

# Indicators for European cities to assess and monitor the UN Sustainable Development Goals (SDGs)



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## Preface

The UN Agenda 2030 and its Sustainable Development Goals (SDGs) are a call to action as well as a blueprint for progress in economic, social and environmental dimensions of sustainable development. Integrated urban sustainability management can make use of the structure provided by the 17 SDGs and their 169 targets, for a common assessment ground. The present study presents a SDG indicator pool sorted along the 17 Goals for all cities to assess their multi-dimensional progress towards sustainability. It has been published on behalf of the European Topic Centre on Urban, Land and Soil Systems (ETC-ULS) as an assisting research organ of the European Environment Agency (EEA).

Since the adoption of the UN SDGs in 2015 progress has been made but still there is a lot to do for cities and gaps have to be filled. The SDG Index and Dashboards Report for European Cities published by the Sustainable Development Solutions Network (SDSN) in May 2019 states that major performance (not indicator) gaps persist on environmental goals, especially on SDG 12 (Responsible Consumption and Production), SDG 13 (Climate Action) and SDG 15 (Life on Land). The EU and EFTA countries are among those countries that have the highest emission of CO<sub>2</sub> per capita in the world. The report also says that, having a look on the cities, all cities have to highly improve their efforts for SDG 13 (Climate Action). Further efforts are needed with regard to reducing air pollution in most European cities. The SDSN further writes that most European cities are challenged with access to affordable and quality housing. Target 11.1 calls for policymakers to ensure access to adequate, safe and affordable housing by 2030. Furthermore, in 2017, the European Federation of National Organisations Working with the Homeless published a report emphasising increasing trends in homelessness in cities in Europe.

Let's start to fill the gaps! This report provides local governments across Europe with a large choice of indicators to display and measure their progress towards the 17 SDGs and their targets. Rather than offering a fixed set of SDG indicators, the following compilation should be the basis for putting together localised monitoring systems, tailored to local circumstances, challenges and data availabilities.

## How to read this report

This report is the result of the analysis of 2,036 indicators found across 30 indicator sets published by a variety of institutions both on the global, European and national level. All of these indicator sets had originally been developed and published for their use at the local, urban level, however mostly without any reference to the UN Sustainable Development Goals.

The authors of this report allocated each of the more than two thousand indicators to one (or more) of the 17 SDGs and their 169 targets. Admittedly, this allocation was subjective, however the first result of this allocation showed that for most of the SDGs and their targets, indicators for cities already exist. Even more, after eliminating duplicates, aligning similar indicators and cleaning up inconsistencies in indicator titles and measurement, the choice of existing indicators even allowed for splitting them down into different aspects of one target.

The result is a compilation of existing indicators developed for cities and local governments, structured along the 17 SDGs, each of their 169 targets, and a variety of aspects of these targets. Different from other publications on the same topic, this report does not identify any new SDG indicators for cities, nor does it promote a specific set of indicators to monitor progress in achieving the Sustainable Development Goals on the local level. It also doesn't measure or analyse any of these indicators.

The report serves as a pool of potential indicators local governments can choose from when developing their own, individual SDG monitoring system. This way, specific local aspects of each goal and target can be reflected. Local policy priorities can be taken into account and linked to the SDGs through an integrated local monitoring system. And finally, indicators can be selected according to their data availability.

### Structure of each chapter

Following the structure of the UN Sustainable Development Goals, this report has 17 chapters – one for each SDG. Each chapter starts with a brief introduction to the respective SDG and its relevance at the local level. An overview analysis shows how many of the indicators found could be allocated to which of the SDG's targets. It also highlights gaps as well as such targets for which a particular wealth of potential indicators exists. The largest part of each chapter lists all indicators allocated to the respective SDG, split down by targets and, where applicable, particular aspects of each target. For each indicator, a dedicated title, its unit of measurement and its source (i.e. the indicator set it has been taken from) are displayed. For some indicators, the unit of measurement is simply the existence or non-existence of a particular feature, indicated as 'yes/no' in the tables. For some other indicators, no unit of measurement could be identified.

