  
Questions  
  
Strongly Disagree  
  
(1)  
  
Disagree  
  
(2)  
  
Agree  
  
(3)  
  
Strongly Agree  
  
(4)  
  
Are there structures for civil society participation in urban planning, including design and agreements that are direct, regular and democratic?  
  
   
  
   
  
   
  
   
  
Are there structures for civil society participation in urban budget decision making that are direct, regular and democratic?  
  
   
  
   
  
   
  
   
  
Are there structures for civil society evaluation and feedback on the performance of urban management, which are direct, regular and democratic?  
  
   
  
   
  
   
  
   
  
Do the structures promote the participation of women, young men and women, and/or other marginalized groups?  
  
   
  
   
  
   
  
   
  
  
  
The Likert Scale use the following guidance for grading:   
  
  
  
Strongly Disagree: There are no structures in place or available structures do not allow civil society participation that is direct, regular or democratic.  
  
Disagree: Structures exist that allow civil society participation, but they are only partially direct, regular and democratic; or they are only one of direct, regular or democratic.  
  
Agree: Structures exist that allow and encourage civil society participation that is direct and/or regular and/or democratic, but not all three.   
  
Strongly Agree: Structures exist that allow and encourage civil society participation that is fully direct, regular and democratic.  
  
  
  
Once each of the five (5) categories is evaluated as shown in the table above by a single evaluator, the total average score of the single evaluator is computed. The various scores of the evaluators are then averaged to compute the final score for every city.  
  
  
  
To determine the proportion of cities with a direct participation structure of civil society in urban planning and management that operates regularly and democratically, a midpoint on the Likert scale of 2.5 will be used. The value of the indicator is the proportion of cities with overall score that is greater than the mid-point.   
  
  
  
As a result, if we have N cities selected for the evaluation in a given country, and n is the number of cities with scores that are higher than the mid-point, the value of the indicator will be calculated as:  
  
  
  
 (to be expressed in percentage)  
  
  
  
To note, the number of cities in which the evaluation will be conducted may be determined using the National Sample of Cities approach. The approach will help draw a sample of cities using sound statistical and scientific methodologies based on several relevant city-specific criteria/characteristics that capture the specific contexts of countries, ensuring that the sample is representative of a given country’s territory, geography, size, history, etc.  
  
  
  
Disaggregation:  
  
Potential Disaggregation:  
  
Disaggregation by city characteristics  
  
By regularity of participation  
  
By nature and typology of existing structures  
  
  
  
Treatment of missing values:  
  
All countries are expected to fully report on this city-based indicator more consistently after 2-4 years post 2015.  
  
  
  
Regional aggregates:  
  
Global monitoring and reporting is led by UN-Habitat with the support of other partners and regional commissions. All regional estimates will be cross validated with the support of the national statistical organisations.  
  
  
  
Sources of discrepancies:  
  
Information not available.  
  
  
  
Methods and guidance available to countries for the compilation of the data at the national level:  
  
Information not available.  
  
  
  
Quality assurance  
  
Information not available.  
  
  
  
Data Sources  
  
  
  
Sources and data collection processes:  
  
Evaluators will examine structures at the city level, with data aggregated from city levels for national averages through local national statistical systems constituted and chaired by the national Statistical agencies.  
  
  
  
Data Availability  
  
  
  
Description:  
  
Data is available in selected countries/cities on some components: for Africa regions: Egypt (Cairo), Mauritania (Tevragh-zeina), Mozambique (Matola) , Senegal (Dakar), Morocco (Casablanca), Tanzania, Namibia, Malawi.  
  
  
  
In the European region: Spain (Barcelona), UK (Stanford city council), France (plaine commune), Belgium (Brussels), Berlin (Germany), Nanterre (France), Ireland, Iceland.  
  
  
  
In Latin America, data is available for selected cities in Brazil, Colombia.  
  
  
  
Other countries in the pipeline to provide data for cities include India (Bangalore), South Africa (several cities), Sweden, UK (selected cities) and Kenya (5 selected counties).  
  
Calendar  
  
  
  
Data collection:  
  
The monitoring of the indicator can be repeated at regular intervals of four (3) years, allowing for four (4) reporting points until the year 2030.  
  
  
  
Data providers  
  
National statistical organisations.  
  
  
  
Data compilers  
  
UN-Habitat  
  
  
  
UN-Habitat and other partners are supporting various components (systems, tools development and capacity strengthening, etc) for reporting on this indicator.  
  
  
  
References  
  
References:  
  
UN-Habitat. Planning Sustainable Cities: Global Report on Human Settlements 2009. Pages 93-109.  
  
  
  
Ziari Keramat Allah, Nikpay Vahid, Hosseini Ali. Measuring The Level Of Public Participation In Urban Management Based On The Urban Good Governing Pattern: A Case Study Of Yasouj. Housing and Rural Environment Spring 2013, Volume 32, Number 141; Page(S) 69 To 86.  
  
  
  
Related indicators as of February 2020  
  
NA.

Last updated: November 2019  
  
   
  
Goal 11: Make cities inclusive, safe, resilient and sustainable  
  
Target 11.4: Strengthen efforts to protect and safeguard the world’s cultural and natural heritage  
  
Indicator 11.4.1: Total per capita expenditure on the preservation, protection and conservation of all cultural and natural heritage, by source of funding (public, private), type of heritage (cultural, natural) and level of government (national, regional, and local/municipal)  
  
  
  
Institutional information  
  
  
  
Organization(s):  
  
UNESCO Institute for Statistics  
  
  
  
Concepts and definitions  
  
  
  
Definition:  
Total funding from government (central, regional, local), private sources (household, corporate & sponsorship and international sources) in the preservation, protection and conservation of cultural and/or natural heritage for a given year per capita. The results should be express in Purchasing Power Parities (PPP) in constant $.   
  
Rationale (purpose):   
This indicator measures the per capita expenditure (public and private) in the preservation, protection and conservation of cultural and/or natural heritage over time. To monitor change over time of national efforts for the protection and safeguard of cultural and/or natural heritage.  
  
This indicator illustrates how financial efforts/actions made by public authorities, both at the local, national and international levels, alone or in partnership with civil society organizations (CSO) and the private sector, to protect and safeguard the world’s cultural and natural heritage has a direct impact in making cities and human settlements more sustainable. This means that cultural resources and assets are safeguarded to keep attracting/to attract people (inhabitants, workers, tourists, etc.) and financial investments, to ultimately enhance the total amount of expenditure. This indicator is a proxy to measure the target.   
  
  
  
This indicator would allow insight into whether or not countries are strengthening their efforts into safeguarding their cultural and natural heritage. It will help to identify areas that require more attention for policy purposes.  
  
  
  
Expressing the indicator in PPP$ allows for comparison between countries and using constant values when looking at time-series is necessary to evaluate how real (eliminating the effects of inflation) resources are evolving over time.  
  
Concepts  
  
Cultural heritage: includes artefacts, monuments, a group of buildings and sites, museums that have a diversity of values including symbolic, historic, artistic, aesthetic, ethnological or anthropological, scientific and social significance. It includes tangible heritage (movable, immobile and underwater), intangible heritage (ICH) embedded into cultural, and natural heritage artefacts, sites or monuments. The definition excludes ICH related to other cultural domains such as festivals, celebration etc. It covers industrial heritage and cave paintings.  
  
Natural heritage: refers to natural features, geological and physiographical formations and delineated areas that constitute the habitat of threatened species of animals and plants and natural sites of value from the point of view of science, conservation or natural beauty. It includes private and publically protected natural areas, zoos, aquaria and botanical gardens, natural habitat, marine ecosystems, sanctuaries, reservoirs etc.  
  
World Heritage Centre designation refers to properties on the UNESCO World Heritage List. It encompasses the sites or properties inscribed in the list of UNESCO world heritage sites recognizing the universal values of these sites. http://whc.unesco.org/en/list/   
  
Mixed heritage: sites contain elements of both natural and cultural significance.  
  
Conservation of cultural heritage refers to the measures taken to extend the life of cultural heritage while strengthening transmission of its significant heritage messages and values. In the domain of cultural property, the aim of conservation is to maintain the physical and cultural characteristics of the object to ensure that its value is not diminished and that it will outlive our limited time span.  
  
Conservation of natural heritage refers to the protection, care, management and maintenance of ecosystems, habitats, wildlife species and populations, within or outside of their natural environments, in order to safeguard the natural conditions for their long-term permanence.  
  
The aim of Preservation is to obviate damage liable to be caused by environmental or accidental factors, which pose a threat in the immediate surroundings of the object to be conserved. Accordingly, preventive methods and measures are not usually applied directly but are designed to control the microclimatic conditions of the environment with the aim of eradicating harmful agents or elements, which may have a temporary or permanent influence on the deterioration of the object.  
  
Protection: is the act or process of applying measures designed to affect the physical condition of a property by defending or guarding it from deterioration, loss or attack, or to cover or shield the property from danger or injury. In the case of buildings and structures, such treatment is generally of a temporary nature and anticipates future historic preservation treatment; in the case of archaeological sites, the protective measure may be temporary or permanent.  
  
Public expenditure refers to spending on heritage incurred by public funds. Public funds are state, regional and local government bodies (Adapted from OECD glossary). Expenditure that is not directly related to cultural and natural heritage is, in principle, not included. Public expenditure in the preservation, protection and conservation of national cultural and/or natural heritage covers direct expenditure (including subsides), transfers and indirect public expenditures including tax incentives.  
  
Direct public expenditure includes subsidies, grants and awards. Direct expenditure comprises generally spent on personnel, goods and services, capital investment and other heritage activities. Direct public expenditure can be in the form of operating expenditure and capital expenditure. See section below for definition.  
  
  
  
A Transfer is a transaction in which one institutional unit provides a good, service, or asset to another unit without receiving from the latter any good, service, or asset in return as a direct counterpart (IMF, 2014).   
  
  
  
Net Intergovernmental transfers are net transfers of funds designated for heritage activities from one level of government to another.  
  
  
  
Indirect public expenditures include tax incentives– reduction of taxable income that arises due to several of heritage expenses incurred by a taxpayer.  
  
  
  
National/Federal level consists of the institutional units of central government and non-market institutions controlled by central government. Central government expends their authority over the entire territory of country. It is responsible for providing heritage services for the benefit of the community as a whole, but also it may make transfers to other institutional units, as well levels of government.  
  
  
  
Regional/State/Provincial level is a subdivision of government, which shares political, fiscal and economic power with central government. In federal government, regional level is represented by state government. In unitary states, regional government is known as a provincial government. This level of government consists of institutional units, which have some of the functions of government at a level below of that of central government and above the local level. A regional government usually has the fiscal authority to raise taxes within its territory and has the ability to spend at least some of its income according to its own policies, and appoint or elect its own officers.  
  
  
  
If a regional unit is fully dependent on funds from the central government and a central government determines those funds, expenditures on regional level should be treated as a part of central government for statistical purposes.  
  
  
  
Local/municipal level is a public administration that exists at the lowest administration level within government state such as municipality of district. Local level refers to local government units, which consist of local government institutional units and nonmarket institutions controlled by local level. A local government often has the fiscal authority to raise taxes within its territory and should have the ability to spend at least some of its income according to its own policies, and appoint or elect its own officers.  
  
  
  
Total Public expenditure on heritage is consolidated expenditure on heritage made by national/federal, regional/States/Provincial and local governments.   
  
  
  
Private heritage expenditure refers to privately funded preservation, protection and conservation of national cultural and/or natural heritage and includes, but is not limited to: donations in kind, private non-profit sector and sponsorship. Private funding includes donations by individual and legal entities, donations by bilateral and multilateral funds such as Official Development Aid (ODA), income from admissions/selling services and goods to individual and legal entities and corporate sponsorship.  
  
  
  
Donation refers to cash and gifts-in-kind given by a physical or legal entity. Donations can be in the form of cash and in kind donations. Cash donations refer to the gift in money, payment checks or other monetary equivalents. Gifts-in-kind donations refer to donations in goods, services or other things such as supplies. Donations can be conditional or unconditional. Conditional donations are limited by the conditions imposed by the donor. Unconditional donations refer to the gift, which has no concrete purpose, given to organization/institution in order to help them in realization of their mission.  
  
  
  
Donations by individuals refer to cash and in kind donation given by individual or physical person.   
  
  
  
Donations by legal entity (corporation, enterprises) refer to any cash or in kind contributions given as a gift by legal entity – corporation, enterprises etc. This kind of donation is also known as a corporate philanthropy charitable giving to any organization/institution.   
  
  
  
Corporate sponsorships refer to financial or in kind contribution by business sector in exchange for benefits in the form of advertising, reputation, promotion etc. Corporate sponsorships represent some kind of marketing in which corporation pays to programme/project/event in exchange for some marketing benefits.   
  
  
  
Income from admissions/membership fees/ selling services and goods refers to amount of money received by entree sales to households / membership fees or selling services and goods to households or legal entities.   
  
  
  
Official Development Aid: Flows of official financing administered with the promotion of the economic development and welfare of developing countries as the main objective, and which are concessional in character with a grant element of at least 25 percent (using a fixed 10 percent rate of discount). By convention, ODA flows comprise contributions of donor government agencies, at all levels, to developing countries (“bilateral ODA”) and to multilateral institutions. ODA receipts comprise disbursements by bilateral donors and multilateral institutions. Lending by export credit agencies—with the pure purpose of export promotion is excluded. (OECD).  
  
  
  
Donations by bilateral and multilateral sources refer to any cash and in kind contribution given to another organization as a gift by bilateral party (foreign states) or multilateral party (international body, organization, etc.). It can be in the form of development assistance or official development assistance or private international/foreign donation. Private bilateral/multilateral donation is financial aid given by private foundation from one foreign country or private foundations from several foreign countries.   
  
  
  
Total heritage expenditure refers to private and public spending on conservation, protection and preservation of heritage. Total expenditure comprises public and private expenditure for natural and cultural heritage. Using the ISIC Rev. 4 classification, total heritage expenditure covers expenditures (public and private) for library and archives activities, museum activities and operation of historical sites and buildings as well resources invested in botanical and zoological gardens and nature reserve activities.   
  
  
  
Operating expenditure refers to expenditure incurred in realization of day-to-day activities. Operating expenditure includes following expenditures: salaries, wages and benefits (gross amount), professional and business services fees, subcontract expenses, cost of goods sold, office supplies, rental and leasing, repair and maintenance, travel expenses, insurance, advertising, marketing and promotion, insurance, utilities and telecommunication expenses, property and business taxes, royalties, postage and courier services, financial services fees and other business expenses. Operating expenses exclude write-offs, capital losses, extraordinary losses, interest on borrowing, amortization and other non-recurring items. Operating expenses can be calculated indirectly as a total current expenditure of heritage institutions minus write-offs, capital losses, extraordinary losses, interest on borrowing, and other non-recurring items.  
  
  
  
Capital expenditure measures the value of purchases of fixed assets, i.e. those assets that are used repeatedly in production processes for more than a year. The value is at full cost price (OECD, 2004). It refers to the investment of money in physical assets such us property, building and equipment. Capital expenditure can be in the form of gross capital investment and net capital investment. Gross capital investment refers to net investment at the end of year + depreciation at the end of year. Net capital investment refers to net money invested in physical assets at end of year.  
  
  
  
Comments and limitations  
  
1) In general, the availability of public expenditure data for heritage varies between countries.  
  
  
  
2) In general, the availability of private expenditure data for heritage is significantly lower so that it will take several years, capacity building, and financial investment in order to increase coverage to an acceptable level.   
  
This indicator comprises public and private monetary investments in heritage. It does not measure non-monetary factors such as national regulations or national/local policies for the preservation, protection and conservation of national cultural and/or natural heritage including World Heritage. These policies could take the form of fiscal incentives such as tax benefits for donations or sponsorships.  
  
  
  
International definitions and concepts that will support the harmonization of the data and indicators for cultural and natural heritage will be defined according to the 2009 UNESCO Framework for cultural statistics.  
  
  
  
The use of existing international classifications such as the Classification of the Function of the Government (COFOG) could be used.   
  
  
  
Methodology  
  
   
  
Computation method  
  
The indicator is calculated by dividing total public funding in heritage (i.e. including transfers paid but excluding transfers received) from government (central, regional, local) and the total of private funding from households, other private sources such as donations, sponsorships or international sources in a given year by the number of inhabitants and by the PPP$ conversion factor.  
  
  
  
HCExp per capita   
  
  
  
HCExp per capita = Expenditure per inhabitant in heritage in constant PPP$  
  
HC Exp = Expenditure on Preservation, Protection and Conservation of all cultural and/or natural heritage  
  
Exppu= Sum of public expenditure by all levels of government on the preservation, protection and conservation of cultural and/or natural heritage  
  
Exppr = Sum of all types of private expenditure on the preservation, protection and conservation of cultural and/or natural heritage  
  
  
  
PPPf: Purchase Power Parity= PPP Constant $ conversion factor   
  
Disaggregation  
  
Disaggregation by type of heritage (cultural, natural, mixed), WHC designated   
Disaggregation by type of expenditure: operating expenditure/investment  
Disaggregation by type of private funding: donations in kind, private non-profit sector, sponsorship  
  
Quantifiable derivatives (1). Comparison of the relative expenditures in heritage with GDP per capita of countries, which will provide a complementary measure of a nation’s capacities and levels of development.  
  
  
  
Treatment of missing values:  
  
  
  
At country level  
  
Missing data will not be estimated by the UIS.  
  
  
  
At regional and global levels  
  
Global data collection has not yet taken place.  
  
  
  
Regional aggregates  
  
Global data collection has not yet taken place.  
  
  
  
Sources of discrepancies  
  
Global data collection has not yet taken place.  
  
  
  
Methods and guidance available to countries for the compilation of the data at the national level  
  
  
  
Total public expenditure on heritage is calculated in either of two ways:  
  
  
  
With sector data from financial reports from heritage institutions, business registers, structural business statistics or survey heritage institutions. Heritage is defined by ISIC Rev. 4 codes (or equivalent at national/regional level) as presented in Table 1 below.  
  
  
  
Table 1: Cultural and Natural Heritage Activities by ISIC Rev. 4  
  
Type of Heritage  
  
ISIC Rev. 4 codes  
  
Type of activities  
  
Cultural Heritage  
  
9101  
  
Library and Archives activities   
  
  
  
9102  
  
Museums activities and operation of historical sites and buildings  
  
Natural Heritage  
  
9103  
  
Botanical and zoological gardens and nature reserves activities   
  
  
  
  
  
Alternatively, by using government expenditure data by function from the Ministry of Finance or equivalent, database of government finance statistics. Heritage expenditure is calculated from government expenditure by function using the Classification of the Functions of Government (COFOG).  
  
The methodology to measure public heritage expenditure can be estimated based on four-digit codes of the COFOG classification   
  
  
  
The majority of cultural and natural heritage expenditure is estimated from the Cultural Services (IS) code 7082. Heritage expenditure refers to:   
  
− The provision of cultural heritage services; administration of cultural heritage affairs; supervision and regulation of cultural heritage facilities;  
  
− The operation or support of facilities for cultural pursuits (libraries, museums, monuments, historic houses and sites, zoological and botanical gardens, aquaria, arboreta, etc.); production  
  
  
  
Natural heritage also includes the Protection of biodiversity and landscape (CS) code 7054 defined as:  
  
− The administration, supervision, inspection, operation or support of activities relating to the protection of biodiversity and landscape;  
  
− Grants, loans or subsidies to support activities relating to the protection of biodiversity and landscape.  
  
  
  
  
  
International recommendations  
  
COFOG classification defined according to the breakdown proposed in the International Monetary Fund (IMF) Manual Government Finance Statistics (GFS), available at:  
  
 http://www.imf.org/external/Pubs/FT/GFS/Manual/2014/gfsfinal.pdf.   
  
  
  
2009 UNESCO Framework for cultural statistics   
  
 http://uis.unesco.org/sites/default/files/documents/unesco-framework-for-cultural-statistics-2009-en\_0.pdf  
  
  
  
Available in eight languages (Arabic, Chinese, English, French, Mongolian, Russian, Spanish and Vietnamese)  
  
  
  
International Standard Industrial Classification of all Economic Activities Revision 4 (ISIC Rev. 4). https://unstats.un.org/unsd/publication/seriesm/seriesm\_4rev4e.pdf   
  
  
  
Recommendation concerning the International Standardization of Statistics on the Public Financing of Cultural Activities, UNESCO 1980  
  
http://portal.unesco.org/en/ev.php-URL\_ID=13140&URL\_DO=DO\_TOPIC&URL\_SECTION=201.html#targetText=1.,in%20education%20and%20science%20statistics).  
  
  
  
What is Official Development Aid?, OECD , April 2019  
  
 http://www.oecd.org/dac/stats/What-is-ODA.pdf  
  
  
  
  
  
Quality assurance  
  
Global data collection has not taken place yet.  
  
  
  
  
  
Data Sources  
  
Description:  
  
For public expenditure:  
  
At national level, ministries of finance, and/or ministries of culture, environment financial management systems are the source of government expenditure on culture. Data on expenditure by lower levels of government can be centralized or collected directly from local authorities.  
  
  
  
Household expenditure on culture is collected through general consumption expenditure surveys or dedicated cultural participation and consumption surveys.  
  
  
  
For private expenditure:  
  
Data on other private sources of funding for heritage such (e.g. corporate sponsorship and philanthropy; private donations) are rarely collected systematically and would often require additional surveys proceeded by significant analytical, preparatory and advocacy work.  
  
  
  
International sources may be available through governmental financial systems when they are recorded on-budget, and off-budget international funding may sometimes be available through governmental aid management systems, although rarely with the disaggregation needed (ex. For heritage only). Data sources for international funding, such as the Official Development Aid data from the OECD-DAC database may be used as a complement, but often present problems of compatibility with other sources, such as government records.   
  
  
  
Collection process:  
  
Global data collection has not taken place yet. The first global data collection will be launched in May 2019 and thereafter on an annual basis.  
  
  
  
  
  
Data Availability  
  
  
  
Description:  
  
The UIS will publish the Summary report of the 2017 UIS Metadata Survey of Cultural and Natural Heritage (SDG Indicator 11.4.1). The purpose of this survey was to understand the extent of data availability at the national level and agreement on concepts worldwide to produce Indicator 11.4.1. The survey also collected information about the availability of other cultural and natural heritage data at the national level. The results based on 59 countries show that many countries have public expenditure data but the amount of detailed data available to produce indicator 11.4.1 varies greatly. The availability of data on private expenditure on heritage is more limited. Results show that 71% of responding countries have at least one source of public heritage expenditure data while only 29% of countries have a least one source of private heritage expenditure data.  
  
Time series:  
  
Annual data collection as of 2020.  
  
Calendar  
  
  
  
Data collection:  
  
 2020  
  
   
  
Data release:  
  
February 2021.   
  
  
  
Data providers  
  
National Statistical Offices: Focal point  
  
  
  
Data compilers  
  
UNESCO Institute for Statistics  
  
  
  
References  
  
  
  
http://uis.unesco.org/en/topic/sustainable-development-goal-11-4  
  
References:  
  
2009 UNESCO Framework for cultural statistics:  
http://uis.unesco.org/sites/default/files/documents/unesco-framework-for-cultural-statistics-2009-en\_0.pdf  
  
  
  
Public (government) expenditure on culture, Guide to Eurostat culture statistics, Eurostat 2018  
  
https://ec.europa.eu/eurostat/documents/3859598/9433072/KS-GQ-18-011-EN-N.pdf/72981708-edb7-4007-a298-8b5d9d5a61b5  
  
  
  
Manual on sources and methods for the compilation of COFOG statistics, Eurostat, 2011.  
  
https://ec.europa.eu/eurostat/web/products-manuals-and-guidelines/-/KS-RA-11-013  
  
  
  
 Government expenditure on recreation, culture and religion, Eurostat, 2019  
  
https://ec.europa.eu/eurostat/statistics-explained/index.php/Government\_expenditure\_on\_recreation,\_culture\_and\_religion  
  
  
  
Statistics Sweden: Public and private expenditure on culture  
  
https://www.scb.se/en/finding-statistics/statistics-by-subject-area/culture-and-leisure/cultural-expenditure/public-and-private-expenditure-on-culture/  
  
  
  
Département des études, de la prospective et des statistiques « Local and regional authority cultural expenditure in 2010, Culture et chiffres, 2014-3 France. http://www.culturecommunication.gouv.fr/Etudes-et-statistiques  
  
  
  
Erasmus University Rotterdam, Boekmanstichting, Public and private financing of the arts and culture: their interrelations and measurement, ROUNDTABLE October 5-6, 2007, Amsterdam, the Netherlands  
  
  
  
European Parliament, Financing the Arts and Culture in the EU, 2006  
http://www.culturalpolicies.net/web/files/134/en/Financing\_the\_Arts\_and\_Culture\_in\_the\_EU.pdf  
  
  
Canada: Government expenditures on culture, by function and level of government, 2009/2010 http://www.statcan.gc.ca/pub/87f0001x/2012001/t012-eng.htm  
  
  
Canada: Federal government capital grants, contributions and transfers for culture, by function and province or territory, 2009/2010   
http://www.statcan.gc.ca/pub/87f0001x/2012001/t004-eng.htm  
  
  
Council of Europe, Ericarts. Monitoring Public Cultural Expenditure in Selected European Countries 2000-2013. (8)   
http://www.culturalpolicies.net/web/statistics-funding.php?aid=232&cid=80  
  
  
Germany: Public expenditure on culture (Protection and preservation of historical monuments)  
https://www.destatis.de/EN/FactsFigures/SocietyState/EducationResearchCulture/EducationalCulturalFinance/Tables/ExpenditurePublicBugetsArtsCulture.html  
  
  
  
Related indicators as of February 2020  
  
Target 4.7 By 2030, ensure that all learners acquire the knowledge and skills needed to promote sustainable development, including, among others, through education for sustainable development and sustainable lifestyles, human rights, gender equality, promotion of a culture of peace and non-violence, global citizenship and appreciation of cultural diversity and of culture's contribution to sustainable development.  
  
Target 8.3 Promote development-oriented policies that support productive activities, decent job creation, entrepreneurship, creativity and innovation, and encourage the formalization and growth of micro-, small- and medium-sized enterprises, including through access to financial services   
  
  
  
Target 8.9 By 2030, devise and implement policies to promote sustainable tourism that creates jobs and promotes local culture and products   
  
Target 11.3 By 2030, enhance inclusive and sustainable urbanization and capacity for participatory, integrated and sustainable human settlement planning and management in all countries  
  
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Last updated: 07 July 2017  
  
Goal 1: Make cities and human settlements inclusive, safe, resilient and sustainable  
  
Target 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  
  
Indicator 11.b.1: Number of countries that adopt and implement national disaster risk reduction strategies in line with the Sendai Framework for Disaster Risk Reduction 2015–2030  
  
  
  
Institutional information  
  
  
  
Organization(s):  
  
  
  
United Nations Office for Disaster Reduction (UNISDR)  
  
  
  
Concepts and definitions  
  
  
  
Definition:  
  
  
  
NA  
  
  
  
[a] An open-ended intergovernmental expert working group on indicators and terminology relating to disaster risk reduction established by the General Assembly (resolution 69/284) is developing a set of indicators to measure global progress in the implementation of the Sendai Framework. These indicators will eventually reflect the agreements on the Sendai Framework indicators.  
  
  
  
Rationale:  
  
  
  
The indicator will build bridge between the SDGs and the Sendai Framework for DRR. Increasing number of national governments that adopt and implement national and local DRR strategies, which the Sendai Framework calls for, will contribute to sustainable development from economic, environmental and social perspectives.  
  
  
  
Comments and limitations:  
  
  
  
The HFA Monitor started in 2007 and over time, the number of countries reporting to UNISDR increased from 60 in 2007 to 140+ countries now undertaking voluntary self-assessment of progress in implementing the HFA. During the four reporting cycles to 2015 the HFA Monitor has generated the world’s largest repository of information on national DRR policy inter alia. Its successor, provisionally named the Sendai Monitor, is under development and will be informed by the recommendations of the OEIWG. A baseline as of 2015 is expected to be created in 2016-2017 that will facilitate reporting on progress in achieving the relevant targets of both the Sendai Framework and the SDGs.  
  
  
  
Members of both the OEIWG and the IAEG-SDGs have addressed that indicators that simply count the number of countries are not recommended, instead that, indicators to measure progress over time have been promoted. Further to the deliberations of the OEIWG as well as the IAEG, UNISDR has proposed computation methodologies that allow the monitoring of improvement in national and local DRR strategies over time. These methodologies range from a simple quantitative assessment of the number of these strategies to a qualitative measure of alignment with the Sendai Framework, as well as population coverage for local strategies.  
  
  
  
Methodology  
  
  
  
Computation Method:  
  
  
  
Note: Computation methodology for several indicators is very comprehensive, very long (about 180 pages) and probably out of the scope of this Metadata. UNISDR prefers to refer to the outcome of the Open Ended Intergovernmental Working Group, which provides a full detailed methodology for each indicator and sub-indicator.  
  
  
  
The latest version of these methodologies can be obtained at:  
  
  
  
http://www.preventionweb.net/documents/oiewg/Technical%20Collection%20of%20Concept%20Notes%20on%20Indicators.pdf  
  
  
  
A short summary:  
  
  
  
Summation of data from National Progress Reports of the Sendai Monitor  
  
  
  
Disaggregation:  
  
  
  
By country  
  
  
  
By city (applying sub-national administrative units)  
  
  
  
Treatment of missing values:  
  
  
  
At country level  
  
  
  
In the Sendai Monitor, which will be undertaken as a voluntary self-assessment like the HFA Monitor, missing values and 0 or null will be considered equivalent.  
  
  
  
At regional and global levels  
  
  
  
NA  
  
  
  
Regional aggregates:  
  
  
  
See under Computation Method.  
  
  
  
It will be calculated, at the discretion of the OEIWG, as either a linear average of the index described in 3.3, or as a weighted average of the index times the population of the country, divided by global population.  
  
  
  
Sources of discrepancies:  
  
  
  
There is no global database collecting DRR policy information besides the HFA Monitor and the succeeding Sendai Monitor  
  
  
  
Data Sources  
  
  
  
Description:  
  
  
  
National Progress Report of the Sendai Monitor, reported to UNISDR  
  
  
  
Collection process:  
  
  
  
The official counterpart(s) at the country level will provide National Progress Report of the Sendai Monitor.  
  
  
  
Data Availability  
  
  
  
Description:  
  
  
  
Around 100 countries  
  
  
  
The HFA Monitor started in 2007 and over time, the number of countries reporting to UNISDR increased from 60 in 2007 to 140+ countries now undertaking voluntary self-assessment of progress in implementing the HFA. Given the requirements for disaster risk reduction strategies enshrined in reporting on the SDGs and the targets of the Sendai Framework, it is expected that by 2020, all member states will report their DRR strategies according to the recommendations and guidelines by the OEIWG.  
  
  
  
Time series:  
  
  
  
2013 and 2015: HFA monitor   
  
  
  
Calendar  
  
  
  
Data collection:  
  
  
  
2017-2018   
  
  
  
Data release:  
  
  
  
Initial datasets in 2017, a first fairly complete dataset by 2019   
  
  
  
Data providers  
  
  
  
Name:  
  
  
  
The coordinating lead institution chairing the National DRR platform which is comprised of special purpose agencies including national disaster agencies, civil protection agencies, and meteorological agencies.  
  
  
  
Description:  
  
  
  
The coordinating lead institution chairing the National DRR platform which is comprised of special purpose agencies including national disaster agencies, civil protection agencies, and meteorological agencies.  
  
  
  
Data compilers  
  
  
  
UNISDR  
  
  
  
References  
  
  
  
URL:  
  
  
  
http://www.preventionweb.net/documents/oiewg/Technical%20Collection%20of%20Concept%20Notes%20on%20Indicators.pdf  
  
  
  
References:  
  
  
  
The Open-ended Intergovernmental Expert Working Group on Indicators and Terminology relating to Disaster Risk Reduction (OEIWG) was given the responsibility by the UNGA for the development of a set of indicators to measure global progress in the implementation of the Sendai Framework, against the seven global targets. The work of the OEIWG shall be completed by December 2016 and its report submitted to the General Assembly for consideration. The IAEG-SDGs and the UN Statistical Commission formally recognizes the role of the OEIWG, and has deferred the responsibility for the further refinement and development of the methodology for disaster-related SDGs indicators to this working group.  
  
  
  
http://www.preventionweb.net/drr-framework/open-ended-working-group/  
  
  
  
The latest version of documents are located at:  
  
  
  
http://www.preventionweb.net/drr-framework/open-ended-working-group/sessional-intersessional-documents  
  
  
  
Related indicators as of February 2020  
  
  
  
1.5; 11.5; 11.b; 13.1; 2.4; 3.6; 3.9; 3.d; 4.a; 6.6; 9.1; 9.a; 11.1; 11.3; 11.c; 13.2; 13.3; 13.a; 13.b; 14.2; 15.1; 15.2; 15.3; 15.9.

Last updated: 05 June 2020  
  
  
   
  
  
   
  
Goal: 11: Make cities inclusive, safe, resilient, and sustainable   
  
Target 11.a: Support positive economic, social, and environmental links between urban, peri-urban and rural areas by strengthening national and regional development planning   
  
Indicator 11.a.1: Number of countries that have national urban policies or regional development plans that: (a) respond to population dynamics, (b) ensure balanced territorial development, (c) increase local fiscal space.   
  
  
  
Institutional information  
  
  
  
Organization(s):  
  
UN-Habitat  
  
UNFPA  
  
  
  
  
  
Concepts and definitions  
  
  
  
Definition:  
  
National Urban Policies and regional development plans:   
  
A National Urban Policy (NUP) is defined as a coherent set of decisions or principle of actions derived through a deliberate government led process of coordinating and rallying various actors for a common vision and goal that will promote more transformative, productive, inclusive, and resilient urban development for the long term.   
  
This standard definition is extended and adapted to country contexts and may include, where applicable terms such as National Urban Plan, Framework, or Strategy as long as they are aligned with the above qualifiers.   
  
Similarly, regional development plans follow the same definition, only applied at the subnational level.   
  
  
  
NUP that responds to population dynamics:   
  
This first qualifier examines to what extent the NUP addresses issues to do with population composition, trends and projections in achieving development goals and targets.   
  
Population composition includes size, geographic distribution and density, household size and composition, mobility and migration, age and sex distribution and disaggregation, as specified in SDG target 17.18   
  
Trends are changes in composition of the population from over time   
  
Projections are expected changes over time that the NUP needs to ensure that they are well addressed.  
  
  
  
Key questions for the assessment:   
  
To what extent are quality and timely data on urban and rural population composition, trends and projections available for use in the development, implementation and monitoring of NUP or Regional Development Plans (RDPs)?   
  
To what extent do the strategies/interventions of the NUP and/or RDPs refer to population composition, trends and projections over the timeframe of the plan?   
  
