

# Goal 11 Make cities and human settlements inclusive, safe, resilient and sustainable

(Updated on 3 March 2016)

## Table of Contents

Target 11.1 By 2030, ensure access for all to adequate, safe and affordable housing and basic services and upgrade slums. ....	2
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. ....	4
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. ....	5
Target 11.4 Strengthen efforts to protect and safeguard the world's cultural and natural heritage. ....	6
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. ....	7
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. ....	15
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. ....	21
Target 11.a Support positive economic, social and environmental links between urban, peri-urban and rural areas by strengthening national and regional development planning. ....	28
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. ....	33
Target 11.c Support least developed countries, including through financial and technical assistance, in building sustainable and resilient buildings utilizing local materials. ....	36

## 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

From UN-Habitat:

Indicator 11.1.1	Metadata Percentage of urban population living in slums or informal settlements
<b>Scope</b>	Used as part of the MDGs and in the City Prosperity Initiative (CPI)
<b>Rationale:</b>	Spatial inequalities are generally expressed as segregation of certain population groups, which resemble poverty as well as inadequate life conditions. Moreover, rapid urbanization, if not well managed, will lead to more informal settlements and poverty. Therefore, in order to sharpen policies it is necessary to identify and quantify the slums of a city. A prosperous and inclusive city is able to reduce spatial inequalities.
<b>Definition:</b>	Proportion of people living in households lacking at least one of the following five housing conditions: access to improved water; access to improved sanitation facilities; sufficient-living area (not overcrowded); durable housing; and security of tenure.
<b>Unit [ ]</b>	%
<b>Methodology:</b>	<p>Proportion of households, which lack one or more of the following: Durable housing, sufficient living space, easy access to safe water, access to adequate sanitation, and security of tenure, United Nations (2007) proposes the following definitions.</p> <p><b>Access to improved water:</b> A household is considered to have access to improved drinking water if it has sufficient amount of water for family use. A sufficient amount is the availability of at least 20 liters/person/day. The following criteria are used to determine the access to improved water:</p> <ul style="list-style-type: none"> <li>• Piped connection to house or plot</li> <li>• Public stand pipe serving no more than 5 households</li> <li>• Protected spring</li> <li>• Bore hole</li> <li>• Protected dug well</li> <li>• Bottle water (new)</li> </ul> <p><b>Access to improved sanitation:</b> A household is considered to have access to improved sanitation according to the following criteria:</p> <ul style="list-style-type: none"> <li>• Direct connection to public sewer</li> <li>• Poor flush latrine</li> <li>• Pit latrine with slab (new)</li> <li>• Direct connection to septic tank</li> <li>• Ventilated improved pit latrine</li> </ul> <p><b>Sufficient-living area, not overcrowded:</b> A dwelling unit is considered to provide a sufficient living area for the household members if there are fewer than four people per 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; 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.</p> <p><b>Structural quality/durability of dwellings:</b> A house is considered as ‘durable’ if it is built on a non-hazardous location and has a structure permanent and adequate enough to protect its inhabitants from the extremes of climatic conditions. The following criteria are used to determine the structural quality/durability of dwellings:</p> <ul style="list-style-type: none"> <li>• Permanency of Structure</li> <li>• Compliance of building codes</li> <li>• The dwelling is not in need of major repair</li> <li>• The dwelling is not located on or near toxic waste</li> <li>• The dwelling is not located in a flood plain</li> <li>• The dwelling is not located in a dangerous right of way (rail, highway, airport, power lines).</li> <li>• Permanent building material for the walls, roof and floor</li> <li>• The dwelling is not in a dilapidated state</li> <li>• The dwelling is not located on a steep slope</li> <li>• Location of house (hazardous)</li> </ul>

**Security of tenure:** Secure Tenure is the right of all individuals and groups to effective protection by the State against arbitrary unlawful evictions. Secure tenure can be made evident through formal or informal mechanisms in codified law and in customary law. The following criteria are used to determine security of tenure:

- Evidence of documentation that can be used as proof of secure tenure status
- Either de facto or perceived / protection from forced evictions

Formally,

$$\text{Slum Households} = \frac{\text{Number of people living in slum}}{\text{City population}} * 100$$

**Source:**

Global Urban Indicators Database 2012.  
UN-HABITAT.  
Data are computed from Household Surveys.  
Censuses

**Benchmark**

Min = 0  
Max = 100

**Standardization  
(S)**

$$\text{Slum Households}^{(S)} = 100 - \text{Slum Households}$$

**Notes**

**References**

**Bibliographic references**

United Nations (2007). Indicators of Sustainable Development: Guidelines and Methodologies. Third Edition, United Nations, New York.

**URL References**

**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**

**From UN-Habitat:**

<p><b>Feasibility:</b></p> <ul style="list-style-type: none"> <li>• Although it is an indicator not easy to collect in all cities/countries in the world, it proposes an innovative mechanism of data collection and analysis.</li> <li>• As the Outcome Document 2<sup>nd</sup> Meeting of the Urban SDGs Campaign in Bangalore (12-14 February 2015) recognizes: <ul style="list-style-type: none"> <li>○ 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 world level.</li> <li>○ To obtain 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.</li> </ul> </li> <li>• The European Commission, on the contrary, considers that “this is a good indicator which can be collected in a relatively straightforward way” (DG REGIO, 2015). The assessment of the indicator done by the EC applies only for cities in the developed world, and not all.</li> <li>• The EC document highlights that the indicator was calculated for 80 European cities and stresses that the estimation requires the following data availability: (1) geo-coded public transport stops and the number of departures at each stop, (2) a high resolution GIS layer with population (for example census enumeration areas or a population grid) and (3) a street network (if available).</li> <li>• However, these data requirements are not available in most middle income countries.</li> </ul>
<p><b>Suitability:</b></p> <ul style="list-style-type: none"> <li>• The indicator is suitable, particularly in the countries/cities where the information exists. The Target is too broad intending to measure multiple aspects of urban mobility. The indicator covers three critical aspects of this target: accessible in distance, energy-efficient and the expansion of public transport.</li> <li>• UN-Habitat position, in line with all the organizations supporting this indicator, is that necessary adjustments are required to minimize its complexity and make it more suitable for global monitoring.</li> <li>• The indicator can be measured by a proxy, which is the <i>proportion of the population that has a public transit stop within 0.5 km</i>. This reduces the complexity of the 20 minutes (which is very variable in different hours of the day or days of the week).</li> <li>• In case there is no spatial information on the population location and density, the indicator can measure the proportion of the surface that has a public transit stop.</li> <li>• As cities/countries evolve in their data collection systems, the indicator could be harmonized to include the elements indicated by the EC (street network and frequency of the transport).</li> </ul>
<p><b>Relevance:</b></p> <ul style="list-style-type: none"> <li>• UN-Habitat disagrees with this rating. This is a very relevant indicator. It is empirically proven that public transport makes cities more inclusive, safe and sustainable.</li> <li>• Effective and low-cost transportation for mobility is critical for urban poverty and inequalities reduction, and economic development because it provides access to jobs, health care, education services and other public goods.</li> <li>• Clean Public transport is very efficient for the reduction of CO2 emissions and therefore it contributes to climate change.</li> </ul>
<p><b>Disaggregation:</b> Information can be disaggregated by age and sex, including potential disadvantages such as disability, but it requires strong efforts and changes in mainstream mechanisms of data collection.</p>

**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**

**No metadata received on current indicator formulation.**

**Indicator 11.3.2: Proportion of cities with a direct participation structure of civil society in urban planning and management that operate regularly and democratically**

**No metadata received on current indicator formulation.**

## **Target 11.4 Strengthen efforts to protect and safeguard the world's cultural and natural heritage.**

**Indicator 11.4.1: Total expenditure (public and private) per capita spent on the preservation, protection and conservation of all cultural and natural heritage, by type of heritage (cultural, natural, mixed and World Heritage Centre designation), level of government (national, regional and local/municipal), type of expenditure (operating expenditure/investment) and type of private funding (donations in kind, private non-profit sector and sponsorship)**

### **From UNESCO:**

**Definition and method of computation:** The percentage of the national (or municipal) budget provided for maintaining and preserving cultural and natural heritage. This indicator represents the share of national (or municipal) budget which is dedicated to the safeguarding, protection of national cultural natural heritage including World Heritage sites.

$$B_{Hi} = \frac{b_{h,i}}{B_i}$$

BH<sub>i</sub> = Percentage of annual budget provided for maintaining cultural and natural heritage in the year *i*

b<sub>h,i</sub> = Total amount of annual budget provided for maintaining cultural and natural heritage in the year *i*

B<sub>i</sub> = Total amount of annual public budget in the year *i*

**Rationale and interpretation:** Protecting and safeguarding the world's cultural and natural heritage require public investment at different level of governmental including at city level. This indicator would allow insight whether countries are maintaining, expanding or decreasing their efforts for safeguarding their cultural natural heritage.

**Sources and data collection:** Administrative data in particular government (or municipal) budget and expenditure data.

**Comments and limitations:** Availability of public budget in culture in general will vary between countries. Issues of compiling public and private finances could result in the underestimation of the value of total investment in culture. It is important to take into account national transfer funds among different level of governmental (regional, state, municipal) to avoid double counting. An alternative could be to assess the public expenditure in culture. However, the COFOG classification may not be detailed enough to identify only heritage.

**Gender equality issues:** None.

**Data for regional and global monitoring:** Internationally comparable data are currently not available. However, the UNESCO Institute for Statistics (UIS) in collaboration with the UNESCO WHC would develop an appropriate data collection tool. The cultural and natural heritage sector will be defined according to the 2009 UNESCO Framework for Cultural Statistics (FCS) methodology (Domain A: Cultural and Natural Heritage).

Financial resources would be required in order to implement this new data collection.

**Supplementary information:** None.

**References:** None.

**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 persons affected by disaster per 100,000 people<sup>1</sup>**

**From UNISDR:**

**Definition:**

**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 although there is no physical evidence. The data on number of deaths and number of missing are mutually exclusive.

**Affected people:** People who are affected by a hazardous event.

Comment: People can be affected directly or indirectly. Affected people may experience short-term or long-term consequences to their lives, livelihoods or health and in the economic, physical, social, cultural and environmental assets.

**Directly affected:** 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:** People who have suffered consequences, other than or in addition to direct effects, over time due to disruption or changes in economy, critical infrastructures, basic services, commerce, work or social, health and physiological consequences.

In this indicator, given the difficulties in assessing the full range of all affected (directly and indirectly), UNISDR proposes the use of an indicator that would estimate “directly affected” as a proxy for the number of affected. This indicator, while not perfect, comes from data widely available and could be used consistently across countries and over time to measure the achievement of the Target B.

From the perspective of data availability and measurability, it is proposed to build a composite indicator which consists of "**directly affected**", or those who are

- Injured or ill,
- Evacuated,
- Relocated

and to measure the number who suffered direct damage to their livelihoods or assets,

- People whose houses were damaged or destroyed
- People who received food relief aid.