For some of the SDG targets, no indicators could be allocated. This shows that there is still room for improvement on the way towards integrated local monitoring systems for measuring progress towards achieving the SDGs. However, it also shows that cities and local governments cannot implement the SDGs alone. Some issues are better addressed and monitored at the national level, and a multilevel approach to achieving the goals is needed.





**1 NO POVERTY**



55 per cent of the world's population have no access to social protection. That's why poverty will remain one of the main issues within the next decades. Poverty means not only the absence of income and resources to ensure a sustainable livelihood. For the people being poor it also means hunger and malnutrition, limited or no access to education and other basic services, social discrimination and exclusion and often also the lack of participation in decision-making. That's why an inclusive economic growth is needed that provides sustainable jobs and promotes equality. Social protection systems will help coping with the above mentioned challenges, because they help afflicted populations in case of unexpected economic losses during disasters and they guarantee a minimum supply for the poorest.

#### **Relevance for cities and local governments**

Cities offer a great scope of job opportunities, they can increase living standards and empower people to make decisions about their lives. Challenges for the cities are the inefficient and often unequal land use and housing markets, lack of access to basic services and existing socio-economic traps. Local governments have the chance to identify those that live in poverty. They can target resources and services directly to them to help them getting out of it. They can target urban housing, planning and architectural design that affects the creation and distribution of wealth both in newly built and already existing high-risk urban neighborhoods. Elementary is the strengthening of inclusive education to enhance employability.

**END POVERTY  
IN ALL ITS  
FORMS  
EVERYWHERE**

## SDG 1 | Overview

The 45 indicators found for SDG 1 show a significant focus on target 1.2 (poverty reduction in all its dimensions), dealing with the national poverty line, the household financial situation and poverty risk.

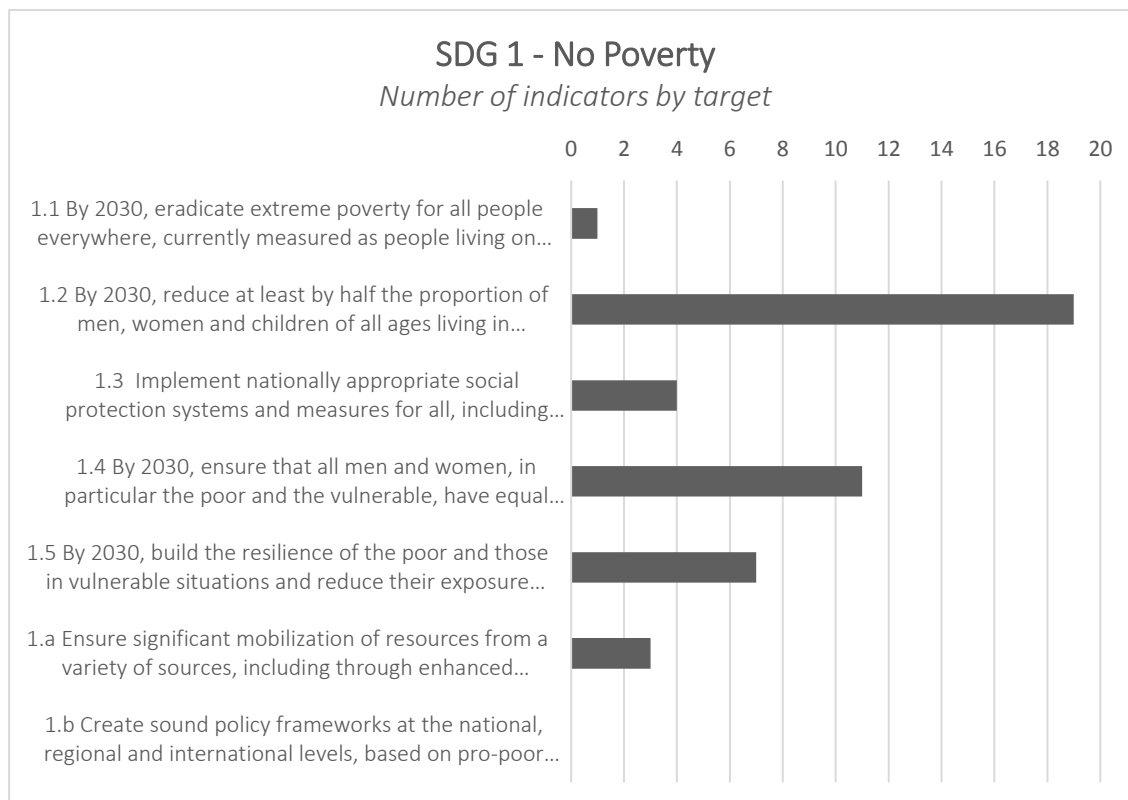
Target 1.4 (access to economic resources, services, ownership) can also be measured by many indicators dealing with housing, such as access to property, affordability of housing and subsidies. Nonetheless, the target is not entirely covered, as there is no indicator dealing with access to microfinance for instance.