  
  
Ensure balanced territorial development:   
  
This second qualifier entails the promotion of a spatially coherent territory that includes a balanced system of human settlements including cities and towns and including urban corridors; that addresses social, economic, environmental and spatial disparities particularly considering the urban-rural continuum.   
  
  
  
Key questions for the assessment:   
  
To what extent does the national urban policy consider the need for balanced development of the territory as a whole including the differentiated yet equivalent development of all types of settlements including villages, cities and towns, including urban corridors?   
  
To what extent are the linkages – social, economic, environmental and spatial – between urban, peri-urban and rural areas consider with the ultimate goal of strengthening the urban-rural continuum?   
  
  
  
Increase local fiscal space:   
  
Local fiscal space is understood as the sum of financial resources available for improved delivery of basic social and economic services at the local level as a result of the budget and related decisions by governments at all levels without any prejudice to the sustainability of a government’s financial position.   
  
  
  
Key questions for the assessment:   
  
To what extent has the policy made allowance for the provision of local financial resources to provide for the implementation of the policy and for the delivery of essential basic social and economic services   
  
To what extent has the policy assessed the status of human capacities required to effectively use financial resources for the implementation of the policy and the delivery of essential basic social and economic services?   
  
  
  
Developing:   
  
Developing refers to the policy development pathways and processes that consider the feasibility, diagnosis of policy problems and opportunities, the formulation/drafting of the policy until the approval of the policy   
  
  
  
Implementing:   
  
Implementation refers to the realization of the policy proposal through legislative or financial action/commitments, including the continued monitoring and evaluation of that policy   
  
  
  
Rationale:  
  
National Urban Policies can help achieve target 11.a.1   
  
  
  
This indicator is based on the notion that the development and implementation of National Urban Policies should support participation, partnership, cooperation and coordination of actors as well as facilitate dialogue. National Urban Policy (NUP) and Regional Development Plans (RDP) promote coordinated and connected urban development. A coordinated effort from government through a NUP or RDP provides the best opportunity for achieving sustainable urbanization and balanced territorial development by linking sectorial policies, connecting national, regional and local government policies, strengthening urban, peri-urban and rural links through balanced territorial development.   
  
   
  
This indicator provides a good barometer on global progress on sustainable national urban policies. It serves as gap analysis to support policy recommendations. The indicator can identify good practices and policies among countries that can promote partnership and cooperation between all stakeholders. This indicator is both process oriented and aspirational and has the potential to support the validation of Goal 11 and other SDGs indicators with an urban component. The indicator has the ability to be applicable at multi jurisdictions levels, i.e covering a number of areas while taking care of urban challenges in a more integrated national manner.   
  
  
  
The explicit introduction of National Urban Policy in the wording of indicator 11.a.1 brings emphasis to a policy process that can better satisfy the requirements of target 11.a through sectorial, territorial and jurisdictional integration and coordination steered by the national level. This is so because, evidence shows that NUP can support positive economic, social and environmental links by ensuring at the highest level of government the coherent alignment of sectorial policies to support sustainable and inclusive urbanization. With the World increasingly urbanizing, it is becoming clear today that how cities are managed and planned has ramifications well beyond their boundaries and that urbanization is a key force for national and sustainable development.   
  
  
  
Urbanization has indeed historically been a catalyst for economic growth and social progress, and even holds the possibility for the protection and more efficient use of natural resources, and climate change mitigation and adaptation. However, this positive impact is not automatic, particularly in developing countries - where rapid and/or unplanned urbanization can bring about negative economic, social and environmental externalities with increasing congestion, sprawl, informality, social exclusion and conflict – if the provision of services and infrastructure does not keep up with natural and internal population growth , equitable distribution, migration patterns to the city, etc. Governments need to be sensitive to this fact that urbanization is a nation-wide and multi-sectorial issue. Therefore, NUPs provide the framework to harness urbanization dividends and mitigate its negative externalities. A national urban policy calls attention to the impact of sectorial governmental policies on the sustainable development of cities and encourages and enables the vertical and horizontal coordination of government departments and their policies to best support it.   
  
  
  
This consideration in turn also encourages more cooperation and coordination between different levels of government to support the development and implementation of a national vision for urban development, effectively strengthening national and regional development planning. The urban policy process is led at the national level to ensure the articulation and coordination of different sectors and government levels but engages both top down and bottom up processes. For a successful implementation, a NUP must create an enabling, collaborative and cooperative institutional environment, mobilizing different levels, assessing and building their capacities, and establishing jointly defined and transparent responsibilities for implementation. Subnational governments are key implementation partner due to their proximity to citizens and role in delivering services and infrastructure. As such, a NUP does not replace regional and local development policies and plans but strengthens them and relies on their horizontal alignment and vertical articulation, especially to tackle cross boundary challenges such as sustainable resource management, infrastructure development, climate change adaptation and mitigation, or urban-rural linkages.   
  
  
  
Finally, NUP as an overarching framework articulating and aligning subnational and local plans and policies under a common vision for urbanization that also makes it particularly suited to consider the urban-peri-urban-rural continuum. This urban and rural consideration is a key element of data disaggregation and administrative delineation in territorial planning. However, the importance of urban-rural linkages (through flows of people, natural resources, capital, goods, ecosystem services, information, technology, ideas and innovation) is increasingly being acknowledged for sustainable and integrated territorial development. The New Urban Agenda (NUA) for instance stresses the need to reduce urban and rural disparities to foster equitable development and encourage connectivity. Target 11.a is the only one that explicitly considers urban, peri-urban and rural areas under a city-centric SDG 11. NUP is the adequate framework to strengthen and direct urban and rural flows towards the most sustainable patterns of consumption and equitable resource distribution, as they can strike the balance between competition and solidarity between territories of a country.   
  
  
  
Urban Policies are more broadly instrumental for the implementation and monitoring of global agendas   
  
National Urban Policies therefore enable a cross-sectorial approach, and the horizontal and vertical institutional coordination needed to address the challenges and opportunities of urbanization, which are increasingly recognized as going beyond the boundaries of the city. Intergovernmental agreements have indeed shown a new interest in urbanization for sustainable development. This is illustrated of course in Agenda 2030 with its introduction of a standalone urban SDG-11, but many other SDGs also have clear urban dimensions and implications. Following the Agenda 2030, the United Nations Conference on Housing and Sustainable Development (Habitat III) adopted the New Urban Agenda, a roadmap for the next 20 years setting new global standards for sustainable urban development. Finally, although the Paris Agreement on Climate Change does not explicitly mention cities, the management of urbanization is still essential to addressing climate change, as is illustrated by the fact that two third of Intended Nationally Determined Contributions contain clear urban references and content. As an instrument for governments to harness the dynamics of urbanization for national development, NUPs have therefore been identified as a key tool for the implementation and monitoring of such agendas.   
  
  
  
The Policy Paper on National Urban Policies prepared for Habitat III for instance explained that a NUP should constitute an important part of any serious attempt to implement the SDGs and should become a key instrument to measure the achievement of the SDGs. As explained above, NUPs are a particularly appropriate framework to achieve target 11.a, and more generally can be instrumental in creating the necessary enabling framework to implement the urban development objectives of SDG 11. For instance, the NUA explicitly identifies NUPs as essential to achieve the urban paradigm shift it advocates for, recognizing the leading role of national governments […] in the implementation of inclusive and effective urban policies and legislation for sustainable urban development (NUA – 15.b). Moreover, the Urban-Rural Linkages Guiding Principles provide practical approach and actions to enhance territorial cohesion including via policies. OECD set of urban and rural policies are additional frameworks that are very important to enhance social, economic an economic links across urban-rural and peri-urban territories.   
  
  
  
Finally, NUPs can also be an instrument to coordinate the urban components of NDCs across scales and sectors and mainstream the principles of climate change adaptation and mitigation for the implementation of the Paris Agreement.   
  
  
  
Qualifiers for a measurable process indicator   
  
Given their instrumental role for the implementation and monitoring of global urban agendas, the adoption of a NUP by a national government can be considered as a strong indicator of political commitment to promoting sustainable urban development. It also makes them particularly well suited for measuring target 11.a through a process indicator. As a process indicator, 11.a.1 is indeed supposed to assess the progress made towards creating an enabling environment that will ensure achievement of the outcomes and impacts of the targets of the Sustainable Development Agenda. Its definition sets the foundation on how target 11.a can be achieved, through measurable means. The proposed revision of the indicator therefore supplements national urban policies and regional development plans with 3 qualifiers that indicate the means of successfully reaching the requirements of target 11.a.   
  
  
  
The first qualifier is that policies and plans should respond to population dynamics. Grounding policies and plans in the most current and comprehensive spatial and demographic data and projections is indeed a prerequisite for a successful implementation. The challenges posed by rapid urbanization indeed stem from the fact that policy and planning framework and their implementation are outpaced by population growth, coupled with policy priorities that may not prioritize inclusive development for all current and future urban residents, which together result in straining the provision of infrastructure and services, and causing socio-economic and environmental damages. Forecasting demographic trends and needs in the diagnosis phase of policies and plans enables governments to plan ahead for urbanization and provide adequate land and infrastructure in a more cost-efficient and less socially disruptive way than trying to catch up, repair and upgrade uncontrolled expansion. This process of developing urban policies and plans can also be the occasion to improve national data collection on urban areas, and serve other SDG-11 indicators, as well as provide a baseline for monitoring the outcomes of such interventions.   
  
  
  
The second qualifier requires policies and plans to ensure balanced territorial development, in a direct answer to target 11.a.1’s reference to the urban, peri-urban and rural continuum. Policies and plans should adopt a broad territorial perspective and consider the linkages and flows from urban to rural areas not only to avoid and reduce social, economic and environmental disparities between territories but also to promote distinctive strengths and encourage beneficial interactions for the most efficient path to sustainable growth for the country. Such a perspective for policies and plans is achieved higher territorial scale than cities, through regional plans and national policies.   
  
  
  
Finally, the third qualifier is to increase local fiscal space. As integrated NUPs and regional development plans introduce a more coordinated and decentralized articulation of responsibilities for urban development, ensuring that subnational and local governments have the adequate financial resources to carry out their responsibilities is essential to the successful implementation of policies and plans. The transfer of competences from central to local levels must therefore be accompanied by a commensurate devolution of financial resources and autonomy. Moreover, in times of shrinking governmental budgets, the capacity of local governments to expand and diversify endogenous financial resources and revenues and not rely too heavily on central transfers should be increased. This involves more fiscal power and capacity, better land value capture mechanisms – which go hand in hand with a clear and enforceable land policy framework – and innovative financial partnerships, for instance collaborating with the private sector for service and infrastructure delivery. In all cases, fiscal policies and mechanisms must remain subordinated to the established urban policy and planning objectives: central transfers must be embedded within the NUP framework, and take into account territorial equity; and local fiscal systems must be closely tied to local territorial plans so as to incentivize sustainable patterns of development.   
  
  
  
Concepts:  
  
Introducing NUP – an appropriate framework to achieve target 11.a and more broadly a recognized tool of implementation and monitoring of global urban agendas – along with regional development plans, and adding three measurable qualifiers as requirements for successful plans and policies, makes indicator 11.a.1 not only a more adequate, measurable and implementable process indicator for target 11.a.1, but also will serve more broadly the progress of SDGs and the new urban agenda.   
  
  
  
This revised indicator is indeed suitable for all countries and regions, and lends itself to regional analyses, as well as other forms of aggregation and disaggregation, according to development level, for example. It is also applicable at multiple territorial levels.   
  
  
  
Moreover, monitoring this indicator will help more broadly with NUP monitoring and help increase awareness, capacity and knowledge of best practices for sustainable urban policy in the process. Also, due to the multidisciplinary dimension of NUPs and their role in global agendas, the enhanced data collection and analysis capacity that would be permitted by this indicator revision would participate in guiding the necessary steps to create a more enabling urban policy environment to support SDG 11 and urban dimensions of other SDGs. NUP monitoring according to SDGs would for instance serve as a gap analysis to help formulate tailored recommendations and identify best practices.  
  
  
  
Comments and limitations:  
  
UN-Habitat and UNFPA, along with many other partners such as OECD and Cities Alliance are working together to collect updated information from Member States regarding the three qualifiers in addition to other questions pertinent to National Urban Policies and their implementation process. The survey results will inform the 2020 Global State of National Urban Policy Report. Many countries have filled in required information based on the specific qualifiers of indicator 11.a.1. which builds upon the 2018 NUP dataset. The success of the indicator requires more capacity development and routine follow ups with ministries and NSOs at national levels, but sometimes also going beyond the national levels to ensure good understanding of the 3 sub-components.  
  
  
  
  
  
Methodology  
  
  
  
Computation Method:  
  
The methodology uses a policy evaluation framework that assesses and tracks progress on the extent to which country level national urban policy or regional development plans are being developed or implemented to cover or satisfy the following criteria:   
  
Responds to population dynamics   
  
Ensures balanced regional and territorial development   
  
Increases local fiscal space   
  
  
  
Essentially, countries that already have NUP and regional development plans, the NUPs are examined for their consistency in covering the three above qualifiers. While for countries that do not have NUP or are currently developing NUP, these are noted and documented as steps towards developing a NUP. Such countries are counted with zero scores to ensure a full coverage of status on all countries.   
  
  
  
To maintain the objectivity and comparability in the policy analysis, five categories of assessment are used for each qualifier. These categories correspond to a progressive evaluation of the extent to which national and regional policies in plans integrate elements that contribute to the realization of each qualifier:   
  
  
  
Category 1: policy document does not make any reference to the qualifier or the country is not developing or implementing a policy (no national urban policy exists)   
  
Category 2: policy document makes some reference to the specific qualifier, but this qualifier is not integrated in the diagnosis and recommendations of the policy   
  
Category 3: policy document integrates the specific qualifier, but this qualifier is poorly understood or misinterpreted   
  
Category 4: policy document integrates in a cross-cutting perspective the specific qualifier without clear policy recommendations   
  
Category 5: policy document integrates and mainstreams the specific qualifier with clear policy recommendations derived from the qualifier   
  
  
  
Each category is assigned a percentage bracket, as follows:   
  
  
  
Category 1: 0 per cent   
  
Category 2: 1-25 per cent   
  
Category 3: 26-50 per cent   
  
Category 4: 51-75 per cent   
  
Category 5: 76-100 per cent   
  
  
  
For example, in Table 1, the evaluator provides a numeric value based on the category that corresponds to the qualifier analyzed, understanding that only one category per qualifier is selected:  
  
Table 1. Evaluators Assessment of one of the qualifiers  
  
  
  
  
  
Qualifier  
  
Category 1  
  
(0 %)  
  
Category 2  
  
(1-25 %)  
  
Category 3  
  
(26-50%)  
  
Category 4  
  
(51-75%)  
  
Category 5  
  
(76-100%)  
  
Total  
  
(max 100 per qualifier)  
  
Qualifier (a)  
  
national urban policies or regional development plans respond to population dynamics  
  
  
  
  
  
  
  
0  
  
  
  
  
  
  
  
0  
  
  
  
  
  
  
  
40%  
  
  
  
  
  
  
  
0  
  
  
  
  
  
  
  
0  
  
  
  
  
  
  
  
a = 40%  
  
Qualifier (b)  
  
National urban policies or regional development plans ensure balanced regional and territorial development   
  
  
  
  
  
  
  
  
  
0  
  
  
  
  
  
  
  
  
  
20%   
  
  
  
  
  
  
  
  
  
0   
  
  
  
  
  
  
  
  
  
0   
  
  
  
  
  
  
  
  
  
0   
  
  
  
  
  
  
  
  
  
b = 20%   
  
Qualifier (c)  
  
National urban policies or regional development plans increase local fiscal space   
  
  
  
  
  
  
  
0   
  
  
  
  
  
  
  
0   
  
  
  
  
  
  
  
0   
  
  
  
  
  
  
  
75%  
  
  
  
  
  
  
  
0   
  
  
  
  
  
  
  
c = 75%   
  
  
  
To reduce the bias of subjectivity in the overall assessment, independent policy evaluation will be undertaken by several evaluators. Once each qualifier is evaluated by all the evaluators, a final averaged value for the indicator 11.a.1 is calculated. The table 2 below provides a summary of the procedures for the computation of the final values (final averaged value for the indicator 11.a.1).  
  
  
  
Table 2: Summary table for the computations of the indicator  
  
National Urban Policy   
  
Evaluation 1   
  
Evaluation 2   
  
Evaluation 3   
  
Evaluation 4   
  
Total  
  
(max 100 per qualifier)  
  
Qualifier (a)  
  
national urban policies or regional development plans respond to population dynamics  
  
A1  
  
A2  
  
A3  
  
A4  
  
Qa = (A1+A2+A3+A4)/4   
  
Qualifier (b)  
  
National urban policies or regional development plans ensure balanced regional and territorial development   
  
B1  
  
B2   
  
B3   
  
B4   
  
Qb = (B1+B2+B3+B4)/4  
  
Qualifier (c)  
  
National urban policies or regional development plans increase local fiscal space   
  
C1  
  
C2  
  
C3  
  
C4  
  
Qc = (C1+C2+C3+C4)/4  
  
  
  
Final value of the assessment (average values of all 3 qualifiers)  
  
X = (Qa + Qb + Qc)/3   
  
  
  
Based on the final value of the assessment (X in Table 2 above), countries that fall into categories 2 and 3, which correspond to 1 – 50 percentage points, are not counted as “countries that are developing and implementing a national urban policy or regional development plans”. These countries are encouraged to deploy efforts in order to improve national urban policies or regional development plans.   
  
  
  
Countries that fall into categories 4 and 5, which correspond to 51 percentage points or more in the assessment, are considered as “countries that are developing and implementing a national urban policy or regional development plan” that contribute to the achievement of Target 11.a. Countries that are counted as having national urban policies or regional development plans can still make efforts to improve the rating of the 3 qualifiers  
  
  
  
  
  
Treatment of missing values:  
  
Measuring this process indicator entails a policy evaluation of governmental National Urban Policies or Regional Development Plans, the data source as such is easily accessible for evaluation. Data from 2018 was also included in the table counts above based on thematic focus: economic development, spatial structure, human development, environmental sustainability, and climate resilience. Missing values for this process-oriented indicator is reported as 0 to signify that the country has no national urban policy.  
  
Methods and guidance available to countries for the compilation of the data at the national level:  
  
As of May 2020, the qualifiers were collected by distributing the Global State of NUP Survey to Member States. Reporting is subjective to the Member State and will need to be verified against the Member States’ NUP or RDP for quality assurance. 2018 data was also collected through national follow ups with relevant offices and additional follows ups with experts in various countries. A guide was developed for collection of NUP data and disseminated to many countries.   
  
  
  
Quality assurance  
  
UN-Habitat’s work in the areas of national and regional development planning has developed a strong foundation of evidence that can be adapted to monitor this target and indicator.   
  
  
  
Monitoring of the indicator will also benefit from various ongoing initiatives of policy reviews undertaken by UN-Habitat for its country assistance, or the OECD in its Urban Policy Review series.   
  
For instance, UN-Habitat and the OECD have jointly published the 2018 Global State of National Urban Policy Report, which identifies 150 NUPs worldwide, and analyses them according to their development phase, thematic components and institutional arrangement, and aggregates them into regional and global analyses. The second edition of the Global Report will be published in 2020 and future editions will align more closely with the terms of indicator 11.a.1 and will consistently assess the three qualifiers.   
  
  
  
UN-Habitat also conducted in-depth analyses of the NUP trends and national case studies in global regions through National Urban Policy Reports in Arab States, Asia and the Pacific, Europe and North America, Latin America and the Caribbean, and Sub-Saharan Africa.   
  
  
  
Data Sources  
  
  
  
Description:  
  
The primary source of data is the official documents of national urban policies and regional development plans, available in or provided by national and regional administrations of the countries. All these will be derived from the national and global state of NUP survey results.   
  
  
  
  
  
The alignment of the policies and plans with proposed indicators are assessed by independent national level policy evaluators to avoid subjectivity and bias. The field of practice on NUP has developed a database of experts across the regions where evaluators are routinely drawn for undertaking these reviews.   
  
  
  
To help with this evaluation according to the three qualifiers, policy evaluators follow an agreed upon analysis framework. Other supporting tools such as expert opinion, baseline data, benchmarking, performance monitoring and reporting, and gap and content analysis could be used.   
  
  
  
Global, regional and national level compilations and analyses of NUP have already been undertaken by UN-Habitat and partners, which provide a solid foundation of evidence and expertise for the monitoring of indicator this proposed proxy indicator for 11.a.1.   
  
  
  
  
  
Collection process:  
  
Tailor-made questionnaires are sent to relevant focal points in charge of indicator 11a.1 to fill in the status of the indicator components. The national level data is collected based on the training modules that have widely been disseminate to many national urban policy and statistics systems. The baseline data is derived from the country, regional and global assessments undertaken every year to inform the Global State of NUP. Additionally, the data collection process targeting specifically the three qualifiers of the indicator 11.a.1. is conducted for the Global State of NUP published every two years. The data collection process is ongoing. The results listed above are based on current findings, from 67 of the 194 countries who completed the 2020 survey as well as using baseline 2018 NUP data which included 79 countries which had not yet responded to the 2020 survey, but NUP data was available based on thematic focus areas.  
  
  
  
UN Habitat compiles and presents national urban policies into a National Urban Policy Database http://urbanpolicyplatform.org/wp-content/uploads/2018/09/13092018NUP-database.pdf   
  
  
  
This document gathers country level data on the presence of a NUP, their title and date, status of development, and focus. It also provides direct links to the national urban policy documents. It currently contains information on 150 NUPs worldwide and is frequently updated.   
  
  
  
  
  
Every year we conduct new rounds of data collection for indicator 11a.1. For example, the 2020 round of data collection for indicator 11.a.1. is now ongoing. Member States have been contacted to fill out the 2020 Global State of National Urban Policy Survey which includes various questions regarding the individual countries’ status on NUPs, as well as a question specific to indicator 11.a.1.   
  
  
  
Data Availability  
  
  
  
Description:  
  
2018 data related to National Urban Policies is available online. The updated 2020 data will be made available online on the Urban Policy Platform and in 2020 Global State of National Urban Policy Report within the 2020 calendar year.  
  
  
  
As of May 2020, 154 countries of the 194 Member States have some form of an NUP. 79 countries have an explicit NUP, while 73 countries have a partial NUP. There is no information currently available for 39 countries regarding the presence of an NUP, and 3 countries in the European and North American region have reported to not have a NUP.  
  
  
  
  
  
Time series:  
  
A comprehensive update on National Urban Policy is conducted every two years.   
  
  
  
Calendar  
  
  
  
Data collection:  
  
 Monitoring and reporting of the indicator is repeated at annual intervals, allowing several reporting points until 2030. Comprehensive reporting will be undertaken once every 2 years.  
  
   
  
Data release:  
  
The data will be available annually, and updates on the global database will be conducted every 6 months. Data will be available online on the Urban Policy Platform.   
  
  
  
Data providers  
  
Government departments’ in charge of urban, rural or territorial affairs fill in the survey. Additional information is gathered from National Statistical Offices and government official websites and UNDESA data are also consulted for population dynamics.   
  
  
  
Data compilers  
  
UN-Habitat  
  
UNFPA  
  
  
  
References  
  
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Programme: Nairobi.  
  
  
  
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UN Habitat (2018c), National Urban Policy, Asia and the Pacific Report, forthcoming, United Nations Human Settlements Programme: Nairobi.  
  
  
  
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URL:   
  
[1]:http://unhabitat.org/initiatives-programmes/ national-urban-policies/ 10. [2]http://www.worldbank.org/en/topic/ urbandevelopment/publication/urbanization-reviews 11. [3]http://www.oecd-ilibrary.org/urban-ruraland-regional-development/oecd-urban-policyreviews\_23069341 12.   
  
[4] http://www.urbangateway.org/icnup/2015/home  
  
[5] https://www.dropbox.com/s/7aut8vh9h5g4poh/National%20Urban%20Policy%20Database\_2017\_final.xlsx?dl=0  
  
[6] http://urbanpolicyplatform.org/#  
  
Related indicators  
  
This Indicator is related to several Goals and Targets, particularly the following:   
  
   
  
SDGs  
  
Related targets  
  
Goal 1: Poverty eradication  
  
Target 1.4: land tenure   
  
  
  
Target 1.5: resilience   
  
Goal 2: Food security, nutrition, and agriculture  
  
Target 2.3: land tenure security   
  
  
  
Target 2.c: urban rural linkages in food markets   
  
Goal 5: Gender  
  
Target 5.2: safety   
  
  
  
Target 5.a: ownership and control over land   
  
Goal 6: Water  
  
Target 6.1: access to drinking water   
  
  
  
Target 6.2: access to sanitation   
  
Goal 7: Energy  
  
Target 7.2: access to renewable energy   
  
  
  
Target 7.3: energy efficiency   
  
Goal 8: Economic growth and employment  
  
Target 8.3: job creation   
  
  
  
Target 8.5: decent work  
  
  
  
Target 8.6: youth   
  
Goal 9: Infrastructure and industrialization  
  
Target 9.1: access to infrastructure   
  
  
  
Target 9.4: upgrading infrastructure   
  
  
  
Target 9.a: financing infrastructure  
  
Goal 10: Reduce inequality  
  
Target 10.4: discriminatory laws   
  
Goal 12: Sustainable consumption and production  
  
Target 12.5: waste management   
  
Goal 13: Climate change  
  
Target 13.1: resilience and adaptive capacity  
  
  
  
Target 13.b: capacity for effective climate change related planning and management   
  
Goal 15: Terrestrial ecosystems  
  
Target 15.9: by 2020, integrate ecosystem and biodiversity values into national and local planning and development processes   
  
Goal 16: Peaceful societies and inclusive institutions  
  
Target 16.7: governmental subsidiarity   
  
  
  
Target 16.a: institutional capacity building  
  
  
  
Target 16.b: non-discriminatory laws and policies for sustainable development   
  
Goal 17: means of implementation and partnerships  
  
Target 17.14: policy coherence   
  
Target 17.17: effective public-private and civil society partnerships

Last updated: 28 November 2018  
  
Goal 11: Make cities and human settlements inclusive, safe, resilient and sustainable  
  
Target 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  
  
Indicator 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  
  
Institutional information  
  
  
  
Organization(s):  
  
Custodian Agency: United Nations on Drugs and Crime (UNODC)  
  
  
  
Concepts and definitions  
  
  
  
Definition:  
  
Number of persons who have been victims of physical harassment and/or sexual harassment, as a percentage of the total population of the relevant area.   
  
  
  
Rationale:  
  
The experience of physical and sexual harassment can have far-reaching negative impacts on the victims. Besides the emotional and psychological harm suffered, harassment can have negative consequences on the ability of its victims to fully participate in public life and to share in and contribute to the development of their communities. For example, the widespread occurrence of sexual harassment in the workplace can lead to a lower participation of women in the workforce, especially in male-dominated occupations, and lower their income-generating capacity.  
  
  
  
Concepts:  
  
On the basis of the International Classification of Crime for Statistical Purposes (ICCS), an operational definition of physical and sexual harassment was developed. While sexual harassment refers to behaviour with a sexual connotation that is suitable to intimidate their victims, physical harassment refers to all other harassing behaviours that can cause fear for physical integrity and/or emotional distress. For use in a survey, it is necessary to further operationalize the concept and to identify more precisely the set of behaviours and their circumstances to be considered as harassment. On the basis of past surveys, expert discussions and with the inputs from the network of UN-CTS National Focal Points, a set of pertinent behaviours was identified and formulated for testing in a pilot survey module. The first tests of the survey module were carried out in 2019 in Nigeria and Saint Lucia and the revised survey module was included in a large representative household survey in Nigeria (sample 33,000 interviews) in June 2019, conducted by the National Bureau of Statistics of Nigeria. The module will also be included in a 2019 pilot survey conducted by the National Statistical Office of Mexico (INEGI) and in a full household survey in Saint Lucia in 2019.  
  
  
  
While the precise formulation and wording of the pertinent survey questions may need national customization, a core set of behaviours have been identified as forms of harassment exercised towards a person (see Annex A of the Methodology Development Narrative).   
  
  
  
Comments and limitations:  
  
Like other experience-based indicators on victimization, the indicator reflects the experience from the perspective of the victim. As such, the response provided by the victims reflects their experience as well as their subjective feeling of victimization, irrespective of whether actual harm was intended or not. The subjective feeling of victimization is an important component of safety and security across space and time (for example, in cities or in the domestic sphere) and a higher prevalence of experienced physical or sexual harassment indicates a negative environment that warrants appropriate responses and interventions.   
  
Like other survey-based indicators, the scope of the indicator also relies on the design and sampling strategy of the survey. For example, most surveys set a low age-limit for practical and ethical reasons (e.g. 18 years and older), which means that data are representative for youth under 18 years. Harassment specifically linked to disability requires relatively large sample sizes in order to obtain a sufficiently large number of disabled persons in the sample.  
  
  
  
The same behaviour can have different meanings and therefore have a different impact across cultural contexts and population groups. For this reason, the selection of ‘harassment’ behaviours has been made also with the view of identifying situations of harassment that can be perceived as such across different social and cultural contexts.   
  
  
  
Methodology  
  
  
  
Computation Method:  
  
Number of persons who experienced a form of physical harassment and/or sexual harassment, divided by the total population. The result would be multiplied by 100.  
  
  
  
This is a survey-based indicator that measures the experience of any of a set of behaviours that are collectively referred to as physical harassment and sexual harassment. Questions on physical and sexual harassment are to be measured separately. The results can then be combined. Both numerator and denominator are measured through sample surveys of the general population.  
  
The computation of this indicator requires the inclusion of a short module of eight questions in a representative population survey. The following table illustrates the content of the questions needed to compute the indicator.  
  
  
  
Content of question  
  
Instruction  
  
Experience of sexual harassment in the past three years, by type of harassment  
  
If no sexual harassment was experienced, skip to 5, otherwise go to 2.  
  
Most recent type of harassment experienced  
  
Continue with 3.  
  
Time period of last harassment  
  
Continue with 4.  
  
Place of last harassment, by type of location  
  
Go to 5.  
  
Experience of physical harassment in the past three years, by type of harassment  
  
If no physical harassment was experienced, skip to END, otherwise go to 6.  
  
Most recent type of harassment experienced  
  
Continue with 7.  
  
Time period of last harassment  
  
Continue with 8.  
  
Place of last harassment, by type of location  
  
Go to END.  
  
  
  
Based on the responses to questions, the following indicators can be computed:  
  
  
  
Prevalence rate of sexual harassment: Number of persons who experienced at least one form of sexual harassment, divided by the total population. The result would be multiplied by 100.  
  
Prevalence rate of physical harassment: Number of persons who experienced at least one form of physical harassment, divided by the total population. The result would be multiplied by 100.  
  
Prevalence rate of physical or sexual harassment (SDG indicator 11.7.2): Number of persons who experienced either a form of sexual harassment or a form of physical harassment, divided by the total population. The result would be multiplied by 100.  
  
  
  
Disaggregation:  
  
When the proposed module on physical and sexual harassment is part of a larger population survey, relevant disaggregations (e.g., income, sex, age group, geographic location, disability status, etc.) may not need to be included in the module since they are typically part of large socio-economic surveys. . In contrast, disaggregations by place of occurrence need to be included in the question module itself (e.g. at your home, on the street or in a marketplace, at our work or place of education, etc.)  
  
  
  
Treatment of missing values:  
  
  
  
National data are not estimated if data derived from surveys conducted at country level are not available.  
  
Regional aggregates:  
  
Regional aggregates are produced only when available data cover at least a certain percentage of countries of the region and the population of these countries account for a certain percentage of the regional population.  
  
  
  
Sources of discrepancies:  
  
Data for this indicator are based on eight standardised survey questions. If data from more than one survey are available for the same country, discrepancies may be due to different wording of the questions, different structure of the questionnaire, different survey methods and operations, different sample design and sample size. As a rule, data from national surveys complying with recommended standards are used, when available.  
  
  
  
Methods and guidance available to countries for the compilation of the data at the national level:  
  
Methodological documentation from surveys conducted at national level is available (e.g. household survey in Nigeria conducted by the National Bureau of Statistics (NBS) and UNODC; various surveys by the NSO of Mexico, INEGI). Detailed guidelines on the survey module are under preparation by UNODC.   
  
  
  
Quality assurance  
  
At UNODC, quality assurance measures are in place to collect, process, and disseminate statistical data. They build on the ‘Principles governing international statistical activities’ and regulate the collection, processing, publication and dissemination of data.  
  
All data for SDG indicators as compiled by the Office and are than sent to countries (through the relevant national focal points) for their review before statistical data are officially released by UNODC. When countries provide feedback/comments on the data, a technical discussion is conducted to identify a common position.  
  
  
  
Data Sources  
  
  
  
Description:  
  
The Indicator is based on eight questions to be included in a household survey. These questions can be part of an add-on module on physical and sexual harassment, to be incorporated into other ongoing general population surveys (such as surveys on quality of life, public attitudes or surveys on other topics) or be part of dedicated surveys on crime victimization.  
  
Data should be collected as part of a nationally representative probability sample of the adult population residing in the country, irrespective of legal residence status. The sampling frame and sample design should ensure that results can be disaggregated at sub-national level. The sample size should be sufficiently large to capture relevant events and compute needed disaggregations.  
  
  
  
International data collection process  
  
Data are collected through a standardised questionnaire sent to countries. This questionnaire provides specific definitions of data to be collected and it collects a set of metadata to identify possible discrepancies from standard definitions and to assess overall data quality (e.g. sample size, target population, agency responsible for the data collection, etc.).   
  
When needed, data of interest and relevant disaggregations are requested  
  
Data for multiple years are collected to assess data consistency across time  
  
Countries are requested to appoint national focal points (including from NSOs) for the various data topics to ensure technical supervision at country level on collected data  
  
Automated and substantive validation procedures are in place when data are processed by the Office to assess their consistency and compliance with standards   
  
When data from national official sources are missing or not complying with methodological standards, data from other sources are also considered and processed by using the same quality assurance procedures.   
  
  
  
Data Availability  
  
  
  
Description:  
  
The measurement of physical and sexual harassment is a relatively recent phenomenon. In a recent review of 50 victimization surveys conducted worldwide over several decades, only 6 included questions concerning either physical or sexual harassment (and only one screened for both types of behaviour); all were conducted between 2013 and 2016. The six surveys (conducted by Canada, France, Israel, Italy, Mexico and Sweden) that measured physical and/or sexual harassment did so using different methodologies and question formulations, so the results are not directly comparable.  
  
Another important source of data on sexual harassment is a survey on violence against women conducted by the European Union Fundamental Rights Agency in all 28 EU Member States in 2013 (sample size 42,000 interviewees). The measurement of sexual harassment was based on 11 types of behaviours (items) that have also been used to develop the survey module for SDG indicator 11.7.2.  
  
Finally, various modules on physical and sexual harassment have been tested in a recent survey in Nigeria. Following pilot testing and revisions of the module, the proposed module has been included in a large-scale household survey in June 2019 (sample 33,000 interviews) and found to be useful and feasible (see Annex A and B of the Methodology Development Narrative).  
  