**Injured or ill:** The number of people suffering from physical injuries, trauma or cases of disease requiring immediate medical assistance as a direct result of a hazardous event.

**Evacuated:** The number of people who temporarily moved from where they were (including their place of residence, work places, schools and hospitals) to safer locations in order to ensure their safety.

**Relocated:** The number of people who moved permanently from their homes to new sites due to hazardous event. Note: This definition excludes preventive relocation before the event.

**People whose houses were damaged or destroyed due to hazardous events:** The estimated number of inhabitants previously living in the houses (housing units) damaged or destroyed. All the inhabitants of these houses (housing units) are assumed to be affected being in their dwelling or by direct consequence of the destruction/damage to their housings (housing units). An average number of inhabitants per house (housing unit) in the country can be used to estimate the value.

**Houses destroyed:** Houses (housing units) levelled, buried, collapsed, washed away or damaged to the extent that they are no longer habitable.

---

<sup>1</sup> An open-ended intergovernmental expert working group on indicators and terminology relating to disaster risk reduction established by the UN General Assembly (A/RES/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.

**Houses damaged:** Houses (housing units) with minor damage, not structural or architectural, which may continue to be habitable, although they may require some repair or cleaning.

**People who received food relief aid:** The number of persons who received food /nutrition, by government or as humanitarian aid, during or in the aftermath of a hazardous event.

**Hazardous event:** *The occurrence of a natural or human-induced phenomenon in a particular place during a particular period of time due to the existence of a hazard.*

**Hazard:** *A potentially damaging physical event, phenomenon or human activity that may cause the loss of life or injury, property damage, social and economic disruption or environmental degradation.*

UNISDR recommends setting NO threshold for recording hazardous event in order to monitor *all* hazardous events. Small-scale but frequent hazardous events that are not registered in international disaster loss databases account for an important share of damages and losses when they are combined, and often go unnoticed by the national and international community. These events, when accumulated, are often a source of poverty in developing countries but can be effectively addressed by well-designed policies. The scope of the Sendai Framework for Disaster Risk Reduction 2015-2030 is “the risk of small-scale and large-scale, frequent and infrequent, sudden and slow-onset disasters, caused by natural or man-made hazards as well as relate environmental, technological and biological hazards and risks”.

Regarding the inclusion of biological and environmental hazards in natural hazards category and whether and how to integrate man-made hazards, UNISDR will discuss the issue with WHO and other organizations (for example, WHO would be in a better position in terms of data, knowledge and relationship with Member States and other stakeholders to monitor biological events including epidemics. However, we generally do not expect biological disasters will cause physical damages to facilities. ).

Note: Terminology will be discussed and finalized in the Open-ended Intergovernmental Working Group for Sendai Framework for Disaster Risk Reduction.

#### **Method of computation:**

Summation of data on related indicators from national disaster loss databases. Make the sum a relative figure by using global population data (World Bank or UN Statistics information). Relativity is important because population growth (expected to be 9 billion in 2050) may translate into increased hazard exposure of population. The Expert Group recommends not using the indicators related with the people whose houses were damaged/destroyed in the computation. UNISDR and IRDR groups recommend using them as they can be estimated from widely available and verifiable data and reflect vulnerability and livelihood issues. Data on housing damage and destroyed is essential for economic loss, so using these indicators would not impose additional data collection burden.

Double-counting: From practical perspective, double counting of affected people is unavoidable (for example, injured and relocated) in many countries. Minimum double counting is summing “number of injured” and Number of people whose housings were damaged or destroyed. Relocated is sub-set of number of people whose housings were destroyed.

The data can be disaggregated by hazard type. When applied to proposed target 13.1 and 15.3, hydrological, meteorological and climatological and indirectly biological disasters are monitored.

#### **Rationale and interpretation** (mainly based on TST Issue Brief 2, 5, 20 and 23-26):

Cities around the world, as well as rural populations, witness growing disaster risks. Impacts of climate change on sustainable development are observed through both slow-onset events (e.g. sea level rise, increasing temperatures, ocean acidification, glacial retreat and related impacts, salinization, land and forest degradation, loss of biodiversity and desertification) and extreme weather events. Human loss can be measured by the number of deaths, missing, injured or ill, evacuated, relocated, people whose houses were damaged/destroyed and people who received food relief aid as a direct result of the hazardous events.

Cities are some of the most vulnerable areas to natural disasters. Unplanned urban development (e.g. informal settlements, overcrowding, inadequate infrastructures) exacerbates urban vulnerability to climate change impacts and hydro-meteorological and geological hazards. Over half of all coastal areas are urbanized and 21 of the world’s 33 mega cities lie in coastal flood zones. SIDS and coastal regions are particularly affected by sea level rise, coastal flooding and erosion, and extreme events (e.g. tsunamis and storm surges) due to undermining natural protective barriers, low levels of development combined with rapid population growth in low lying coastal areas and inadequate capacity to adapt. Poor urban populations must often resort to unsustainable coping strategies and mechanisms.

Large numbers of people remain perilously close to falling into poverty, experiencing shocks that they are unable to cope with. For the poor, a shock of even a relatively short duration can have long term consequences. Several dimensions of poverty are closely related to environment, which is often affected by natural disasters. The poverty reduction agenda could include well-designed social protection scheme to help protecting the poor against sudden shocks and the development of capacities to better predict and prepare for such shocks. Better



management of natural resources can themselves strengthen the resilience of the poor, by both reducing the likelihood of natural hazardous events and offering resources to help cope with them.

Biodiversity provides ecosystem resilience and contributes to the ability to respond to unpredictable global changes and natural disasters. Healthy ecosystems act as buffers against natural hazards, providing valuable yet underutilized approaches for climate change adaptation, enhancing natural resilience and reducing the vulnerability of people, for example to floods and the effects of land degradation. These ecosystem services improve the sustainability and economic efficiency of built infrastructure, and are critical for sustainable and resilient urban areas.

This indicator will track human-related loss. The disaster loss data (particularly mortality) are significantly influenced by large-scale catastrophic event, 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.

The indicator will build bridge between SDGs and the Sendai Framework for Disaster Risk Reduction because the reduction of human related loss is included in the Sendai Framework global targets and will also be monitored under the Sendai Framework Monitoring Mechanism.

**Sources and data collection:** National disaster loss database, reported to UNISDR

**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 death/missing/injured or ill/evacuated/relocated/people whose houses were damaged/people whose houses were destroyed/people who received food relief aid.

\*Integrated Research on Disaster Risk (2014), *Peril Classification and Hazard Glossary (IRDR DATA Publication No.1)*, Beijing: Integrated Research on Disaster Risk

Additionally, the Expert Group recommended disaggregation by age, sex, location of residence and other characteristics (e.g. disability) as relevant and possible. Aggregation of “location of residence”: ideally by sub-national administrative unit similar to municipality.

#### **Comments and limitations:**

- ✓ This is proposal by UNISDR based on our experience and knowledge built in the period under the Hyogo Framework for Action (2005-2015). The proposed indicator was further reviewed and examined by other UN agencies including FAO, GFDRR, IOM, UNCCD, UNDP, UNESCAP, UNESCO, UNFPA, UNHCR, UNOCHA, UNOOSA, UNOPS, UNU, UNWOMEN, WHO and WMO (though not all organizations listed here provided comments for this indicator) and submitted to the IAEG process in early-July 2015, then again reviewed by the Technical Expert Group consisting of more than 60 experts from UN system, academic and research, civil sector and private sector in 27-29 July 2015 and submitted and examined by the Member States in the 1<sup>st</sup> Open-ended Intergovernmental Expert Working Group on Indicators and Terminology on Disaster Risk Reduction held in 29-30 September 2015. The suggested indicator is currently under review by the Member States and UNISDR is receiving written inputs from the Member States.
- ✓ The proposed indicators will be also used to monitor Sendai Framework global targets and therefore the detailed definitions shall be discussed and agreed in Open-ended Intergovernmental Expert Working Group on Indicators and Terminology on Disaster Risk Reduction, as outlined in Sendai Framework for Disaster Reduction 2015-2030. The Working Group is likely to finalize the discussion and submit the final report to the GA in December 2016.
- ✓ Not every country has a comparable national disaster loss database that is consistent with the UNISDR guidelines (current coverage is 85 countries. Additional 32 countries are expected to be covered in 2015-16). Therefore, by 2020, it is expected that all countries will build/adjust the database according to the UNISDR guidelines and report the data to UNISDR.

**Gender equality issues:** Disaggregated by gender (if agreed by country in the Open-ended Intergovernmental Expert Working Group)

**Data for global and regional monitoring:** Summation of data from national disaster loss databases

**Main linkage with SDG Targets:**

*This indicator is proposed as “multi-purpose indicator”.*

**Target 1.5:**

By 2030, build **the resilience of the poor and those in vulnerable situations** and reduce their **exposure and vulnerability to climate-related extreme events** and other economic, social and environmental shocks and **disasters**

**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

**Target 13.1:**

Strengthen **resilience and adaptive capacity to climate-related hazards and natural disasters** in all countries

**Target 1.3:**

Implement nationally appropriate **social protection systems and measures** for all, including floors, and by 2030 achieve substantial coverage of the poor and the vulnerable

**Target 14.2:**

By 2020, sustainably manage and protect **marine and coastal ecosystems** to avoid significant adverse impacts, including by strengthening their resilience, and take action for their restoration in order to achieve healthy and productive oceans

**Target 15.3:**

By 2030, combat desertification, restore degraded land and soil, including **land affected by desertification, drought and floods**, and strive to achieve a land-degradation-neutral world

**Target 3.9:**

By 2030, substantially reduce the number of **deaths and illnesses from hazardous chemicals and air, water and soil pollution and contamination**

**Target 3.6:**

By 2020, halve the number of **global deaths and injuries from road traffic accidents**

**Target 3.d:**

Strengthen the capacity of all countries, in particular developing countries, for **early warning, risk reduction and management of national and global health risks**

**Supplementary information:****Related targets in the Sendai Framework for Disaster Risk Reduction 2015-2030:**

Substantially reduce global disaster *mortality* by 2030, aiming to lower average per 100,000 global mortality between 2020-2030 compared to 2005-2015.

Substantially reduce the number of *affected people* globally by 2030, aiming to lower the average global figure per 100,000 between 2020-2030 compared to 2005-2015.

**Sendai Framework for Disaster Risk Reduction 2015-2030:**

([http://www.preventionweb.net/files/43291\\_sendaiframeworkfordrren.pdf](http://www.preventionweb.net/files/43291_sendaiframeworkfordrren.pdf))

**11.5.2: Direct disaster economic loss in relation to global GDP, including disaster damage to critical infrastructure and disruption of basic services<sup>1</sup>****From UNISDR:****Definition:**

**Direct economic loss:** Direct loss is nearly equivalent to physical damage. *The monetary value of total or partial destruction of physical assets existing in the affected area.* Examples include loss to physical assets such as damaged housings, factories and infrastructure. Direct losses usually happen during the event or within the first few hours after the event and are often assessed soon after the event to estimate recovery cost and claim insurance payments. These are tangible and relatively

easy to measure. Direct Economic loss in this indicator framework consists of agriculture loss, damage to industrial and commercial facilities, damage to housings and critical infrastructures.