The other targets, 1.5. (build resilience), 1.3 (implement social protection systems), 1.a (resources allocated to end poverty) are covered with lower number of indicators. However, the indicators found are highly relevant for their corresponding target.

In contrast target 1.b (pro-poor and gender-sensitive policy frameworks) has no indicator as the target is not applicable at the local level (but at the regional, national and international level). Target 1.1 (eradicate extreme poverty), measured as people living on less than \$1.25 a day, is represented only by one indicator, which reflects its comparably low relevance for European cities.

In conclusion, most relevant targets of SDG 1 from an urban perspective are well covered with a good choice of potential indicators.

**Figure 1: Number of indicators identified for targets of SDG 1**





## SDG 1 | Indicators

**Target 1.1 By 2030, eradicate extreme poverty for all people everywhere, currently measured as people living on less than \$1.25 a day**

Indicator	Unit	Source
City population living below the international poverty line	%	6

**Target 1.2. By 2030, reduce at least by half the proportion of men, women and children of all ages living in poverty in all its dimensions according to national definitions**

**Aspect Poverty line**

Indicator	Unit	Source
Population living below the national poverty line, by sex and age	%	4, 7, 6, 28
Women and men-headed households situated below the poverty line (national or locally-defined poverty line).	%	1
Children under 18 living below twice the poverty threshold	%	28
Demonstrate progress towards reducing the percentage of residents living below the poverty line by 50% by 2030	yes/no	24
Demonstrate a decrease over time in the percentage of women, men, children, and additional subgroups of residents living below the poverty line	yes/no	24

**Aspect Household financial situation**

Indicator	Unit	Source
Family income and size	Average euros by family size	4, 25
Real per capita personal income	euros/cap	28
Low income household	%	16
Low income index	%	25

## SDG 1

The financial situation of your household	Survey to population	11
Financial vulnerability	%	25
Increase of real median household income over time	yes/no	24
Presence of a 'Living Wage' promoted by the national/local government	yes/no	27
Demonstrate that 80% of household incomes in the jurisdiction meet or exceed the living wage standard OR Demonstrate an increase in the percentage of household incomes in the jurisdiction that meet or exceed the living wage standard over time	yes/no	24
Severe material deprivation rate	%	30
Economic difficulties/hardship index	%	25

### Aspect **Poverty risk**

Indicator	Unit	Source
Poverty risk	%	25
People at risk of poverty or social exclusion	%	2, 8, 17, 25, 29, 30

### 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**

Indicator	Unit	Source
Share of recipients of social aid	%	8, 22, 23
Share of inhabitants under 15 receiving social aid	%	23
Share of inhabitants between 15 and 17 receiving social aid	%	23
Share of inhabitants over 65 receiving social aid	%	23

**Target 1.4. By 2030, ensure that all men and women, in particular the poor and the vulnerable, have equal rights to economic resources, as well as access to basic services, ownership and control over land and other forms of property, inheritance, natural resources, appropriate new technology and financial services, including microfinance**

**Aspect Access to property / ownership**

Indicator	Unit	Source
Tenants (by degree of urbanisation)	%	29
Mortgaged Homeowners Spending 30 Percent or More of Household Income on Select Owner Costs	%	28
Ratio of the median free-market price of a dwelling unit and the median annual household income	Ratio	1, 2
Ratios between the median price of 1 square metre of highly-developed, developed and raw land and the median household income per month.	Ratio	1
Housing cost overburden where the total housing costs (net of housing allowances) represent more than 40% of the total disposable household income (net of housing allowances), rent Burdened Residents	% of pop	28, 29, 30