  
  
Time series:  
  
The indicator has recently been included into the annual United Nations Crime Trends Survey (UN-CTS), the regular data collection used by UNODC to collect data from UN Member States. The first data collection has just started, and it is expected that countries will gradually report on this indicator once the methodology is disseminated and relevant items are included in national surveys.  
  
  
  
  
  
Calendar  
  
  
  
Data collection:  
  
 The indicator will be collected annually through the United Nations Crime Trends Survey (UN-CTS), the regular data collection used by UNODC to collect data from UN Member States (based on the network of national UN-CTS Focal Points).   
  
 Countries are encouraged to conduct surveys on harassment through the proposed module in regular intervals, but at least every four years to reflect progress between each of the quadrennial reviews of Goal 11 at the High Level Political Forum (HLPF).  
  
   
  
Data release:  
  
 Data on relevant SDG indicators are collected, compiled and sent back to countries for data review annually. Data are then reported to UNSD through the regular reporting channels annually.  
  
   
  
  
Data providers  
  
 Data are collected through official nationally representative surveys. In most countries and most cases, such surveys are conducted by National Statistical Offices (NSOs). In some cases, other national institutions or other entities may conduct surveys on access to justice according to the same methodological standards.  
  
  
  
Data compilers  
  
Data will be compiled by the custodian for this indicator (UNODC).  
  
References  
  
  
  
URL:  
  
https://www.unodc.org/documents/data-and-analysis/Crime-statistics/Manual\_on\_Victimization\_surveys\_2009\_web.pdf  
  
  
  
https://fra.europa.eu/en/publication/2014/violence-against-women-eu-wide-survey-main-results-report  
  
  
  
References:  
  
UNODC-UNECE, Manual on Victimization Surveys (2010)  
  
EU Fundamental Rights Agency, Violence against women: an EU-wide survey. Main results report (2014)  
  
  
  
Related indicators as of February 2020  
  
5.2.1  
  
5.2.2  
  
16.1.3  
  
16.2.3

Last updated: February 2018  
  
Goal 11: Make cities and human settlements inclusive, safe, resilient and sustainable;  
  
Target 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;  
  
Indicator 11.b.2: Proportion of local governments that adopt and implement local disaster risk reduction strategies in line with national disaster risk reduction strategies  
  
  
  
Institutional information  
  
  
  
Organization(s):  
  
United Nations Office for Disaster Reduction (UNISDR)  
  
  
  
Concepts and definitions  
  
  
  
Definition:  
  
The Sendai Framework for Disaster Risk Reduction 2015-2030 was adopted by UN Member States in March 2015 as a global policy of disaster risk reduction. One of the targets is: “Substantially increase the number of countries with national and local disaster risk reduction strategies by 2020”.  
  
In line with the Sendai Framework for Disaster Risk Reduction 2015-2030, disaster risk reduction strategies and policies should mainstream and integrate disaster risk reduction within and across all sectors, across different timescales and with targets, indicators and time frames. These strategies should be aimed at preventing the creation of disaster risk, the reduction of existing risk and the strengthening of economic, social, health and environmental resilience.  
  
  
  
The open-ended intergovernmental expert working group on indicators and terminology relating to disaster risk reduction (OIEWG) established by the General Assembly (resolution 69/284) has developed a set of indicators to measure global progress in the implementation of the Sendai Framework, which was endorsed by the UNGA (OIEWG report A/71/644). The relevant SDG indicators reflect the Sendai Framework indicators.  
  
  
  
Rationale:  
  
Increasing the proportion of local governments that adopt and implement local disaster risk reduction strategies, which the Sendai Framework calls for, will contribute to sustainable development and strengthen economic, social, health and environmental resilience. Their economic, environmental and social perspectives would include poverty eradication, urban resilience, and climate change adaptation.  
  
  
  
Comments and limitations:  
  
  
  
The Hyogo Framework for Action Monitor (HFA Monitor) started in 2007 and over time, the number of countries reporting to UNISDR increased from 60 in 2007 to approximately 100 countries in 2015 undertaking voluntary self-assessment of progress in implementing the HFA. During the four reporting cycles the HFA Monitor has generated the world’s largest repository of information on national disaster risk reduction policy inter alia. In 2018 the Sendai Framework Monitor system will launch and all Member States are expected to report data of the previous year(s).   
  
  
  
  
  
Methodology  
  
  
  
Computation Method:  
  
Member States count the number of local governments that adopt and implement local DRR strategies in line with the national strategy and express it as a percentage of the total number of local governments in the country.  
  
  
  
Local governments are determined by the reporting country for this indicator, considering sub-national public administrations with responsibility to develop local disaster risk reduction strategies. It is recommended that countries report on progress made by the lowest level of government accorded the mandate for disaster risk reduction, as the Sendai Framework promotes the adoption and implementation of local disaster risk reduction strategies in every local authority.  
  
  
  
Each Member State will calculate the ratio of the number of local governments with local DRR strategies in line with national strategies and the total number of local governments.  
  
  
  
Global Average will then be calculated as below through arithmetic average of the data from each Member State.  
  
  
  
 Further information of the methodology can be obtained in the Technical Guidance (see reference).  
  
  
  
Disaggregation:  
  
By country  
  
By local government (applying sub-national administrative unit)  
  
  
  
Treatment of missing values:  
  
At country level  
  
If a country does not report (missing Value), it will be considered to be 0 or null as same as the HFA Monitor.  
  
  
  
At regional and global levels  
  
NA  
  
  
  
Regional aggregates:  
  
It could be calculated as an arithmetic average of reports by Member States.  
  
  
  
Sources of discrepancies:  
  
  
  
N/A (There is no global database collecting DRR policy information besides the HFA Monitor and the succeeding Sendai Framework Monitor.)  
  
  
  
Methods and guidance available to countries for the compilation of the data at the national level:  
  
Technical guidance for monitoring and reporting on progress in achieving the global targets of the Sendai Framework for Disaster Risk Reduction   
  
http://www.preventionweb.net/events/view/55594   
  
(The latest version will be uploaded on this site in early November)  
  
  
  
Quality assurance  
  
Description of practices and guidelines for quality assurance followed at your agency.   
  
  
  
UNISDR Regional Office will have a regular contact with National Sendai Framework Focal Points (data providers).   
  
  
  
  
  
Data Sources  
  
  
  
Description:  
  
Sendai Framework Monitor, reported to UNISDR  
  
  
  
Collection process:  
  
The national Sendai Framework Focal Points will compile all inputs from their line ministries, NSO, and other entities, if appropriate, and report through the Sendai Framework Monitoring System.  
  
  
  
Data Availability  
  
  
  
Description:  
  
UNISDR conducted the Sendai Framework Data Readiness Review which 87 Member States responded between February and April in 2017.   
  
  
  
In Q1 2018 all Member States will be invited to start reporting. Since in the previous monitoring approximately 100 countries reported their National HFA Monitor in each cycle, we expect the similar number of reporting.  
  
   
  
Time series:  
  
from 2015  
  
  
  
Calendar  
  
  
  
Data collection:  
  
2015 -   
  
  
  
Data release:   
  
Every year from Q2 2018   
  
  
  
Data providers  
  
  
  
National Sendai Framework Focal Points usually represent the coordinating lead institution chairing the National DRR platform which is comprised of special purpose agencies including national disaster agencies, civil protection agencies, and meteorological agencies.  
  
  
  
Data compilers  
  
UNISDR  
  
  
  
References  
  
  
  
URL:  
  
  
  
http://www.preventionweb.net/files/50683\_oiewgreportenglish.pdf  
  
http://www.preventionweb.net/english/hyogo/progress/  
  
http://www.preventionweb.net/events/view/55594 <uploaded soon>  
  
  
  
References:  
  
  
  
Report of the open-ended intergovernmental expert working group on indicators and terminology relating to disaster risk reduction [A/71/644]  
  
The IAEG-SDGs and the UN Statistical Commission deferred the responsibility for the further refinement and development of the methodology for disaster-related SDGs indicators to the OIEWG and formally adopted the OIEWG Report.  
  
  
  
Hyogo Framework for Action Progress Reports  
  
During the four reporting cycles the HFA Monitor has generated the world’s largest repository of information on national DRR policy inter alia.  
  
  
  
Technical guidance for monitoring and reporting on progress in achieving the global targets of the Sendai Framework for Disaster Risk Reduction (Draft)  
  
The latest version will be available on-line in early November  
  
  
  
  
  
Related indicators as of February 2020  
  
  
  
1.5; 11.5; 11.b; 13.1; 2.4; 3.6; 3.9; 3.d; 4.a; 6.6; 9.1; 9.a; 11.1; 11.3; 11.c; 13.2; 13.3; 13.a; 13.b; 14.2; 15.1; 15.2; 15.3; 15.9.

Last updated: 11 July 2017  
  
  
  
Goal 11: Make cities and human settlements inclusive, safe, resilient and sustainable  
  
Target 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  
  
Indicator 11.6.2: Annual mean levels of fine particulate matter (e.g. PM2.5 and PM10) in cities (population weighted)  
  
  
  
Institutional information  
  
  
  
Organization(s):  
  
World Health Organization (WHO)  
  
  
  
Concepts and definitions  
  
  
  
Definition:  
  
The mean annual concentration of fine suspended particles of less than 2.5 microns in diameters (PM2.5) is a common measure of air pollution. The mean is a population-weighted average for urban population in a country, and is expressed in micrograms per cubic meter [g/m3].  
  
  
  
Rationale:  
  
Air pollution consists of many pollutants, among other particulate matter. These particles are able to penetrate deeply into the respiratory tract and therefore constitute a risk for health by increasing mortality from respiratory infections and diseases, lung cancer, and selected cardiovascular diseases.  
  
  
  
Comments and limitations:  
  
Urban/rural data: while the data quality available for urban/rural population is generally good for high-income countries, it can be relatively poor for some low- and middle income areas. Furthermore, the definition of urban/rural may greatly vary by country.  
  
  
  
Methodology  
  
  
  
Computation Method:  
  
The annual urban mean concentration of PM2.5 is estimated with improved modelling using data integration from satellite remote sensing, population estimates, topography and ground measurements (WHO, 2016a; Shaddick et al, 2016)  
  
  
  
Disaggregation:  
  
The indicator is available by 0.1° x 0.1° grid size for the world.  
  
  
  
Treatment of missing values:  
  
At country level  
  
  
  
Missing values are left blank.  
  
  
  
At regional and global levels  
  
  
  
Missing values are excluded from the regional and global averages.  
  
  
  
Regional aggregates:  
  
The regional and global aggregates are population -weighted figures of the national estimates.   
  
  
  
Cagg=SUM (Cnat \* Pnat)/ SUM (Pnat)  
  
  
  
where Cagg is the regional/global estimate, Cnat is the national estimate, Pnat is the country population. The sum is done over the countries in the region (regional aggregate) or all countries (global aggregate).  
  
  
  
Sources of discrepancies:  
  
The source of differences between global and national figures: Modelled estimates versus annual mean concentrations obtained from ground measurements.  
  
  
  
Methods and guidance available to countries for the compilation of the data at the national level:  
  
Countries which have air quality monitoring networks in places in urban areas can use the annual mean concentrations from the ground measurements and the corresponding number of inhabitants to derive the population-weighted exposure to particulate matter in cities.  
  
  
  
Quality assurance  
  
Data inputs to the model are official or published data on air quality or other relevant topics. Modelled estimates are carefully crossed-checked and compared with official ground measurements.  
  
  
  
Consultation/validation process with countries for adjustments and estimates  
  
Data inputs, methods and final estimates are shared with countries prior to publication via WHO official communication channels with WHO Member States.  
  
  
  
Data Sources  
  
  
  
Description:  
  
Sources of data include ground measurements from monitoring networks, collected for 3,000 cities and localities (WHO 2016) around the world, satellite remote sensing, population estimates, topography, information on local monitoring networks and measures of specific contributors of air pollution (WHO, 2016b)  
  
  
  
Collection process:  
  
Data collection process for ground measurements include official reporting from countries to WHO (after request), and web searches. Measurements of PM10 or PM2.5 from official national/sub-national reports and websites or reported by regional networks such as Clean Air Asia for Asia and the European Environment Agency for Europe or data from UN agencies, development agencies, articles from peer reviewed journals and ground measurements compiled in the framework of the Global Burden of Disease Project.  
  
  
  
Data Availability  
  
  
  
Description:  
  
The indicator is available for 178 countries. Missing countries include mostly small states islands in the Western Pacific and in the Latin American and the Caribbean regions.  
  
  
  
Time series:  
  
Forthcoming  
  
  
  
Calendar  
  
  
  
Data collection:  
  
 During 2017  
  
   
  
Data release:  
  
2017-2018  
  
  
  
Data providers  
  
  
  
Ministry of Health, Ministry of the Environment  
  
  
  
Data compilers  
  
  
  
WHO  
  
  
  
References  
  
  
  
URL:  
  
  
  
www.who.int/gho/phe  
  
  
  
References:  
  
  
  
Shaddick G et al (2016). Data Integration Model for Air Quality: A Hierarchical Approach to the Global Estimation of Exposures to Ambient Air Pollution. Royal Statistical Society, arXiv:1609.0014.  
  
  
  
WHO (2016a). Ambient air pollution: a global assessment of exposure and burden of disease, WHO Geneva.  
  
WHO (2016b). WHO Urban ambient air quality database, WHO Geneva.  
  
  
  
Related indicators as of February 2020  
  
  
  
3.9.1:  
  
Mortality rate attributed to household and ambient air pollution

Last updated: 07 July 2017  
  
Goal 11: Make cities and human settlements inclusive, safe, resilient and sustainable  
  
Target 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  
  
Indicator 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  
  
  
  
Institutional information  
  
  
  
Organization(s):  
  
  
  
United Nations Office for Disaster Reduction (UNISDR)  
  
  
  
Concepts and definitions  
  
  
  
Definition:  
  
  
  
Direct economic loss: the monetary value of total or partial destruction of physical assets existing in the affected area. Direct economic loss is nearly equivalent to physical damage.  
  
  
  
[a] An open-ended intergovernmental expert working group on indicators and terminology relating to disaster risk reduction established by the General Assembly (resolution 69/284) is developing a set of indicators to measure global progress in the implementation of the Sendai Framework. These indicators will eventually reflect the agreements on the Sendai Framework indicators.  
  
  
  
Rationale:  
  
  
  
The disaster loss data is significantly influenced by large-scale catastrophic events, which represent important outliers. UNISDR recommends Countries to report the data by event, so complementary analysis can be done by both including and excluding such catastrophic events that can represent important outliers.  
  
  
  
Comments and limitations:  
  
  
  
Not every country has a comparable national disaster loss database that is consistent with these guidelines (although current coverage exceeds 89 countries). Therefore, by 2020, it is expected that all countries will build/adjust national disaster loss databases according to the recommendations and guidelines by the OEIWG.  
  
  
  
Methodology  
  
  
  
Computation Method:  
  
  
  
Note: Computation methodology for several indicators is very comprehensive, very long (about 180 pages) and probably out of the scope of this Metadata. UNISDR prefers to refer to the outcome of the Open Ended Intergovernmental Working Group, which provides a full detailed methodology for each indicator and sub-indicator.  
  
  
  
The latest version of these methodologies can be obtained at:  
  
  
  
http://www.preventionweb.net/documents/oiewg/Technical%20Collection%20of%20Concept%20Notes%20on%20Indicators.pdf  
  
  
  
A short summary:  
  
  
  
The original national disaster loss databases usually register physical damage value (housing unit loss, infrastructure loss etc.), which needs conversion to monetary value according to the UNISDR methodology\*. The converted global value is divided by global GDP (inflation adjusted, constant USD) calculated from the World Bank Development Indicators.  
  
  
  
Disaggregation:  
  
  
  
By country, by event, by hazard type (e.g. disaggregation by climatological, hydrological, meteorological, geophysical, biological and extra-terrestrial for natural hazards is possible following IRDR classification)  
  
  
  
By asset loss category (health/education/road etc.)  
  
  
  
By transportation mode (for 11.5.2)  
  
  
  
By service sector (for 11.5.2)  
  
  
  
Treatment of missing values:  
  
  
  
At country level  
  
  
  
In National Disaster Loss database data missing values and 0 or null are considered equivalent. This is a consequence of the typical form of disaster situation reports, which account only for those impacts that occurred. Normally impacts that not occur are simply not reported (i.e. there are no explicit reports that something didn't happen, for example if no agricultural damage occurs in a disaster, the associated report simply does not have a section on agriculture, instead of a section stating no impact occurred).  
  
  
  
At regional and global levels  
  
  
  
NA  
  
  
  
Regional aggregates:  
  
  
  
See under Computation Method.  
  
  
  
It will be calculated as the summation of Direct Economic Loss per country divided by the total global GDP.  
  
  
  
Sources of discrepancies:  
  
  
  
Threshold (e.g. including/excluding small/large scale disasters): International Data Sources record only events that surpass some threshold of impact. For example, EMDAT records only events with mortality greater than 10, affected greater than 100 or an international declaration. Private Insurance or Reinsurance global disaster databases record only events that have insured losses, which affects negatively countries with low insurance market penetration.   
  
  
  
Methodology / definition: International data sources use secondary data sources to assemble their datasets. These data sources usually have non uniform or even inconsistent methodologies, producing heterogeneous datasets.   
  
  
  
Observation (national level data is more comprehensive): International data collectors, due to limitations on access to information, do not record a large number of events that are not publicised internationally, or are never 'seen' by the secondary data sources used.  
  
  
  
Data Sources  
  
  
  
Description:  
  
  
  
National disaster loss database, reported to UNISDR  
  
  
  
Collection process:  
  
  
  
The official counterpart(s) at the country level will build/adjust national disaster loss databases according to the recommendations and guidelines by the OEIWG.  
  
  
  
Data Availability  
  
  
  
Description:  
  
  
  
Around 100 countries  
  
  
  
The number of countries with national disaster loss databases using the DesInventar tools and methodology currently stands at 89 countries. Given the requirements for disaster loss data enshrined in reporting on the SDGs and the targets of the Sendai Framework, it is expected that by 2020, all member states will have built or adjusted their national disaster loss databases according to the recommendations and guidelines by the OEIWG.  
  
  
  
Time series:  
  
  
  
From 1990 to 2013: National Disaster Loss Database   
  
  
  
Calendar  
  
  
  
Data collection:  
  
  
  
2017-2018   
  
  
  
Data release:  
  
  
  
Initial datasets in 2017, a first fairly complete dataset by 2019  
  
  
  
Data providers  
  
  
  
Name:  
  
  
  
In most countries national disaster loss databases are established and managed by special purpose agencies including national disaster management agencies, civil protection agencies, and meteorological agencies, and disaster data collected by line ministries. Some exceptions include Academic institutions conducting long term research programs, NGO's engaged in DRR and DRM, and insurance databases or data sources when market penetration is very high.  
  
  
  
Description:  
  
  
  
In most countries national disaster loss databases are established and managed by special purpose agencies including national disaster management agencies, civil protection agencies, and meteorological agencies, and disaster data collected by line ministries. Some exceptions include Academic institutions conducting long term research programs, NGO's engaged in DRR and DRM, and insurance databases or data sources when market penetration is very high.  
  
  
  
Data compilers  
  
  
  
UNISDR  
  
  
  
References  
  
  
  
URL:  
  
  
  
http://www.preventionweb.net/documents/oiewg/Technical%20Collection%20of%20Concept%20Notes%20on%20Indicators.pdf  
  
  
  
References:  
  
  
  
The Open-ended Intergovernmental Expert Working Group on Indicators and Terminology relating to Disaster Risk Reduction (OEIWG) was given the responsibility by the UNGA for the development of a set of indicators to measure global progress in the implementation of the Sendai Framework, against the seven global targets. The work of the OEIWG shall be completed by December 2016 and its report submitted to the General Assembly for consideration. The IAEG-SDGs and the UN Statistical Commission formally recognizes the role of the OEIWG, and has deferred the responsibility for the further refinement and development of the methodology for disaster-related SDGs indicators to this working group.  
  
  
  
http://www.preventionweb.net/drr-framework/open-ended-working-group/  
  
  
  
The latest version of documents are located at:  
  
  
  
http://www.preventionweb.net/drr-framework/open-ended-working-group/sessional-intersessional-documents  
  
  
  
Related indicators as of February 2020  
  
  
  
1.5; 11.5; 11.b; 13.1; 2.4; 3.6; 3.9; 3.d; 4.a; 6.6; 9.1; 9.a; 11.1; 11.3; 11.c; 13.2; 13.3; 13.a; 13.b; 14.2; 15.1; 15.2; 15.3; 15.9.

Last updated: March 2018  
  
Goal 11: Make cities and human settlements inclusive, safe, resilient and sustainable  
  
Target 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  
  
Indicator 11.5.1: Number of deaths, missing persons and directly affected persons attributed to disasters per 100,000 population  
  
  
  
Institutional information  
  
  
  
Organization(s):  
  
  
  
United Nations Office for Disaster Reduction (UNISDR)  
  
  
  
Definition and Rationale   
  
Definition:  
  
This indicator measures the number of people who died, went missing or were directly affected by disasters per 100,000 population.   
  
  
  
Concepts:  
  
Death: The number of people who died during the disaster, or directly after, as a direct result of the hazardous event.  
  
Missing: The number of people whose whereabouts is unknown since the hazardous event. It includes people who are presumed dead, for whom there is no physical evidence such as a body, and for which an official/legal report has been filed with competent authorities.  
  
Directly affected: The number of people who have suffered injury, illness or other health effects; who were evacuated, displaced, relocated or have suffered direct damage to their livelihoods, economic, physical, social, cultural and environmental assets. Indirectly affected are people who have suffered consequences, other than or in addition to direct effects, over time, due to disruption or changes in economy, critical infrastructure, basic services, commerce or work, or social, health and psychological consequences.  
  
  
  
Rationale and Interpretation:  
  
The Sendai Framework for Disaster Risk Reduction 2015-2030 was adopted by UN Member States in March 2015 as a global policy of disaster risk reduction. Among the global targets, “Target A: Substantially reduce global disaster mortality by 2030, aiming to lower average per 100,000 global mortality between 2020-2030 compared with 2005-2015” and “Target B: Substantially reduce the number of affected people globally by 2030, aiming to lower the average global figure per 100,000 between 2020-2030 compared with 2005-2015” will contribute to sustainable development and strengthen economic, social, health and environmental resilience. The economic, environmental and social perspectives would include poverty eradication, urban resilience, and climate change adaptation.  
  
The open-ended intergovernmental expert working group on indicators and terminology relating to disaster risk reduction (OIEWG) established by the General Assembly (resolution 69/284) has developed a set of indicators to measure global progress in the implementation of the Sendai Framework, which was endorsed by the UNGA (OIEWG report A/71/644). The relevant global indicators for the Sendai Framework will be used to report for this indicator.   
  
Disaster loss data is greatly influenced by large-scale catastrophic events, which represent important outliers. UNISDR recommends countries report the data by event, so that complementary analysis can be undertaken to obtain trends and patterns in which such catastrophic events (that can represent outliers) can be included or excluded.  
  
  
  
  
  
Method of Computation and Other Methodological Considerations  
  
Computation Method:  
  
Related indicators as of February 2020  
  
  
  
  
  
  
  
Where:  
  
A2 Number of deaths attributed to disasters;   
  
A3 Number of missing persons attributed to disasters; and   
  
B1 Number of directly affected people attributed to disasters.   
  
\* Detailed methodologies can be found in the Technical Guidance (see below the Reference section)  
  
  
  
Comments and limitations:  
  
The Sendai Framework Monitoring System has been developed to measure the progress in the implementation of the Sendai Framework by UNGA endorsed indicators. Member States will be able to report through the System from March 2018. The data for SDG indicators will be compiled and reported by UNISDR.  
  
   
  
Proxy, alternative and additional indicators:  
  
In most cases international data sources only record events that surpass some threshold of impact and use secondary data sources which usually have non uniform or even inconsistent methodologies, producing heterogeneous datasets.  
  
  
  
Data Sources and Collection Method  
  
Data sources and collection method:  
  
Data provider at national level is appointed Sendai Framework Focal Points. In most countries disaster data are collected by line ministries and national disaster loss databases are established and managed by special purpose agencies including national disaster management agencies, civil protection agencies, and meteorological agencies. The Sendai Framework Focal Points in each country are responsible of data reporting through the Sendai Framework Monitoring System.  
  
  
  
  
  
Data Disaggregation  
  
Number of deaths attributed to disasters;   
  
Number of missing persons attributed to disasters; and   
  
Number of directly affected people attributed to disasters.   
  
  
  
 [Desirable Disaggregation]:  
  
Hazard  
  
Geography (Administrative Unit)  
  
Sex  
  
Age (3 categories)  
  
Disability  
  
Income  
  
  
  
References  
  
Official SDG Metadata URL: https://unstats.un.org/sdgs/metadata/files/Metadata-01-05-01.pdf <to be updated with new docs>  
  
  
  
Internationally agreed methodology and guideline URL:   
  
Technical guidance for monitoring and reporting on progress in achieving the global targets of the Sendai Framework for Disaster Risk Reduction (UNISDR 2017)  
  
https://www.preventionweb.net/files/54970\_collectionoftechnicalguidancenoteso.pdf  
  
  
  
Other references:  
  
Report of the open-ended intergovernmental expert working group on indicators and terminology relating to disaster risk reduction (OEIWG). Endorsed by UNGA on 2nd February 2017. Available at: https://www.preventionweb.net/publications/view/51748  
  
  
  
  
  
Country examples:  
  
  
  
Contact International Organization for Global Monitoring  
  
United Nations Office for Disaster Risk Reduction (UNISDR)

Last updated: 19 July 2016  
  
  
  
Goal 11: Make cities and human settlements inclusive, safe, resilient and sustainable  
  
Target 11.3: By 2030, enhance inclusive and sustainable urbanization and capacity for participatory, integrated and sustainable human settlement planning and management in all countries  
  
Indicator 11.3.1: Ratio of land consumption rate to population growth rate  
  
  
  
Institutional information  
  
  
  
Organization(s):  
  
  
  
United Nations Human Settlements Programme (UN-Habitat)  
  
  
  
Concepts and definitions  
  
  
  
Definition:  
  
  
  
The indicator is defined as the ratio of land consumption rate to population growth rate.  
  
  
  
This indicator requires defining the two components of population growth and land consumption rate. Computing the population growth rate is more straightforward and more readily available, while land consumption rate is slightly challenging, and requires the use of new techniques. In estimating the land consumption rate, one needs to define what constitutes “consumption” of land since this may cover aspects of “consumed” or “preserved” or available for “development” for cases such as land occupied by wetlands. Secondly, there is not one unequivocal measure of whether land that is being developed is truly “newly-developed” (or vacant) land, or if it is at least partially “redeveloped”. As a result, the percentage of current total urban land that was newly developed (consumed) will be used as a measure of the land consumption rate. The fully developed area is also sometimes referred to as built up area.  
  
  
  
Rationale:  
  
  
  
Globally, land cover today is altered principally by direct human use: by agriculture and livestock raising, forest harvesting and management and urban and suburban construction and development. A defining feature of many of the world’s cities is an outward expansion far beyond formal administrative boundaries, largely propelled by the use of the automobile, poor urban and regional planning and land speculation. A large proportion of cities both from developed and developing countries have high consuming suburban expansion patterns, which often extend to even further peripheries. A global study on 120 cities shows that urban land cover has, on average, grown more than three times as much as the urban population [1]; in some cases similar studies at national level showed a difference that was three to five times fold. [3]. In order to effectively monitor land consumption growth, it is not only necessary to have the information on existing land use cover but also the capability to monitor the dynamics of land use resulting out of both changing demands of increasing population and forces of nature acting to shape the landscape.  
  
  
  
Cities require an orderly urban expansion that makes the land use more efficient. They need to plan for future internal population growth and city growth resulting from migrations. They also need to accommodate new and thriving urban functions such as transportation routes, etc., as they expand. However, frequently the physical growth of urban areas is disproportionate in relation to population growth, and these results in land use that is less efficient in many forms. This type of growth turns out to violate every premise of sustainability that an urban area could be judged by including impacting on the environment and causing other negative social and economic consequences such as increasing spatial inequalities and lessening of economies of agglomeration.  
  
  
  
This indicator is connected to many other indicators of the SDGs. It ensures that the SDGs integrate the wider dimensions of space, population and land adequately, providing the framework for the implementation of other goals such as poverty, health, education, energy, inequalities and climate change. The indicator has a multipurpose measurement as it is not only related to the type/form of the urbanization pattern. It is also used to capture various dimensions of land use efficiency: economic (proximity of factors of production); environmental (lower per capita rates of resource use and GHG emissions); social (reduced travel distance and cost expended). Finally, this indicator integrates an important spatial component and is fully in line with the recommendations made by the Data Revolution initiative.  
  
  
  
Concepts:  
  
  
  
Population growth rate (PGR) is the increase of a population in a country during a period, usually one year, expressed as a percentage of the population at the start of that period. It reflects the number of births and deaths during a period and the number of people migrating to and from a country.  
  
  
  
Land consumption includes: (a) The expansion of built-up area which can be directly measured; (b) the absolute extent of land that is subject to exploitation by agriculture, forestry or other economic activities; and (c) the over-intensive exploitation of land that is used for agriculture and forestry.  
  
  
  
Comments and limitations:  
  
  
  
In some cases, it is difficult to measure the urban expansion by conurbations of two or more urban areas that are in close proximity; to whom to attribute the urban growth and how to include it as one metric usually becomes a challenge. At the same time, data would not always coincide to administrative levels, boundaries and built-up areas. However, the European Commission highlights some possible drawbacks of this indicator that can be technically addressed. Efforts to use the area of reference at the level of the built-up area of the urban agglomeration should be taken into consideration. The delimitation of city boundaries may be another methodological problem that a clear agreed definition can solve.  
  
  
  
The indicator may experience difficulties in capturing cities with negative or zero population growth; or cities that due to severe disaster have lost part of their territories. To face this challenge, the baseline/benchmark of population density and its change over time must be taken into consideration. Reducing densities below sustainable levels have impacts on the cities’ sustainability.  
  
  
  
In the absence of the GIS layers, this indicator may not be computed as defined. As a result more alternative measures for land that is developed or consumed per year can be adequately used. Alternatively, one can monitor the efficient use of urban land by measuring how well we are achieving the densities in residential zones that any city plans or international guidance call for. Comparing achieved to planned densities is very useful at the city level. However, planned densities vary greatly from country to country, and at times from city to city. At the sub-regional or city levels, it is more appropriate to compare average densities achieved currently to those achieved in the recent past. While building more densely does use land more efficiently, high density neighborhoods, especially in and around urban centers, have a number of other advantages. They support more frequent public transportation, and more local stores and shops; they encourage pedestrian activity to and from local establishments; and they create lively (and sometimes safer) street life.  
  
  
  
Methodology  
  
  
  
Computation Method:  
  
  
  
The formula to estimate the land use efficiency will be provided with two stages.  
  
  
  
Stage 1: Estimate the population growth rate.   
  
  
  
Population Growth rate i.e. PGR=LN(Popt\_(t+n)/?Popt\_t )/((y))  
  
  
  
Where   
  
Popt Total population within the city in the past/initial year  
  
Popt+n Total population within the city in the current/final year  
  
y The number of years between the two measurement periods  
  
  
  
Stage 2: Estimating the land consumption rate  
  
  
  
This rate gives us a measure of compactness which indicates a progressive spatial expansion of a city.   
  
  
  
Land consumption rate i.e LCR=LN(Urb\_(t+n)/Urb\_t )/((y))  
  
  
  
Where  
  
Urb\_t Total areal extent of the urban agglomeration in km2 for past/initial year   
  
Urb\_(t+n) Total areal extent of the urban agglomeration in km2 for current year   
  
y The number of years between the two measurement periods  
  
  
  
The formula to estimate the ratio of land consumption rate to population growth rate (LCRPGR) is provided as follows:  
  
  
  
LCRPGR= (+ ( Land Consumption rate)/(Annual Population growth rate)¦)  
  
  
  
And the overall formula can be summarized as:  
  
LCRPGR=(((LN(Urb\_(t+n)/Urb\_t ))/y))/((LN(Pop\_(t+n)/Pop\_t )/y) )   
  
  
  
The periods for both- urban expansion and population growth rates should be at comparable scale.  
  
  
  
Disaggregation:  
  
  
  
Potential Disaggregation:  
  
- Disaggregation by location (intra-urban)  
  
- Disaggregation by income level  
  
- Disaggregation by urban typology  
  
  
  
Quantifiable Derivatives  
  
- Population density  
  
- Population density growth/reduction rate  
  
- Annual amount of urban expansion (km2)  
  
  
  
Percentage of urban expansion in relation to the urban footprint area  
  
  
  
Treatment of missing values:  
  
  
  
At country level  
  
  
  
All countries are expected to fully report on this indicator more consistently after 2-3 years with few challenges where missing values will be reported due to missing base map files. Therefore any missing values will be representative of populations where either population growth figures are unavailable or land consumption rates are inestimable. Because the values will be aggregated at the national levels from a national sample of cities, missing values will be less observed at national and global levels  
  
  
  
At regional and global levels  
  
  
  
See section above.  
  
  
  
Regional aggregates:  
  
  
  
Data at the global/regional levels will be estimated from national figures derived from national sample of cities. Regional estimates will incorporate national representations using a weighting by population sizes. Global monitoring will be led by UN-Habitat with the support of other partners and regional commissions.  
  
  
  
Sources of discrepancies:  
  
  
  
Based on several consultations, we note that in order to calculate the land use efficiency ratio we must stabilize the definition of population and spatial footprint of the city which is literally defined as “urban extension”. Unclear spatial definitions and an occasional use of admin boundaries arbitrarily set for population and surface accounting creates more spatially-generated noise than signal in the final accounting of the indicators. Already some spatial noise is particularly created by the use of ratios. The following data sources will be harmonized to ensure more consistent reporting on this indicator--Satellite data, built-up areas grids, time-standardized census population grids; globally complete classification grids can be aggregated to admin units but may create inconsistencies if they are not available for all cities, allowing to classify them by dominance of the urban/rural surfaces or similar approaches.  
  
  
  
Data Sources  
  
  
  
Description:  
  
  
  
Data for this indicator is available for all cities and countries (UN DESA population data) and satellite images from open sources. Several sources of information are required for this computation: Satellite imagery from open sources or the exact measurements in km squared of the built up areas or the land that is fully developed in Km squared, annual urban population data for the reference years of analysis.  
  
  
  
Data for the size of the city land that is currently considered as developed is usually available from the urban planning units of the cities. New options using remote sensing techniques have also been developed to estimate the land that is currently developed or considered as built up areas out of the total city land. This option also accurately extracts land that is considered as wetlands and hence unlikely to be occupied now or in the future.  
  