We limit the economic loss into direct economic loss, excluding indirect loss (e.g. loss due to interrupted production) and macro-economic loss. The reason is that there is not yet universally standardized methodology to measure indirect and macro-economic loss while direct loss data monitoring is relatively simpler and more standardized.

**Global gross domestic product:** Summation of GDP of Countries. GDP definition according to the World Bank.

**Hazardous event:** The occurrence of a natural or human-induced phenomenon in a particular place during a particular period of time due to the existence of a hazard.

**Hazard:** A potentially damaging physical event, phenomenon or human activity that may cause the loss of life or injury, property damage, social and economic disruption or environmental degradation.

UNISDR recommends setting NO threshold for recording hazardous event in order to monitor *all* hazardous events. Small-scale but frequent hazardous events that are not registered in international disaster loss databases account for an important share of damages and losses when they are combined, and often go unnoticed by the national and international community. These events, when accumulated, are often a source of poverty in developing countries but can be effectively addressed by well-designed policies. The scope of the Sendai Framework for Disaster Risk Reduction 2015-2030 is “the risk of small-scale and large-scale, frequent and infrequent, sudden and slow-onset disasters, caused by natural or man-made hazards as well as relate environmental, technological and biological hazards and risks”.

Regarding the inclusion of biological and environmental hazards in natural hazards category and whether and how to integrate man-made hazards, UNISDR will discuss the issue with WHO and other organizations (for example, WHO would be in a better position in terms of data, knowledge and relationship with Member States and other stakeholders to monitor biological events including epidemics. However, we generally do not expect biological disasters will cause physical damages to facilities. ).

Note: Terminology will be discussed and finalized in the Open-ended Intergovernmental Working Group for Sendai Framework for Disaster Risk Reduction.

#### **Method of computation:**

The original national disaster loss databases usually register physical damage value (housing unit loss, infrastructure loss etc.). Need conversion from physical value to monetary value according to the UNISDR methodology. After converted, divide global direct economic loss by global GDP (inflation adjusted, constant USD) calculated from World Bank Development Indicators.

#### **Rationale and interpretation** (mainly based on TST Issue Brief 2, 3, 5, 20 and 23-26):

Cities around the world, as well as rural populations, witness growing disaster risks. Impacts of climate change on sustainable development are observed through both slow-onset events (e.g. sea level rise, increasing temperatures, ocean acidification, glacial retreat and related impacts, salinization, land and forest degradation, loss of biodiversity and desertification) and extreme

weather events. The economic loss indicator would track loss to agricultural, industrial and commercial sectors and damage to housing and critical infrastructure.

Cities are some of the most vulnerable areas to natural disasters. Unplanned urban development (e.g. informal settlements, overcrowding, inadequate infrastructures) exacerbates urban vulnerability to climate change impacts and hydro-meteorological and geological hazards. Over half of all coastal areas are urbanized and 21 of the world's 33 mega cities lie in coastal flood zones. SIDS and coastal regions are particularly affected by sea level rise, coastal flooding and erosion, and extreme events (e.g. tsunamis and storm surges) due to undermining natural protective barriers, low levels of development combined with rapid population growth in low lying coastal areas and inadequate capacity to adapt. Poor urban populations must often resort to unsustainable coping strategies and mechanisms.

Large numbers of people remain perilously close to falling into poverty, experiencing shocks that they are unable to cope with. For the poor, a shock of even a relatively short duration can have long term consequences. Several dimensions of poverty are closely related to environment, which is often affected by natural disasters. The poverty reduction agenda could include well-designed social protection scheme to help protecting the poor against sudden shocks and the development of capacities to better predict and prepare for such shocks. Better management of natural resources can themselves strengthen the resilience of the poor, by both reducing the likelihood of natural hazardous events and offering resources to help cope with them.

The environment for food production is increasingly challenging, particularly for smallholders, due to environmental and climate-related factors. Similar to extreme income poverty, food insecurity continues to be predominantly concentrated in rural areas of developing countries, and disproportionately affects poor farmers, agricultural workers, pastoralists and rural communities. Common conditions for protracted crisis situations include frequent or continued exposure to shocks that undermine livelihoods, food and market systems. Special consideration needs to be given to population living in areas prone to environmental and natural disaster shocks.

Biodiversity provides ecosystem resilience and contributes to the ability to respond to unpredictable global changes and natural disasters. Healthy ecosystems act as buffers against natural hazards, providing valuable yet underutilized approaches for climate change adaptation, enhancing natural resilience and reducing the vulnerability of people, for example to floods and the effects of land degradation. These ecosystem services improve the sustainability and economic efficiency of built infrastructure, and are critical for sustainable and resilient urban areas.

This indicator will track direct physical loss expressed in economic term. The disaster loss data (particularly mortality) are significantly influenced by large-scale catastrophic event, 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.

The indicator will build bridge between SDGs and the Sendai Framework for Disaster Risk Reduction because the reduction of direct economic loss is included in the Sendai Framework global targets and will also be monitored under the Sendai Framework Monitoring Mechanism.

**Sources and data collection:** National disaster loss database, reported to UNISDR

**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.

\*Integrated Research on Disaster Risk (2014), *Peril Classification and Hazard Glossary (IRDR DATA Publication No.1)*, Beijing: Integrated Research on Disaster Risk

Ideally, in addition, by sub-national administrative unit.

#### Comments and limitations:

- ✓ This is proposal by UNISDR based on our experience and knowledge built in the period under the Hyogo Framework for Action (2005-2015). The proposed indicator was further reviewed and examined by other UN agencies including FAO, GFDRR, IOM, UNCCD, UNDP, UNESCAP, UNESCO, UNFPA, UNHCR, UNOCHA, UNOOSA, UNOPS, UNU, UNWOMEN, WHO and WMO (though not all organizations listed here provided comments for this indicator) and submitted to the IAEG process in early-July 2015, then again reviewed by the Technical Expert Group consisting of more than 60 experts from UN system, academic and research, civil sector and private sector in 27-29 July 2015 and submitted and examined by the Member States in the 1<sup>st</sup> Open-ended Intergovernmental Expert Working Group on Indicators and Terminology on Disaster Risk Reduction held in 29-30 September 2015. The suggested indicator is currently under review by the Member States and UNISDR is receiving written inputs from the Member States.
- ✓ The proposed indicators will be also used to monitor Sendai Framework global targets and therefore the detailed definitions shall be discussed and agreed in Open-ended Intergovernmental Expert Working Group on Indicators and Terminology on Disaster Risk Reduction, as outlined in Sendai Framework for Disaster Reduction 2015-2030. The Working Group is likely to finalize the discussion and submit the final report to the GA in December 2016.
- ✓ Not every country has a comparable national disaster loss database that is consistent with the UNISDR guidelines (current coverage is 85 countries. Additional 32 countries are expected to be covered in 2015-16). Therefore, by 2020, it is expected that all countries will build/adjust the database according to the UNISDR guidelines and report the data to UNISDR.

**Gender equality issues:** Not included.

**Data for global and regional monitoring:** Summation of data from national disaster loss databases and World Bank Development Indicators

**Main linkage with SDG Targets:**

*This indicator is proposed as “multi-purpose indicator”.*

#### Target 1.5:

By 2030, build **the resilience of the poor and those in vulnerable situations** and reduce their **exposure and vulnerability to climate-related extreme events** and other economic, social and environmental shocks and **disasters**

#### 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

#### Target 13.1:

Strengthen **resilience and adaptive capacity to climate-related hazards and natural disasters** in all countries

**Target 2.4:**

By 2030, ensure sustainable food production systems and implement **resilient agricultural practices** that increase productivity and production, that help maintain ecosystems, that strengthen capacity for **adaptation to climate change, extreme weather, drought, flooding and other disasters** and that progressively improve land and soil quality

**Target 14.2:**

By 2020, sustainably manage and protect **marine and coastal ecosystems** to avoid significant adverse impacts, including by strengthening their resilience, and take action for their restoration in order to achieve healthy and productive oceans

**Target 15.3:**

By 2030, combat desertification, restore degraded land and soil, including **land affected by desertification, drought and floods**, and strive to achieve a land-degradation-neutral world

**Target 3.d:**

Strengthen the capacity of all countries, in particular developing countries, for **early warning, risk reduction and management of national and global health risks**

**Target 13.b:**

Promote mechanisms for raising capacities for effective **climate change-related planning and management**, in least developed countries, including focusing on women, youth, local and marginalized communities

**Supplementary information:**

**Related targets in the Sendai Framework for Disaster Risk Reduction 2015-2030:**

Reduce **direct disaster economic loss** in relation to global gross domestic product (GDP) by 2030.

**Sendai Framework for Disaster Risk Reduction 2015-2030:**

([http://www.preventionweb.net/files/43291\\_sendaiframeworkfordrren.pdf](http://www.preventionweb.net/files/43291_sendaiframeworkfordrren.pdf))

**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 urban solid waste regularly collected and with adequate final discharge out of total urban solid waste generated, by cities**

From UN-Habitat:

<b>Indicator:</b>	Percentage of urban solid waste regularly collected and recycled (disaggregated by E-waste and non-E-waste)
<b>Scope</b>	Used in the City Prosperity Initiative (CPI)
<b>Rationale:</b>	Recycling and reusing solid waste is a way to reduce the amount of waste to be disposed in landfills. A prosper city seeks to recycle the most part of its solid waste to increase the lifespan of its landfills and to profit solid waste as much as possible.
<b>Definition:</b>	The recycling rate is the tonnage recycled from municipal waste divided by the total municipal waste arising. Recycling includes material recycling, composting and anaerobic digestion. Municipal waste consists to a large extent of waste generated by households, but may also include similar wastes generated by small businesses and public institutions and collected by the municipality; this latter part of municipal waste may vary from municipality to municipality and from country to country, depending on the local waste management system (Eurostat, 2013)
<b>Unit [ ]</b>	%
<b>Methodology:</b>	$\text{Solid waste recycling share} = \left[ \frac{\text{volume of waste recycled}}{\text{total collected waste}} \right] * 100$
<b>Source:</b>	Local solid waste management plans and local authorities.
<b>Benchmark</b>	Min = 0% Max = 63.33% Calculated from data from 2010 to 2012 available at Eurostat (2014). $X^* = 50$ Obtained from European Parliament, Council of the European Union (2008).
<b>Standardization (S)</b>	$\text{Solid waste recycling share}^{(S)} = e^{\frac{ \text{Solid waste recycling share} - X^* ^{k_1}}{k_2(\text{Max} - \text{Min})}} * 100$ <p>Where, <math>k_1, k_2</math> = Positive constants, that determine the speed of increase of the function for values lower than 50%.</p> $\text{Solid waste recycling share}^{(S)} = e^{\frac{ \text{Solid waste recycling share} - 50 ^{k_1}}{k_2(63.33)}} * 100$ <p>Decision:</p> $\text{Solid waste recycling share}^{(S)} = \begin{cases} 100\%, & \text{If Solid waste recycling share} \geq 50 \\ \text{Solid waste recycling share}^{(S)}, & \text{If Solid waste recycling share} < 50 \end{cases}$
<b>Notes</b>	
<b>References</b>	<p><b>Bibliographic references:</b></p> <p>Eurostat (2013). Recycling rate of municipal waste (t2020_rt120). [1] Eurostat (2014). Recycling rate of municipal waste (t2020_rt120). [2] European Parliament, Council of the European Union (2008). Directive 2008/98/EC on waste and repealing certain Directives. Official Journal of the European Union. [3]</p> <p><b>URL references:</b></p>

[1]: [http://epp.eurostat.ec.europa.eu/cache/ITY\\_SDDS/EN/t2020\\_rt120\\_esmsip.htm#relatedmd1401955141433](http://epp.eurostat.ec.europa.eu/cache/ITY_SDDS/EN/t2020_rt120_esmsip.htm#relatedmd1401955141433), accessed June 11, 2014.  
[2]: [http://epp.eurostat.ec.europa.eu/tgm/table.do?tab=table&init=1&plugin=1&language=en&pcode=t2020\\_rt120](http://epp.eurostat.ec.europa.eu/tgm/table.do?tab=table&init=1&plugin=1&language=en&pcode=t2020_rt120), accessed June 11, 2014.  
[3]: <http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32008L0098>, accessed June 11, 2014.

## **Indicator 11.6.2: Annual mean levels of fine particulate matter (e.g. PM<sub>2.5</sub> and PM<sub>10</sub>) in cities (population weighted)**

### **From WHO:**

#### **Rationale:**

**Mean or average:** Levels of air pollution can vary drastically from day to day based on local weather conditions, geography, economic output, etc. Articulating the indicator as annual mean is a more specific indicator for monitoring the health and environmental impacts of sustainable growth and development in cities over time. WHO air quality guidelines provide specific recommendations on the mean levels of fine particulate matter which can support measuring the per capita health impacts related to any improvements or degradation in air quality in cities. Incidents of high air pollution levels also have health impacts, but these are less important than longer term exposures, and related statistics are less reliable in view of greater variability due to external factors, we therefore do recommend a more specific articulation of this indicator to as annual means as a way to monitor SDG achievement.

**Fine particulate matter:** Fine particulate matter (i.e. PM<sub>2.5</sub>) can be directly linked to estimates of health risks. Coarse particulate matter (i.e. PM<sub>10</sub>) measurements can be converted to PM<sub>2.5</sub>, but will inherently introduce additional uncertainty to estimates of impacts (e.g. health). Articulating this indicator to fine particulate matter increases its specificity and its relevance for monitoring the health impacts of sustainable development policies.

**Population weighted:** The population size of cities vary within a country. Weighting annual mean air quality measurements of fine PM by the city population size relative to other cities in a country increases the suitability and measurability of this indicator at a national scale. Furthermore it makes estimating the related impacts on health and other sustainable development issues (e.g. improvements in energy efficiency from sustainable transport) more feasible and accurate for monitoring progress.

#### **Data sources:**

**WHO Ambient Air Pollution in Cities Database<sup>2</sup>:** As part of its core functions, WHO monitors and assesses trends in major health risk factors including ambient air pollution. The WHO's Ambient air pollution database provides annual mean concentrations of particulate matter based on daily air measurements of particulate matter (PM<sub>10</sub> or PM<sub>2.5</sub>) or data which could be aggregated into annual means. In a few exceptional cases, where annual means could not be calculated, measurements covering a more limited part of the year were used.

---

<sup>2</sup> WHO Ambient Air Pollution in Cities Database; [http://www.who.int/phe/health\\_topics/outdoorair/databases/cities/en/](http://www.who.int/phe/health_topics/outdoorair/databases/cities/en/)



The primary source of data are official national/sub-national reports, national/sub-national web sites containing measurements of PM<sub>10</sub> or PM<sub>2.5</sub> and the relevant national agencies. Furthermore, measurements reported by the following regional networks are used: the Asian Clean Air Initiative for Asia<sup>3</sup>, and Airbase<sup>4</sup> for Europe. In the absence of data from the previous sources, data from (a) UN Agencies, (b) Development agencies and (c) articles from peer reviewed journals are used.

In order to present air quality that is largely representative for human exposure, only measurements characterized as urban background, residential areas, commercial and mixed areas are used. Stations characterized as particular "hot spots" or exclusively industrial areas were excluded, unless they were contained in reported city means and could not be dissociated.

Currently the WHO database houses data from over 1,600 cities, from 91 countries for the years 2008 to 2013 inclusive (Figures 1 and 2).

This database is updated on a regular basis can be released annually to support monitoring of this SDG target.

Figure 1: Total number of cities in AAP database, 2014 version, by WHO region

Region	Number of cities	Number of countries
Africa (Sub-Saharan)	16	6
America, LMI	88	13
America, HI	535	4
Eastern Mediterranean, LMI	14	6
Eastern Mediterranean, HI	12	5
Europe, LMI	109	8
Europe, HI	461	29
South-East Asia	167	9
Western Pacific, LMI	133	5

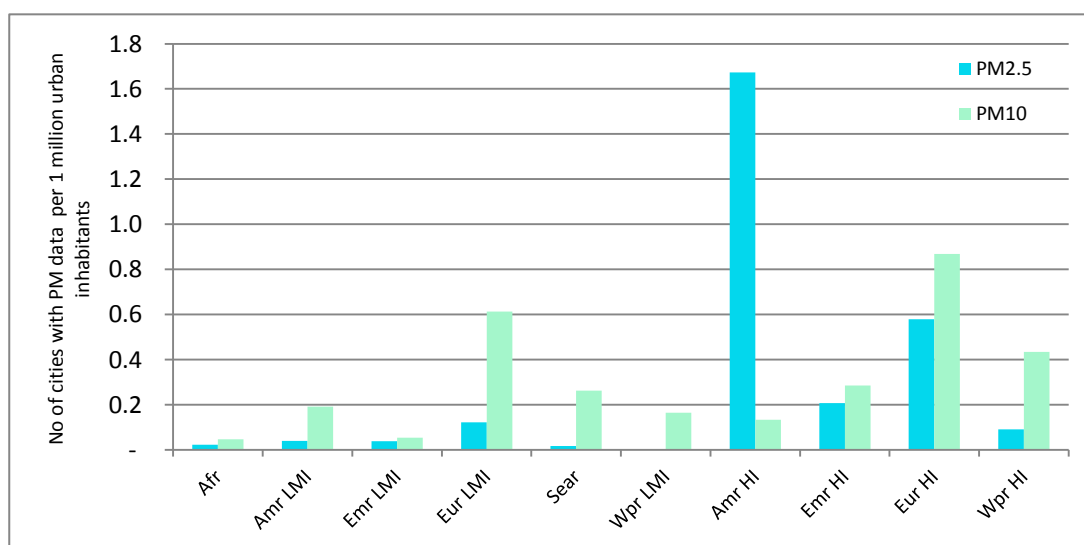


Figure 2: Number of cities with accessible PM<sub>10</sub> and PM<sub>2.5</sub> data in 2014 per urban population

<sup>3</sup> Clean Air Asia; <http://cleanairasia.org/portal/knowledgebase/cities>

<sup>4</sup> AirBase – European Air Quality database; <http://acm.eionet.europa.eu/databases/airbase>

Amr: America, Afr: Africa; Emr: Eastern Mediterranean, Sear: South-East Asia, Wpr: Western Pacific; LMI: Low- and middle-income; HI: high-income.

**WHO Global Health Observatory:** The WHO Global Health Observatory (GHO) houses information on both the exposure (i.e. ambient air quality measurements of fine particulate matter) and associated disease burden. In addition, the GHO provides graphs, tables and interactive tools to depict air pollution levels across regions and countries which can support countries in visualizing their situation and in monitoring progress towards SDG11 more readily.

**WHO air quality guidelines: global update 2005:** WHO air quality guidelines provide normative guidance on pollutant levels that can be considered “healthy”. They also provide information about the sources of air pollution and the health impacts from exposure to different pollutants which serve as an important information resource for countries as they develop and implement plans for sustainable development. The recommendations of specific pollutant levels found in the guidelines serve as the basis for estimating the attributable disease burden to ambient air pollution. These guidelines are updated regularly and publicly available.

### **Data gaps & opportunities to address such gaps**

Several gaps in the currently available data for monitoring target 11.7 along with some recommendations of upcoming opportunities for filling such gaps are provided below.

#### ***Measurements of fine particulate matter:***

PM<sub>2.5</sub> measurements can directly be linked to estimates of health risks using an integrated exposure response function, and are therefore of particular interest. PM<sub>10</sub> measurements first need to be converted to PM<sub>2.5</sub> in order to do. In high-income countries, PM<sub>2.5</sub> measurements are already being widely performed. In low- and middle-income countries, however, while PM<sub>2.5</sub> measures are increasingly being developed, they are not yet available in many countries. In low-and middle-income countries, annual mean PM<sub>2.5</sub> measurements could be accessed in 69 cities, but PM<sub>10</sub> in 512 cities. In high-income countries, 816 cities with PM<sub>2.5</sub> measures could be accessed, against 544 cities with PM<sub>10</sub> measurements.

For cities with PM<sub>10</sub> reported as the only monitored PM parameter, PM<sub>2.5</sub> concentration can be calculated from PM<sub>10</sub> using national conversion factors (PM<sub>2.5</sub>/PM<sub>10</sub> ratio) estimated as population-weighted averages of city-specific conversion factors for the country. City specific conversion factors were estimated as the mean ratio of PM<sub>2.5</sub> to PM<sub>10</sub> of stations for the same year, and alternatively as the ratio of city values if the values by station were not provided. If national conversion factors are not available, regional ones can be used, which are obtained by averaging country-specific conversion factors.