  
  
When the spatial measurement option is used, the use of the urban agglomeration (built-up area) is a precondition for the measurement and comparability of this indicator. Data for this indicator can be easily availed using global and local sources. The indicator has been collected and analyzed since 2000 by several municipalities and countries. Various governments (Mexico, Colombia Brazil, India, Ethiopia, etc., and most European countries) have collected data on this indicator recently.  
  
  
  
Eurostat collects data on this indicator using other comparable techniques. World Bank and Lincoln Institute collected data for 120 cities and published it in the Atlas of Urban Expansion. [02]. Currently UN-Habitat, Lincoln Institute and New York University prepared a similar study for another 200 cities.  
  
UN-Habitat City Prosperity Initiative is collecting data on this indicator for nearly 300 cities as part of the Agency’s efforts to integrate spatial analysis in the SDGs.  
  
  
  
Collection process:  
  
  
  
National level capacity building initiatives will aim to balance the knowledge and understanding of the analysis, compilation and reporting of this indicator. Global reporting will rely on the estimates that come from the national statistical agencies. With uniform standards in computation at the national level, few errors of omission or bias will be observed at the global/regional level. A rigorous analysis routine will be used to re-assess the quality and accuracy of the data at the regional and global levels. This will involve cross-comparisons with expected ranges of the values reported for cities.  
  
  
  
Data Availability  
  
  
  
Description:  
  
  
  
This indicator is categorized under Tier II, meaning the indicator is conceptually clear and an established methodology exists but data on many countries is not yet available. The Global Human Settlement Layer (GHSL) technology open framework is proposed for global open spatial baseline data production (built-up and population grids) – global open data is available and will be updated by EU support plus international partnership, the tools will be opened to national Authorities by a new platform and capacity building program that will be soon made available with the support of the EU and Habitat. Every country will soon be able to build their own set of built-up and population grids, or to use the globally-available ones.  
  
  
  
Time series:  
  
  
  
Available time series runs at the city and national level for selected countries   
  
  
  
Calendar  
  
  
  
Data collection:  
  
  
  
The monitoring of the indicator can be repeated at regular intervals of 5 years, allowing for three reporting points until the year 2030. Initial reporting is targeted for 2017 for all cities in the global sample of cities.   
  
  
  
Data release:  
  
  
  
Updates will be undertaken every year, which would allow for annual updates in reporting at the global level post 2017.   
  
  
  
  
  
Data providers  
  
  
  
UN-Habitat and other partners such as the Global Human Settlement Layer (GHSL) team and ESRI will support various components for reporting on this indicator. The global responsibility of building the capacity of national governments and statistical agencies to report on this indicator will be led by UN-Habitat. National governments/national statistical agencies will have the primary responsibility of reporting on this indicator at national level with the support of UN-Habitat to ensure uniform standards in analysis and reporting.  
  
  
  
Data compilers  
  
  
  
Name:  
  
  
  
UN-Habitat  
  
  
  
Description:  
  
  
  
UN-Habitat with the support of other selected partners will lead the compilation of data for this indicator.  
  
  
  
References  
  
  
  
URL:  
  
  
  
http://unhabitat.org/urban-knowledge/global-urban-observatory-guo/  
  
  
  
References:  
  
  
  
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URL References:  
  
  
  
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Related indicators as of February 2020  
  
  
  
11.2.1:  
  
Proportion of population that has convenient access to public transport, by sex, age and persons with disabilities  
  
  
  
11.6.2:  
  
Annual mean levels of fine particulate matter (e.g. PM2.5 and PM10) in cities (population weighted)  
  
  
  
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  
  
  
  
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  
  
  
  
15.1.2:  
  
Proportion of important sites for terrestrial and freshwater biodiversity that are covered by protected areas, by ecosystem type  
  
  
  
3.9.1:  
  
Mortality rate attributed to household and ambient air pollution  
  
  
  
6.1.1:  
  
Proportion of population using safely managed drinking water services  
  
  
  
6.2.1:  
  
Proportion of population using safely managed sanitation services, including a hand-washing facility with soap and water  
  
  
  
6.3.1:  
  
Proportion of wastewater safely treated  
  
  
  
7.1.1:  
  
Proportion of population with access to electricity  
  
  
  
7.2.1:  
  
Renewable energy share in the total final energy consumption  
  
  
  
8.1.1:  
  
Annual growth rate of real GDP per capita  
  
  
  
8.2.1:  
  
Annual growth rate of real GDP per employed person  
  
  
  
8.5.2:  
  
Unemployment rate, by sex, age and persons with disabilities  
  
  
  
11.6.1:  
  
Proportion of urban solid waste regularly collected and with adequate final discharge out of total urban solid waste generated, by cities  
  
  
  
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  
  
  
  
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 2015-2030 [a]

Last updated: 14 February 2018  
  
  
  
Goal 11: Make cities and human settlements inclusive, safe, resilient and sustainable  
  
Target 11.1: By 2030, ensure access for all to adequate, safe and affordable housing and basic services and upgrade slums  
  
Indicator 11.1.1: Proportion of urban population living in slums, informal settlements or inadequate housing  
  
  
  
Institutional information  
  
Organization(s):  
  
United Nations Human Settlements Programme (UN-Habitat)   
  
  
  
Concepts and definitions   
  
  
  
The nature of the housing sector with its institutions, laws and regulations, is one that touches every single aspect of the economy of a country and has interface with practically every social development sector. People living in adequate homes have better health, higher chances to improve their human capital and seize the opportunities available in urban contexts. At the same time, a housing sector that performs well acts as a ‘development multiplier’ benefiting complementary industries, contributing to economic development, employment generation, service provision and overall poverty reduction. Broadly, for every job in the house-building sector, an additional 1.5 to 2 jobs are generally created in the construction materials and other input industries. The contributions of housing to urban prosperity are also evident. The UN-Habitat City Prosperity Initiative reveals indicates that inadequate housing has negative effects on several other dimensions of urban prosperity. Urban contexts with housing conditions below average experience poorer equity and inclusion, reduced urban safety and livelihood opportunities, and have neglected connectivity and provision of public space.  
  
  
  
Inadequate housing thus remains very much a global urban sustainability challenge but also development opportunity. At the same time, the thematic area of ‘adequate housing’ and especially the term ‘slums’ - are often highly politicized. More nuanced definitions of these terms would enable and support a more robust and measured debate, greater engagement by all key stakeholders and the development of specific recommendations for application within each context and place.   
  
  
  
In order to develop a more nuanced definition, there are a number of interrelated terms that must be grappled with when considering an indicator for the SDG Target 11.1. They include inadequate housing and housing affordability, informal settlements and slums.   
  
  
  
Housing affordability  
  
One of the most daunting challenges of urbanization globally has been the provision of adequate housing that people can afford. Findings from the UN Global Sample of Cities show that people across all types of urban centres are not able to afford home ownership or even the cost of rental housing. In low-income countries for example, households need to save the equivalent of nearly eight times their annual household income in order to be able to afford the price of a standard house in their town or city. If they rent, households have to commit more than 25 per cent of their monthly income to rent payments.   
  
  
  
The affordability issue is affecting the developing and developed worlds alike. In Latin America, high house price-to-income ratio and inaccessible housing finance compel households to resort to informal solutions without the benefits of planning and safety regulations. In many parts of Sub-Saharan Africa, less than 10 per cent of households are able to afford a mortgage for even the cheapest newly built house. In fact, African households face 55 per cent higher housing costs relative to their per capita GDP than in other regions. In many European countries, families, especially the youth, are severely cost burdened and have much less to spend on other necessities such as food, health, transport and clothing. In extreme circumstances, households are forced to leave their accommodation because of the inability to pay. The current migration crisis has worsened housing conditions in the region, a trend that seems set to continue in the next few years.  
  
  
  
Inadequate housing, informal settlements and slums  
  
Today, an estimated 1.6 billion people live in inadequate housing globally, of which 1 billion live in slums and informal settlements. This means that about one in four people in cities live in conditions that harm their health, safety, prosperity and opportunities. Lack of access to basic services is a common constraint in informal settlements and slums: worldwide 2.4 billion people live without improved sanitation and 2 billion are affected by water stress. In spite of a decrease from 39 to 30 per cent of urban population living in slums between 2000 and 2014, absolute numbers continue to grow: currently, one quarter of the world’s urban population is estimated to live in slums, 881 million urban residents as opposed to 792 million in 2000. Young women- and children-headed households are often the most vulnerable to inadequate housing conditions. Homelessness is also a growing challenge and it is estimated that more than 100 million people worldwide are homeless.  
  
  
  
Slums represent one of the most extreme forms of deprivation and exclusion and remain a critical factor for the persistence of poverty and exclusion in the world – indeed a challenge for sustainable and inclusive urbanization. Research shows that other forms of urban poverty in the form of informal settlements increasingly become a worldwide phenomenon found also in the developed world.  
  
  
  
At the same time, not all people who live in inadequate housing live in slums but are nonetheless living in very substandard conditions in the urban contexts in which they are situated. The nature of these unsatisfactory living conditions must be captured and better represented in the global, country and city-level data to ensure a more robust picture of inadequate housing is documented. In light of this, the following definitions are proposed.  
  
  
  
Definition and concept:   
  
As per the 2030 Agenda, to guide the development of the appropriate policies and programmes for ensuring access for all to adequate housing and the upgrading of slums, it is necessary to identify and quantify the proportion of the population that live in slums, informal settlements and those living in inadequate housing.  
  
   
  
a. Slums – An expert group meeting was convened in 2002 by UN-Habitat, the United Nations Statistics Division and the Cities Alliance to agree on an operational definition for slums to be used for measuring the indicator of MDG 7 Target 7.D. The agreed definition classified a ‘slum household’ as one in which the inhabitants suffer one or more of the following ‘household deprivations’:  
  
Lack of access to improved water source,  
  
Lack of access to improved sanitation facilities,   
  
Lack of sufficient living area,   
  
Lack of housing durability and,  
  
Lack of security of tenure. By extension, the term ‘slum dweller’ refers to a person living in a household that lacks any of the above attributes.  
  
  
  
These five components –all derived from the adequate housing’s definition have been used ever since for reporting and tracking of the MDGs, as the primary or secondary data measured to determine the number of slum dwellers living in developing countries. They were also the basis to establish the successful achievement of MDG Target 7.D. For each component, the experts agreed with the following sub-definitions:  
  
  
  
1) Access to improved water – A household is considered to have access to improved drinking water if it has sufficient amount of water (20 litres/person/day) for family use, at an affordable price (less than 10% of the total household income) and available to household members without being subject to extreme effort (less than one hour a day for the minimum sufficient quantity), especially to women and children. An improved drinking water source is a facility that is protected from outside contamination, in particular from faecal matters’ contamination. Improved drinking water sources include: piped water into dwelling, plot or yard; public tap/stand pipe serving no more than 5 households; protected spring; rainwater collection; bottled water (if secondary source is also improved); bore hole/tube well; and, protected dug well.  
  
  
  
2) Access to improved sanitation – A household is considered to have access to improved sanitation if an excreta disposal system, either in the form of a private toilet or a public toilet shared with a reasonable number of people, is available to household members. Such improved sanitation facilities, therefore, hygienically separates human waste from human contact. Improved facilities include: flush/pour-flush toilets or latrines connected to a sewer, septic tank or pit; ventilated improved pit latrine; pit latrine with a slab or platform, which covers the pit entirely; and, composting toilets/latrines.  
  
  
  
3) Sufficient living area /overcrowding– A dwelling unit provides sufficient living area for the household members if not more than three people share the same habitable room. Additional indicators of overcrowding have been proposed: area-level indicators such as average in-house living area per person or the number of households per area. Additionally, housing-unit level indicators such as the number of persons per bed or the number of children under five per room may also be viable. However, the number of persons per room has been shown to correlate with adverse health risks and is more commonly collected through household survey.. UN-Habitat believes that the definition as it stands does not reflect the practical experience of overcrowding and as noted below, is proposing an alternative.   
  
  
  
   
  
Figure 1- Example of Overcrowding  
  
  
  
4) Structural quality/durability of dwellings – A house is considered as ‘durable’ if it is built on a non-hazardous location and has a permanent and adequate structure able to protect its inhabitants from the extremes of climatic conditions such as rain, heat, cold, and humidity. The following criteria are used to determine the structural quality/durability of dwellings: permanency of structure (permanent building material for the walls, roof and floor; compliance with building codes; the dwelling is not in a dilapidated state; the dwelling is not in need of major repair); and location of house (hazardous location; the dwelling is not located on or near toxic waste; the dwelling is not located in a flood plain; the dwelling is not located on a steep slope; the dwelling is not located in a dangerous right of way: rail, highway, airport, power lines).  
  
  
  
5) Security of tenure – Secure tenure is the right of all individuals and groups to effective protection by the State against forced evictions. Security of tenure is understood as a set of relationships with respect to housing and land, established through statutory or customary law or informal or hybrid arrangements, that enables one to live in one’s home with security, peace and dignity (A/HRC/25/54). Regardless of the type of tenure, all persons with security of tenure have a legal status against arbitrary unlawful eviction, harassment and other threats. People have secure tenure when: there is evidence of documentation that can be used as proof of secure tenure status; and, there is either de facto or perceived protection from forced evictions. Important progress has been made to integrate the measurement of this component into the computation of the people living in slums.  
  
  
  
Informal Settlements   
  
b. Informal Settlements – Informal settlements are usually seen as synonymous of slums, with a particular focus on the formal status of land, structure and services. They are defined by three main criteria, according to Habitat III Issue Paper #22, which are already covered in the definition of slums. These are:   
  
Inhabitants have no security of tenure vis-à-vis the land or dwellings they inhabit, with modalities ranging from squatting to informal rental housing,   
  
The neighbourhoods usually lack, or are cut off from, formal basic services and city infrastructure, and   
  
The housing may not comply with current planning and building regulations, is often situated in geographically and environmentally hazardous areas, and may lack a municipal permit.   
  
  
  
Informal settlements can be occupied by all income levels of urban residents, affluent and poor.   
  
  
  
Inadequate Housing  
  
  
  
c. Inadequate Housing – Article 25 of the Universal Declaration of Human Rights includes housing as one of the components of the right to adequate standards of living for all. The United Nations Committee on Economic, Social and Cultural Rights’ general comments No.4 (1991) on the right to adequate housing and No.7 (1997) on forced evictions have underlined that the right to adequate housing should be seen as the right to live somewhere in security, peace and dignity. For housing to be adequate, it must provide more than four walls and a roof, and at a minimum, meet the following criteria:   
  
Legal security of tenure, which guarantees legal protection against forced evictions, harassment and other threats;   
  
Availability of services, materials, facilities and infrastructure, including safe drinking water, adequate sanitation, energy for cooking, heating, lighting, food storage or refuse disposal;   
  
Affordability, as housing is not adequate if its cost threatens or compromises the occupants’ enjoyment of other human rights;   
  
Habitability, as housing is not adequate if it does not guarantee physical safety or provide adequate space, as well as protection against the cold, damp, heat, rain, wind, other threats to health and structural hazards;   
  
Accessibility, as housing is not adequate if the specific needs of disadvantaged and marginalized groups are not taken into account (such as the poor, people facing discrimination; persons with disabilities, victims of natural disasters);   
  
Location, as housing is not adequate if it is cut off from employment opportunities, health-care services, schools, childcare centres and other social facilities, or if located in dangerous or polluted sites or in immediate proximity to pollution sources; and  
  
Cultural adequacy, as housing is not adequate if it does not respect and take into account the expression of cultural identity and ways of life.  
  
  
  
Table 1. Criteria defining slums, informal settlements and inadequate housing  
  
  
  
Slums   
  
Informal Settlements  
  
Inadequate Housing  
  
access to water  
  
X  
  
X  
  
X  
  
access to sanitation  
  
X  
  
X  
  
X  
  
sufficient living area, overcrowding  
  
X  
  
  
  
X  
  
structural quality, durability and location  
  
X  
  
X  
  
X  
  
security of tenure  
  
X  
  
X  
  
X  
  
affordability  
  
  
  
  
  
X  
  
accessibility  
  
  
  
  
  
X  
  
cultural adequacy  
  
  
  
  
  
X  
  
  
  
Rationale:   
  
As seen in Table 1, most of the criteria for defining slums, informal settlements and inadequate housing overlap. The three criteria of informal settlements are essentially captured in the definition of slums, which sustains the combination of both (slums/informal settlements). From the seven criteria of adequate housing, the three that are not covered by slums / informal settlements are affordability, accessibility and cultural adequacy. For the purpose of composing an indicator, affordability is the most relevant and easier to measure.   
  
  
  
Thus, in order to come up with a composite indicator, the metadata for the SDG Indicator 11.1.1 is proposing to group the definition of slums and informal settlements, to allow for comparison with MDGs, and add the element of affordability from the definition of adequate housing.   
  
  
  
In this regard, housing affordability is not only a key housing adequacy criterion, but is a suitable means of measuring inadequate housing in a more encompassing manner, as it remains a global challenge across different countries and income levels, with strong negative impact on urban inequality.   
  
The underlying principle is that household financial costs associated with housing should not threaten or compromise the attainment and satisfaction of other basic needs such as, food, education, access to health care, transport, etc. Based on the existing method and data of UN-Habitat’s Urban Indicators Program (1996-2006), unaffordability is currently measured as the net monthly expenditure on housing cost that exceeds 30% of the total monthly income of the household.  
  
Thus, Indicator 11.1.1 is expected to be a composite one, with the main components of slum/informal settlements’ and the added component of affordability defining inadequate housing. Table 1 details the proposed definition of Slum/Informal Settlements and Inadequate Housing as well as the respective measurements.   
  
  
  
Table 1 – Definition and measurement criteria for slums, informal settlements and inadequate housing  
  
Slums / Informal Settlements  
  
DEFINITION:  
  
As adopted in the MDG, household where the inhabitants suffer one or more of the following ‘household deprivations’: 1) Lack of access to improved water source, 2) Lack of access to improved sanitation facilities, 3) Lack of sufficient living area, 4) Lack of housing durability and, 5) Lack of security of tenure).  
  
  
  
  
  
MEASUREMENT:  
  
Security of Tenure:  
  
• Proportion of households with formal title deeds to both land and residence.  
  
• Proportion of households with formal title deeds to either one of land or residence.  
  
• Proportion of households with agreements or any document as a proof of a tenure arrangement.  
  
  
  
Adequate water:  
  
A settlement has an inadequate drinking water supply if less than 50% of households have an improved water supply:  
  
•household connection;  
  
•access to public stand pipe;  
  
•rainwater collection; with at least 20 liters/person/day available within an acceptable collection distance.  
  
  
  
Access to sanitation:  
  
A settlement has inadequate sanitation if less than 50% of households have improved sanitation:  
  
• public sewer;  
  
• septic tank;  
  
• pour-flush latrine;  
  
• Ventilated improved pit latrine.  
  
The excreta disposal system is considered adequate if it is private or shared by a maximum of two households.  
  
Structural quality of Housing and location: Proportion of households residing on or near a hazardous site. The following locations should be considered:  
  
• housing in geologically hazardous zones (landslide/earthquake and flood areas);  
  
• housing on or under garbage mountains;  
  
• housing around high-industrial pollution areas;  
  
• housing around other unprotected high-risk zones (e.g. railroads, airports, energy transmission lines).  
  
  
  
Structural quality of the housing and permanency of the structure:  
  
Proportion of households living in temporary and/or dilapidated structures. The following factors should be considered when placing a housing unit in these categories:   
  
• quality of construction (e.g. materials used for wall, floor and roof);  
  
• compliance with local building codes, standards and bylaws.  
  
  
  
Sufficient living area / Overcrowding:  
  
• Proportion of households with more than two persons per room.   
  
Inadequate housing   
  
DEFINITION:   
  
Proposed to complement the slums/informal settlements measuring affordability of housing at the global level.  
  
MEASUREMENT:   
  
Affordability:   
  
• Proportion of households with net monthly expenditure on housing exceeding 30% of the total monthly income of the household.  
  
  
  
  
  
Comments and limitations:  
  
As with all indicators, there are a number of potential challenges and limitations. Some of these are outlined below.  
  
Difficulties to agree universally on some definitions and characteristics when referring to deteriorated housing conditions, often due to political or economic considerations.  
  
Lack of appropriate tools at national and city levels to measure all components required by Indicator 11.1.1, sometimes resulting in the underestimation of deteriorated housing units.  
  
The complicated relation between security of tenure with land and property makes it a difficult, but vital, aspect to include in the different surveys, and thus, to measure and monitor.   
  
Indicator 11.1.1 does not capture homelessness.  
  
Many countries still have limited capacities for data collection, management and analysis, their update and monitoring. These are key to ensure national and global data consistency.  
  
  
  
  
  
Methodology  
  
Computation Method:  
  
The indicator considers two components to be computed as follows:  
  
Slum/Informal Settlements households (SISH):   
  
   
  
  
  
  
  
  
  
Inadequate housing households (IHH):  
  
  
  
  
  
The unit of measurements for all these indicators will be %. Currently, the data for this indicator is already being reported in nearly all developing countries on what refers to slums and informal settlements, and in some countries for what refers to expenditure on housing. The SDG indicator 11.1.1 will therefore contribute to report on a broader spectrum of inadequate housing conditions affecting households in all countries.  
  
  
  
Disaggregation:  
  
  
  
Potential Disaggregation:  
  
Disaggregation by location (intra-urban)  
  
Disaggregation by income group  
  
Disaggregation by sex, race, ethnicity, religion, migration status (head of household)  
  
Disaggregation by age (household members)  
  
Disaggregation by disability (household members)  
  
  
  
Quantifiable Derivatives:  
  
Proportion of households with durable housing  
  
Proportion of households with improved water  
  
Proportion of households with improved sanitation  
  
Proportion of households with sufficient living space  
  
Proportion of households with security of tenure  
  
Proportion of households with one (1) housing deprivation  
  
Proportion of households with multiple (3 or more) housing deprivations  
  
Proportion of households with approved municipal permit  
  
Proportion of households with (in) adequate housing (affordability)  
  
  
  
Treatment of missing values:   
  
At country level  
  
All countries are expected to fully report on this indicator more consistently with few challenges where missing values will be reported at the national/global level. At the national level, it is possible that missing values will be recorded perhaps representing gaps of non-measurements among populations whose status of slum-hood or informality or inadequate housing is not recorded, unknown or where data is unavailable. Because the values will be aggregated at the national levels, missing values will be less observed at these levels, but are likely to affect the estimates. At the survey and data collection level, survey procedures for managing missing values will be applied based on the unit of analysis/ primary sampling units.  
  
  
  
At regional and global levels  
  
Global estimates will be adjusted with modelling based on trends to cater for missing information or data.  
  
  
  
Regional aggregates:  
  
Regional and global estimates will be derived from national figures with an appropriate disaggregation level. Specialized tools will be developed and agreed upon with local and international stakeholders. Systems of quality assurance on the use of the tools, analysis and reporting will be deployed regionally, and global to ensure that standards are uniform and that definitions are universally applied.  
  
We expect that investments in improved data collection and monitoring at country level will produce incentives for governments to improve reporting and performance and also greater readiness to engage with multiple stakeholders in data collection and analysis and in achieving better understanding of the strengths and weaknesses of existing slum definitions and their applications.   
  
  
  
Sources of discrepancies:  
  
As national agencies are responsible for data collection, no differences between country produced data and international estimated data on the indicator are expected to arise if standard methodologies and procedures are followed at all stages of the reporting process. Missing data and other local variables and frequency of data collection usually affects the figures reported at the global and national level. For this indicator, national data will be used to derive global figures. In instances where global values differ from national figures, efforts will be made for harmonization.  
  
  
  
Data Sources  
  
Sources and data collection:  
  
Data for the slum/informal settlements components of the indicator can be computed from Census and national household surveys, including DHS and MICS. Data for the inadequate housing component can be computed through income and household surveys that capture housing expenditures.  
  
  
  
As per all the agreed Agenda 2030’s goals and targets, to measure the achievement of this indicator will require the mobilisation of means required to efficiently monitor them, calling for revitalised partnerships with the participation of all countries, all stakeholders and all communities concerned.  
  
  
  
For primary reporting, national data providers (especially the Statistical agencies) will play an important role generating the primary data through census and surveys. Regional and global estimates will be derived from national figures with appropriate disaggregation. Specialized tools will be developed and agreed upon with local and international stakeholders. Quality assurance on the use of the tools, analysis and reporting will be deployed regionally and globally, to ensure that standards are uniform and that definitions are universally applied.  
  
  
  
Data Availability  
  
Description:  
  
Data on slums is available for all developing countries, as it has been reported yearly by UN-Habitat in the MDGs’ reports. Recently, UN-Habitat has disaggregated information on this indicator at city level, increasing its suitability for SDG 11. The people living in slums’ indicator is currently measured in more than 320 cities across the world as part of UN-Habitat City Prosperity Initiative. UN-Habitat and World Bank computed this indicator for many years (1996-2006) as part of the Urban Indicators Programme. Data on inadequate housing, measured through housing affordability, is available for all OECED countries as well as in UN Global Sample of Cities covering 200 cities. Data on inadequate housing, measured through housing affordability, is available in many countries. UN-Habitat and World Bank computed this indicator for many years (1996-2006) as part of the Urban Indicators Programme. Recently, the Global Housing Indicators Working Group, a collaborative effort of Cities Alliance, Habitat for Humanity International, the Inter-American Development Bank, UN-Habitat proposed the collection of data on this indicator worldwide.  
  
  
  
Calendar  
  
All major surveys and census data collection process will continue to incorporate the aspects/components necessary for reporting on this indicator. The monitoring of this indicator will be repeated at regular intervals of 3-5 years, allowing for three-five year reporting points until the year 2030.  
  
  
  
Data providers and compilers  
  
This indicator has largely been successfully due to the collaborations between several organizations and institutions including UN- Habitat, UNEP, Cities Alliance, Slum dwellers International, and World Bank. There are several other experts who have also contributed to the development of the concepts, rationale and definitions, and metadata and will also support measurement, reporting and policy dialogue at the country level, based on the indicators.  
  
For primary reporting, National data provider especially the Statistical agencies will play an important role of generation of the primary data through census and surveys. Final Compilation & reporting at the global level will be lead and guided by UN-Habitat with support from selected partners.   
  
  
  
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[5]: http://unhabitat.org/slum-almanac-2015-2016/  
  
[6]: http://wcr.unhabitat.org/  
  
[7]: http://www.unhabitat.org/programmes/guo/documents/EGM final report 4 Dec 02.pdf  
  
  
  
Related indicators as of February 2020  
  
Direct relation  
  
1.1.1 Poverty rate; 1.1.2 Poverty rate, national; 6.1.1 Access to Improved Water; 6.2.1 Access to Improved Sanitation; 7.1.1 Access to Electricity; 8.3.1 Informal Employment; 8.5.2 Unemployment Rate  
  
8.6.1 Youth Unemployment; 10.2.1 Population below Median Income; 10.1.1 Grow rates of the poorest 40%; 11.2.1 Public Transit Stop Coverage; 11.5.1 Population Affected by Hazardous Events; 11.6.1 Solid Waste Collection; 11.7.1 Accessibility to Open Public Area; 11.7.2 Public Space Safety for Women; 16.1.1 Homicide rate; 16.1.3 Population subjected to Violence.

Last updated: 06 December 2018   
  
Goal 11: Make cities and human settlements inclusive, safe, resilient and sustainable  
  
Target 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   
  
Indicator 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   
  
  
  
Institutional information  
  
  
  
Organization(s):  
  
UN-HABITAT  
  
  
  
Concepts and definitions  
  
  
  
Definition and concepts:  
  
Indicator 11.7.1 has several interesting concepts that required global consultations and consensus. These include; built-up area, cities, open spaces for public use, etc. As a custodian agency, UN-Habitat has worked on these concepts along with several other partners.  
  
  
  
City: A range of accepted definitions of the “city” exist, from those based on population data and extent of the built-up area to those that are based solely on administrative boundaries. These definitions vary within and between nations, complicating the task of international reporting for the SDGs. As partners, UN-Habitat organized global consultations and discussions to narrow down the set of meaningful definitions that would be helpful for the global monitoring and reporting process. The global consultations narrowed down to two city definitions, both emanating from joint work conducted by teams from New York University and European Commission-Joint Research Centre. These are available elsewhere with full documentation of the pros and cons for each. For this indicator, partners resolved to work with the City as defined by its Urban extent (built-up and urbanized open space).  
  
  
  
City as defined by its Urban extent (built-up and urbanized open space)   
  
The definition of urban extent described in this note was developed to facilitate the study of a global sample of 200 cities in the production of the Atlas of Urban Expansion: 2016 Edition. It relies on the analysis of satellite imagery to define the boundary of the city morphologically – based on the density of structures, not on the density of population, which we know to be highly variable in different contexts. It supposes that non-residential zones should be thought of as part of the city, along with open spaces such as parks and small amounts of undeveloped land, in addition to residential areas that report populations for the census.  
  
  
  
Urban extent is defined as the total area occupied by the built-up area and the urbanized open space. The built-up area is defined as the contiguous area occupied by buildings and other impervious surfaces.   
  
Landsat imagery is used to identify and classify the built-up pixels into 3 types depending on the share of built-up density (urban-ness) in a 1-km2 circle of a given building (walking distance radius of about 564 meters around a given building):  
  
Urban built-up area: pixels where the walking distance circle has a built-up density greater than 50%.   
  
Suburban built-up area: pixels where the walking distance circle has a built-up density between 25%-50%. It also includes subdivided land, whether it is wholly unbuilt or not.  
  
Rural built-up area: pixels where the walking distance circle has a built-up density of less than 25% and that are not on subdivided land.  
  
  
  
The urbanized open space (mainly refers to unbuilt areas including open countryside, forests, crop fields, parks, unbuilt urban areas, cleared land) is classified into 3 types:  
  
  
  
Fringe open space consists of all open space pixels within 100 meters of urban or suburban pixels;  
  
Captured open space consists of all open space clusters that are fully surrounded by urban and suburban built-up pixels and the fringe open space pixels around them, and that are less than 200 hectares in area; and  
  
Rural open space consists of all open spaces that are not fringe or captured open spaces.  
  
  
  
The fringe open space and captured open space together make up the urbanized open space in a given study area. In other words, the urban extent consists of all the buildings and the small open space areas (<200 ha) that are surrounded by buildings and the open space fringe that is within 100 meters of urban and suburban areas (i.e. where built up area is more than 25%).  
  
  
  
Public space: The Global Public Space toolkit defines Public Space as all places that are publicly owned or of public use, accessible and enjoyable by all, free and without a profit motive, categorized into streets, open spaces and public facilities.   
  
For the purpose of monitoring and reporting on indicator 11.7.1, public space is defined as all places of public use, accessible by all, and comprises open public space and streets. Public space in general is defined as the meeting or gathering places that exist outside the home and workplace that are generally accessible by members of the public, and which foster resident interaction and opportunities for contact and proximity. This definition implies a higher level of community interaction and places a focus on public involvement rather than public ownership or stewardship. For measurement of indicator 11.7.1, the elements which can be considered as open public space include:   
  
Parks: Open space inside an urban territory that provide free air recreation and contact with nature. Their principal characteristic is the significant proportion of green area.  
  
Recreational areas: public areas that contribute to environmental preservation. Their main functions can be both ornamental and passive recreation. These include areas such as playgrounds, riverfronts, waterfronts, public beaches, etc.   
  
Civic parks: Open space created because of building agglomeration around an open area, which was later transformed into a representative civic area. They are characterized by considerable nature, specifically gardens and a good place for cultural events and passive recreation.  
  
Squares and Plazas: Open spaces created because of building agglomeration around an open area. Its main characteristics are the significant architectonic elements and interaction between buildings and the open area. Squares are usually public spaces relevant to the city due to their location, territorial development, or cultural importance.  
  
  
  
Streets are defined thoroughfares that are based inside towns, cities and neighbourhoods most commonly lined with houses or buildings used by pedestrians or vehicles in order to go from one place to another in the city, interact and to earn a livelihood. The main purpose of a street is facilitating movement and enabling public interaction. The following elements are considered as streets space: Streets, avenues and boulevards, pavements, passages and galleries, Bicycle paths, sidewalks, traffic island, tramways and roundabouts. Elements excluded from street space include plots (either built-up), open space blocks, railways, paved space within parking lots and airports and individual industries.  
  
  
  
Land allocated to streets: refers to the total area of urban surface that is occupied by all forms of streets (as defined above). This indicator only includes streets available at the time of data collection and excludes proposed networks.  
  
  
  
Rationale:  
  
The value of public spaces is often overlooked or underestimated by policy makers, leaders, citizens and urban developers. There are several reasons for this, such as the lack of resources, or understanding or capacity to use public space as a complete, multi-functional urban system. Often the lack of appropriate enabling frameworks, weak political will and the absence of the means of public engagement compound the situation. Nevertheless, fundamentally, the lack of a global measurement indicator has hindered the local and global appreciation of the value of the public spaces.   
  
  
  
The SDGs have for the first time provided a platform where public spaces can be globally monitored. The indicator 11.7.1 aims to monitor successfully the amount of land that is dedicated by cities for public space (open spaces and streets). Cities vary considerably in size, history, development patterns, designs, shapes and citizen’s attitudes towards public spaces. Measuring how much public space a city has is only one part of measuring whether residents actually benefit from the space. For more than a decade, UN-Habitat has promoted the use of public space as an implementation and delivery strategy for projects in urban planning, housing and slum upgrading, governance and urban safety, basic services and even post-conflict reconstruction.  
  
  
  
In 2011, UN-Habitat’s Governing Council gave a clear opportunity and direction through Resolution 23/4 to consolidate agency-wide work on public space. UN-Habitat’s Member States mandated the agency to develop an approach that promotes the role of public space in meeting the challenges of our rapidly urbanizing world, and to coordinate various global partners and experts on public space and to directly assist cities in their initiatives on the public space management and monitoring. This mandate led to the initiation of the methodological work on global monitoring and reporting on public spaces.   
  
Based on this mandate, UN-Habitat and its partners spearheaded discussions and work on global definitions, as well as measurement of various elements of public space. The inclusion of a global indicator on public space within the SDGs framework further invigorated the already ongoing efforts by UN-Habitat. In its bid to fast track the monitoring of public spaces as required in the SDGs framework, UN-Habitat over the last two years has undertaken initiatives aimed at enhancing clarity on concepts, refining methodologies and facilitating their piloting and adoption across the world. Some of the key activities undertaken by the agency towards this goal included convening of several consultations and expert group meetings to address the outstanding issues on definitions and concepts, refining and piloting the indicator computation methodology, and developing a strategy for developing Member States capacities to monitor open public spaces.   
  
  
  
The Right to the City. By recognizing and developing the positive potential of their public spaces, cities can enhance safety and security, create economic opportunity, improve public health, and create diverse public environments and public democracy. In a century where the right to the city movement is increasingly being recognized, it is important to develop cities where people of all income groups, social classes and ages can live safely, happily and in economic security.   
  
  
  
Urban Planning for City Leaders (UPCL). UN-Habitat has put forward a list of recommended steps to be followed in securing better public spaces in cities. These are contained in the UN-Habitat Publication “Urban Planning for City Leaders (2013)” under the chapter ‘Define and Enhance Public Space’, in which four broad categories of intervention are presented:   
  
Secure sufficient public space in advance   
  
Plan a system of public spaces  
  
Reap the benefits of well-designed streets   
  
Plan green public spaces  
  
  
  
The Street as Public Spaces - Drivers of Prosperity. Furthermore, the issue of the street as an important public space has been explored in depth in a recently published technical report entitled Street as Public Spaces-Drivers of Prosperity (2013). The research looked at 30 cities spread globally and found evidence to prove that prosperous cities are those that have allocated sufficient land to street development (with proper layout), including sufficient crossings along an appropriate, lengthy network.  
  
  
  
Public space and other intergovernmental bodies. It is also important to note that other intergovernmental bodies, in addition to the UN-Habitat’s Governing Council, have stressed the importance of public space for sustainable urban development. As early as 2007, the Ministers responsible for urban development of the European Union adopted the Leipzig Charter on Sustainable European Cities. The charter contains a strong and explicit statement in support of public space:  
  
“The quality of public spaces, urban man-made landscapes and architecture and urban development play an important role in the living conditions of urban populations. As soft locational factors, they are important for attracting knowledge industry businesses, a qualified and creative workforce and for tourism. Therefore, the interaction of architecture, infrastructure planning and urban planning must be increased in order to create attractive, user oriented public spaces and achieve a high standard in terms of the living environment, a “Baukultur”. Baukultur is to be understood in the broadest sense of the word, as the sum of all the cultural, economic, technological, social and ecological aspects influencing the quality and process of planning and construction. However, this approach should not be limited to public spaces. Such a “Baukultur” is needed for the city as a whole and its surroundings. Both cities and government must make their influence felt. This is particularly important for the preservation of architectural heritage. Historical buildings, public spaces and their urban and architectural value must be preserved”  
  
  
  
The United Cities and Local Governments (UCLG) have also established an Urban Strategic Planning Committee, which has taken the opportunity to network, learn and develop a body of knowledge on public space.  
  
  
  
Public spaces - including streets - are and must be seen as multi-functional areas of social interaction, economic exchange and cultural expression among a wide diversity of people. It is for urban planning to establish and organize these public spaces, and for urban design to facilitate and encourage their use, in the process enhancing a sense of identity and belonging. Safety and security are important dimensions to be considered in any such design, together with vital infrastructure (water, energy and communications). Important conditions for such planning to be successful are the contextual existence of good governance and management arrangements, as well as viable mechanisms to redirect part of the value gains into the nurturing of good quality public space. The street network is the integrative tissue that binds cities together. It organizes the geographic space of cities, integrates them both as job markets and as local political spaces. Cities that are walkable and transit-friendly require a highly connected network of paths and streets around small, permeable blocks. A tight network of paths and streets offering multiple routes to many destinations that also make walking and cycling trips varied and enjoyable. This has clear implications in making cities more energy efficient.  
  
  
  
For cities to be vibrant and safe places, it is important to think of them as systems of interdependent parts and complex connections, as interactive and social spaces. However, many public areas have been gradually forgotten; they are no longer safe living spaces that people enjoy. Reclaiming urban spaces for people is part of how we can humanize our cities and make our streets and public areas more communal. Public spaces are often more than anonymous places that can be replaced by one another: the meetings and exchanges that occur there affect our relationships with each other, giving meaning to our communities and urban landscapes.  
  
  
  
Cities function in an efficient, equitable, and sustainable manner only when private and public spaces work in a symbiotic relationship to enhance each other. In optimal conditions, they need to be secured and laid out in advance of urbanization to ensure orderly urban expansion. In existing cities, there is a need to revise and expand the ratio of public space in cities to make them more efficient, prosperous and sustainable and are needed in adequate amounts. Uncontrolled rapid urbanization creates disorderly settlement patterns with dangerously low shares of public space. Many cities in developed countries are also experiencing a dramatic reduction of public space.  
  
  
  
This indicator provides information about the amount of open public areas in a city. Cities that improve and sustain the use of public space, including streets, enhance community cohesion, civic identity, and quality of life. A prosperous city offers a profusion of public goods and develops policies and actions for a sustainable use of, and equitable access to, ‘the commons’, such as public space. It is in any city’s best interest to promote public goods such as transport, green areas, spaces and ‘urban commons’ such as safety, security and political participation to enhance quality of life and shared prosperity. The size and quality of a city’s overall public space act as a good indicator of shared prosperity.  
  
  
  
Comments and limitations:  
  
A major challenge for local monitoring of this indicator is the maintenance and the application/consistency of use of universal definition, which broadly does not consider existing operational/functional administrative demarcations. While urbanization has over the past decade resulted in big urbanized patches/regions which extend beyond existing urban area boundaries, the local operationalization and management of urban systems remain within defined authorities. These authorities are often in charge of governing the urban systems, ensuring effective and efficient functioning through such actions as provision of basic services, development control among others. While some countries have adopted dynamic administrative structures for their urban areas (which shift with expansions in built-up areas), others have maintained confined boundaries. Some of the most common types of boundaries include city, municipality, local authority, metropolitan, mega and meta region demarcations; all of which are set and defined based on prevailing operational dynamics (e.g. governance and service delivery structures).   
  
  
  
UN-Habitat has developed tools, programmes and guidelines to assist cities in measuring, and accounting for the available public space in cities. Some cities in the developing world lack formally recognized public spaces, that are publicly maintained. Understanding of the prevailing local contexts and primary data collection in collaboration with city authorities and local communities contribute significantly to collecting accurate and relevant data in these contexts.   
  
  
  
Similarly, the types of open public space vary across cities. The types of spaces listed in this indicator are however the most common and accepted variations of the open public space. Data collection processes using the methodology described in this metadata, which has been conducted by UN-Habitat in partnership with cities, as well as by other partners has revealed that there are no major overlaps or omissions in the described broad categories of open public spaces.   
  
  
  
Beyond quantifying the amount of open space in public use in cities, this indicator also attempts in minimal ways to capture the quality of the space that may impede its proper use. The qualitative data collected on this indicator strengthens the evidence that an open space exists, and that its public use is guaranteed, to allow city authorities and other stakeholders to further improve its quality and increase its use.  
  
Methodology  
  
  
  
Computation Method:  
  
The method to estimate the area of public space has been globally piloted in over 250 cities and this follows a series of methodological developments that go back to the last 7 years. The finalized methodology is a three-step process:   
  
Spatial analysis to delimit the built-up area of the city;   
  
Spatial analysis to identify potential open public spaces, field work to validate data and access the quality of spaces and calculation of the total area occupied by the verified open public spaces;   
  
Estimation of the total area allocated to streets;  
  
  
  
Spatial analysis to delimit the built-up area   
  
Built-up areas are a true reflection of multiple (urban) activities, and the presence of populations; with higher built-up density often reflecting higher activity/population concentrations. To monitor and report on indicator 11.7.1, the main focus is on the built-up area defined as the contiguous area occupied by buildings and other impervious surfaces. To delimit the area of analysis for the indicator, follow these steps:  
  
Identify the study area – this can be all cities in a country or a representative sample of cities   
  
Download freely available LANDSAT imagery for the analysis year. Aim for imagery with low cloud cover. Alternative high resolution imagery from other sources can also be used.  
  
Classify LANDSAT imagery into built-up, non-built-up, and water using a GIS or image processing software.  
  
Assess the level of urban-ness for each of the resultant built-up pixels - This can be achieved through spatial statistics in GIS and/or image processing software. Place a 1-km2 circle around each built-up pixel and calculate the share of pixels in the circle that are also built-up. If >=50% of the pixels in the circle are built-up, the pixel is classified as Urban. If >=25% and <50% of the pixels in the circle are built-up, the pixel is classified as Suburban. If <25% of the pixels in the circle are built-up, the pixel is classified as Rural.   
  
Combine contiguous urban and suburban pixels to form an urban cluster of the built-up area.  
  
  
  
Spatial analysis to identify potential open public spaces, ground verification and estimate their total area  
  
This step involves mapping of potential open public spaces within the urban boundaries defined in step one above and estimation of their area. Identification of potential open public spaces is based on the spatial character of each space, and is also informed by existing country/ city land use maps and open space inventories. To compute this component of the indicator, follow these steps:  
  
An inventory of Open Public Spaces should be the initial source of information. Additional legal documents, land use plans and other official sources of information can be used to complement the data from the inventory.  
  
Since many cities and countries do not have an open public spaces inventory, satellite imagery can be used to identify potential open public spaces. The identification of such spaces from imagery should be based on careful evaluation of the character of each space against the known forms of open public spaces within that city / country  
  
Digitize the identified potential open public spaces.  
  
Undertake field work to verify the identified spaces and assess their quality. UN-Habitat, in consultation with partners, experts and data producers have developed a detailed tool to facilitate the verification of each space and collection of additional data on the space quality and accessibility. This tool is freely available and allows for on-site definition/ editing of the space’s boundaries. It also contains standard and extended questions which collect data relevant to the indicator, including location of the spaces, their ownership and management, safety, inclusivity and accessibility. This data provides basic information about each space, as well as information relevant for disaggregation - such as access issues linked to age, gender and disabilities, as requested for by the indicator. The tool is dynamic and allows cities to include extra questions which generate information that is useful for their decision making (Tool is available at https://ee.kobotoolbox.org/x/#IGFf6ubq).   
  
Calculate the total area covered by the verified open public spaces.  
  
  
  
Computation of land allocated to streets (LAS)   
  
Where street data by width and length fields is available/specified, the following methodology could be used:  
  
Select only the streets included in the urban extent (or clip streets to the working city boundary)  
  
From GIS (or alternative software), calculate the total area occupied by each street by multiplying its length with width. Add up all individual street areas to attain the total amount of land occupied all streets within the defined urban area.  
  
  
  
An alternative technique for computing land allocated to the streets is one that adopts sampling principles. An approach that uses the Halton sampling sequence is recommended, specifically because the sequence generates equidistant points, increasing the degree of sample representativeness. To compute LAS using this method, follow the following steps:   
  
  
  
Using the urban extent boundary identified earlier, generate a Halton sequence of sample points (Halton sequence refers to quasi-random sequence used to generate points in space that are ex-post evenly spread i.e. Equidistant). The number of points used for each city varies based on its area. In large study areas of more than 20 km2, a density of one circle per hectare is used while in small study areas of less than 20 km2 a density of 0.5 circle per hectare is used.  
  
Buffer the points to get sample areas with an area of 10 hectares each.   
  
Within each 10 hectare sample area, digitize all streets in GIS software and compute the total amount of land they occupy.   
  
Calculate the average land allocated to streets for all sample areas using the following formula:  
  
  
  
The land allocated to streets =   
  
  
  
The final computation of the indicator is done using the formula:  
  
  
  
  
  
  
  
  
  
  
  
Disaggregation:  
  
Location (intra-urban)  
  
Qualities of the open public space (safe, inclusive, accessible, green)  
  
The share of built-up area that is green open space in public use  
  
The share of built-up area is universally accessible open space in public use, particularly for disable persons  
  
Type of human settlements  
  
Typology of public space.  
  
  
  
Treatment of missing values:  
  
All qualifying cities/countries are expected to fully report on this indicator more consistently following implementation and full roll out of this methodology. In the early years of this indicator, we had data gaps due to no data being collected yet, as opposed to missing data. In most of cases, missing values to-date reflect a non-measurement of the indicator for the city. However, because national statistical agencies will report national figures from a complete coverage of all their cities, some cities may take longer to be measured or monitored. As a result, UN-habitat has worked with partners to develop a concept of applying a National Sample of Cities. With this approach, countries will be able to select a nationally representative sample of cities from their system of cities, and these will be used for global monitoring and reporting purposes for the period of the SDGs. The fully developed methodology on this concept has been rolled out and countries that are unable to cover the full spectrum of their cities are already applying this approach.   
  
  
  
See: https://unhabitat.org/national-sample-of-cities/  
  
  
  
Regional aggregates:  
  
N/A  
  
  
  
Sources of discrepancies:  
  
Applying the proposed methodology to an entire globe of different cities will be challenging, but there are some basic principles that cities can use to measure public space uniformly. Cities can inventory the spectrum of spaces, from natural areas to small neighbourhood parks owned by different government entities. For example, in some cities, cemeteries are publicly available spaces run by the city park and recreation department. The team has developed a basic methodological guide and tools, which have enabled national statistical agencies and cities to apply these methods in a standard way and compile a comparable inventory of open public spaces.  
  
  
  
Methods and guidance available to countries for the compilation of the data at the national level:  
  
Information not available.  
  
  
  
Quality assurance  
  
Information not available.  
  
  
  
Data Sources  
  
  
  
Sources and collection process:  
  
Satellite imagery (open sources), documentation outlining publicly owned land and community-based maps are the main sources of data.  
  
For estimating the total surface of Built-up area - Data can be extracted from existing layers of satellite imagery ranging from open sources such as Google Earth, US Geological Survey/NASA Landsat imagery and Sentinel Imagery to higher resolution land cover data sets and commercial imagery. Images are to be analyzed for the latest available year.  
  
For the Inventory of open public space - Information can be obtained from legal documents outlining publicly owned land and well-defined land use plans. In some cases, where this information is lacking, incomplete or outdated, open sources, key informants in the city and community-based maps, which are increasingly recognized as a valid source of information, can be a viable alternative.  
  
The share of land occupied by public open spaces cannot be obtained directly from the use of high-resolution satellite imagery because it is not possible to determine the ownership or use of open spaces through remote sensing. However, fieldwork to validate and verify the open spaces derived from satellite imagery helps to map out land that is for public and non-public use.  
  
  
  
Data Availability  
  
  
  
Description:  
  
Data for this indicator is available for 289 cities in 94 countries, and related data is available for more than 450 cities. Additional pilots are on-going which will be further added to this collection of cities and countries. Available data has been drawn from:  
  
The Global Public Spaces Programme (GPSP) under UN-Habitat has conducted city-wide public space assessments in 9 cities which offered an opportunity to gather more qualitative data, as well as disaggregated data on the use of the spaces. The GPSP mapped various sources of data (inclusiveness, accessibility and safety) for the indicator, and identified all the actors involved in data collection activities at the global, national and city levels for scaling-up gathering public space data on city level. This information has been compiled in a database of stakeholders working on the indicator, who are consistently being consulted on the indicator-specific developments.   
  
In 2016, UN-Habitat collaborated with New York University (NYU) and Lincoln Institute for Land Policy to implement the Atlas of Urban Expansion project, which mapped out and calculated the amount of land occupied by open spaces within 200 cities. This measurement was based on the basic methodology for indicator 11.7.1, developed by UN-Habitat and partners.   
  
UN-Habitat’s City Prosperity Initiative (CPI) has been collecting data related to this indicator in over 450 cities distributed across Latin America & Caribbean, Africa, Asia and Europe.   
  
Qualitative data on public spaces in cities is being collected locally through a global tool developed (https://ee.kobotoolbox.org/x/#YbIR).   
  
UN-Habitat and regional partners also conducted a multi-country capacity assessment for several cities on the ability and preparedness to report on indicator 11.7.1.   
  
  
  
UN-Habitat has compiled a database on the indicator, which contains data from different sources, including the CPI, the Atlas of Urban Expansion project, World Cities Culture Forum, outputs from city specific piloting initiatives by the GPSP and other sources. A data collection process at the city and country level has also been initiated by the GPSP, through which countries are submitting data on the indicator to the agency. So far, about 94 countries have provided data on the indicator. In addition, UN-Habitat has initiated a data validation process, which involves collating all the available data and sharing it with countries for review and verification.  
  
  
  
Table 1. Global set of countries and cities with public space data available  
  
Region  
  
Cities covered as of December 2017  
  
Countries covered as of December 2017  
  
Asia and the Pacific  
  
91  
  
16  
  
Europe and North America  
  
66  
  
24  
  
Latin America and the Caribbean  
  
55  
  
17  
  
North Africa and Arab States  
  
47  
  
19  
  
Sub-Saharan Africa  
  
30  
  
18  
  
Total  
  
289  
  
94  
  
Source: UN-Habitat: Global Urban Observatory database 2017.  
  
  
  
Calendar  
  
  
  
Data collection and release calendar:  
  
The monitoring of the indicator can be repeated at regular intervals of 3-5 years, allowing for three reporting points until the year 2030. However, annual updates to the existing database will be done and hence data releases based on annual updates will be available every year. Monitoring in 3-5-year intervals will allow cities to determine whether the shares of open public space in the built-up areas of cities are increasing significantly over time, as well as deriving the share of the global urban population living in cities where the open public space is below the acceptable minimum.  
  
  
  
Data providers  
  
See “Data compilers” section below.  
  
  
  
Data compilers  
  
UN-Habitat is the lead agency on the global reporting for this indicator and as such, has over the last two years coordinated the efforts of various partners, on methodological developments and piloting of data collection. Key among these partners have included National Statistical Offices, New York University, ESRI, FAO, UNGGIM, UCLG, Local government departments, the European Commission, UN regional commissions, KTH University-Sweden, Urban Observatories, etc. Working in partnership with these partners, UN-Habitat has undertaken trainings and capacity development activities in cities, countries and regions, which have contributed to enhanced data collection and setting up of systems to monitor and report on the indicator.   
  
  
  
In addition, over the last 5 years, UN-Habitat and other partners have held several consultations which have collectively contributed to the refinement of the indicator methodology, and its piloting. Some of the key activities include;   
  
Internal consultations within UN-Habitat and the review of several toolkits of particular relevance to the subject of public space have provided an initial base of information on concepts and definitions. Lessons learned by UN-Habitat in field projects devoted to public space have proven particularly valuable.   
  
A second important source and point of reference has been the Charter of Public Space adopted by the Biennial of Public Space, containing simple and actionable principles for the creation, management and enjoyment of public spaces in cities.  
  
A third set of sources has been the contributions offered by a team of international experts, both during and immediately following the Expert Group Meeting on Public Space held in Rome in 12-14 January 2014. Additionally, the contributions of over 300 practitioners from over 40 countries during the series of International Conferences on the Future of Places, which developed a set of key messages in advancing the public space agenda at the global level.  
  
A fourth source has been global consultative meetings organized after the adoption of the 2030 Agenda in line with the SDG requirements for indicator 11.7.1 and global initiatives that have supported the data collection of this indicator. Specifically, these were:  
  
The first EGM in October 2016 focused mainly on methodological refinements and on concretising the institutional partnership arrangements for capacity development and data collection. Representatives from the NSOs, Urban Observatories, European Union, World Resources Institute, United Cities and Local Governments, Arab Urban Development Institute, World Health Organization, ESRI, NYU, among others participated in this EGM.  
  
The second EGM held in February 2017 focused on the challenges of data collection and review of preliminary data made available through the efforts of collecting city-based monitoring the human settlement data at local levels.   
  
It also focused on the technical aspects of computing the indicator using the proposed methodology. This helped in identifying the challenges and opportunities of improving the methodology as well as strategies to scale up and capacity building for NSOs.   
  
Representatives attended the meeting from Urban Observatories, European Union, World Resources Institute, United Cities and Local Governments, ESRI, Arab Urban Development Institute, UNESCO, Women in Cities (WICI), Universities and private planning firms, senior statisticians from governments, academic institutions, urban planners, etc.   
  
Within the City prosperity initiative - data for this indicator has been collected for over 450 cities globally. See also: http://cpi.unhabitat.org.  
  
  
  
  
  
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Related indicators as of February 2020  
  
NA

**City**



A **city** is a large [human settlement.](https://en.wikipedia.org/wiki/Human_settlement)[[4][5]](#page20) Cities generally have extensive systems for [housing,](https://en.wikipedia.org/wiki/Housing) [transportation,](https://en.wikipedia.org/wiki/Transportation) [sanitation,](https://en.wikipedia.org/wiki/Sanitation) [utilities,](https://en.wikipedia.org/wiki/Public_utilities) [land use,](https://en.wikipedia.org/wiki/Land_use) and [communication.](https://en.wikipedia.org/wiki/Communication) Their density facilitates interaction between [people,](https://en.wikipedia.org/wiki/People) [government organisations](https://en.wikipedia.org/wiki/Government_organisations) and [businesses,](https://en.wikipedia.org/wiki/Businesses) sometimes benefiting different parties in the process.



Historically, city-dwellers have been a small proportion of humanity overall, but following two centuries of unprecedented and rapid [urbanisation,](https://en.wikipedia.org/wiki/Urbanisation) roughly half of the [world population](https://en.wikipedia.org/wiki/World_population) now lives in cities, which has had profound consequences for global sustainability.[[6]](#page20) Present-day cities usually form the core of larger [metropolitan areas](https://en.wikipedia.org/wiki/Metropolitan_area) and [urban](https://en.wikipedia.org/wiki/Urban_area) areas—creating numerous [commuters](https://en.wikipedia.org/wiki/Commuter) traveling towards [city centres](https://en.wikipedia.org/wiki/City_centre) for employment, entertainment, and edification. However, in a world of intensifying [globalisation,](https://en.wikipedia.org/wiki/Globalisation) all cities are in different degree also connected globally beyond these regions.



[The most populated city proper is Chongqing](https://en.wikipedia.org/wiki/List_of_metropolitan_areas_by_population)[[7]](#page20) [while the most](https://en.wikipedia.org/wiki/List_of_metropolitan_areas_by_population) [populous metropolitan areas are the](https://en.wikipedia.org/wiki/List_of_metropolitan_areas_by_population) [Greater Tokyo Area,](https://en.wikipedia.org/wiki/Greater_Tokyo_Area) [the](https://en.wikipedia.org/wiki/List_of_metropolitan_areas_by_population)



Shanghai area, and [Jakarta metropolitan area.](https://en.wikipedia.org/wiki/Jakarta_metropolitan_area)[[8]](#page20) The cities of [Faiyum,](https://en.wikipedia.org/wiki/Faiyum)[[9]](#page20) [Damascus,](https://en.wikipedia.org/wiki/Damascus)[[10]](#page20) and [Varanasi](https://en.wikipedia.org/wiki/Varanasi)[[11]](#page20) are among those



laying claim to [longest continual inhabitation.](https://en.wikipedia.org/wiki/List_of_oldest_continuously_inhabited_cities)



[View from the Griboyedov Canal in Saint](https://en.wikipedia.org/wiki/Saint_Petersburg) [Petersburg, Russia](https://en.wikipedia.org/wiki/Saint_Petersburg)



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A [satellite view](https://en.wikipedia.org/wiki/Satellite_imagery) of East Asia at night shows urbanization as illumination. Here the [Taiheiyō Belt,](https://en.wikipedia.org/wiki/Taiheiyō_Belt) which includes Tokyo, demonstrates how [megalopolises](https://en.wikipedia.org/wiki/Megalopolis) can be identified by nighttime lighting.[[1]](#page20)

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This 1908 map of [Piraeus,](https://en.wikipedia.org/wiki/Piraeus) the port of [Athens,](https://en.wikipedia.org/wiki/Athens) shows the city's [grid plan,](https://en.wikipedia.org/wiki/Grid_plan) credited by [Aristotle](https://en.wikipedia.org/wiki/Aristotle) to [Hippodamus of Miletus.](https://en.wikipedia.org/wiki/Hippodamus_of_Miletus)[[2][3]](#page20)



**Meaning**



A city is distinguished from other human settlements by its [relatively great size, but also by its functions and its special](https://en.wikipedia.org/wiki/City_status) [symbolic status, which may be conferred by a central authority.](https://en.wikipedia.org/wiki/City_status) The term can also refer either to the physical streets and buildings of the city or to the collection of people who dwell there, and can [be used in a general sense to mean urban rather than rural](https://en.wikipedia.org/wiki/Rural_territory) [territory.](https://en.wikipedia.org/wiki/Rural_territory)[[13][14]](#page20)



A variety of definitions, invoking [population,](https://en.wikipedia.org/wiki/Population) [population density,](https://en.wikipedia.org/wiki/Population_density) number of [dwellings,](https://en.wikipedia.org/wiki/Dwelling) economic function, and [infrastructure,](https://en.wikipedia.org/wiki/Infrastructure) are used in national [censuses](https://en.wikipedia.org/wiki/Census) to classify populations as urban. Typical working definitions for small city populations start at around 100,000 people. [[15]](#page20) Common population definitions for an urban area (city or town) range between 1,500 and 50,000 people, most [U.S](https://en.wikipedia.org/wiki/U.S) states using a minimum between 1,500 and



[Palitana](https://en.wikipedia.org/wiki/Palitana) represents the city's symbolic function in the extreme, devoted as it is to [Jain temples.](https://en.wikipedia.org/wiki/Palitana_temples)[[12]](#page20)



[5,000 inhabitants.](https://en.wikipedia.org/wiki/City_status_in_the_United_Kingdom)[[16][17]](#page20) [Some jurisdictions set no such minimums.](https://en.wikipedia.org/wiki/City_status_in_the_United_Kingdom)[[18]](#page21) [In the United Kingdom, city status is awarded by the](https://en.wikipedia.org/wiki/City_status_in_the_United_Kingdom) [Crown and then remains permanently. (Historically, the qualifying factor was the presence of a](https://en.wikipedia.org/wiki/City_status_in_the_United_Kingdom) [cathedral,](https://en.wikipedia.org/wiki/Cathedral) [resulting in some very](https://en.wikipedia.org/wiki/City_status_in_the_United_Kingdom) small cities such as [Wells](https://en.wikipedia.org/wiki/Wells,_Somerset) and [St Davids)](https://en.wikipedia.org/wiki/St_Davids). According to the "functional definition" a city is not distinguished by size alone, but also by the role it plays within a larger political context. Cities serve as administrative, commercial, religious, and cultural hubs for their larger surrounding areas.[[19][20]](#page21) Examples of settlements called city which may not meet any of the traditional criteria to be named such include [Broad Top City, Pennsylvania](https://en.wikipedia.org/wiki/Broad_Top_City,_Pennsylvania) (pop 452), and [City Dulas,](https://en.wikipedia.org/wiki/City_Dulas) [Anglesey,](https://en.wikipedia.org/wiki/Anglesey) a hamlet.



The presence of a [literate elite](https://en.wikipedia.org/wiki/Intelligentsia) is sometimes included in the definition.[[21]](#page21) A typical city has professional [administrators,](https://en.wikipedia.org/wiki/Management) [regulations, and some form of taxation (food and other necessities or means to trade for them) to support the government](https://en.wikipedia.org/wiki/Civil_service) [workers. (This arrangement contrasts with the more typically](https://en.wikipedia.org/wiki/Civil_service) [horizontal](https://en.wikipedia.org/wiki/Egalitarianism) [relationships in a](https://en.wikipedia.org/wiki/Civil_service) [tribe](https://en.wikipedia.org/wiki/Tribe) [or](https://en.wikipedia.org/wiki/Civil_service) [village](https://en.wikipedia.org/wiki/Village) [accomplishing common](https://en.wikipedia.org/wiki/Civil_service)



goals through informal agreements between neighbors, or through leadership of a chief.) The governments may be based on heredity, religion, military power, work projects such as canal building, food distribution, land ownership, agriculture, commerce, manufacturing, finance, or a combination of these. Societies that live in cities are often called [civilizations.](https://en.wikipedia.org/wiki/Civilization)



The word *city* and the related [*civilization*](https://en.wikipedia.org/wiki/Civilization) come, via Old French, from the Latin root [*civitas*](https://en.wiktionary.org/wiki/civitas), originally meaning citizenship or



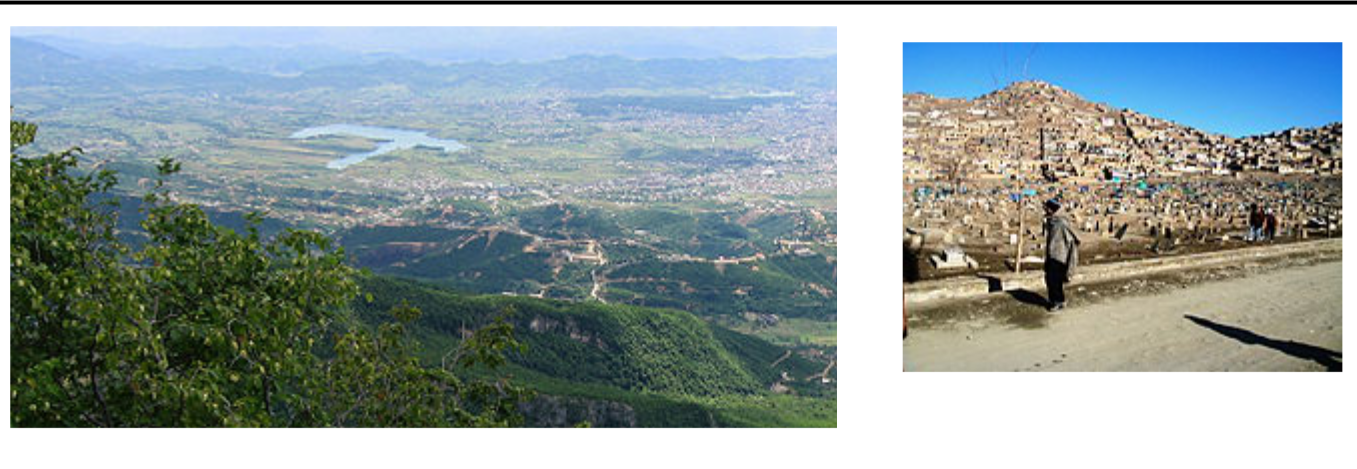
community member and eventually coming to correspond with [urbs,](https://en.wiktionary.org/wiki/urbs) meaning city in a more physical sense.[[13]](#page20) The Roman



*civitas* was closely linked with the Greek ["polis"—another](https://en.wikipedia.org/wiki/Polis) common root appearing in English words such as [metropolis](https://en.wikipedia.org/wiki/Metropolis).[[22]](#page21)

**

**Geography**

**

Panoramic view of [Tirana,](https://en.wikipedia.org/wiki/Tirana) Albania from [Mount Dajt](https://en.wikipedia.org/wiki/Mount_Dajt) in 2004.

[Urban geography](https://en.wikipedia.org/wiki/Urban_geography) deals both with cities in their larger context and with their internal structure.[[26]](#page21)



**Site**

Town siting has varied through history according to natural, technological, economic, and military contexts. Access to water has long been a major factor in [city placement and growth, and despite exceptions enabled by the advent of rail](https://en.wikipedia.org/wiki/Rail_transport) [transport in the nineteenth century, through the present most of the world's urban](https://en.wikipedia.org/wiki/Rail_transport)



population lives near the coast or on a river.[[27]](#page21)

Urban areas as a rule cannot [produce their own food](https://en.wikipedia.org/wiki/Subsistence_agriculture) and therefore must develop



Hillside housing and [graveyard](https://en.wikipedia.org/wiki/Graveyard) in Kabul.