**Definition of cities:** There is no agreed upon definition of city and/or urban area. Currently the WHO Ambient air pollution database includes information on cities with populations of 100,000 or more. This is partly due to the fact that for some countries ambient air quality information is only available for larger cities whereas for other countries data is available for cities with just a few thousand inhabitants. In general, the inclusion of cities

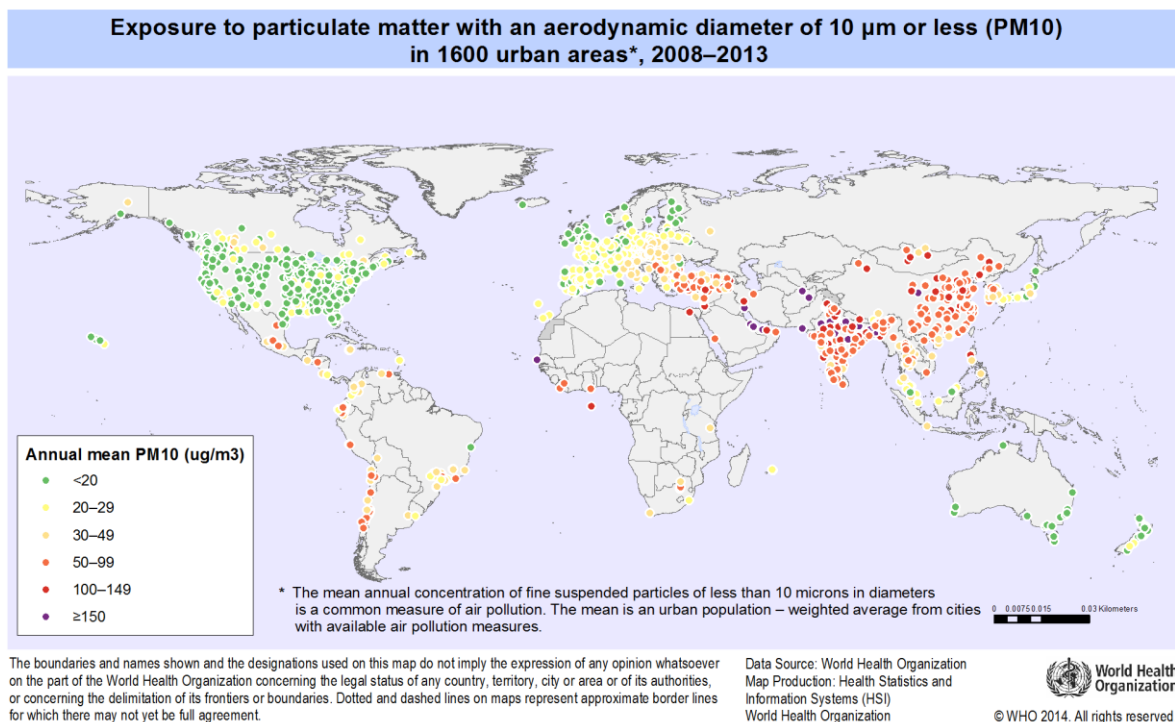
with less than 100,000 inhabitants did usually not significantly modify the country mean as compared to considering only cities larger than 100,000 inhabitants.

WHO is able to update its database and reporting to include cities/urban areas to be in line with the definition agreed upon for the monitoring and tracking of SDG 11 on cities.

**Geographic coverage of monitoring:**

Measurement of ambient air quality in cities is currently limited to 91 countries. Below is a map of the current sources of ambient air quality monitoring housed in the WHO’s Ambient air quality database (Figure 3). Although, as noted, there is a paucity of data from low- and middle-income countries, the level of monitoring and reporting in these areas is rapidly increasing each year. In addition, the Climate and Clean Air Coalition’s Urban Health Initiative aims to increase monitoring in urban areas of LMIC and will be providing guidance and resources to increase air quality monitoring capacity.

*Figure 3: Data coverage of ambient air quality monitoring of the WHO Ambient Air Pollution in Cities Database*



**Location of monitoring:**

Sampling locations of air quality measurements may change within a period of monitoring, and consequently lead to a variation over time in annual mean PM levels for a city that does not necessarily reflect actual changes in air quality but rather a difference in the pollution levels at the new measurement sites. To address such a challenge, appropriate guidance and/or a protocol can be provided to countries/cities, about the importance of maintaining specific sampling locations to monitor trends and impacts. Through its work within the Climate and Clean Air Coalition’s Urban Health Initiative, WHO will be working with a number of cities to develop guidance on how and where to install air quality monitoring systems as well as the importance in consistency in monitoring practices. This information or

guidance will be freely available to other cities to use and can be adapted to their local circumstances as appropriate for better monitoring of target 11.7.

**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**

**From UN-HABITAT:**

<b>Indicator:</b>	The average share of the built-up areas of cities in open space in public ownership and use
<b>Rationale:</b>	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. Having access to open public spaces does not only improve the quality of life: it is also a first step toward civic empowerment and greater access to institutional and political spaces <sup>(1)</sup> .
<i>About public space:</i>	<p>Having sufficient public space allows cities and regions to function efficiently and equitably <sup>(1)</sup>. Reduced amounts of public space impact negatively on quality of life, social inclusion, infrastructure development, environmental sustainability and productivity. It is documented that well designed and maintained streets and public spaces result in lower crime and violence.</p> <p>Making space for formal and informal economic activities, recovering and maintaining public spaces for a diversity of users in a positive way, and making services and opportunities available to marginalized residents, enhance social cohesion and economic security.</p> <p>Uncontrolled rapid urbanization generally creates settlement patterns with dangerously low proportions of public space. As a result, these places are unable to accommodate safe pedestrian and vehicular rights of way, land for critical infrastructure like water, sewerage and waste collection, recreational spaces, green areas and parks that contribute to social cohesion and protected ecological hotspots and corridors.</p>
<i>About streets as public spaces</i>	As new cities also develop they have reduced allocations of land for public space especially streets. On average, at 15% the land allocated to streets in new planned areas is substantially less than the standard and in unplanned areas the situation is considerably worse with an average of 2% <sup>(2)</sup> . The generally accepted minimum standard for public space in higher density settlements (150 inhabitants or more per/hectare) is 45% (30% for streets and sidewalks and 15% for open public space). <sup>(3)</sup> Total city space refers to the built-up area of the city.
<b>Definition of public space:</b>	<p>The proportion of urban areas dedicated to streets and public spaces is a crucial feature of the spatial plans of cities. The road network is the integrative and dynamic factor between individuals and socioeconomic activities. It is a structuring component of geographic space and defines the socio-dynamics of an area being conditioned by the spatial pattern, which restricts the location of roads and human settlements <sup>(3)</sup>.</p> <p>Short and direct pedestrian and cycling routes require highly connected network of paths and streets around small, permeable blocks. These features are primarily important for walking and for transit station accessibility, which can be easily discouraged by detours <sup>(4)</sup>.</p>
<b>Objective of the indicator:</b> <b>Spatial Indicators:</b>	A prosperous city seeks a tight network of paths and streets offering multiple routes to many destinations that also make walking and cycling trips varied and enjoyable <sup>(4)</sup> . In fact, cities that have adequate streets, public spaces and greater connectivity are more liveable and productive <sup>(2)</sup> .
<b>Definition of the indicator:</b>	Public space is publicly owned land and available for public use. Public spaces encompass a range of environments including streets, sidewalks squares, gardens, parks, conservation areas. Each public space has its own spatial, historic, environmental, social and economic features. They can be publically or privately managed.

**Methodology:**

The use of this indicator aims to integrate urban form and spatial analysis in the monitoring of Goal 11 of the Sustainable Development Goals.

**Formula:**

**Unit [ ]  
Methodology:**

Spatial indicators are vital tools supporting sustainable urban and regional planning. They are valuable in the generation of spatial data that is critical for priority setting for harmonious and equitable distribution of resources and investments in the territory. This information supports decision-making based on evidence and facilitates effective urban management and the setting of local monitoring mechanisms to assess impact in localized areas.

Area of public space as a proportion of total city space, including the land allocated to streets. The indicator is calculated integrating to metrics: a) land allocated to open public space; b) land allocated to streets.

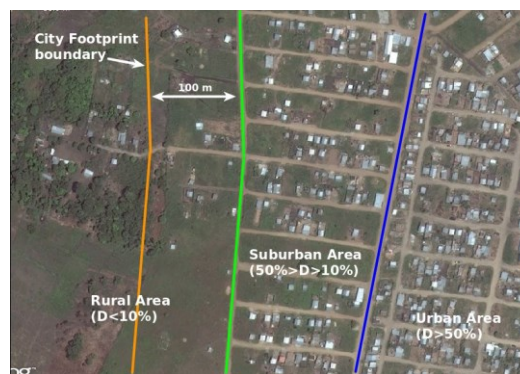
Proportion of urban area allocated to open public spaces, including street and sidewalks.

$$Proportion\ of\ Total\ Open\ Public\ Space = \frac{\text{Total surface of open public space} + \text{total surface of land allocated to streets}}{\text{total surface of built up area of the urban agglomeration}}$$

% (percentage)

The method to estimate the area of public space is based on three steps: 1) spatial analysis to delimit the built-up area of the city; 2) estimation of the total open public space and; 3) estimation of the total area allocated to streets.

1. **Spatial analysis to delimit the built-up area.** Delimit the built-up area of the urban agglomeration and calculate the total area (square kilometers).
  - 1.1 **Satellite imagery:** Use of exiting layers of satellite imagery ranging from open sources such as Google Earth and US Geological Survey/NASA imagery Landsat to more sophisticated and higher resolution land cover data sets. Images will be analyzed for the latest available year.
  - 1.2 **Delimitation of built-up area of the urban agglomeration:** The delimitation of the urban agglomeration refers to the total area occupied by the built-up area and its urbanized open space. The delimitation of the study area distinguishes urban, suburban and rural areas based on the built-up densities. This indicators includes urban (more than 50% built-up density) and suburban areas (between 50% to 10% built-up density (refer to annex 1 “Measurement of the Street Connectivity Index”).



*Delimitation of Built-up area*

2. **Open public space:** mapping and calculation of total areas of open public space within the defined urban boundaries based on the built-up area.
  - 2.1 **Definition of open public space:** An open public space is related to universal access. Open public spaces include only the following types:

- Parks: open spaces inside a municipality that provide free air recreation and contact with nature. Their principal characteristic is the significant proportion of green area.
  - Civic parks: open spaces created by building agglomeration around an open area, which was later transformed into a representative, civic area. They are characterised by considerable nature, specifically gardens. They are good place for cultural events and passive recreation.
  - Squares: open spaces created by building agglomeration around an open area. Its main characteristics are the significant proportion of architectonic elements and interaction among buildings and the open area. Squares are usually public spaces that are relevant to the city due to their location, territorial development, or cultural importance.
  - Recreational green areas: public green areas that contribute to environmental preservation. All recreational green areas must guarantee accessibility and must be linked to urban areas. Their main functions are ornamental and passive recreation.
  - Facility public areas: open meeting spaces and recreational facilities that are part of city facilities (defined as places that are elementary to all cities; i.e., public libraries, stadium, public sports centres, etc.). These areas have the following characteristics: public property, free transit and access, and both active and passive recreation. (e.g., the public area outside a stadium).
- 2.2 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 and community-based maps, which are increasingly recognized as a valid source of information, can be a viable alternative.
  - 2.3 Computation of total area of open public space. The inventory of open public spaces is digitalized in existing maps and vectorised to allow computation of surfaces. The total of open public area is divided by the total built-up area of the city to obtain the proportion.
3. **Land allocated to streets:** calculation of the total area allocated to streets based on sampling techniques as a proportion of the total surface of the built-up area as per definition above.
    - 3.1 Definition of streets. For this indicator, streets are defined as the space used by pedestrian or vehicles in order to go from one place to another in the city and also in order to interact. More and more, local population recognizes streets as public spaces and as an important ‘common’ of the city. The area of the streets include the carriageway, the median, the roundabouts, the traffic islands, the sidewalk, the cycle tracks, planting zones and storm drainage; in other words, the right of way limited by private properties and/or natural obstacles such as rivers.