[Downtown Pittsburgh](https://en.wikipedia.org/wiki/Downtown_Pittsburgh) sits at the [confluence](https://en.wikipedia.org/wiki/Confluence) of the [Monongahela](https://en.wikipedia.org/wiki/Monongahela_River) and [Allegheny](https://en.wikipedia.org/wiki/Allegheny_River) rivers, which become the [Ohio.](https://en.wikipedia.org/wiki/Ohio_River)

some [relationship](https://en.wikipedia.org/wiki/City_region) with a [hinterland](https://en.wikipedia.org/wiki/Hinterland) which sustains them.[[28]](#page21) Only in special



cases such as [mining towns](https://en.wikipedia.org/wiki/Mining_town) which play a vital role in long-distance trade, are cities disconnected from the countryside which feeds them.[[29]](#page21) Thus, centrality within a productive region influences siting, as economic forces would in theory favor the creation of market places in optimal mutually reachable locations.[[30]](#page21)



**Center**

The vast majority of cities have a central area containing buildings with special economic, political, and religious significance. Archaeologists refer to this area by the Greek term [temenos](https://en.wikipedia.org/wiki/Temenos) or if fortified as a [citadel.](https://en.wikipedia.org/wiki/Citadel)[[31]](#page21) These spaces historically reflect and

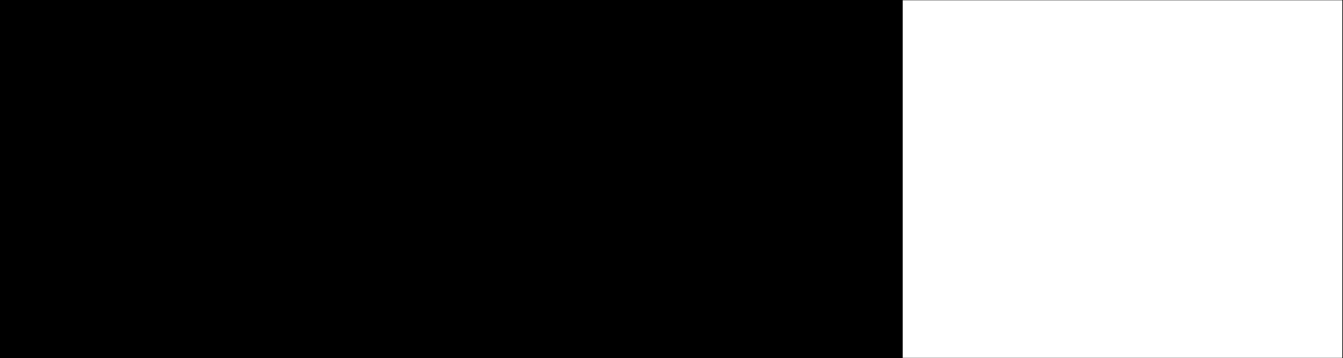


amplify the city's centrality and importance to its wider [sphere of influence.](https://en.wikipedia.org/wiki/City_region)[[30]](#page21) Today cities have a [city center](https://en.wikipedia.org/wiki/City_center) or [downtown,](https://en.wikipedia.org/wiki/Downtown) sometimes coincident with a [central business district.](https://en.wikipedia.org/wiki/Central_business_district)



**Public space**

[Cities typically have public spaces where anyone can go. These include privately](https://en.wikipedia.org/wiki/Privately_owned_public_space) [owned spaces open to the public as well as forms of public land such as public](https://en.wikipedia.org/wiki/Public_domain_(land)) [domain and the](https://en.wikipedia.org/wiki/Public_domain_(land)) [commons.](https://en.wikipedia.org/wiki/Common_land) [Western philosophy](https://en.wikipedia.org/wiki/Western_philosophy) [since the time of the Greek](https://en.wikipedia.org/wiki/Public_domain_(land)) [agora](https://en.wikipedia.org/wiki/Agora) [has considered physical public space as the substrate of the symbolic public](https://en.wikipedia.org/wiki/Public_sphere)



[sphere.](https://en.wikipedia.org/wiki/Public_sphere)[[32][33]](#page21) [Public art](https://en.wikipedia.org/wiki/Public_art) [adorns (or disfigures) public spaces.](https://en.wikipedia.org/wiki/Public_sphere) [Parks](https://en.wikipedia.org/wiki/Park) [and other](https://en.wikipedia.org/wiki/Public_sphere) [natural sites within cities](https://en.wikipedia.org/wiki/Incorporation_of_nature_within_a_city) provide residents with relief from the hardness and regularity of typical [built environments.](https://en.wikipedia.org/wiki/Built_environment)



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| **Internal structure** |  | [The L'Enfant Plan for Washington,](https://en.wikipedia.org/wiki/Washington,_D.C.) |  | | | | | | | | | | | | | | | | | | | | | | |
| [Urban structure](https://en.wikipedia.org/wiki/Urban_structure) generally follows one or more basic patterns: geomorphic, |  |  | | | | | | | | | | | | | | | | | | | | | | | |
| [D.C., inspired by the design of](https://en.wikipedia.org/wiki/Washington,_D.C.) |  | | | | | | | | | | | | | | | | | | | | | | | |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | |
| radial, concentric, rectilinear, and curvilinear. Physical environment generally | [Versailles,](https://en.wikipedia.org/wiki/Versailles) combines a utilitarian grid |  | | | | | | | | | | | | | | | | | | | | | | | |
| constrains the form in which a city is built. If located on a mountainside, urban | pattern with diagonal avenues and a |  | | | | | | | | | | | | | | | | | | | | | | | |
| structure may rely on terraces and winding roads. It may be adapted to its means | symbolic focus on [monumental](https://en.wikipedia.org/wiki/Monument) |  | | | | | | | | | | | | | | | | | | | | | | | |
| architecture.[[23]](#page21) |  | | | | | | | | | | | | | | | | | | | | | | | |
| of subsistence (e.g. agriculture or fishing). And it may be set up for optimal |  | | | | | | | | | | | | | | | | | | | | | | | |
|  |  | | | | | | | | | | | | | | | | | | | | | | | |
| defense given the surrounding landscape.[[34]](#page21) Beyond these |  |  |  | | | | | | | | | | | | | | | | | | | | | | |
| "geomorphic" features, cities can develop internal patterns, due to |  |  |  | | | | | | | | | | | | | | | | | | | | | | |
| natural growth or to [city planning.](https://en.wikipedia.org/wiki/Urban_planning) |  |  |  | | | | | | | | | | | | | | | | | | | | | | |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | |
| In a radial structure, main roads converge on a central point. This |  |  |  | | | | | | | | | | | | | | | | | | | | | | |
| form could evolve from successive growth over a long time, with |  |  |  | | | | | | | | | | | | | | | | | | | | | | |
| concentric traces of [town walls](https://en.wikipedia.org/wiki/Town_wall) and [citadels](https://en.wikipedia.org/wiki/Citadel) marking older city |  |  |  | | | | | | | | | | | | | | | | | | | | | | |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | | |
| boundaries. In more recent history, such forms were supplemented by |  |  |  | | | | | | | | | | | | | | | | | | | | | | |
| [ring roads](https://en.wikipedia.org/wiki/Ring_road) moving traffic around the outskirts of a town. Dutch cities |  |  |  | | | | | | | | | | | | | | | | | | | | | | |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | | | | |
| such as [Amsterdam](https://en.wikipedia.org/wiki/Amsterdam) and [Haarlem](https://en.wikipedia.org/wiki/Haarlem) are structured as a central square |  |  |  | | | | | | | | | | | | | | | | | | | | | | |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | | | | | |
| surrounded by concentric canals marking every expansion. In cities |  |  |  | | | | | | | | | | | | | | | | | | | | | | |
| such as and also [Moscow,](https://en.wikipedia.org/wiki/Moscow) this pattern is still clearly visible. |  |  |  | | | | | | | | | | | | | | | | | | | | | | |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | This aerial view of the [Gush Dan](https://en.wikipedia.org/wiki/Gush_Dan) metropolitan |  | |
| [A system of rectilinear city streets and land plots, known as the](https://en.wikipedia.org/wiki/Grid_plan) | [grid](https://en.wikipedia.org/wiki/Grid_plan) |  |  | | | | | | | | | | | | | | | | | | | | | |
|  | area in Israel shows the geometrically |  | | | | | | | | | | | | | | | | | | | | | |
| [plan, has been used for millennia in Asia, Europe, and the Americas.](https://en.wikipedia.org/wiki/Grid_plan) | planned[[24]](#page21) city of [Tel Aviv](https://en.wikipedia.org/wiki/Tel_Aviv) proper (upper left) as |  | | | | | | | | | | | | | | | | | | | | | | | |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | | | | | | | | | | | |
| The [Indus Valley Civilisation](https://en.wikipedia.org/wiki/Indus_Valley_Civilisation) built [Mohenjo-Daro,](https://en.wikipedia.org/wiki/Mohenjo-Daro) [Harappa](https://en.wikipedia.org/wiki/Harappa) and | [well as Givatayim to the east and some of Bat](https://en.wikipedia.org/wiki/Bat_Yam) |  | | | | | | | | | | | | | | | | | | | | | | | |
|  |  |  |  |  |  |  |  |  |  |  |  | [Yam to the south. Tel Aviv's population is](https://en.wikipedia.org/wiki/Bat_Yam) |  | | | | | | | | | | | | |
| other cities on a grid pattern, using ancient principles described by |  | | | | | | | | | | | | | | | | | | | | | | | |
| [Kautilya,](https://en.wikipedia.org/wiki/Kautilya) and aligned with the [compass points.](https://en.wikipedia.org/wiki/Compass_points)[[35][19][36][37]](#page21) The | 433,000; the total population of its metropolitan |  | | | | | | | | | | | | | | | | | | | | | | | |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | area is 3,785,000.[25] |  | |
| ancient Greek city of [Priene](https://en.wikipedia.org/wiki/Priene) exemplifies a grid plan with specialized |  | | | | | | | | | | | | | | | | | | | | | | | |
|  |  |  | | | | | | | | | | | | | | | | | | | | | | |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |



districts used across the [Hellenistic Mediterranean.](https://en.wikipedia.org/wiki/Hellenistic_period)



**Urban areas**

Urban-type settlement extends far beyond the traditional boundaries of the [city proper](https://en.wikipedia.org/wiki/City_proper)[[38]](#page22) in a form of development sometimes



described critically as [urban sprawl.](https://en.wikipedia.org/wiki/Urban_sprawl)[[39]](#page22) Decentralization and dispersal of city functions (commercial, industrial, residential, cultural, political) has transformed the very meaning of the term and has challenged geographers seeking to classify territories according to an urban-rural binary.[[17]](#page20)



[Metropolitan areas](https://en.wikipedia.org/wiki/Metropolitan_areas) include [suburbs](https://en.wikipedia.org/wiki/Suburbs) and [exurbs](https://en.wikipedia.org/wiki/Exurbs) organized around the needs of [commuters,](https://en.wikipedia.org/wiki/Commuting) and sometimes [edge cities](https://en.wikipedia.org/wiki/Edge_city) characterized by a degree of economic and political independence. (In the US these are grouped into [metropolitan statistical areas](https://en.wikipedia.org/wiki/Metropolitan_statistical_areas) [for purposes of demography and marketing.) Some cities are now part of a continuous urban landscape called urban](https://en.wikipedia.org/wiki/Urban_agglomeration)



[agglomeration,](https://en.wikipedia.org/wiki/Urban_agglomeration) [conurbation,](https://en.wikipedia.org/wiki/Conurbation) [or](https://en.wikipedia.org/wiki/Urban_agglomeration) [megalopolis](https://en.wikipedia.org/wiki/Megalopolis) [(exemplified by the](https://en.wikipedia.org/wiki/Urban_agglomeration) [BosWash](https://en.wikipedia.org/wiki/Northeast_megalopolis) [corridor of the](https://en.wikipedia.org/wiki/Urban_agglomeration) [Northeastern United States.)](https://en.wikipedia.org/wiki/Northeastern_United_States)[[40]](#page22)

**History**



[Cities, characterized by population density, symbolic function, and urban](https://en.wikipedia.org/wiki/Urban_planning) [planning, have existed for thousands of years. In the conventional view,](https://en.wikipedia.org/wiki/Urban_planning) civilization and the city both followed from the [development of agriculture,](https://en.wikipedia.org/wiki/Neolithic_Revolution) which enabled production of surplus food, and thus a social [division of labour](https://en.wikipedia.org/wiki/Division_of_labour)



(with concomitant [social stratification)](https://en.wikipedia.org/wiki/Social_stratification) and [trade.](https://en.wikipedia.org/wiki/Trade)[[41][42]](#page22) Early cities often featured [granaries,](https://en.wikipedia.org/wiki/Granary) sometimes within a temple.[[43]](#page22) A minority viewpoint considers that cities may have arisen without agriculture, due to alternative means of subsistence (fishing),[[44]](#page22) to use as communal seasonal shelters,[[45]](#page22) to their value as bases for defensive and offensive military organization,[[46][47]](#page22) or to their inherent economic function.[[48][49][50]](#page22) Cities played a crucial role in the establishment of political power over an area, and ancient leaders such as [Alexander the Great](https://en.wikipedia.org/wiki/Alexander_the_Great) founded and created them with zeal.[[51]](#page22)



An [arch](https://en.wikipedia.org/wiki/Arch) from the ancient [Sumerian](https://en.wikipedia.org/wiki/Sumer) [city Ur, which flourished in the third](https://en.wikipedia.org/wiki/Third_millennium_BC) [millennium BC, can be seen at](https://en.wikipedia.org/wiki/Third_millennium_BC) present-day Tell el-Mukayyar in [Iraq](https://en.wikipedia.org/wiki/Iraq)



**Ancient times**

[Jericho](https://en.wikipedia.org/wiki/Tell_es-Sultan) and [Çatalhöyük,](https://en.wikipedia.org/wiki/Çatalhöyük) dated to the [eighth millennium BC,](https://en.wikipedia.org/wiki/Eighth_millennium_BC) are among the [earliest proto-cities](https://en.wikipedia.org/wiki/Proto-cities) known to archaeologists.[[45][52]](#page22)



In the [fourth](https://en.wikipedia.org/wiki/Fourth_millennium_BC) and [third millennium BC,](https://en.wikipedia.org/wiki/Third_millennium_BC) complex civilizations flourished in the river valleys of [Mesopotamia,](https://en.wikipedia.org/wiki/Mesopotamia) [India,](https://en.wikipedia.org/wiki/India) [China,](https://en.wikipedia.org/wiki/China) and [Egypt.](https://en.wikipedia.org/wiki/Egypt) Excavations in these areas have found the [ruins](https://en.wikipedia.org/wiki/Ruins) of cities geared variously towards trade, politics, or religion. Some had large, [dense populations,](https://en.wikipedia.org/wiki/Urban_density) but others carried out urban activities in the realms of politics or religion without having large associated populations. Among the early Old World cities, [Mohenjo-daro](https://en.wikipedia.org/wiki/Mohenjo-daro) of the Indus Valley Civilization in present-day [Pakistan,](https://en.wikipedia.org/wiki/Pakistan) existing from about 2600 BC, was [one of the largest, with a population of 50,000 or more and a sophisticated](https://en.wikipedia.org/wiki/Sanitation_of_the_Indus_Valley_Civilisation) [sanitation system.](https://en.wikipedia.org/wiki/Sanitation_of_the_Indus_Valley_Civilisation)[[53]](#page22) [China's planned cities](https://en.wikipedia.org/wiki/Ancient_Chinese_urban_planning) [were constructed according to](https://en.wikipedia.org/wiki/Sanitation_of_the_Indus_Valley_Civilisation) sacred principles to act as celestial [microcosms.](https://en.wikipedia.org/wiki/Macrocosm_and_microcosm)[[54]](#page22) The [Ancient Egyptian cities](https://en.wikipedia.org/wiki/List_of_ancient_Egyptian_towns_and_cities)



known physically by archaeologists are not extensive.[[19]](#page21) They include (known by their Arab names) [El Lahun,](https://en.wikipedia.org/wiki/El_Lahun) a workers' town associated with the pyramid of [Senusret II,](https://en.wikipedia.org/wiki/Senusret_II) and the religious city [Amarna](https://en.wikipedia.org/wiki/Amarna) built by [Akhenaten](https://en.wikipedia.org/wiki/Akhenaten) and abandoned. These sites appear planned in a highly regimented and [stratified](https://en.wikipedia.org/wiki/Social_stratification) fashion, with a minimalistic grid of rooms for the workers and increasingly more elaborate housing available for higher classes.[[55]](#page22)



In Mesopotamia, the civilization of [Sumer,](https://en.wikipedia.org/wiki/Sumer) followed by [Assyria](https://en.wikipedia.org/wiki/Assyria) and [Babylon,](https://en.wikipedia.org/wiki/Babylon) gave rise to numerous cities, governed by kings and fostering multiple languages written in [cuneiform.](https://en.wikipedia.org/wiki/Cuneiform)[[56]](#page23) The [Phoenician](https://en.wikipedia.org/wiki/Phoenicia) trading empire, flourishing around the turn of the [first millennium BC,](https://en.wikipedia.org/wiki/First_millennium_BC) encompassed [numerous cities](https://en.wikipedia.org/wiki/List_of_Phoenician_cities) extending from [Tyre,](https://en.wikipedia.org/wiki/Tyre,_Lebanon) [Cydon,](https://en.wikipedia.org/wiki/Cydon) and [Byblos](https://en.wikipedia.org/wiki/Byblos) to [Carthage](https://en.wikipedia.org/wiki/Carthage) and [Cádiz.](https://en.wikipedia.org/wiki/Cádiz)



In the following centuries, independent [city-states](https://en.wikipedia.org/wiki/City-state) of [Greece](https://en.wikipedia.org/wiki/Ancient_Greece) developed the [*polis*](https://en.wikipedia.org/wiki/Polis), an association of male landowning [citizens](https://en.wikipedia.org/wiki/Citizenship) who collectively constituted the



city.[[57]](#page23) The [agora,](https://en.wikipedia.org/wiki/Agora) meaning "gathering place" or "assembly", was the center of



[Mohenjo-daro, a city of the Indus](https://en.wikipedia.org/wiki/Indus_Valley_Civilization) [Valley Civilization in](https://en.wikipedia.org/wiki/Indus_Valley_Civilization) [Pakistan,](https://en.wikipedia.org/wiki/Pakistan) which was rebuilt six or more times, using bricks of standard size, and adhering to the same grid layout—also in the third millennium BC.



This aerial view of what was once downtown [Teotihuacan](https://en.wikipedia.org/wiki/Teotihuacan) shows the [Pyramid of the Sun, Pyramid of the](https://en.wikipedia.org/wiki/Pyramid_of_the_Moon) [Moon, and the processional avenue](https://en.wikipedia.org/wiki/Pyramid_of_the_Moon) serving as the spine of the city's street system.

athletic, artistic, spiritual and political life of the polis.[[58]](#page23) Rome's [rise to power](https://en.wikipedia.org/wiki/Rise_of_Rome)



brought its population to one million. Under the authority of [its empire,](https://en.wikipedia.org/wiki/Roman_Empire) Rome transformed and [founded](https://en.wikipedia.org/wiki/List_of_cities_founded_by_the_Romans) many cities ([*coloniae*](https://en.wikipedia.org/wiki/Colonia_(Roman))), and with them brought its principles of urban architecture, design, and society.[[59]](#page23)



In the ancient Americas, early urban traditions developed in the [Andes](https://en.wikipedia.org/wiki/Andes) and [Mesoamerica.](https://en.wikipedia.org/wiki/Mesoamerica) In the Andes, the first urban centers developed in the [Norte Chico civilization,](https://en.wikipedia.org/wiki/Norte_Chico_civilization) [Chavin](https://en.wikipedia.org/wiki/Chavín_culture) and [Moche](https://en.wikipedia.org/wiki/Moche_(culture)) cultures, followed by major cities in the [Huari,](https://en.wikipedia.org/wiki/Huari_culture) [Chimu](https://en.wikipedia.org/wiki/Chimu) and [Inca](https://en.wikipedia.org/wiki/Inca) cultures. The Norte Chico civilization included as many as 30 major population centers in what is now the [Norte Chico region](https://en.wikipedia.org/wiki/Norte_Chico_(Peruvian_region)) of north-central coastal [Peru.](https://en.wikipedia.org/wiki/Peru) It is the oldest known civilization in the Americas, flourishing between the 30th century BC and the



18th century BC.[[60]](#page23) Mesoamerica saw the rise of early urbanism in several cultural regions, beginning with the [Olmec](https://en.wikipedia.org/wiki/Olmec) and spreading to the [Preclassic Maya,](https://en.wikipedia.org/wiki/Maya_city) the [Zapotec](https://en.wikipedia.org/wiki/Zapotec_civilization) of Oaxaca, and [Teotihuacan](https://en.wikipedia.org/wiki/Teotihuacan) in central Mexico. Later cultures such as the [Aztec](https://en.wikipedia.org/wiki/Aztec) drew on these earlier urban traditions.

Imperial Free Cities in the Holy Roman Empire 1648



[Jenné-Jeno,](https://en.wikipedia.org/wiki/Jenné-Jeno) located in present-day Mali and dating to the third century BC, lacked monumental architecture and a distinctive elite social class—but nevertheless had specialized production and relations with a hinterland.[[61]](#page23) Pre-Arabic trade contacts probably existed between Jenné-Jeno and North Africa.[[62]](#page23) Other early urban centers in sub-Saharan Africa, dated to around 500 AD, include Awdaghust, Kumbi-Saleh the ancient capital of Ghana, and Maranda a center located on a trade route between Egypt and [Gao.[63]](#page23)

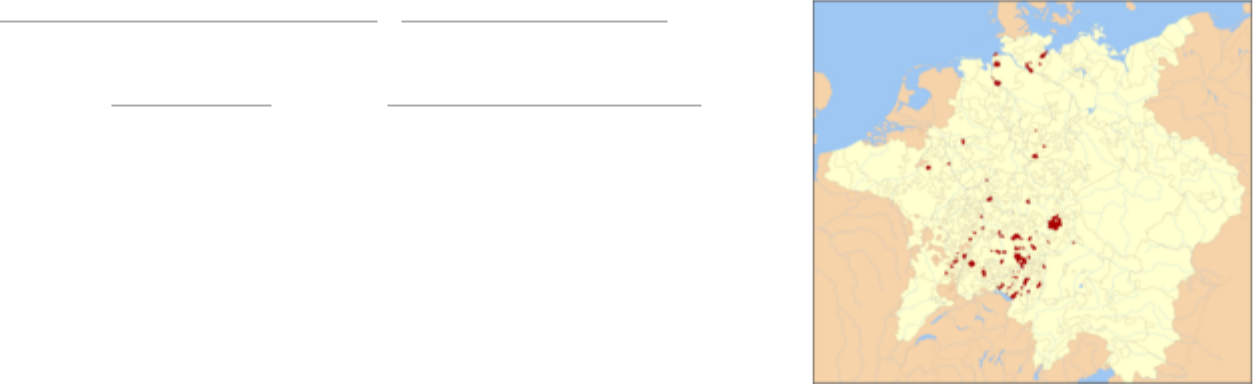


In the first millennium AD, [Angkor](https://en.wikipedia.org/wiki/Angkor) in the [Khmer Empire](https://en.wikipedia.org/wiki/Khmer_Empire) grew into one of the most extensive cities in the world[[64][65]](#page23) and may have supported up to one million people.[[66]](#page23)



**Middle Ages**

In the [remnants of the Roman Empire,](https://en.wikipedia.org/wiki/Fall_of_the_Roman_Empire) [cities of late antiquity](https://en.wikipedia.org/wiki/Late_Antiquity" \l "Cities) gained independence but soon lost population and importance. The locus of power in the West shifted to [Constantinople](https://en.wikipedia.org/wiki/Constantinople) and to the [ascendant Islamic civilization](https://en.wikipedia.org/wiki/Early_Muslim_conquests) with



its major cities [Baghdad,](https://en.wikipedia.org/wiki/Baghdad) [Cairo,](https://en.wikipedia.org/wiki/Cairo) and [Córdoba.](https://en.wikipedia.org/wiki/Córdoba,_Spain)[[67]](#page23) From the 9th through the end of the 12th century, [Constantinople,](https://en.wikipedia.org/wiki/Constantinople) capital of the [Eastern Roman Empire,](https://en.wikipedia.org/wiki/Eastern_Roman_Empire) was the largest and wealthiest city in Europe, with a population approaching 1 million.[[68][69]](#page23) The [Ottoman Empire](https://en.wikipedia.org/wiki/Ottoman_Empire) gradually gained [control over many cities](https://en.wikipedia.org/wiki/List_of_cities_conquered_by_the_Ottoman_Empire) in the Mediterranean area, including [Constantinople in 1453.](https://en.wikipedia.org/wiki/Fall_of_Constantinople)



In the [Holy Roman Empire,](https://en.wikipedia.org/wiki/Holy_Roman_Empire) beginning in the 12th. century, [free imperial cities](https://en.wikipedia.org/wiki/Free_imperial_city) such as [Nuremberg,](https://en.wikipedia.org/wiki/Nuremberg) [Strasbourg,](https://en.wikipedia.org/wiki/Strasbourg) [Frankfurt,](https://en.wikipedia.org/wiki/Frankfurt) [Zurich,](https://en.wikipedia.org/wiki/Zurich) [Nijmegen](https://en.wikipedia.org/wiki/Nijmegen) became a privileged elite among towns having won self-governance from their local lay or secular lord or having been granted self-governanace by the emperor and being placed under his immediate protection. By 1480, these cities, as far as still part



of the empire, became part of the [Imperial Estates](https://en.wikipedia.org/wiki/Imperial_Estates) governing the empire with the emperor through the [Imperial Diet.](https://en.wikipedia.org/wiki/Imperial_Diet_(Holy_Roman_Empire))[[70]](#page23)



By the thirteenth and fourteenth centuries, some cities become powerful states, taking surrounding areas under their control or establishing extensive maritime empires. In Italy [medieval communes](https://en.wikipedia.org/wiki/Medieval_commune) developed into [city-states](https://en.wikipedia.org/wiki/Italian_city-states) including the [Republic of Venice](https://en.wikipedia.org/wiki/Republic_of_Venice) and the [Republic of Genoa.](https://en.wikipedia.org/wiki/Republic_of_Genoa) In Northern Europe, cities including [Lübeck](https://en.wikipedia.org/wiki/Lübeck) and [Bruges](https://en.wikipedia.org/wiki/Bruges) formed the [Hanseatic League](https://en.wikipedia.org/wiki/Hanseatic_League) for collective defense and commerce. Their power was later [challenged](https://en.wikipedia.org/wiki/Dutch–Hanseatic_War) and eclipsed by the [Dutch](https://en.wikipedia.org/wiki/Burgundian_Netherlands) commercial [cities](https://en.wikipedia.org/wiki/History_of_urban_centers_in_the_Low_Countries) of [Ghent,](https://en.wikipedia.org/wiki/Ghent) [Ypres,](https://en.wikipedia.org/wiki/Ypres) and



[Amsterdam.](https://en.wikipedia.org/wiki/Amsterdam)[[71]](#page23) Similar phenomena existed elsewhere, as in the case of [Sakai,](https://en.wikipedia.org/wiki/Sakai,_Osaka) which enjoyed a considerable autonomy in late medieval Japan.



**Early modern**

In the West, nation-states became the dominant unit of political organization following the [Peace of Westphalia](https://en.wikipedia.org/wiki/Peace_of_Westphalia) in the seventeenth century.[[72][73]](#page24) Western Europe's larger capitals (London and Paris) benefited from the growth of commerce following the emergence of an [Atlantic](https://en.wikipedia.org/wiki/Atlantic_Ocean) trade. However, most towns remained small.



During the Spanish colonization of the Americas the old Roman city concept was extensively used. Cities were founded in the middle of the newly conquered territories, and were bound to several laws regarding administration, finances and urbanism.



**Industrial age**

The [growth of modern industry](https://en.wikipedia.org/wiki/Industrial_revolution) from the late 18th century onward led to massive [urbanization](https://en.wikipedia.org/wiki/Urbanization) and the rise of new great cities, first in Europe and then in other regions, as new opportunities brought huge numbers of migrants from rural communities into urban areas.



[Diorama](https://en.wikipedia.org/wiki/Diorama) of old [Gyumri,](https://en.wikipedia.org/wiki/Gyumri) [Armenia](https://en.wikipedia.org/wiki/Armenia) with the [Holy Saviour's Church](https://en.wikipedia.org/wiki/Holy_Saviour's_Church,_Gyumri) (1859– 1873)



England led the way as [London](https://en.wikipedia.org/wiki/London) [became the capital of a world](https://en.wikipedia.org/wiki/British_empire) [empire and cities across the](https://en.wikipedia.org/wiki/British_empire) country grew in locations strategic for [manufacturing.](https://en.wikipedia.org/wiki/Manufacturing)[[74]](#page24) In the United States from 1860 [to 1910, the introduction of](https://en.wikipedia.org/wiki/History_of_rail_transport) [railroads reduced transportation](https://en.wikipedia.org/wiki/History_of_rail_transport) costs, and large manufacturing centers began to emerge, fueling migration from rural to city areas.



This map of [Haarlem,](https://en.wikipedia.org/wiki/Haarlem) the Netherlands, created around 1550, shows the city completely surrounded by a [city wall](https://en.wikipedia.org/wiki/Defensive_wall) and [defensive canal,](https://en.wikipedia.org/wiki/Moat) with its square shape inspired by [Jerusalem.](https://en.wikipedia.org/wiki/Jerusalem)



Industrialized cities became deadly places to live, due to health problems resulting from [overcrowding,](https://en.wikipedia.org/wiki/Overcrowding) [occupational hazards](https://en.wikipedia.org/wiki/Occupational_hazard) of industry, contaminated water and air, [poor sanitation,](https://en.wikipedia.org/wiki/History_of_water_supply_and_sanitation" \l "Modern_age) and communicable diseases such as [typhoid](https://en.wikipedia.org/wiki/Typhoid) and [cholera.](https://en.wikipedia.org/wiki/Cholera) [Factories](https://en.wikipedia.org/wiki/Factories) and [slums](https://en.wikipedia.org/wiki/Slum) emerged as regular features of the urban



landscape.[[75]](#page24)

Small city [Gyöngyös](https://en.wikipedia.org/wiki/Gyöngyös) in Hungary in 1938.

**Post-industrial age**

In the second half of the twentieth century, [deindustrialization](https://en.wikipedia.org/wiki/Deindustrialization) (or ["economic restructuring")](https://en.wikipedia.org/wiki/Economic_restructuring) in the West led to [poverty,](https://en.wikipedia.org/wiki/Poverty) [homelessness,](https://en.wikipedia.org/wiki/Homelessness) and [urban decay](https://en.wikipedia.org/wiki/Urban_decay) in formerly prosperous cities. America's "Steel Belt" became a ["Rust Belt"](https://en.wikipedia.org/wiki/Rust_Belt) and cities such as



[Detroit,](https://en.wikipedia.org/wiki/Decline_of_Detroit) Michigan, and [Gary, Indiana](https://en.wikipedia.org/wiki/Gary,_Indiana) began to [shrink,](https://en.wikipedia.org/wiki/Shrinking_cities) contrary to the global trend of massive urban expansion.[[76]](#page24) Such cities have shifted with varying success into the [service economy](https://en.wikipedia.org/wiki/Service_economy) and [public-private partnerships,](https://en.wikipedia.org/wiki/Public-private_partnerships) with concomitant [gentrification,](https://en.wikipedia.org/wiki/Gentrification)



[uneven revitalization efforts, and selective cultural development.](https://en.wikipedia.org/wiki/Five-year_plans_of_China)[[77]](#page24) [Under the Great Leap Forward and subsequent five-year](https://en.wikipedia.org/wiki/Five-year_plans_of_China) [plans continuing today, the](https://en.wikipedia.org/wiki/Five-year_plans_of_China) [People's Republic of China](https://en.wikipedia.org/wiki/People's_Republic_of_China) [has undergone concomitant](https://en.wikipedia.org/wiki/Five-year_plans_of_China) [urbanization](https://en.wikipedia.org/wiki/Urbanization_in_China) [and](https://en.wikipedia.org/wiki/Five-year_plans_of_China) [industrialization](https://en.wikipedia.org/wiki/Chinese_industrialization) [and to](https://en.wikipedia.org/wiki/Five-year_plans_of_China)



become the world's leading [manufacturer.](https://en.wikipedia.org/wiki/Manufacturing)[[78][79]](#page24)



Amidst these economic changes, [high technology](https://en.wikipedia.org/wiki/High_technology) and instantaneous [telecommunication](https://en.wikipedia.org/wiki/Telecommunication) enable select cities to become centers of



the [knowledge economy.](https://en.wikipedia.org/wiki/Knowledge_economy)[[80][81][82]](#page24) A new [smart city](https://en.wikipedia.org/wiki/Smart_city) paradigm, supported by institutions such as the [RAND Corporation](https://en.wikipedia.org/wiki/RAND_Corporation) and



[IBM,](https://en.wikipedia.org/wiki/IBM) is bringing computerized [surveillance,](https://en.wikipedia.org/wiki/Surveillance_issues_in_smart_cities) data analysis, and [governance](https://en.wikipedia.org/wiki/E-governance) to bear on cities and city-dwellers.[[83]](#page24) Some companies are building brand new [masterplanned](https://en.wikipedia.org/wiki/Land_use_planning) cities from scratch on [greenfield](https://en.wikipedia.org/wiki/Greenfield_land) sites.



**Urbanization**



[Urbanization](https://en.wikipedia.org/wiki/Urbanization) is the process of migration from rural into urban areas, driven by various political, economic, and cultural factors. Until the 18th century, an equilibrium existed between the rural agricultural population and towns featuring [markets](https://en.wikipedia.org/wiki/Market_(place)) and small-scale manufacturing.[[84][85]](#page25) With the [agricultural](https://en.wikipedia.org/wiki/British_Agricultural_Revolution) and [industrial](https://en.wikipedia.org/wiki/Industrial_revolution) revolutions urban population began its unprecedented growth, both through migration and through [demographic expansion.](https://en.wikipedia.org/wiki/Demographic_transition) In [England](https://en.wikipedia.org/wiki/England) the proportion of the population living in cities jumped from 17% in 1801 to 72% in 1891.[[86]](#page25) In 1900, 15% of the world population lived in cities.[[87]](#page25) The cultural appeal of cities also plays a role in attracting residents.[[88]](#page25)



Urbanization rapidly spread across the Europe and the Americas and since the 1950s has taken hold in Asia and Africa as well. The Population Division of the [United Nations Department of Economic and Social Affairs,](https://en.wikipedia.org/wiki/United_Nations_Department_of_Economic_and_Social_Affairs) reported in 2014

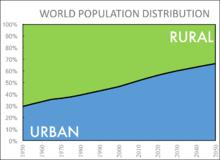


that for the first time more than half of the world population lives in cities.[[89][a]](#page19)

Clothes hang neatly and visibly in these [Jakarta](https://en.wikipedia.org/wiki/Jakarta) dwellings on the water near a [dump.](https://en.wikipedia.org/wiki/Waste)



Graph showing urbanization from 1950 projected to 2050.[[96]](#page25)



Latin America is the most urban continent, with four fifths of its population living in cities, including one fifth of the population said to live in [shantytowns](https://en.wikipedia.org/wiki/Shantytown)



[(favelas,](https://en.wikipedia.org/wiki/Favela) [poblaciones callampas,](https://en.wikipedia.org/wiki/Campamento_(Chile)) etc.).[[97]](#page25) [Batam,](https://en.wikipedia.org/wiki/Batam) Indonesia, [Mogadishu,](https://en.wikipedia.org/wiki/Mogadishu) Somalia, [Xiamen,](https://en.wikipedia.org/wiki/Xiamen) China and [Niamey,](https://en.wikipedia.org/wiki/Niamey) Niger, are considered among the world's



fastest-growing cities, with annual growth rates of 5–8%.[[98]](#page25) In general, the [more developed countries](https://en.wikipedia.org/wiki/Developed_country) of the ["Global North"](https://en.wikipedia.org/wiki/Global_North) remain more urbanized than the [less developed countries](https://en.wikipedia.org/wiki/Less_developed_countries) of the ["Global](https://en.wikipedia.org/wiki/Global_South) South"—but the difference continues to shrink because urbanization is happening faster in the latter group. Asia is home to by far the greatest absolute number of city-dwellers: over two billion and counting.[[85]](#page25) The UN predicts an additional 2.5 billion citydwellers (and 300 million fewer countrydwellers) worldwide by 2050, with 90% of urban population expansion occurring in Asia and Africa.[[89][99]](#page25)



[Megacities,](https://en.wikipedia.org/wiki/Megacities) cities with population in the multi-millions, have proliferated into the dozens, arising especially in Asia, Africa, and Latin America.[[100][101]](#page26) Economic globalization fuels the growth of these cities, as new torrents of foreign [capital](https://en.wikipedia.org/wiki/Financial_capital) arrange for rapid industrialization, as well as [relocation of major businesses](https://en.wikipedia.org/wiki/Offshoring) from Europe and North America, attracting



[immigrants](https://en.wikipedia.org/wiki/Immigrant) from near and far.[[102]](#page26) A deep gulf divides rich and poor in these cities, with usually contain a super-wealthy elite living in [gated communities](https://en.wikipedia.org/wiki/Gated_community) and large masses of people living in substandard housing with inadequate infrastructure and otherwise poor conditions.[[103]](#page26)



Map showing urban areas with at least one million inhabitants in 2006.



Cities around the world have expanded physically as they grow in population, with increases in their surface extent, with the creation of high-rise buildings for residential and commercial use, and with development underground.[[104][105]](#page26)

Urbanization can create rapid demand for [water resources management,](https://en.wikipedia.org/wiki/Water_resources_management) as formerly good sources of freshwater become overused and polluted, and the volume of [sewage](https://en.wikipedia.org/wiki/Sewage) begins to exceed manageable levels.[[106]](#page26)



**Government**



[Local government of cities takes different forms including prominently the municipality (especially in England, in the United](https://en.wikipedia.org/wiki/Local_government_in_the_United_States)



[States,](https://en.wikipedia.org/wiki/Local_government_in_the_United_States) [in India,](https://en.wikipedia.org/wiki/Municipal_governance_in_India) [and in other](https://en.wikipedia.org/wiki/Local_government_in_the_United_States) [British colonies;](https://en.wikipedia.org/wiki/Crown_colonies) [legally, the](https://en.wikipedia.org/wiki/Local_government_in_the_United_States) [municipal corporation;](https://en.wikipedia.org/wiki/Municipal_corporation)[[107]](#page26) [*municipio*](https://en.wikipedia.org/wiki/Municipio) [in](https://en.wikipedia.org/wiki/Local_government_in_the_United_States) [Spain](https://en.wikipedia.org/wiki/Municipalities_of_Spain) [and](https://en.wikipedia.org/wiki/Local_government_in_the_United_States) [in Portugal,](https://en.wikipedia.org/wiki/Municipalities_of_Portugal) [and,](https://en.wikipedia.org/wiki/Local_government_in_the_United_States) along with [*municipalidad*](https://en.wikipedia.org/wiki/Municipalidad), in most former parts of the [Spanish](https://en.wikipedia.org/wiki/Spanish_Empire) and [Portuguese](https://en.wikipedia.org/wiki/Portuguese_Empire) empires) and the *commune* [(in France](https://en.wikipedia.org/wiki/Communes_in_France) and [in Chile;](https://en.wikipedia.org/wiki/Communes_of_Chile)



or [*comune*](https://en.wikipedia.org/wiki/Comune) in Italy).