In informal settlements or slum areas where sidewalks are missing, the main references for limiting the street area are the physical boundaries used to demarcate the private properties. Unpaved roads are also considered as streets.



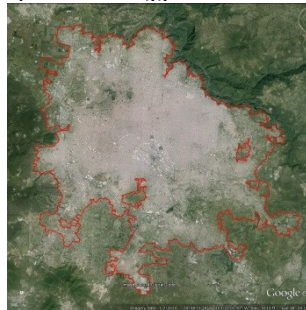
*Delimitation of Street limit*

- 3.2 Sampling technique for the estimation of land allocated to streets. The estimation of the total area of the street is based on the following methodology:
  - a. Define the boundary of the built-up area.
  - b. Generate the Halton sequence of sample points of the urban area bounding box for an average density of 10 points per Km<sup>2</sup>.

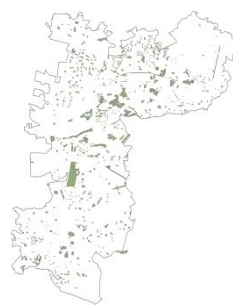
- c. Extract the sample points that are within the urban area boundary.
- d. Buffer the points to get sample areas (circles) with an area of 10 Ha each (0.1 Km<sup>2</sup>).
- e. For each sample area in the sequence: i) check the completeness of the street network using ‘open street maps’ (OSM cartography on streets) within the sample area, and complete it if necessary comparing it with the most recent satellite imagery of the urban area; ii) define and delimit streets as per definition; iii) measure the street widths on the orthophoto (i.e. Bing) and store it in the OSM data base; iv) download the OSM cartography; v) superimpose (clip) the OSM data with the sample areas; vi) calculate the land allocated to street for each sample area.
- f. Repeat the process for the following sample areas until the variations are within a certain margin (95% confidence limits).

3.3 Computation of total area of land allocated to streets. The average of the sample areas provide the total land allocated to streets.

*Delimitation of Built-up area of the urban agglomeration*



*Open Public Space Mapping*



*Land allocated to street Sample Area*



**Benchmark**

Proportion of Total Open Public Space  
 Min = 0 %  
 Max = 45 %

Land Allocated to Street (%)  
 Min = 0 %  
 Max = 30%

Total Open Public Space (%)  
 Min = 0 %  
 Max = 15 %

**Standardization**

$$Proportion\ of\ Total\ Open\ Public\ Space^{(s)} = 100 \left[ \frac{Open\ Public\ Space - Min}{Max - Min} \right]$$

$$Proportion\ of\ Total\ Open\ Public\ Space^{(s)} = 100 \left[ \frac{Open\ Public\ Space}{45} \right]$$

**Example :**

City A:

Total area of the Built-up Area: 168 km<sup>2</sup>  
 Area of Open Public Space 4.52 km<sup>2</sup> (2.69%)  
 Area of Land Allocated to Street 39.45km<sup>2</sup> (23.48%)  
 Proportion of Total Open Public Space 26.17%

$$Proportion\ of\ Total\ Open\ Public\ Space = \frac{4.52\ km^2 + 39.45\ km^2}{168\ km^2}$$

$$Proportion\ of\ Total\ Open\ Public\ Space = \mathbf{26.17\%}$$

Standardization:

$$Proportion\ of\ Total\ Open\ Public\ Space^{(s)} = 100 \left[ \frac{26.17}{45} \right]$$

$$Proportion\ of\ Total\ Open\ Public\ Space^{(s)} = \mathbf{58.15}$$



**Limitations:**

- In some cities, open sources data for satellite imagery may be of low quality or not clearly defined.
- Types of open public spaces vary by city; however, the types listed above are the most commonly accepted.
- It is unusual to obtain complete information about city streets. It is sometimes necessary to make adjustments as suggested in the methodology. This is particularly the case in slum areas. Community-based work can be a solution to this problem.

**Previous use of the indicator:**

- This indicator has been widely use as part of the research project to monitor urban expansions in a global sample of cities (200 cities) developed by UN-Habitat and the Stern School of Business of New York University (2014/2015).
- The indicator is also used as part of UN-Habitat City Prosperity Initiative that is being implemented in 300 cities across the world to monitor local and global conditions of city sustainability and prosperity (2012/2015).

**Possibilities for further development:**

The indicator was used in a sample of 120 cities as part of the study “Streets as Public Spaces and Drivers of Urban Prosperity” published by UN-Habitat (2013) <http://unhabitat.org/streets-as-public-spaces-and-drivers-of-urban-prosperity>.

- ✓ With sufficient data this indicator allows for sub-city analysis and for the disaggregation of the information at neighbourhood level employing Small Area Statistics Analysis.
- ✓ Based on the on-going global programme of the City Prosperity Initiative, and the use of the City Prosperity Index (CPI) the “Land Allocated to Street” measurement can be used as leading variable articulated to other two key metrics that use the same method to measure the efficiency of “Urban Form” within the dimension of infrastructure development. These two metrics are: 1) street intersection density (the number of street intersections per square kilometre of land); 2) street density (the number of kilometre of urban streets per square kilometre of land). Together these three metrics have been used to measure sustainable urban development and city prosperity in more than 200 cities.
- ✓ Moreover, based on the same initiative and the CPI further measurements of “Open Public Space” can be conducted by analysing the percentage of the population living in proximity to open public spaces (population located less than 300 meters away from an open public space and 1 km from a major open public space). This complementary measurement has a very strong spatial component.

**Recommendation :**

The proposed indicator for Target 11.7 is part of the City Prosperity Index (CPI). UN-Habitat recommends that the CPI can be used as a global framework for the measurement of all targets of Goal 11 of the SDGs. With necessary adjustments, this index can identify, quantify, evaluate, monitor and report on progress made by cities and countries on Goal 11.

The adoption of this global framework has several advantages: adopt a systemic approach of the city; provide a single value of the state of the city; establish benchmarks for local and global monitoring; create baseline data and information; establish a global platform for comparability; identify priorities of sustainable urban development; provides evidence-based for policy-making and accountability; and create local/national monitoring mechanisms.

**References**

- <sup>(1)</sup>.UN-Habitat (2014) *Guidelines and Metadata on the City Prosperity Initiative*, use of selected indicators, Nairobi.
- <sup>(2)</sup>. UN-Habitat (2013) *Streets as Public Spaces and Drivers of Urban Sustainability*, Nairobi.
- <sup>(3)</sup>. UN-Habitat (2013) *The relevance of street patterns and public space in urban areas*, Nairobi.
- <sup>(4)</sup>. Institute for Transportation and Development Policy (2013) *TOD Standard*, v. 2.0, New York.

**URL references**

[1]: [http://epa.gov/smartgrowth/pdf/ptfd\\_primer.pdf](http://epa.gov/smartgrowth/pdf/ptfd_primer.pdf)

**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**

From UN-Women:

<b>Indicator 11.7.2</b>	<b>Proportion of women subjected to physical or sexual harassment, in the last 12 months, by perpetrator and place of occurrence</b>
<b>Definition and method of computation</b>	<p>Number of girls and women aged 15+ who were subjected to physical or sexual harassment in the last 12 months, as percentage of all women aged 15+, disaggregated by perpetrator and place of occurrence (of latest episode).</p> <p>Many international bodies, national legislatures and courts have prohibited sexual harassment but there is no agreed universal definition of the term.[1] Most existing studies about sexual harassment are focused on working life or educational environments and measure unwelcome and unwanted sexual acts.[1,2] Because of the lack of universal definition, data for this indicator are not comparable. Currently, comparable data exist only for the 28 European Union countries (see below for more details on existing measures).</p>
<b>Existing data and definitions</b>	<p>In 2014, the European Union Fundamental Rights Agency (FRA) conducted the first comprehensive survey on violence against women in 28 EU countries. It is based on interviews with 42,000 women across the EU, who were asked about their experiences of physical, sexual and psychological violence, including incidents of intimate partner violence. The survey also included questions on stalking, sexual harassment, and the role played by new technologies in women’s experiences of abuse.[3]</p> <p>To measure sexual harassment and stalking, the survey adopted a broader scope, asking respondents first if they have experienced specific forms of sexual harassment in any situation, before asking in more detail who was involved. The information concerning the perpetrators allows the survey to distinguish incidents which are linked to various situations, including in public spaces and in employment. The survey covered 11 possible acts of sexual harassment which were unwanted and offensive according to respondents. The categories include:</p> <ul style="list-style-type: none"> <li>• Unwelcome touching, hugging or kissing</li> <li>• Sexually suggestive comments or jokes that made [the respondent] feel offended</li> <li>• Inappropriate invitations to go out on dates</li> <li>• Intrusive questions about [the respondent’s] private life that made her feel offended</li> <li>• Intrusive comments about [the respondent’s] physical appearance that made her feel offended</li> <li>• Inappropriate staring or leering that made [the respondent] feel intimidated</li> <li>• Somebody sending or showing [the respondent] sexually explicit pictures, photos or gifts that made her feel offended</li> <li>• Somebody indecently exposing themselves to [the respondent]</li> <li>• Somebody made [the respondent] watch or look at pornographic material against her wishes</li> <li>• Unwanted sexually explicit emails or SMS messages that offended [the respondent]</li> <li>• Inappropriate advances that offended [the respondent] on social networking websites such as Facebook, or in internet chat rooms</li> </ul> <p>Based on these 11 items, the FRA survey revealed that at the EU level, 55% of all women have at least once been victims of sexual harassment and stalking during their lifetime and 21% have been victimized over the last 12 months.<sup>[3]</sup></p> <p>In addition to examining the prevalence and nature of each of these specific acts, sexual harassment can also be analysed in four broad groups:</p> <ul style="list-style-type: none"> <li>• Physical forms of harassment: unwelcome touching, hugging or kissing;</li> <li>• Verbal forms of harassment: sexually suggestive, offensive, comments or jokes; inappropriate invitations to go out on dates; intrusive, offensive questions about private life; intrusive, offensive comments about a woman’s physical appearance;</li> <li>• Non-verbal forms of harassment: inappropriate, intimidating staring or leering; receiving</li> </ul>

	<p>or being shown offensive, sexually explicit pictures, photos or gifts; somebody indecently exposing themselves; being made to watch or look at pornographic material against one's wishes;</p> <ul style="list-style-type: none"> <li>• Cyber-harassment: receiving unwanted, offensive, sexually explicit emails or SMS messages; inappropriate, offensive advances on social networking websites or in internet chat rooms.</li> </ul>
<b>Rationale and interpretation</b>	<p>Sexual harassment is a violation of women's human rights and a prohibited form of violence against women in many countries.[4] Sexually harassing conduct causes devastating physical and psychological injuries to a large percentage of women in workplaces around the world. In urban and rural areas, developed or developing countries, women and girls are constantly subjected to these forms of violence on streets, on public transport, in shopping centres and in public parks, in and around schools and workplaces, in public sanitation facilities and water and food distribution sites, or in their own neighborhoods. Such harassment reinforces the subordination of women to men in society, violates women's dignity and creates a health and safety hazard in public spaces.</p> <p>If women and girls are to enjoy a life free from violence, policymakers need to ensure that public spaces are free from any form of violence, including sexual harassment.</p>
<b>Sources and data collection</b>	<p>Data for this indicator can be collected through specialized violence against women surveys, crime victimization surveys or through modules in multipurpose surveys such as DHS and MICS (in the case of MICS and DHS data are limited to women aged 15-49). Disaggregating by place of occurrence of latest episode (e.g. workplace, street, public park etc.) would also distinguish between sexual harassment at work (target 8.8) and in public spaces (11.7).</p>
<b>Disaggregation</b>	<p>In order to distinguish between harassment that happens in workplaces or in public spaces such as streets and parks, this indicator should be disaggregated by perpetrator and place of occurrence. It is also important to disaggregate this indicator by age given that young women might be more</p>
<b>Comments and limitations</b>	<p>Due to the lack of agreed definition and comparable data, this indicator is currently classified as Tier III. The methodological work and testing which will be conducted in 2016 and 2017 will build on the FRA survey. Data collection would start in 2017-18 once methodology is developed and agreed.</p>
<b>Gender equality issues</b>	<p>Addresses women and girls' autonomy and freedom from violence in public spaces. In terms of linkages, it can monitor targets 5.2 (eliminating violence against women and girls), 8.8 (protecting labour right and safe working environments) and 16.1 (significantly reducing all forms of violence everywhere).</p>
<b>Data for global and regional monitoring</b>	<p>UN Women</p>
<b>Supplementary information</b>	
<b>References</b>	<p>[1] The Advocates for Human Rights (2010). "What is Sexual Harassment in the Workplace?". <a href="http://www.stopvaw.org/What_is_Sexual_Harassment.html">http://www.stopvaw.org/What_is_Sexual_Harassment.html</a></p> <p>[2] United Nations General Assembly. 2006. In-depth study on all forms of violence against women. Report of the Secretary-General.</p> <p>[3] European Union Agency for Fundamental Rights. Violence Against Women: An EU-Wide Survey. Main Results.</p> <p>[4] UN Women (2011). Progress of the World's Women: In Pursuit of Justice.</p>

## **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: Proportion of population living in cities that implement urban and regional development plans integrating population projections and resource needs, by size of city**

#### **From UN-Habitat:**

---

**Type of Indicator:** Process indicator

---

#### **Methodology:**

Develop a country score card that assesses and tracks progress on the extent to which national urban policy (development and implementation) satisfies the following criteria as qualifiers, based on participation, partnership, coordination and cooperation of actors:

- 1) responds to population dynamics
- 2) ensures balanced regional and territorial development
- 3) prepares for infrastructure and services development
- 4) promotes urban land-use efficiency
- 5) enhances resilience to climate change
- 6) protects public space
- 7) develops effective urban governance systems
- 8) Increase local fiscal space

This indicator places particular emphasis on the aspect of national and regional development planning and the notion of inclusion of sectors and actors, articulated on national urban policies (NUP). The indicator has various key qualifiers that are scored between 0-5 (0-none, and 5 for full compliance).

Tools to be used to support the reporting on this indicator include: baseline, benchmarking, point-of-service surveys, scorecard, peer-review and experts opinion, performance monitoring and reporting, focus group discussions, gap and content analysis.

With initial support of UN-Habitat and partners tracking and assessment tools and methods will be developed, piloted and rolled out at country level to assess national urban policies developed and implemented based on the qualifiers listed above. Based on expert opinion, the assessment of the qualifiers of the indicator will target national government institutions as well as other key urban stakeholders from academia, private sector, and civil society organization, as per specific criteria of selection of these stakeholders. A threshold will be established to ascertain the level of satisfaction of each qualifier.

The method for tracking and analysing progress on national urban policies will collate information on adopted policies, conventions, laws, government programs, and other initiatives that comprise an urban policy. This information would be in most cases already available. The analysis will cover the qualifiers listed above.

The standard definition of National Urban Policy<sup>5</sup> will be extended and adapted to country context and may include where applicable terms such as National Urban Plan, Frameworks, Strategies, etc. as long as they are aligned with the above qualifiers.

For each of the 8 items defined above, policies will be scored on a scale of 1 to 5 for achievement or lack of achievement.

---

<sup>5</sup> Broadly, a National Urban Policy is a coherent set of decisions 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.

<b>National urban policy;</b>	<b>1=strongly disagree</b>	<b>2= Disagree</b>	<b>3=Neither</b>	<b>4= Agree</b>	<b>5=Strongly agree</b>
a) responds to population dynamics					
b) ensures balanced regional and territorial development					
c) covers for infrastructure and services development					
d) promotes urban land-use efficiency					
e) enhances resilience to climate change					
f) protects public space					
g) develops effective urban governance systems					
h) promotes increase of local fiscal space					
<b>Aggregate score from all 8 dimensions</b>					<b>X</b>

Overall aggregate national scores (X) will range from 8 to 40 and these will be standardized to the scale of 0-100 using the following approach.

If  $X$  is the observed aggregate value of the score for the policy performance using the above criterion, then its standardized value  $X^{(S)}$  will be computed as;

$$X^{(S)} = 100 \frac{X - \text{Min}(X)}{\text{Max}(X) - \text{Min}(X)}$$

Where,  $\text{Max}(X)$  and  $\text{Min}(X)$  are the maximum and minimum values observed for  $X$  which is 8 and 40, respectively. Countries that achieve maximum values on the scorecard i.e.  $\text{Max}(X) = 40$ , the value assigned via standardization will be 100 while those that achieve minimum score i.e.  $\text{Min}(X) = 8$  the value assigned via standardization will be 0.

**Unit: Number/dimensionless**

Number of countries which have scored above the threshold and are making progress on the range of qualifiers.

When analysing the data and the score card, the scorecard of each country could be used to ascertain the overall performance of countries which could then be aggregated by regional groups and specific qualifiers. The scorecard will point to concrete policy recommendations, particularly for qualifiers that need particular attention.

**Data Sources:** There are several data sources that could be used

1. Official documents available in national administrations,
2. Database of national urban policies by United Nations<sup>6</sup>- and other international organizations, UN-Habitat had developed a National Urban Policy Database as a repository of official urban policies documents and related; UN-Habitat had also developed the UrbanLex, a database of laws and policies on urban matters.
3. Experts' and stakeholders' opinion

**Scope:**

National level data that can be aggregated by regions and at the global level.

<sup>6</sup> UN-Habitat had developed a National Urban Policy Database as a repository of official urban policies documents and related; UN-Habitat had also developed the UrbanLex, a database of laws and policies on urban matters

---

**Frequency:** Every two years

---

**Potential Disaggregation or Quantifiable Derivatives:<sup>7</sup>**

**Potential Disaggregation:** This indicator could be disaggregated by geographic location and other characteristics relevant in national contexts. For example, national level vs local/state level, city and regional levels. This indicator could be further disaggregated by economic sector (GDP) and Human development Index (HDI). National data collected through assessment could be also aggregated at the regional and global to measure trends.

**Quantifiable Derivatives:**

The analysis and reporting of the data collected can be presented and assessed based on the qualifiers by region and compared to HDI, GDP, etc. For example:

- Number of countries that have developed and implemented national urban policy that responds to population dynamics;
- Number of countries that have developed and implemented national urban policy that ensures balanced regional and territorial development;
- Number of countries that have developed and implemented national urban policy that prepares for infrastructure and services development;
- Number of countries that have developed and implemented national urban policy that promotes urban land-use efficiency;
- Number of countries that have developed and implemented national urban policy that enhances resilience to climate change;
- Number of countries that have developed and implemented national urban policy that protects public space;
- Number of countries that have developed and implemented urban policy that develops effective urban governance systems.
- Number of countries that have developed and implemented national urban policy that increase local fiscal space.

---

**Related SDG Targets / Indicators:**

**Relevance:**

With the majority of mankind currently living in cities, and the number poised to increase further by 2030, the success of SDGs will depend largely on how urbanisation is well coordinated and managed. Considering that urbanisation is as a tool for development, many countries<sup>8</sup> are now embarking on the development and implementation of national urban policies as tangible instruments to coordinate stakeholders' efforts, harness the benefits of urbanisation while mitigating its externalities. This particular indicator is very relevant for tracking national progress on all other areas in the SDGs and targets where urban and policies are mentioned along with the above 8 qualifiers. This indicator is one of the key metrics to benchmark and monitor urbanisation and asserts the national leadership and political will of national governments. 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 and facilitate dialogue.

This indicator will provide 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 indicators has the ability to work at multi jurisdictions level, covering a number of areas while taking care of urban challenges in a more integrated national manner.

The indicator has a strong connection to the target, addressing the fundamental spatial and territorial aspect of national urban policy in the context of urban, peri-urban and rural areas.

**Suitability:**

This indicator epitomises the universality tenet and spirit of the SDGs. It is clearly suitable for all countries and can be

---

<sup>7</sup> The proposed framework for potential disaggregation should consider that disaggregation has a cost. It is recommended that the level of development and the statistical capacity of countries are taken into consideration. As countries progress in their institutional capacities, further level of disaggregation can be undertaken.

<sup>8</sup> UN-Habitat had undertaken assessment of the status of National urban policies in in each country in the following regions: Africa, Asia, Arab States, Latin America, Europe and North America, and the Pacific. The report estimates that less than 50 countries have explicit national urban policy to coordinate the efforts on urban affairs.

disaggregated and/or aggregated by areas of development as explained in the methodology section of this metadata. The indicator will be suitable to assess commitment to address urban challenges and respond to the opportunities that urbanization brings. It clearly responds to Goal 11 harnessing the power of urbanisation for the common good. The indicator is strongly connected to other SDGs goals and targets.

**Feasibility:**

UN-Habitat had undertaken a comprehensive review of urban policies and the methodology used could form the basis for the Global State Urban Policy and Scorecard to be published every two years. Based on the baseline developed by UN-Habitat, it would be quite doable to routinely assess the status of national urban policies and ascertain progress made by countries to develop and implement policies based on agreed qualifiers. The work will benefit from various on-going initiatives of policies review and diagnostic undertaken by OECD, UN-Habitat and World Bank. Further methodological work would be needed to identify a list of criteria that have to be satisfied in order to attribute a value to the relevant development-oriented policy (i.e. policies supporting job creation, innovation, land-use efficiency, public space, etc.).

**Limitations:** The data for this indicator will be based on the robustness of the assessment framework developed and pilot tested in selected countries. Baseline data and benchmarks will build on UN-Habitat work on regional assessments, which need to be validated by key stakeholders. There could be a challenge for consistent and cost-effective data collection and analysis.

As the indicator mainly aims to track progress on the number of countries developing and implementing national urban policies, it will not suppose specific judgements of any individual country's policies. It will not be used to produce any global or regional ranking.

There might be some limitations in correlating and quantifying the contribution and attribution of urban policy to the overall change and outcomes on the ground. Nevertheless, careful design of the baseline and benchmarking would provide clear indications on the possible impact on urban policy implementation on people's quality of life. Opinion surveys could further support any evidence and change observed, but similar methodology needs to be applied.