The chief official of the city has the title of [mayor.](https://en.wikipedia.org/wiki/Mayor) Whatever their true degree of political authority, the mayor typically acts as the [figurehead](https://en.wikipedia.org/wiki/Figurehead) or personification of their city.[[108]](#page26)



City governments have authority to make [laws](https://en.wikipedia.org/wiki/Law) governing activity within cities, while its [jurisdiction](https://en.wikipedia.org/wiki/Jurisdiction) is



generally considered

The [city council](https://en.wikipedia.org/wiki/City_council) of [Tehran](https://en.wikipedia.org/wiki/Tehran) meets in September 2015.



[The city hall](https://en.wikipedia.org/wiki/City_Hall,_Penang) in [George Town,](https://en.wikipedia.org/wiki/George_Town,_Penang) Malaysia, today serves as the [seat](https://en.wikipedia.org/wiki/Seat_of_local_government) of [the City Council of Penang](https://en.wikipedia.org/wiki/City_Council_of_Penang_Island) [Island.](https://en.wikipedia.org/wiki/City_Council_of_Penang_Island)[[109]](#page26)

[subordinate](https://en.wikipedia.org/wiki/Conflict_of_laws) (in ascending order) to [state/provincial,](https://en.wikipedia.org/wiki/State_government) [national,](https://en.wikipedia.org/wiki/Central_government) and perhaps [international law.](https://en.wikipedia.org/wiki/International_law) This hierarchy of law is not enforced rigidly in practice—for example in conflicts between municipal regulations and national principles such as [constitutional rights](https://en.wikipedia.org/wiki/Constitutional_right) and [property rights.](https://en.wikipedia.org/wiki/Property_rights)[[73]](#page24) Legal conflicts and issues arise more frequently in cities than elsewhere due to the bare fact of their greater density.[[110]](#page26) Modern city governments thoroughly [regulate](https://en.wikipedia.org/wiki/Regulation) [everyday life](https://en.wikipedia.org/wiki/Everyday_life) in many dimensions, including [public](https://en.wikipedia.org/wiki/Public_health) and personal [health,](https://en.wikipedia.org/wiki/Health) [transport,](https://en.wikipedia.org/wiki/Transport) [burial,](https://en.wikipedia.org/wiki/Burial) [resource](https://en.wikipedia.org/wiki/Resource) use and [extraction,](https://en.wikipedia.org/wiki/Resource_extraction) [recreation,](https://en.wikipedia.org/wiki/Recreation) and the nature and use of [buildings.](https://en.wikipedia.org/wiki/Building)



Technologies, techniques, and laws governing these areas—developed in cities—have become ubiquitous in many areas.[[111]](#page26) Municipal officials may be appointed from a higher level of government or elected locally.[[112]](#page26)

**Municipal services**

[Cities typically provide municipal services such as education, through school](https://en.wikipedia.org/wiki/School_system) [systems; policing, through police departments; and firefighting, through fire](https://en.wikipedia.org/wiki/Fire_department) [departments; as well as the city's basic infrastructure. These are provided more](https://en.wikipedia.org/wiki/Fire_department)



or less routinely, in a more or less equal fashion.[[113][114]](#page27) Responsibility for administration usually falls on the city government, though some services may be operated by a higher level of government,[[115]](#page27) while others may be privately run.[[116]](#page27) Armies may assume responsibility for policing cities in states of domestic turmoil such as America's [King assassination riots](https://en.wikipedia.org/wiki/King_assassination_riots) of 1968.



**Finance**

[The traditional basis for municipal finance is local property tax levied on real](https://en.wikipedia.org/wiki/Real_estate)



The [Dublin Fire Brigade](https://en.wikipedia.org/wiki/Dublin_Fire_Brigade) in Dublin, Ireland, quenching a severe fire at a hardware store in 1970



[estate within the city. Local government can also collect revenue for services,](https://en.wikipedia.org/wiki/Real_estate) or by leasing land that it owns.[[117]](#page27) However, financing municipal services, as well as [urban renewal](https://en.wikipedia.org/wiki/Urban_renewal) and other development projects, is a perennial problem, which cities address through appeals to higher governments, arrangements with the private sector, and techniques such as [privatization](https://en.wikipedia.org/wiki/Privatization) (selling services into the [private sector),](https://en.wikipedia.org/wiki/Private_sector) [corporatization](https://en.wikipedia.org/wiki/Corporatization) (formation of quasi-private municipally-owned corporations), and [financialization](https://en.wikipedia.org/wiki/Financialization) (packaging city assets into tradable [financial instruments](https://en.wikipedia.org/wiki/Financial_instrument) and [derivatives)](https://en.wikipedia.org/wiki/Derivative_(finance)). This situation has become acute in deindustrialized cities and in cases where businesses and wealthier citizens have moved outside of [city limits](https://en.wikipedia.org/wiki/City_limits) and therefore beyond the reach of taxation.[[118][119][120][121]](#page27) Cities in search of [ready cash](https://en.wikipedia.org/wiki/Cash_and_cash_equivalents) increasingly resort to the [municipal bond,](https://en.wikipedia.org/wiki/Municipal_bond) essentially a loan with [interest](https://en.wikipedia.org/wiki/Maturity_(finance)) and a [repayment date.](https://en.wikipedia.org/wiki/Maturity_(finance))[[122]](#page27) City governments have also begun to use [tax increment financing,](https://en.wikipedia.org/wiki/Tax_increment_financing) in



which a development project is financed by loans based on future tax revenues which it is expected to yield.[[121]](#page27) Under these circumstances, creditors and consequently city governments place a high importance on city [credit ratings.](https://en.wikipedia.org/wiki/Credit_rating)[[123]](#page27)



**Governance**

[Governance](https://en.wikipedia.org/wiki/Governance) includes government but refers to a wider domain of [social control](https://en.wikipedia.org/wiki/Social_control) functions implemented by many actors including

[La Plata,](https://en.wikipedia.org/wiki/La_Plata) Argentina, based on a perfect square with 5196-meter sides, was designed in the 1880s as the new capital of [Buenos Aires Province.](https://en.wikipedia.org/wiki/Buenos_Aires_Province)[[129]](#page28)



[nongovernmental organizations.](https://en.wikipedia.org/wiki/Nongovernmental_organization)[[124]](#page27) The impact of globalization and the role of [multinational corporations](https://en.wikipedia.org/wiki/Multinational_corporation) in local governments worldwide, has led to a shift in perspective on urban governance, away from the "urban regime theory" in which a coalition of local interests functionally govern, toward a theory of outside economic control, widely associated in academics with the philosophy of [neoliberalism.](https://en.wikipedia.org/wiki/Neoliberalism)[[125]](#page27) In the neoliberal model of governance, public utilities are [privatized,](https://en.wikipedia.org/wiki/Privatization) industry is [deregulated,](https://en.wikipedia.org/wiki/Deregulation) and [corporations](https://en.wikipedia.org/wiki/Corporation) gain the status of governing actors—as indicated by the power they wield in [public-private partnerships](https://en.wikipedia.org/wiki/Public-private_partnerships) and over [business improvement districts,](https://en.wikipedia.org/wiki/Business_improvement_districts) and in the expectation of self-regulation through [corporate social responsibility.](https://en.wikipedia.org/wiki/Corporate_social_responsibility) The biggest



[investors](https://en.wikipedia.org/wiki/Investor) and [real estate developers](https://en.wikipedia.org/wiki/Real_estate_developer) act as the city's [de facto](https://en.wikipedia.org/wiki/De_facto) urban planners.[[126]](#page27)



The related concept of [good governance](https://en.wikipedia.org/wiki/Good_governance) places more emphasis on the state, with the purpose of assessing urban governments for



their suitability for [development assistance.](https://en.wikipedia.org/wiki/Development_assistance)[[127]](#page28) The concepts of governance and good governance are especially invoked in the



emergent megacities, where international organizations consider existing governments inadequate for their large populations.[[128]](#page28)

**Urban planning**

[Urban planning,](https://en.wikipedia.org/wiki/Urban_planning) the application of forethought to city design, involves optimizing land use, transportation, utilities, and other basic systems, in order to achieve [certain objectives.](https://en.wikipedia.org/wiki/Technical_aspects_of_urban_planning) Urban planners and scholars have proposed overlapping [theories](https://en.wikipedia.org/wiki/Theories_of_urban_planning) as ideals for how plans should be formed. Planning tools, beyond the original design of the city itself, include [public capital](https://en.wikipedia.org/wiki/Public_capital) investment in infrastructure and [land-use controls](https://en.wikipedia.org/wiki/Land-use_planning) such as [zoning.](https://en.wikipedia.org/wiki/Zoning) The continuous process of [comprehensive planning](https://en.wikipedia.org/wiki/Comprehensive_planning) involves identifying general objectives as well as collecting data to evaluate progress and inform future decisions.[[130][131]](#page28)



Government is legally the final authority on planning but in practice the process involves both public and private elements. The legal principle of [eminent domain](https://en.wikipedia.org/wiki/Eminent_domain) is used by government to divest citizens of their property in cases where its use is required for a project.[[131]](#page28) Planning often involves tradeoffs—decisions in



which some stand to gain and some to lose—and thus is closely connected to the prevailing political situation.[[132]](#page28)

The [history of urban planning](https://en.wikipedia.org/wiki/History_of_urban_planning) dates to some of the earliest known cities, especially in the Indus Valley and Mesoamerican



civilizations, which built their cities on grids and apparently zoned different areas for different purposes.[[19][133]](#page28) The effects of planning, ubiquitous in today's world, can be seen most clearly in the layout of [planned communities,](https://en.wikipedia.org/wiki/Planned_community) fully designed prior to construction, often with consideration for interlocking physical, economic, and cultural systems.



**Society**



**Social structure**

[Urban society](https://en.wikipedia.org/wiki/Urban_sociology) is typically [stratified.](https://en.wikipedia.org/wiki/Social_stratification) Spatially, cities are formally or informally [segregated](https://en.wikipedia.org/wiki/Geographical_segregation) along ethnic, economic and racial lines. People living relatively close together may live, work, and play, in separate areas, and associate with different people, forming [ethnic](https://en.wikipedia.org/wiki/Ethnic_enclave) or [lifestyle](https://en.wikipedia.org/wiki/Lifestyle_enclave) enclaves or, in areas of concentrated poverty, [ghettoes.](https://en.wikipedia.org/wiki/Ghetto) While in the US and elsewhere poverty became associated with the [inner city,](https://en.wikipedia.org/wiki/Inner_city) in France it has become associated with the [*banlieues*](https://en.wikipedia.org/wiki/Banlieue), areas of urban development which surround

the city proper. Meanwhile, across Europe and North America, the racially [white](https://en.wikipedia.org/wiki/White_people) majority is empirically the most segregated group. [Suburbs](https://en.wikipedia.org/wiki/Suburb) in the west, and, increasingly, [gated communities](https://en.wikipedia.org/wiki/Gated_communities) and other forms of "privatopia" around the world, allow local



elites to self-segregate into secure and exclusive [neighborhoods.](https://en.wikipedia.org/wiki/Neighborhood)[[134]](#page28)



Landless urban workers, contrasted with [peasants](https://en.wikipedia.org/wiki/Peasant) and known as the [proletariat,](https://en.wikipedia.org/wiki/Proletariat) form a growing stratum of society in the age of urbanization. In [Marxist](https://en.wikipedia.org/wiki/Marxism) doctrine, the proletariat will inevitably [revolt](https://en.wikipedia.org/wiki/Proletarian_revolution) against the [bourgeoisie](https://en.wikipedia.org/wiki/Bourgeoisie) as their ranks swell with



disenfranchised and disaffected people lacking all stake in the [status quo.](https://en.wikipedia.org/wiki/Status_quo)[[135]](#page28) The global urban proletariat of today, however, generally lacks the status as factory workers which in the nineteenth century provided access to the [means of production.](https://en.wikipedia.org/wiki/Means_of_production)[[136]](#page28)



**Economics**

Historically, cities rely on [rural areas](https://en.wikipedia.org/wiki/Rural_area) for [intensive farming](https://en.wikipedia.org/wiki/Intensive_farming) to [yield surplus crops,](https://en.wikipedia.org/wiki/Crop_yield) in exchange for which they provide money,



political administration, manufactured goods, and culture.[[28][29]](#page21) [Urban economics](https://en.wikipedia.org/wiki/Urban_economics) tends to analyze larger agglomerations,



stretching beyond city limits, in order to reach a more complete understanding of the local [labor market.](https://en.wikipedia.org/wiki/Labor_market)[[137]](#page28)



As hubs of trade cities have long been home to [retail](https://en.wikipedia.org/wiki/Retail) commerce and [consumption through the interface of shopping. In the 20th century, department](https://en.wikipedia.org/wiki/Department_store) [stores using new techniques of](https://en.wikipedia.org/wiki/Department_store) [advertising,](https://en.wikipedia.org/wiki/Advertising) [public relations,](https://en.wikipedia.org/wiki/Public_relations) [decoration,](https://en.wikipedia.org/wiki/Decorative_arts) [and](https://en.wikipedia.org/wiki/Department_store) [design,](https://en.wikipedia.org/wiki/Design) transformed urban shopping areas into [fantasy worlds](https://en.wikipedia.org/wiki/Fantasy_world) encouraging self-



expression and escape through [consumerism.](https://en.wikipedia.org/wiki/Consumerism)[[138][139]](#page29)



[In general, the density of cities expedites commerce and facilitates knowledge](https://en.wikipedia.org/wiki/Knowledge_spillover) [spillovers, helping people and firms exchange information and generate new](https://en.wikipedia.org/wiki/Knowledge_spillover)



ideas.[[140][141]](#page29) A thicker labor market allows for better skill matching between firms and individuals. Population density enables also sharing of common infrastructure and production facilities, however in very dense cities, increased crowding and waiting times may lead to some negative effects.[[142]](#page29)

Although [manufacturing](https://en.wikipedia.org/wiki/Manufacturing) fueled the growth of cities, many now rely on a [tertiary](https://en.wikipedia.org/wiki/Tertiary_sector_of_the_economy) or [service economy.](https://en.wikipedia.org/wiki/Service_economy) The services in question range from [tourism,](https://en.wikipedia.org/wiki/Tourism) [hospitality,](https://en.wikipedia.org/wiki/Hospitality_industry) [entertainment,](https://en.wikipedia.org/wiki/Entertainment) [housekeeping](https://en.wikipedia.org/wiki/Housekeeping) and [prostitution](https://en.wikipedia.org/wiki/Prostitution) to [grey-collar](https://en.wikipedia.org/wiki/Grey-collar) work in [law,](https://en.wikipedia.org/wiki/Legal_outsourcing) [finance,](https://en.wikipedia.org/wiki/Financial_services)



and [administration.](https://en.wikipedia.org/wiki/Management)[[77][143]](#page29)



[Clusters of skyscrapers in Xinyi](https://en.wikipedia.org/wiki/Xinyi_Special_District) [Special District - the centre of](https://en.wikipedia.org/wiki/Xinyi_Special_District) commerce and finance of [Taipei City,](https://en.wikipedia.org/wiki/Taipei_City) capital of the [Republic of China](https://en.wikipedia.org/wiki/Republic_of_China) (Taiwan).



**Culture and communications**

Cities are typically hubs for [education](https://en.wikipedia.org/wiki/Education) and [the arts,](https://en.wikipedia.org/wiki/The_arts) supporting [universities,](https://en.wikipedia.org/wiki/University) [museums,](https://en.wikipedia.org/wiki/Museum) [temples,](https://en.wikipedia.org/wiki/Temple) and other [cultural institutions.](https://en.wikipedia.org/wiki/Cultural_institutions)[[20]](#page21) They feature impressive displays of [architecture](https://en.wikipedia.org/wiki/Architecture) ranging from small to enormous and ornate to [brutal;](https://en.wikipedia.org/wiki/Brutalist_architecture) [skyscrapers,](https://en.wikipedia.org/wiki/Skyscrapers) providing



thousands of offices or homes within a small footprint, and visible from miles away, have become iconic urban features.[[144]](#page29) Cultural elites tend to live in cities, bound together by shared [cultural capital,](https://en.wikipedia.org/wiki/Cultural_capital) and themselves playing some role in



governance.[[145]](#page29) By virtue of their status as centers of culture and literacy, cities can be described as the locus of [civilization,](https://en.wikipedia.org/wiki/Civilization) [world history,](https://en.wikipedia.org/wiki/History_of_the_world) and [social change.](https://en.wikipedia.org/wiki/Social_change)[[146][147]](#page29)



Density makes for effective [mass communication](https://en.wikipedia.org/wiki/Mass_communication) and transmission of [news,](https://en.wikipedia.org/wiki/News) through [heralds,](https://en.wikipedia.org/wiki/Herald) printed [proclamations,](https://en.wikipedia.org/wiki/Proclamation) [newspapers,](https://en.wikipedia.org/wiki/Newspaper) and digital media. These communication networks, though still using cities as hubs, penetrate extensively into all populated areas. In the age of rapid communication and transportation, commentators have described urban culture as nearly ubiquitous[[17][148][149]](#page29) or as no longer meaningful.[[150]](#page29)



Today, a city's promotion of its cultural activities dovetails with [place branding](https://en.wikipedia.org/wiki/Place_branding) and [city marketing,](https://en.wikipedia.org/wiki/City_marketing) [public diplomacy](https://en.wikipedia.org/wiki/Public_diplomacy) techniques used to inform development strategy; to attract businesses, investors, residents, and tourists; and to create a [shared identity](https://en.wikipedia.org/wiki/Collective_identity) and [sense of place](https://en.wikipedia.org/wiki/Sense_of_place) within the metropolitan area.[[151][152][153][154]](#page30) Physical inscriptions, [plaques,](https://en.wikipedia.org/wiki/Historical_marker) and [monuments](https://en.wikipedia.org/wiki/Monument) on display



physically transmit a historical context for urban places.[[155]](#page30) Some cities, such as [Jerusalem,](https://en.wikipedia.org/wiki/Jerusalem) [Mecca,](https://en.wikipedia.org/wiki/Mecca) and [Rome](https://en.wikipedia.org/wiki/Rome) have indelible [religious status and for hundreds of years have attracted pilgrims. Patriotic tourists visit Agra to see the Taj Mahal, or New York](https://en.wikipedia.org/wiki/New_York_City)



[City to visit the](https://en.wikipedia.org/wiki/New_York_City) [World Trade Center.](https://en.wikipedia.org/wiki/World_Trade_Center_(2001–present)) [Elvis](https://en.wikipedia.org/wiki/Elvis) [lovers visit](https://en.wikipedia.org/wiki/New_York_City) [Memphis](https://en.wikipedia.org/wiki/Memphis,_Tennessee) [to pay their respects at](https://en.wikipedia.org/wiki/New_York_City) [Graceland.](https://en.wikipedia.org/wiki/Graceland)[[156]](#page30) [Place brands (which](https://en.wikipedia.org/wiki/New_York_City) include place satisfaction and place loyalty) have great economic value (comparable to the value of commodity [brands)](https://en.wikipedia.org/wiki/Brand) because of their influence on the [decision-making process](https://en.wikipedia.org/wiki/Decision-making_process) of people thinking about doing business in—"purchasing" (the brand of)—a [city.[154]](#page30)



[Bread and circuses](https://en.wikipedia.org/wiki/Bread_and_circuses) among other forms of cultural appeal, attract and entertain [the masses.](https://en.wikipedia.org/wiki/Commoner)[[88][157]](#page30) Sports also play a major role in



city branding and local [identity](https://en.wikipedia.org/wiki/Identity_(social_science)) formation.[[158]](#page30) Cities go to considerable lengths in competing to host the [Olympic Games,](https://en.wikipedia.org/wiki/Olympic_Games) which



bring global attention and tourism.[[159]](#page30)

**Warfare**

Cities play a crucial strategic role in [warfare](https://en.wikipedia.org/wiki/Warfare) due to their economic, demographic, symbolic, and political centrality. For the same reasons, they are targets in [asymmetric warfare.](https://en.wikipedia.org/wiki/Asymmetric_warfare) Many cities throughout history were founded under military auspices, a great many have incorporated [fortifications,](https://en.wikipedia.org/wiki/Fortification) and



military principles continue to [influence urban design.](https://en.wikipedia.org/wiki/Military_urbanism)[[160]](#page30) Indeed, war may have served as the social rationale and economic basis for the very earliest



[cities.[46][47]](#page22)

Powers engaged in [geopolitical](https://en.wikipedia.org/wiki/Geopolitics) conflict have established fortified settlements as [part of military strategies, as in the case of garrison towns, America's Strategic](https://en.wikipedia.org/wiki/Strategic_Hamlet_Program) [Hamlet Program during the](https://en.wikipedia.org/wiki/Strategic_Hamlet_Program) [Vietnam War,](https://en.wikipedia.org/wiki/Vietnam_War) [and](https://en.wikipedia.org/wiki/Strategic_Hamlet_Program) [Israeli settlements](https://en.wikipedia.org/wiki/Israeli_settlement) [in](https://en.wikipedia.org/wiki/Strategic_Hamlet_Program)



Palestine.[[161]](#page30) While [occupying](https://en.wikipedia.org/wiki/Philippine–American_War) the [Philippines,](https://en.wikipedia.org/wiki/Philippines) the US Army ordered local people concentrated into cities and towns, in order to isolate committed insurgents and battle freely against them in the countryside.[[162][163]](#page30)



During [World War II,](https://en.wikipedia.org/wiki/World_War_II) national governments on occasion declared certain cities [open,](https://en.wikipedia.org/wiki/Open_city) effectively [surrendering](https://en.wikipedia.org/wiki/Surrender_(military)) them to an advancing enemy in order to avoid [damage and bloodshed. Urban warfare proved decisive, however, in the Battle of](https://en.wikipedia.org/wiki/Battle_of_Stalingrad) [Stalingrad, where Soviet forces repulsed German occupiers, with extreme](https://en.wikipedia.org/wiki/Battle_of_Stalingrad) casualties and destruction. In an era of [low-intensity conflict](https://en.wikipedia.org/wiki/Low-intensity_conflict) and rapid urbanization, cities have become sites of long-term conflict waged both by foreign occupiers and by local governments against [insurgency.](https://en.wikipedia.org/wiki/Insurgency)[[136][164]](#page30) Such warfare, known as [counterinsurgency,](https://en.wikipedia.org/wiki/Counterinsurgency) involves techniques of surveillance and



[psychological warfare](https://en.wikipedia.org/wiki/Psychological_warfare) as well as [close combat,](https://en.wikipedia.org/wiki/Close_combat)[[165]](#page30) functionally extends modern [urban crime prevention, which already uses concepts such as defensible](https://en.wikipedia.org/wiki/Defensible_space_theory)



[space.](https://en.wikipedia.org/wiki/Defensible_space_theory)[[166]](#page31)



[Atomic bombing](https://en.wikipedia.org/wiki/Atomic_bombings_of_Hiroshima_and_Nagasaki) on August 6, 1945, devastated the Japanese city of [Hiroshima.](https://en.wikipedia.org/wiki/Hiroshima)



[Warsaw Old Town after the Warsaw](https://en.wikipedia.org/wiki/Warsaw_Uprising) [Uprising, 85% of the city was](https://en.wikipedia.org/wiki/Warsaw_Uprising) [deliberately destroyed.](https://en.wikipedia.org/wiki/Aftermath_of_the_Warsaw_Uprising)

Although capture is the more common objective, warfare has in some cases spelt

[complete destruction for a city. Mesopotamian tablets and ruins attest to such destruction,](https://en.wikipedia.org/wiki/Carthago_delenda_est)[[167]](#page31) [as does the Latin motto](https://en.wikipedia.org/wiki/Carthago_delenda_est) *Carthago*



[*delenda est*.](https://en.wikipedia.org/wiki/Carthago_delenda_est)[[168][169]](#page31)[Since the](https://en.wikipedia.org/wiki/Carthago_delenda_est) [*atomic*](https://en.wikipedia.org/wiki/Atomic_bombing_of_Hiroshima_and_Nagasaki) bombing of Hiroshima and Nagasaki [*and*](https://en.wikipedia.org/wiki/Carthago_delenda_est) throughout the [*Cold*](https://en.wikipedia.org/wiki/Cold_War) War, [*nuclear*](https://en.wikipedia.org/wiki/Nuclear_strategy) strategistscontinued to contemplate the use of ["countervalue"](https://en.wikipedia.org/wiki/Countervalue) targeting: crippling an enemy by annihilating its valuable cities, rather than

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[aiming primarily at its military forces.](https://en.wikipedia.org/wiki/Counterforce)[[170][171]](#page31)



**Infrastructure**



Urban [infrastructure](https://en.wikipedia.org/wiki/Infrastructure) involves various physical networks and spaces necessary for transportation, water use, energy, recreation,



and public functions.[[172]](#page31) Infrastructure carries a high initial cost in [fixed capital](https://en.wikipedia.org/wiki/Fixed_capital) (pipes, wires, plants, vehicles, etc.) but lower



[marginal costs](https://en.wikipedia.org/wiki/Marginal_cost) and thus positive [economies of scale.](https://en.wikipedia.org/wiki/Economies_of_scale)[[173]](#page31) Because of the higher [barriers to entry,](https://en.wikipedia.org/wiki/Barriers_to_entry) these networks have been classified as [natural monopolies,](https://en.wikipedia.org/wiki/Natural_monopoly) meaning that economic logic favors control of each network by a single organization, public or



[private.[106][174][b]](#page19)

Infrastructure in general (if not every infrastructure project) plays a vital role in a city's capacity for economic activity and expansion, underpinning the very survival of the city's inhabitants, as well as technological, commercial, industrial, and social activities.[[172][173]](#page31) Structurally, many infrastructure systems take the form of [networks](https://en.wikipedia.org/wiki/Network_theory) with redundant links and multiple



pathways, so that the system as a whole continue to operate even if parts of it fail.[[174]](#page31) The particulars of a city's infrastructure systems have historical [path dependence](https://en.wikipedia.org/wiki/Path_dependence) because new development must build from what exists already.[[173]](#page31)



[Megaprojects](https://en.wikipedia.org/wiki/Megaproject) such as the construction of [airports,](https://en.wikipedia.org/wiki/Airport) [power plants,](https://en.wikipedia.org/wiki/Power_plant) and [railways](https://en.wikipedia.org/wiki/Railway) require large upfront investments and thus tend to require funding from national government or the private sector.[[177][174]](#page31) Privatization may also extend to all levels of infrastructure construction and maintenance.[[178]](#page31)



Urban infrastructure ideally serves all residents equally but in practice may prove uneven—with, in some cities, clear first-class and second-class alternatives.[[114][179][106]](#page26)

**Utilities**

[Public utilities](https://en.wikipedia.org/wiki/Public_utility) (literally, useful things with general availability) include basic and essential infrastructure networks, chiefly concerned with the supply of water, electricity, and telecommunications capability to the populace.[[180]](#page31)



[Sanitation,](https://en.wikipedia.org/wiki/Sanitation) necessary for good health in crowded conditions, requires water supply and [waste management](https://en.wikipedia.org/wiki/Waste_management) as well as individual [hygiene.](https://en.wikipedia.org/wiki/Hygiene) Urban [water](https://en.wikipedia.org/wiki/Water) systems include principally a [water supply network](https://en.wikipedia.org/wiki/Water_supply_network) and a network for [wastewater](https://en.wikipedia.org/wiki/Wastewater) including [sewage](https://en.wikipedia.org/wiki/Sewage) and [stormwater.](https://en.wikipedia.org/wiki/Stormwater) [Historically,](https://en.wikipedia.org/wiki/History_of_water_supply_and_sanitation) either local governments or private companies have administered urban [water supply,](https://en.wikipedia.org/wiki/Water_supply) with a tendency toward government water supply in the 20th century and a tendency toward private operation at the turn of the twenty-first.[[106][c]](#page20) The market for private water services is dominated by two French companies, [Veolia Water](https://en.wikipedia.org/wiki/Veolia_Water) (formerly [Vivendi)](https://en.wikipedia.org/wiki/Vivendi) and [Engie](https://en.wikipedia.org/wiki/Engie) (formerly [Suez),](https://en.wikipedia.org/wiki/Suez_(company)) said to hold 70% of all water contracts worldwide.[[106][182]](#page32)



Modern urban life relies heavily on the [energy](https://en.wikipedia.org/wiki/Energy) transmitted through [electricity](https://en.wikipedia.org/wiki/Electricity) for the operation of [electric machines](https://en.wikipedia.org/wiki/Electric_machines) (from household [appliances](https://en.wikipedia.org/wiki/Home_appliance) to [industrial machines](https://en.wikipedia.org/wiki/Outline_of_industrial_machinery) to now-ubiquitous [electronic](https://en.wikipedia.org/wiki/Electronics) systems used in communications, business, and government) and for [traffic lights,](https://en.wikipedia.org/wiki/Traffic_lights) [streetlights](https://en.wikipedia.org/wiki/Streetlights) and indoor [lighting.](https://en.wikipedia.org/wiki/Lighting) Cities rely to a lesser extent on [hydrocarbon fuels](https://en.wikipedia.org/wiki/Hydrocarbon_fuel) such as [gasoline](https://en.wikipedia.org/wiki/Gasoline) and [natural gas](https://en.wikipedia.org/wiki/Natural_gas) for transportation, [heating,](https://en.wikipedia.org/wiki/Heating) and [cooking.](https://en.wikipedia.org/wiki/Cooking) [Telecommunications](https://en.wikipedia.org/wiki/Telecommunications) infrastructure such as [telephone lines](https://en.wikipedia.org/wiki/Telephone_line) and



[coaxial cables](https://en.wikipedia.org/wiki/Coaxial_cables) also traverse cities, forming dense networks for [mass](https://en.wikipedia.org/wiki/Mass_communication) and [point-to-point](https://en.wikipedia.org/wiki/Point-to-point_(telecommunications)) communications.[[183]](#page32)



**Transportation**

Because cities rely on specialization and an [economic system](https://en.wikipedia.org/wiki/Economic_system) based on [wage labour,](https://en.wikipedia.org/wiki/Wage_labour) their inhabitants must have the ability to



regularly travel between home, work, commerce, and entertainment.[[184]](#page32) Citydwellers travel foot or by wheel on [roads](https://en.wikipedia.org/wiki/Road) and [walkways,](https://en.wikipedia.org/wiki/Walkway) or use special [rapid transit](https://en.wikipedia.org/wiki/Rapid_transit) systems based on [underground,](https://en.wikipedia.org/wiki/Tunnel) [overground,](https://en.wikipedia.org/wiki/Light_rail) and [elevated](https://en.wikipedia.org/wiki/Elevated_railway) rail. Cities also rely on long-



distance transportation (truck, [rail,](https://en.wikipedia.org/wiki/Rail_transport) and [airplane)](https://en.wikipedia.org/wiki/Airplane) for economic connections with other cities and rural areas.[[185]](#page32)



Historically, city streets were the domain of [horses](https://en.wikipedia.org/wiki/Horse) and their riders and [pedestrians,](https://en.wikipedia.org/wiki/Pedestrian) who only sometimes had [sidewalks](https://en.wikipedia.org/wiki/Sidewalk) and



[special walking areas](https://en.wikipedia.org/wiki/Transit_mall) reserved for them.[[186]](#page32) In the west, [bicycles](https://en.wikipedia.org/wiki/Bicycle) or [(velocipedes),](https://en.wikipedia.org/wiki/Velocipede) efficient human-powered machines for short-and medium-distance travel,[[187]](#page32) enjoyed a period of popularity at the beginning of the twentieth century before the rise of automobiles.[[188]](#page32) Soon after, they gained a more lasting foothold in Asian and African cities under European influence.[[189]](#page32) In



[western cities, industrializing, expanding, and electrifying at this time, public](https://en.wikipedia.org/wiki/Public_transit) [transit systems and especially](https://en.wikipedia.org/wiki/Public_transit) [streetcars](https://en.wikipedia.org/wiki/Streetcar) [enabled urban expansion as new](https://en.wikipedia.org/wiki/Public_transit) residential neighborhoods sprung up along transit lines and workers rode to and from work downtown.[[185][190]](#page32)



Since the mid-twentieth century, cities have relied heavily on [motor vehicle](https://en.wikipedia.org/wiki/Motor_vehicle) transportation, with major [implications](https://en.wikipedia.org/wiki/Effects_of_the_car_on_societies) for their layout, environment, and



aesthetics.[[191]](#page32) (This transformation occurred most dramatically in the US— where corporate and governmental policies favored automobile transport systems—and to a lesser extent in Europe.)[[185][190]](#page32) The rise of personal [cars](https://en.wikipedia.org/wiki/Car) accompanied the expansion of urban economic areas into much larger [metropolises,](https://en.wikipedia.org/wiki/Metropolis) subsequently creating ubiquitous [traffic](https://en.wikipedia.org/wiki/Traffic) issues with accompanying



[Train](https://en.wikipedia.org/wiki/Train) stopped at the [Dnipro stop](https://en.wikipedia.org/wiki/Dnipro_(Kiev_Metro)) of the [Kiev Metro.](https://en.wikipedia.org/wiki/Kiev_Metro)



construction of new [highways,](https://en.wikipedia.org/wiki/Highways) wider streets, and alternative [walkways](https://en.wikipedia.org/wiki/Walkway) for pedestrians.[[192][193][194][152]](#page29)



However, severe traffic jams still occur regularly in cities around the world, as private car ownership and urbanization continue to increase, overwhelming existing urban [street networks.](https://en.wikipedia.org/wiki/Street_network)[[117]](#page27)



People walk, drive and cycle through a street in [Cairo.](https://en.wikipedia.org/wiki/Cairo)

The urban [bus system,](https://en.wikipedia.org/wiki/Public_transport_bus_service) the world's most common form of [public transport,](https://en.wikipedia.org/wiki/Public_transport) uses a network of scheduled [routes](https://en.wikipedia.org/wiki/Bus_route) to move people through the city, alongside cars, on the roads.[[195]](#page32) Economic function itself also became more decentralized as concentration



[Rapid metro](https://en.wikipedia.org/wiki/Rapid_Metro_Gurgaon) on the move in

became impractical and employers relocated to more car-friendly locations (including [edge cities)](https://en.wikipedia.org/wiki/Edge_city).[[185]](#page32) Some cities have introduced [bus rapid transit](https://en.wikipedia.org/wiki/Bus_rapid_transit) systems which include exclusive [bus lanes](https://en.wikipedia.org/wiki/Bus_lanes) and other methods for prioritizing bus



[Gurugram,](https://en.wikipedia.org/wiki/Gurgaon) [India](https://en.wikipedia.org/wiki/India)

traffic over private cars.[[117][196]](#page32) Many big American cities still operate conventional public transit by rail, as exemplified by the ever-popular [New York City Subway](https://en.wikipedia.org/wiki/New_York_City_Subway) system. Rapid transit is widely used in Europe and has increased in Latin America and Asia.[[117]](#page27)



[Walking](https://en.wikipedia.org/wiki/Walking) and [cycling](https://en.wikipedia.org/wiki/Cycling) ("non-motorized transport") enjoy increasing favor (more [pedestrian zones](https://en.wikipedia.org/wiki/Pedestrian_zone) and [bike lanes)](https://en.wikipedia.org/wiki/Bike_lane) in American and [Asian urban transportation planning, under the influence of such trends as the Healthy Cities movement, the drive for sustainable](https://en.wikipedia.org/wiki/Sustainable_development)



[development, and the idea of a](https://en.wikipedia.org/wiki/Sustainable_development) [carfree city.](https://en.wikipedia.org/wiki/Carfree_city)[[117][197][198]](#page32) [Techniques such as](https://en.wikipedia.org/wiki/Sustainable_development) [road space rationing](https://en.wikipedia.org/wiki/Road_space_rationing) [and](https://en.wikipedia.org/wiki/Sustainable_development) [road use charges](https://en.wikipedia.org/wiki/Road_pricing) [have been](https://en.wikipedia.org/wiki/Sustainable_development) introduced to limit urban car traffic.[[117]](#page27)



**Housing**

[Housing](https://en.wikipedia.org/wiki/Housing) of residents presents one of the major challenges every city must face. Adequate housing entails not only physical



[shelters](https://en.wikipedia.org/wiki/Shelter_(building)) but also the physical systems necessary to sustain life and economic activity.[[199]](#page32) [Home ownership](https://en.wikipedia.org/wiki/Owner-occupancy) represents status and a modicum of economic security, compared to [renting](https://en.wikipedia.org/wiki/Renting) which may consume much of the income of low-wage urban workers.