**Policy Connections:**

This Indicator is related to several Goals and Targets, particularly the following:

- Goal1: Poverty Eradication, targets 1.4 and 1.5: land tenure security and resilience
- Goal2: Food Security, Nutrition and Agriculture, targets 2.3 and 2.a: land tenure security and urban-rural linkages
- Goal3: Gender, target 5.2: safety and 5.a ownership and control over land
- Goal6: Water, targets 6.1 and 6.2: access to drinking water and sanitation
- Goal7: Energy, targets 7.2 and 7.3: access to renewable energy and energy efficiency
- Goal8: Economic Growth and Employment, targets 8.3, 8.5 and 8.6: job creation, decent work and youth unemployment
- Goal9: Infrastructure and Industrialization, targets 9.1, 9.4 and 9.a: access to and upgrading and financing infrastructure
- Goal10: Reduce inequality – target 10.4 discriminatory laws
- Goal12: Sustainable Consumption and Production, target 12.5: waste management
- Goal13: Climate Change, target 13.1: resilience and adaptive capacity; 13.b capacity for effective climate change-related planning and management
- Goal15: On terrestrial ecosystems; 15.9 By 2020, integrate ecosystem and biodiversity values into national and local planning, development processes,
- Goal16: Peaceful Societies and Inclusive Institutions, targets 16.7 and 16.a: governmental subsidiarity and institutional capacity building, 17.b non-discriminatory laws and policies for sustainable development
- Goal17: on means of implementation and partnership for sustainable development; 17.14 Policy coherence for sustainable development; 17.17 Effective public, public-private and civil society partnerships, building on the experience and resourcing

**Bibliographic References:**

OECD (2015), Building Successful Cities: A National Urban Policy Framework  
OECD (Various years), Urbanisation reviews (various countries: China, Mexico, Poland, Chile, Korea)  
UN-Habitat and Cities Alliance (2014), The evolution of National Urban Policy: A global Overview  
UN-Habitat (Forthcoming): Global State of National Urban Policies  
UN-Habitat, 2015, Assessment Framework for UN-Habitat sub-programme 2  
UN-Habitat (2015) Guiding Framework for National Urban Policy (Forthcoming)  
UN-Habitat (2015) Diagnostic Framework for NUP  
World Bank (Various years) Urbanisation Review (China, Colombia, Ghana, India, Indonesia, Korea, Sri Lanka, Turkey and Vietnam)

**URL References:**

- [1]: <http://unhabitat.org/initiatives-programmes/national-urban-policies/>
- [2] <http://www.worldbank.org/en/topic/urbandevelopment/publication/urbanization-reviews>
- [3] [http://www.oecd-ilibrary.org/urban-rural-and-regional-development/oecd-urban-policy-reviews\\_23069341](http://www.oecd-ilibrary.org/urban-rural-and-regional-development/oecd-urban-policy-reviews_23069341)
- [4] <http://www.urbangateway.org/icnup/2015/home>



**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: 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<sup>1</sup>**

**From UNISDR:**

**Definition:**

***Local DRR Strategies in line with the Sendai Framework for Disaster Risk Reduction 2015-2030:*** local disaster risk reduction strategies and plans, across different timescales with targets, indicators and time frames, aimed at preventing the creation of risk, the reduction of existing risk and the strengthening of economic, social, health and environmental resilience (Sendai Framework, para27 (b)). Note: the DRR strategies need to be based on risk information and assessments.

***Local Government:*** Form of public administration at the lowest tier of administration within a given state, which generally acts within powers delegated to them by legislation or directives of the higher level of government.

Note: Terminology will be discussed and finalized in the Open-ended Intergovernmental Working Group for Sendai Framework for Disaster Risk Reduction.

**Method of computation:** Summation of data from National Progress Report of the Sendai Monitor

**Rationale and interpretation** (mainly based on TST Issue Brief 20, 11, 23, 14 and 12):

Sendai Framework for Disaster Risk Reduction 2015-2030 calls for local governments to adopt and implement local DRR strategies with their own targets, indicators and timeframes.

Global population is now half urban and expected to be nearly 70% urban by 2050. Increasing resilience of cities is critical to reduce disaster risk and achieve sustainable development. Cities are also very vulnerable to natural disasters, especially climate-related shocks. Over half of all coastal areas are urbanized and 21 of the world's 33 megacities lie in coastal flood zones. Coastal cities are particularly affected by sea level rise, coastal flooding and erosion, and extreme events (e.g. tsunamis and storm surges) due to the undermining natural protective barriers, low levels of development combined with rapid population growth in low lying coastal areas and inadequate capacity to adapt. In addition to the impact on communities and non-human species, the unplanned urbanization also undermines the ecosystem services that support much hard urban infrastructure. This type of development also exacerbates urban vulnerability to climate change impacts, including hydro-meteorological and geological hazards.

Located mostly in cities where disadvantaged groups are situated and when affordable access is addressed, resilient infrastructures such as health, education, road and other critical infrastructures will have direct impact on reducing inequality and making growth more inclusive and sustainable.

The opportunity is that 60% of the area expected to be urban by 2030 remains to be built, indicating that the shape of future cities can be proactively guided into more risk-sensitive development. An increasing number of cities that adopt and implement local DRR strategies will contribute to sustainable development from economic, environmental and social perspectives.

The indicator will build bridge between the SDGs and the Sendai Framework for DRR because the adoption of local DRR strategies is one of Sendai Framework global targets and will be also monitored under the Sendai Framework Monitoring System.

**Sources and data collection:** National Progress Report of the Sendai Monitor, reported to UNISDR

**Disaggregation:** by country, by city

**Comments and limitations:**

- ✓ This is proposal by UNISDR based on our experience and knowledge built in the period under the Hyogo Framework for Action (2005-2015). The proposed indicator was further reviewed and examined by other UN agencies including FAO, GFDRR, IOM, UNCCD, UNDP, UNESCAP, UNESCO, UNFPA, UNHCR, UNOCHA, UNOOSA, UNOPS, UNU, UNWOMEN, WHO and WMO (though not all organizations listed here provided comments for this indicator) and submitted to the IAEG process in early-July 2015, then again reviewed by the Technical Expert Group consisting of more than 60 experts from UN system, academic and research, civil sector and private sector in 27-29 July 2015 and submitted and examined by the Member States in the 1<sup>st</sup> Open-ended Intergovernmental Expert Working Group on Indicators and Terminology on Disaster Risk Reduction held in 29-30 September 2015. The suggested indicator is currently under review by the Member States and UNISDR is receiving written inputs from the Member States.
- ✓ The proposed indicators will be also used to monitor Sendai Framework global targets and therefore the detailed definitions shall be discussed and agreed in Open-ended Intergovernmental Expert Working Group on Indicators and Terminology on Disaster Risk Reduction, as outlined in Sendai Framework for Disaster Reduction 2015-2030. The Working Group is likely to finalize the discussion and submit the final report to the GA in December 2016.
- ✓ Reporting of the HFA Monitor and the succeeding Sendai Monitor under development is not mandatory but it is only global database collecting DRR policy information. The HFA Monitor started in 2007 and over time, the number of countries reporting to UNISDR increased from 60 in 2007 to 133 in 2013. Because there is no specific data addressing this indicator at this moment, a baseline as of 2015 should be created through a questionnaire to all countries in order to monitor both the Sendai Framework and the SDGs.

**Gender equality issues:** Not included.

**Data for global and regional monitoring:** Summation of data from National Progress Report of the Sendai Monitor

**Main linkage with SDG Targets:**

***This indicator is proposed as “multi-purpose indicator”.***

**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

**Target 13.1:**

Strengthen **resilience and adaptive capacity to climate-related hazards and natural disasters** in all countries

**Target 13.b:**

Promote mechanisms for raising capacities for effective **climate change-related planning and management**, in least developed countries, including focusing on women, youth, local and marginalized communities

**Target 9.1:**

Develop quality, reliable, sustainable and **resilient infrastructure**, including regional and trans border infrastructure, to support economic development and human well-being, with a focus on affordable and equitable access for all

**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

**Target 1.5:**

By 2030, build **the resilience of the poor and those in vulnerable situations** and reduce their **exposure and vulnerability to climate-related extreme events** and other economic, social and environmental shocks and **disasters**

**Target 3.9:**

By 2030, substantially reduce the number of **deaths and illnesses from hazardous chemicals and air, water and soil pollution and contamination**

**Target 14.2:**

By 2020, sustainably manage and protect **marine and coastal ecosystems** to avoid significant adverse impacts, including by strengthening their resilience, and take action for their restoration in order to achieve healthy and productive oceans

**Target 3.d:**

Strengthen the capacity of all countries, in particular developing countries, for **early warning, risk reduction and management of national and global health risks**

**Supplementary information:**

**Related targets in the Sendai Framework for Disaster Risk Reduction 2015-2030:**

Substantially increase the number of countries with ***national and local disaster risk reduction strategies*** by 2020.

**Sendai Framework for Disaster Risk Reduction 2015-2030:**

([http://www.preventionweb.net/files/43291\\_sendaiframeworkfordrren.pdf](http://www.preventionweb.net/files/43291_sendaiframeworkfordrren.pdf))

**Indicator 11.b.2 Number of countries with national and local disaster risk reduction strategies<sup>1</sup>**

**No metadata received on current indicator formulation.**

## **Target 11.c Support least developed countries, including through financial and technical assistance, in building sustainable and resilient buildings utilizing local materials.**

### **Indicator 11.c.1: Proportion of financial support to the least developed countries that is allocated to the construction and retrofitting of sustainable, resilient and resource-efficient buildings utilizing local materials**

#### **From OECD:**

##### ***Definition and method of computation***

Total net [official development assistance](#) (ODA) to the construction ([purpose code](#) 32310) and urban development and management (code 43030) subsectors in the Least Developed Countries. Data expressed in US dollars at the average annual exchange rate.

##### ***Rationale and interpretation***

ODA is the accepted measure of international development co-operation. In this case it captures international concessional financing to least developed countries in construction and urban development.

##### ***Sources and data collection***

Data are compiled by the Development Assistance Committee (DAC) of the Organisation for Economic Co-operation and Development from returns submitted by its member countries and other aid providers. Data can be accessed [here](#).

##### ***Disaggregation***

The data are generally obtained on an activity level, and include numerous parameters. They can thus be disaggregated by provider and recipient country; by type of finance, and by type of resources provided. Some data are also available on the policy objectives targeted by individual projects, including through [climate adaptation and mitigation markers](#).

##### ***Comments and limitations***

The data only address international concessional flows provided by governments. Detailed, internationally comparable sectoral information on other support building and construction in developing countries is generally lacking.

##### ***Gender equality issues***

The data include a [“gender equality” marker](#) which identifies individual projects that have a clear gender dimension.

##### ***Data for global and regional monitoring***

Data are available for essentially all high-income countries, and for an increasing number of middle-income aid providers.

##### ***Supplementary information***

##### ***References***

OECD, 2014 [Aid to Urban Climate Change Adaptation](#)