[Homelessness,](https://en.wikipedia.org/wiki/Homelessness) or lack of housing, is a challenge currently faced by millions of people in countries rich and poor.[[200]](#page32)



**Ecology**



Urban [ecosystems,](https://en.wikipedia.org/wiki/Ecosystems) influenced as they are by the density of human buildings and activities differ considerably from those of their rural surroundings. Anthropogenic [buildings](https://en.wikipedia.org/wiki/Buildings) and [waste,](https://en.wikipedia.org/wiki/Waste) as well as [cultivation](https://en.wikipedia.org/wiki/Agriculture) in [gardens,](https://en.wikipedia.org/wiki/Gardens) create physical and chemical environments which have no equivalents in [wilderness,](https://en.wikipedia.org/wiki/Wilderness) in some cases enabling exceptional [biodiversity.](https://en.wikipedia.org/wiki/Biodiversity) They provide homes not only for immigrant humans but also for [immigrant plants,](https://en.wikipedia.org/wiki/Introduced_species) bringing about interactions between species which never previously encountered each other. They introduce frequent [disturbances](https://en.wikipedia.org/wiki/Disturbance_(ecology)) (construction, walking) to plant and animal [habitats,](https://en.wikipedia.org/wiki/Habitat) creating opportunities for [recolonization](https://en.wikipedia.org/wiki/Secondary_succession) and thus favoring [young ecosystems](https://en.wikipedia.org/wiki/Ecological_succession) with [r-selected species](https://en.wikipedia.org/wiki/R/K_selection_theory) dominant. On the whole, urban ecosystems are less complex and productive than others, due to the diminished absolute amount of biological interactions.[[201][202][203][204]](#page33)



Typical urban [fauna](https://en.wikipedia.org/wiki/Fauna) include [insects](https://en.wikipedia.org/wiki/Insect) (especially [ants),](https://en.wikipedia.org/wiki/Ant) [rodents](https://en.wikipedia.org/wiki/Rodent) [(mice,](https://en.wikipedia.org/wiki/Mouse) [rats),](https://en.wikipedia.org/wiki/Rat) and



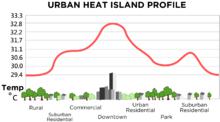
This urban scene in [Paramaribo](https://en.wikipedia.org/wiki/Paramaribo) features a few plants growing amidst [solid waste](https://en.wikipedia.org/wiki/Solid_waste) and [rubble](https://en.wikipedia.org/wiki/Rubble) behind some [houses.](https://en.wikipedia.org/wiki/House)



[birds,](https://en.wikipedia.org/wiki/Bird) as well as [cats](https://en.wikipedia.org/wiki/Cat) and [dogs](https://en.wikipedia.org/wiki/Dog) [(domesticated](https://en.wikipedia.org/wiki/Domestication) and [feral)](https://en.wikipedia.org/wiki/Feral). Large [predators](https://en.wikipedia.org/wiki/Predator) are scarce.[[203]](#page33)



Profile of an [urban heat island.](https://en.wikipedia.org/wiki/Urban_heat_island)



Cities generate considerable [ecological footprints,](https://en.wikipedia.org/wiki/Ecological_footprint) locally and at longer distances, due to concentrated populations and technological activities. From one perspective, cities are not ecologically [sustainable](https://en.wikipedia.org/wiki/Sustainable) due to their resource needs. From another, proper management may be able to ameliorate a city's ill effects.[[205][206]](#page33) [Air pollution](https://en.wikipedia.org/wiki/Air_pollution) arises from various forms of combustion,[[207]](#page33)



including fireplaces, wood or coal-burning stoves, other heating systems,[[208]](#page33) and [internal combustion engines.](https://en.wikipedia.org/wiki/Internal_combustion_engine) Industrialized cities, and today third-world megacities, are notorious for veils of [smog](https://en.wikipedia.org/wiki/Smog) (industrial [haze)](https://en.wikipedia.org/wiki/Haze) which envelop them,



posing a chronic threat to the health of their millions of inhabitants.[[209]](#page33) Urban soil contains higher concentrations of [heavy metals](https://en.wikipedia.org/wiki/Heavy_metals) (especially [lead,](https://en.wikipedia.org/wiki/Lead) [copper,](https://en.wikipedia.org/wiki/Copper) and [nickel)](https://en.wikipedia.org/wiki/Nickel) and has lower [pH](https://en.wikipedia.org/wiki/PH) than soil in comparable wilderness.[[203]](#page33)



Modern cities are known for creating their own [microclimates,](https://en.wikipedia.org/wiki/Microclimate) due to [concrete,](https://en.wikipedia.org/wiki/Concrete) [asphalt,](https://en.wikipedia.org/wiki/Asphalt) and other artificial surfaces, which heat [up in sunlight and channel rainwater into underground ducts. The temperature in New York City exceeds nearby rural](https://en.wikipedia.org/wiki/Climate_of_New_York) [temperatures by an average of 2–3 °C and at times 5–10 °C differences have been recorded. This effect varies nonlinearly with](https://en.wikipedia.org/wiki/Climate_of_New_York)



population changes (independently of the city's physical size).[[203][210]](#page33) Aerial [particulates](https://en.wikipedia.org/wiki/Particulate) increase rainfall by 5–10%. Thus, urban areas experience unique climates, with earlier flowering and later leaf dropping than in nearby country.[[203]](#page33)



Poor and working-class people face disproportionate exposure to environmental risks (known as [environmental racism](https://en.wikipedia.org/wiki/Environmental_racism) when intersecting also with racial segregation). For example, within the urban microclimate, less-vegetated poor neighborhoods bear more of the heat (but have fewer means of coping with it).[[211]](#page33)



On of the main methodes of improving the urban ecology is including in the cities more or less natural areas: [Parks,](https://en.wikipedia.org/wiki/Park) [Gardens,](https://en.wikipedia.org/wiki/Garden)



[Lawns.](https://en.wikipedia.org/wiki/Lawn) These areas improve the health, the well being of the human, animal, and plant population of the cities[[212]](#page33). Generally they are called [Urban open space](https://en.wikipedia.org/wiki/Urban_open_space) (although this word not always mean green space), Green space, Urban greening.



A study published in Nature's Scientific Reports journal in 2019 found that people who spent at least two hours per week in nature, were 23 percent more likely to be satisfied with their life and were 59 percent more likely to be in good health than those who had zero exposure. The study used data from almost 20,000 people in the UK. Benefits increased for up to 300 minutes of exposure. The benefits applied to men and women of all ages, as well as across different ethnicities, socioeconomic status, and even those with long-term illnesses and disabilities.

People who did not get at least two hours — even if they surpassed an hour per week — did not get the benefits.

The study is the latest addition to a compelling body of evidence for the health benefits of nature. Many doctors already give nature prescriptions to their patients.

The study didn't count time spent in a person's own yard or garden as time in nature, but the majority of nature visits in the study took place within two miles from home. "Even visiting local urban green spaces seems to be a good thing," Dr. White said in a press release. "Two hours a week is hopefully a realistic target for many people, especially given that it can be spread over an entire week to get the benefit.[[213]](#page33)"

**World city system**



As the world becomes more closely linked through economics, politics, technology, and culture (a process called [globalization),](https://en.wikipedia.org/wiki/Globalization) cities have come to play a leading role in transnational affairs, exceeding the limitations of [international relations](https://en.wikipedia.org/wiki/International_relations) conducted by



national governments.[[214][215][216]](#page33) This phenomenon, resurgent today, can be traced back to the [Silk Road,](https://en.wikipedia.org/wiki/Silk_Road) [Phoenicia,](https://en.wikipedia.org/wiki/Phoenicia) and the



Greek city-states, through the [Hanseatic League](https://en.wikipedia.org/wiki/Hanseatic_League) and other alliances of cities.[[217][141][218]](#page34) Today the [information economy](https://en.wikipedia.org/wiki/Information_economy) based on high-speed [internet](https://en.wikipedia.org/wiki/Internet) infrastructure enables instantaneous [telecommunication](https://en.wikipedia.org/wiki/Telecommunication) around the world, effectively eliminating the distance between cities for the purposes of [stock markets](https://en.wikipedia.org/wiki/Stock_market) and other high-level elements of the world economy, as well as personal communications and [mass media.](https://en.wikipedia.org/wiki/Mass_media)[[219]](#page34)



**Global city**

A [global city,](https://en.wikipedia.org/wiki/Global_city) also known as a world city, is a prominent centre of trade, banking, finance, innovation, and markets. [Saskia Sassen](https://en.wikipedia.org/wiki/Saskia_Sassen) used the term "global city" in her 1991 work, *The Global City: New York, London, Tokyo* to refer to a city's [power,](https://en.wikipedia.org/wiki/Power_(social_and_political)) status, and cosmopolitanism, rather than to its size.[[220]](#page34) Following



this view of cities, it is possible to [rank the world's cities hierarchically.](https://en.wikipedia.org/wiki/Global_city" \l "GaWC_study)[[221]](#page34) [Global cities form the capstone of the global hierarchy, exerting command and](https://en.wikipedia.org/wiki/Command_and_control) [control through their economic and political influence. Global cities may have](https://en.wikipedia.org/wiki/Command_and_control)



reached their status due to early transition to [post-industrialism](https://en.wikipedia.org/wiki/Post-industrial_society)[[222]](#page34) or through inertia which has enabled them to maintain their dominance from the industrial era.[[223]](#page34) This type of ranking exemplifies an emerging [discourse](https://en.wikipedia.org/wiki/Discourse) in which cities, considered variations on the same ideal type, *must* compete with each other globally to achieve prosperity.[[159][152]](#page29)



[Stock exchanges,](https://en.wikipedia.org/wiki/Stock_exchange) characteristic features of the top global cities, are interconnected hubs for capital. Here, a delegation from Australia is [shown visiting the London Stock](https://en.wikipedia.org/wiki/London_Stock_Exchange) [Exchange.](https://en.wikipedia.org/wiki/London_Stock_Exchange)



Critics of the notion point to the different realms of power and interchange. The term "global city" is heavily influenced by economic factors and, thus, may not

account for places that are otherwise significant. [Paul James,](https://en.wikipedia.org/wiki/Paul_James_(academic)) for example argues that the term is "reductive and skewed" in its focus on financial systems.[[224]](#page34)



[Multinational corporations](https://en.wikipedia.org/wiki/Multinational_corporation) and [banks](https://en.wikipedia.org/wiki/Bank) make their headquarters in global cities and conduct much of their business within this context.[[225]](#page34) American firms dominate the international markets for [law](https://en.wikipedia.org/wiki/Law_firm) and [engineering](https://en.wikipedia.org/wiki/Engineering) and maintain branches in the biggest foreign global cities.[[226]](#page34)



Global cities feature concentrations of extremely wealthy and extremely poor people.[[227]](#page34) Their economies are lubricated by their capacity (limited by the national government's immigration policy, which functionally defines the supply side of the labor market) to recruit low- and high-skilled immigrant workers from poorer areas.[[228][229][230]](#page34) More and more cities today draw on this globally available labor force.[[231]](#page34)



Modern global cities, like [New York City,](https://en.wikipedia.org/wiki/New_York_City) often include large [central business districts](https://en.wikipedia.org/wiki/Central_business_district) (CBDs) that serve as hubs for economic activity. A panorama of [Manhattan,](https://en.wikipedia.org/wiki/Manhattan) the world's largest CBD, is shown from February 2018.

[1 Riverside Church **·** 2 Time Warner Center **·** 3 220 Central Park South **·** 4 Central Park Tower **·** 5 One57 **·** 6 432](https://en.wikipedia.org/wiki/432_Park_Avenue) [Park Avenue **·** 7 53W53 **·** 8 Chrysler Building **·** 9 Bank of America Tower **·** 10 Conde Nast Building **·** 11 The New](https://en.wikipedia.org/wiki/The_New_York_Times_Building) [York Times Building **·** 12](https://en.wikipedia.org/wiki/The_New_York_Times_Building) [Empire State Building](https://en.wikipedia.org/wiki/Empire_State_Building) [**·**](https://en.wikipedia.org/wiki/The_New_York_Times_Building) 13 [Manhattan West](https://en.wikipedia.org/wiki/Manhattan_West) [**·**](https://en.wikipedia.org/wiki/The_New_York_Times_Building) 14 a: [55 Hudson Yards,](https://en.wikipedia.org/wiki/55_Hudson_Yards) [b:](https://en.wikipedia.org/wiki/The_New_York_Times_Building) [35 Hudson Yards,](https://en.wikipedia.org/wiki/35_Hudson_Yards)

* [10 Hudson Yards,](https://en.wikipedia.org/wiki/10_Hudson_Yards) d: [15 Hudson Yards](https://en.wikipedia.org/wiki/15_Hudson_Yards) **·** 15 [56 Leonard Street](https://en.wikipedia.org/wiki/56_Leonard_Street) **·** 16 [8 Spruce Street](https://en.wikipedia.org/wiki/8_Spruce_Street) **·** 17 [Woolworth Building](https://en.wikipedia.org/wiki/Woolworth_Building) **·**

18 [70 Pine Street](https://en.wikipedia.org/wiki/70_Pine_Street) **·** 19 [30 Park Place](https://en.wikipedia.org/wiki/30_Park_Place) [**·**](https://en.wikipedia.org/wiki/Four_World_Trade_Center) 20 Trump Building **·** 21 Three World Trade Center **·** 22 Four World Trade

[Center **·** 23](https://en.wikipedia.org/wiki/Four_World_Trade_Center) [One World Trade Center](https://en.wikipedia.org/wiki/One_World_Trade_Center)

**Transnational activity**

Cities increasingly participate in world political activities independently of their enclosing nation-states. Early examples of this phenomenon are the [sister city](https://en.wikipedia.org/wiki/Sister_city) relationship and the promotion of [multi-level governance](https://en.wikipedia.org/wiki/Multi-level_governance) within the European Union as a



technique for [European integration.](https://en.wikipedia.org/wiki/European_integration)[[215][232][233]](#page35) Cities including [Hamburg,](https://en.wikipedia.org/wiki/Hamburg) [Prague,](https://en.wikipedia.org/wiki/Prague) [Amsterdam,](https://en.wikipedia.org/wiki/Amsterdam) [The Hague,](https://en.wikipedia.org/wiki/The_Hague) and [City of London](https://en.wikipedia.org/wiki/City_of_London) maintain their own embassies to [the European Union at Brussels.](https://en.wikipedia.org/wiki/Brussels_and_the_European_Union)[[234][235][236]](#page35)



New urban dwellers may increasingly not simply as immigrants but as [transmigrants,](https://en.wikipedia.org/wiki/Transmigrants) keeping one foot each (through telecommunications if not travel) in their old and their new homes.[[237]](#page35)



**Global governance**

Cities participate in [global governance](https://en.wikipedia.org/wiki/Global_governance) by various means including membership in global networks which transmit norms and



regulations. At the general, global level, [United Cities and Local Governments](https://en.wikipedia.org/wiki/United_Cities_and_Local_Governments) (UCLG) is a significant [umbrella organization](https://en.wikipedia.org/wiki/Umbrella_organization) for



cities; regionally and nationally, [Eurocities,](https://en.wikipedia.org/wiki/Eurocities) [Asian Network of Major Cities 21,](https://en.wikipedia.org/wiki/Asian_Network_of_Major_Cities_21) the [Federation of Canadian Municipalities](https://en.wikipedia.org/wiki/Federation_of_Canadian_Municipalities) the



[National League of Cities,](https://en.wikipedia.org/wiki/National_League_of_Cities) and the [United States Conference of Mayors](https://en.wikipedia.org/wiki/United_States_Conference_of_Mayors) play similar roles.[[238][239]](#page35) UCLG took responsibility for



creating [Agenda 21 for culture,](https://en.wikipedia.org/wiki/Agenda_21_for_culture) a program for [cultural policies](https://en.wikipedia.org/wiki/Cultural_policy) promoting sustainable development, and has organized various



conferences and reports for its furtherance.[[240]](#page35)

Networks have become especially prevalent in the arena of [environmentalism](https://en.wikipedia.org/wiki/Environmentalism) and specifically [climate change](https://en.wikipedia.org/wiki/Climate_change) following the



[adoption of Agenda 21. Environmental city networks include the C40 Cities Climate Leadership Group, World Association of](https://en.wikipedia.org/w/index.php?title=World_Association_of_Major_Metropolises&action=edit&redlink=1)



[Major Metropolises ("Metropolis"), the](https://en.wikipedia.org/w/index.php?title=World_Association_of_Major_Metropolises&action=edit&redlink=1) [United Nations Global Compact Cities Programme,](https://en.wikipedia.org/wiki/United_Nations_Global_Compact" \l "UN_Global_Compact_–_Cities_Programme) [the](https://en.wikipedia.org/w/index.php?title=World_Association_of_Major_Metropolises&action=edit&redlink=1) [Carbon Neutral Cities Alliance](https://en.wikipedia.org/wiki/Carbon_Neutral_Cities_Alliance)



(CNCA), the [Covenant of Mayors](https://en.wikipedia.org/wiki/Covenant_of_Mayors) and the [Compact of Mayors,](https://en.wikipedia.org/wiki/Compact_of_Mayors)[[241]](#page35) [ICLEI – Local Governments for Sustainability,](https://en.wikipedia.org/wiki/ICLEI) and the



[Transition Towns network.](https://en.wikipedia.org/wiki/Transition_Towns_(network))[[238][239]](#page35)



Cities with world political status as meeting places for advocacy groups, non-governmental organizations, lobbyists, educational institutions, intelligence agencies, military contractors, information technology firms, and other groups with a stake in world policymaking. They are consequently also sites for symbolic protest.[[141][d]](#page20)

**United Nations System**

The [United Nations System](https://en.wikipedia.org/wiki/United_Nations_System) has been involved in a series of events and declarations dealing with the development of cities during this period of rapid urbanization.



The [Habitat I](https://en.wikipedia.org/wiki/Habitat_I) conference in 1976 adopted the "Vancouver Declaration on Human Settlements" which identifies urban management as a fundamental aspect of [development](https://en.wikipedia.org/wiki/Economic_development) and establishes various principles for maintaining urban [habitats.](https://en.wikipedia.org/wiki/Habitat)[[242]](#page35)



Citing the Vancouver Declaration, the UN General Assembly in December 1977 authorized the United Nations Commission Human Settlements and the HABITAT Centre for Human Settlements, intended to coordinate UN



activities related to housing and settlements.[[243]](#page35)

The 1992 [Earth Summit](https://en.wikipedia.org/wiki/Earth_Summit) in [Rio de Janeiro](https://en.wikipedia.org/wiki/Rio_de_Janeiro) resulted in a set of international agreements including [Agenda 21](https://en.wikipedia.org/wiki/Agenda_21)



which establishes principles and plans for [sustainable development.](https://en.wikipedia.org/wiki/Sustainable_development)[[244]](#page35)



The [Habitat II](https://en.wikipedia.org/wiki/Habitat_II) conference in 1996 called for cities to play a leading [role in this program, which subsequently advanced the Millennium](https://en.wikipedia.org/wiki/Millennium_Development_Goals)



[Development Goals and](https://en.wikipedia.org/wiki/Millennium_Development_Goals) [Sustainable Development Goals.](https://en.wikipedia.org/wiki/Sustainable_Development_Goals)[[245]](#page35)



In January 2002 the UN Commission on Human Settlements became [an umbrella agency called the United Nations Human Settlements](https://en.wikipedia.org/wiki/United_Nations_Human_Settlements_Programme) [Programme or UN-Habitat, a member of the United Nations](https://en.wikipedia.org/wiki/United_Nations_Development_Group)



[Development Group.](https://en.wikipedia.org/wiki/United_Nations_Development_Group)[[243]](#page35)



The [Habitat III](https://en.wikipedia.org/wiki/Habitat_III) conference of 2016 focused on implementing these goals under the banner of a "New Urban Agenda". The four mechanisms envisio 14ned for effecting the New Urban Agenda are



* national policies promoting integrated sustainable development,
* stronger urban governance, (3) long-term integrated urban and territorial planning, and (4) effective financing frameworks.[[246][247]](#page35) Just before this conference, the [European Union](https://en.wikipedia.org/wiki/European_Union) concurrently

[World Assembly of Mayors at Habitat](https://en.wikipedia.org/wiki/Habitat_III) [III conference in](https://en.wikipedia.org/wiki/Habitat_III) [Quito.](https://en.wikipedia.org/wiki/Quito)



approved an "Urban Agenda for the European Union" known as the [Pact of Amsterdam.](https://en.wikipedia.org/w/index.php?title=Pact_of_Amsterdam&action=edit&redlink=1)[[246]](#page35)



[UN-Habitat coordinates the UN urban agenda, working with the UN Environmental Programme, the UN Development](https://en.wikipedia.org/wiki/UN_Development_Programme)



[Programme, the](https://en.wikipedia.org/wiki/UN_Development_Programme) [Office of the High Commissioner for Human Rights,](https://en.wikipedia.org/wiki/Office_of_the_High_Commissioner_for_Human_Rights) [the](https://en.wikipedia.org/wiki/UN_Development_Programme) [World Health Organization,](https://en.wikipedia.org/wiki/World_Health_Organization) [and the](https://en.wikipedia.org/wiki/UN_Development_Programme) [World Bank.](https://en.wikipedia.org/wiki/World_Bank)[[243]](#page35)



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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | The [World Bank,](https://en.wikipedia.org/wiki/World_Bank) a United Nations [specialized agency,](https://en.wikipedia.org/wiki/List_of_specialized_agencies_of_the_United_Nations) has been a primary force | | | | | | | | | | | | | | | | | | |
|  |  |  |  |  |  | |  | |  | |  |  |  |  | |  |  |  | |
|  | in promoting the Habitat conferences, and since the first Habitat conference has | | | | | | | | | | | | | | | | | | |
|  | used their declarations as a framework for issuing loans for urban | | | | | | | | | | | | | | | | | | |
|  | infrastructure.[[245]](#page35) The bank's [structural adjustment](https://en.wikipedia.org/wiki/Structural_adjustment) programs contributed to | | | | | | | | | | | | | | | | | | |
|  |  | |  |  | |  | |  | |  | | |  |  | |  |  |  | |
|  | urbanization in the [Third World](https://en.wikipedia.org/wiki/Third_World) by creating incentives to move to | | | | | | | | | | | | | | | | | | |
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|  | cities.[[248][249]](#page36) The World Bank and UN-Habitat in 1999 jointly established the | | | | | | | | | | | | | | | | | | |
|  | [Cities Alliance](https://en.wikipedia.org/wiki/Cities_Alliance) (based at the World Bank headquarters in Washington, D.C.) to | | | | | | | | | | | | | | | | | | |
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|  | guide policymaking, knowledge sharing, and [grant](https://en.wikipedia.org/wiki/Grant_(money)) distribution around the issue | | | | | | | | | | | | | | | | | | |
|  |  | |  | | | |  | | | | | | | |  |  | | |  |
|  | of urban poverty.[[250]](#page36) (UN-Habitat plays an advisory role in evaluating the | | | | | | | | | | | | | | | | | | |
| World Bank headquarters in | quality of a locality's governance.)[[127]](#page28) The Bank's policies have tended to focus | | | | | | | | | | | | | | | | | | |
| Washington, D.C., United States | on bolstering [real estate](https://en.wikipedia.org/wiki/Real_estate) markets through credit and technical assistance.[[251]](#page36) | | | | | | | | | | | | | | | | | | |
|  |  | |  | | | |  | | | | | | | | | | | |  |
|  | The United Nations Educational, Scientific and Cultural Organization, [UNESCO](https://en.wikipedia.org/wiki/UNESCO) | | | | | | | | | | | | | | | | | | |
|  |  |  |  |  |  | |  | |  | |  |  |  |  | |  |  |  | |



has increasingly focused on cities as key sites for influencing [cultural governance.](https://en.wikipedia.org/wiki/Cultural_governance) It has developed various city networks including the International Coalition of Cities against Racism and the Creative Cities Network. UNESCO's capacity to select [World Heritage Sites](https://en.wikipedia.org/wiki/World_Heritage_Sites) and maintain them through [Public/social/private partnerships](https://en.wikipedia.org/wiki/Public/social/private_partnership) gives the organization significant influence



over [cultural capital,](https://en.wikipedia.org/wiki/Cultural_capital) [tourism,](https://en.wikipedia.org/wiki/Tourism) and [historic preservation](https://en.wikipedia.org/wiki/Historic_preservation) funding.[[240]](#page35)



**Representation in culture**



Cities figure prominently in traditional Western culture, appearing in the [Bible](https://en.wikipedia.org/wiki/Bible) in both evil and holy forms, symbolized by



[Babylon](https://en.wikipedia.org/wiki/Babylon) and [Jerusalem.](https://en.wikipedia.org/wiki/Jerusalem)[[252]](#page36) [Cain](https://en.wikipedia.org/wiki/Cain) and [Nimrod](https://en.wikipedia.org/wiki/Nimrod) are the first city builders in the [Book of Genesis.](https://en.wikipedia.org/wiki/Book_of_Genesis) In Sumerian mythology



[Gilgamesh](https://en.wikipedia.org/wiki/Gilgamesh) built the walls of [Uruk.](https://en.wikipedia.org/wiki/Uruk)



Cities can be perceived in terms of extremes or opposites: at once liberating and oppressive, wealthy and poor, organized and chaotic.[[253]](#page36) The name [anti-urbanism](https://en.wikipedia.org/wiki/Anti-urbanism) refers to various types of



ideological opposition to cities, whether because of their culture or their political relationship with [the country.](https://en.wikipedia.org/wiki/Rural_area) Such opposition



may result from identification of cities with oppression and the ruling [elite.](https://en.wikipedia.org/wiki/Elite)[[254]](#page36) This and other political ideologies strongly



influence narratives and themes in [discourse](https://en.wikipedia.org/wiki/Discourse) about cities.[[14]](#page20) In turn, cities symbolize their home societies.[[255]](#page36)



Writers, painters, and filmmakers have produced innumerable works of art concerning the urban experience. Classical and medieval literature includes a genre of [*descriptiones*](https://en.wikipedia.org/wiki/List_of_literary_descriptions_of_cities_(before_1550)) which treat [of city features and history. Modern authors such as Charles](https://en.wikipedia.org/wiki/Charles_Dickens)



[Dickens and](https://en.wikipedia.org/wiki/Charles_Dickens) [James Joyce](https://en.wikipedia.org/wiki/James_Joyce) [are famous for evocative descriptions](https://en.wikipedia.org/wiki/Charles_Dickens)



of their home cities.[[256]](#page36) [Fritz Lang](https://en.wikipedia.org/wiki/Fritz_Lang) conceived the idea for his



influential 1927 film [*Metropolis*](https://en.wikipedia.org/wiki/Metropolis_(1927_film)) while visiting [Times Square](https://en.wikipedia.org/wiki/Times_Square) and



[John Martin's](https://en.wikipedia.org/wiki/John_Martin_(painter)) *The* *Fall of Babylon* (1831), depicting chaos as the Persian army occupies Babylon, also symbolizes the ruin of decadent civilization in [modern times. Lightning striking the Babylonian](https://en.wikipedia.org/wiki/Etemenanki) [ziggurat (also representing the](https://en.wikipedia.org/wiki/Etemenanki) [Tower of Babel)](https://en.wikipedia.org/wiki/Tower_of_Babel) indicates God's judgment against the city.



marveling at the nighttime [neon lighting.](https://en.wikipedia.org/wiki/Neon_light)[[257]](#page36) Other early cinematic representations of cities in the twentieth century generally



depicted them as technologically efficient spaces with smoothly functioning systems of automobile transport. By the 1960s, however, [traffic congestion](https://en.wikipedia.org/wiki/Traffic_congestion) began to appear in such films as [*The Fast Lady*](https://en.wikipedia.org/wiki/The_Fast_Lady) (1962) and [*Playtime*](https://en.wikipedia.org/wiki/Playtime) (1967).[[191]](#page32)



Literature, film, and other forms of popular culture have supplied visions of future cities both [utopian](https://en.wikipedia.org/wiki/Utopian) and [dystopian.](https://en.wikipedia.org/wiki/Dystopian) The



prospect of expanding, communicating, and increasingly interdependent world cities has given rise to images such as [Nylonkong](https://en.wikipedia.org/wiki/Nylonkong) (NY, London, Hong Kong)[[258]](#page36) and visions of a single world-encompassing [ecumenopolis.](https://en.wikipedia.org/wiki/Ecumenopolis)[[259]](#page36)



**See also**



[Bibliography of suburbs](https://en.wikipedia.org/wiki/Bibliography_of_suburbs)



[Ekistics](https://en.wikipedia.org/wiki/Ekistics)



[Ghost town](https://en.wikipedia.org/wiki/Ghost_town)



[List of adjectivals and demonyms for cities](https://en.wikipedia.org/wiki/List_of_adjectivals_and_demonyms_for_cities)



[Lists of cities](https://en.wikipedia.org/wiki/Lists_of_cities)



[Lost city](https://en.wikipedia.org/wiki/Lost_city)



[Nation](https://en.wikipedia.org/wiki/Nation)



[Principles of intelligent urbanism](https://en.wikipedia.org/wiki/Principles_of_intelligent_urbanism)



[Primate city](https://en.wikipedia.org/wiki/Primate_city)



[Urban sociology](https://en.wikipedia.org/wiki/Urban_sociology)



[Free city (antiquity)](https://en.wikipedia.org/wiki/Free_city_(antiquity))



[City-state](https://en.wikipedia.org/wiki/City-state)



**Notes**



a. Intellectuals such as [H.G. Wells](https://en.wikipedia.org/wiki/H.G._Wells), [Patrick Geddes](https://en.wikipedia.org/wiki/Patrick_Geddes) and [Kingsley Davis](https://en.wikipedia.org/wiki/Kingsley_Davis) foretold the coming of a mostly urban world



throughout the twentieth century.[[90][91]](#page25) The United Nations has long anticipated a half-urban world, earlier predicting the year 2000 as the turning point[[92][93]](#page25) and in 2007 writing that it would occur in 2008.[[94]](#page25) Other

researchers had also estimated that the halfway point was reached in 2007.[[95]](#page25) Although the trend is undeniable, the precision of this statistic is dubious, due to reliance on national censuses and to the ambiguities of defining an area as urban.[[90][17]](#page20)

b. In practice, utility companies and agencies do secure [monopolies](https://en.wikipedia.org/wiki/Monopoly) over local service provision. Critics within the



[**economics**](https://en.wikipedia.org/wiki/Economics) **field have contested the inevitability of this outcome.**[**[175][176]**](#page31)

c. Water resources in rapidly urbanizing areas are not merely *privatized* as they are in western countries; since the systems don't exist to begin with, private contracts also entail water [industrialization](https://en.wikipedia.org/wiki/Water_industry) and [enclosure](https://en.wiktionary.org/wiki/enclosure).[[106]](#page26) Also,



there is a countervailing trend: 100 cities have *re*-municipalized their water supply since the 1990s.[[181]](#page32)

d. [One important global political city, described at one time as a world capital, is Washington, D.C. and its](https://en.wikipedia.org/wiki/Washington_metropolitan_area) [metropolitan area (including](https://en.wikipedia.org/wiki/Washington_metropolitan_area) [Tysons Corner](https://en.wikipedia.org/wiki/Tysons_Corner) [and](https://en.wikipedia.org/wiki/Washington_metropolitan_area) [Reston](https://en.wikipedia.org/wiki/Reston,_Virginia) [in the](https://en.wikipedia.org/wiki/Washington_metropolitan_area) [Dulles Technology Corridor](https://en.wikipedia.org/wiki/Dulles_Technology_Corridor) [and the](https://en.wikipedia.org/wiki/Washington_metropolitan_area) various federal agencies found along the [Baltimore–Washington Parkway](https://en.wikipedia.org/wiki/Baltimore–Washington_Parkway)). Beyond the prominent institutions of U.S. [government on the national mall, this area contains 177 embassies, The Pentagon, the Central Intelligence](https://en.wikipedia.org/wiki/George_Bush_Center_for_Intelligence) [Agency headquarters, the World Bank headquarters, myriad](https://en.wikipedia.org/wiki/George_Bush_Center_for_Intelligence) [think tanks](https://en.wikipedia.org/wiki/Think_tank) [and](https://en.wikipedia.org/wiki/George_Bush_Center_for_Intelligence) [lobbying groups](https://en.wikipedia.org/wiki/Lobbyist)[, and corporate](https://en.wikipedia.org/wiki/George_Bush_Center_for_Intelligence) [headquarters for Booz Allen Hamilton, General Dynamics, Capital One, Verisign, Mortgage Electronic](https://en.wikipedia.org/wiki/Mortgage_Electronic_Registration_Systems)



[Registration Systems,](https://en.wikipedia.org/wiki/Mortgage_Electronic_Registration_Systems) [Gannett Company](https://en.wikipedia.org/wiki/Gannett_Company) [etc.](https://en.wikipedia.org/wiki/Mortgage_Electronic_Registration_Systems)[[141]](#page29)