**Aspect Affordable housing**

Indicator	Unit	Source
Social/affordable homes delivered	absolute number	8, 10
Social/affordable housing rate	%	8, 21
Building and land subdivision regulations reflect affordability constraints of low income groups (LIG): 1 yes, fully reflecting affordability constraints of LIG 2 yes, reflecting some affordability constraints of LIG 3 no, but revisions are planned 4 no revision is planned given the present constraints	Qualitative	1
Citizens' satisfaction with the local community / municipality with regard to standard of housing and its availability and affordability	%	8, 30

Aspect **Subsidies**

Indicator	Unit	Source
Achievement of targets for creation of new subsidized affordable housing identified in a locally adopted comprehensive housing strategy OR New affordable housing starts are being produced at a rate of 5% annually	yes/no	1, 24
Demonstration of no loss of subsidized affordable housing units due to expiring subsidies in the past 3 years	yes/no	24

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**

Indicator	Unit	Source
Population living in natural hazards prone areas	%	7, 25
Population exposed to flood risk, flood prone population	% of population	8, 12, 16
Housing units built on hazardous locations	n/100'000 housing units	1
Resilience Plans: This involves implementation of risk and vulnerability assessments, financial (capital and operating) plans and technical systems for disaster mitigation addressing natural and human induced disasters and hazards	yes/no	7, 8
Demonstrate progress in reducing the risks and exposure to priority environmental justice conditions for priority neighborhoods	yes/no	24
Demonstrate a measurable reduction in vulnerability and/or increase in resiliency to existing communitywide hazard threats over time	yes/no	24
Reduce over time the number of homes below code standards that are located in designated high risk areas OR Reduce over time the percentage of residents living in designated high-risk areas	yes/no	24

**Target 1.a. Ensure significant mobilization of resources from a variety of sources, including through enhanced development cooperation, in order to provide adequate and predictable means for developing countries, in particular least developed countries, to implement programmes and policies to end poverty in all its dimensions**

Indicator	Unit	Source
Sum of total grants and non-debt-creating inflows directly allocated to poverty reduction programmes as a proportion of GDP	Number	31
Proportion of domestically generated resources allocated by the government directly to poverty reduction programmes	%	31
Proportion of total government spending on essential services (education, health and social protection)	%	31

**Target 1.b. Create sound policy frameworks at the national, regional and international levels, based on pro-poor and gender-sensitive development strategies, to support accelerated investment in poverty eradication actions**

*No indicators identified.*





**2** ZERO HUNGER



Even if most of the world's hungry people live in rural areas of Asia and Sub-Saharan Africa, food is an issue that matters to everyone. As more and more land is populated and soil is sealed, farmers have to produce food for a growing population on less agricultural land. Climate change and air pollution increase negative effects on food production - soils, freshwater, oceans, forests and biodiversity are more and more degraded. Together, all of this puts pressure on the resources humankind depends on, the danger of disasters like droughts and floods is increasing. Fast food finds its way into daily life – frequently implying malnutrition and other health issues like diabetes or overweight.

#### Relevance for cities and local governments

Implementing sustainable agricultural practices can help ensure future food security, depending on increased investment in rural infrastructure and agricultural research. But also cities and local governments have to contribute. They can set an example of healthy and regional food supply: In public institutions like kindergartens, schools, hospitals etc. the provision of food can happen in cooperation with local suppliers and farmers. Local initiatives like nutrition councils can be supported and of course responsibility doesn't end at the city-border. Buying fair trade products in the frame of public procurement is one possibility to think outside the box. Malnutrition and obesity can be faced with public information services, special public training courses or collaborations with sports associations. The waste of food should be avoided.

**END HUNGER,  
ACHIEVE FOOD  
SECURITY AND  
IMPROVED  
NUTRITION**

## SDG 2 | Overview

Among the 122 indicators found for SDG 2, the majority was allocated to target 2.4 (ensure sustainable food systems), covering topics such as land use, city self-sufficiency, volume of food production, eco-practices, eco-policies, circular economy and “food print”.

Indicators of target 2.3 (double productivity and incomes of small-scale food producers) address aspects such as access to land, job creation, farmers’ income and access to financial services, training and local market opportunities via supply/value chains and procurement contracts.

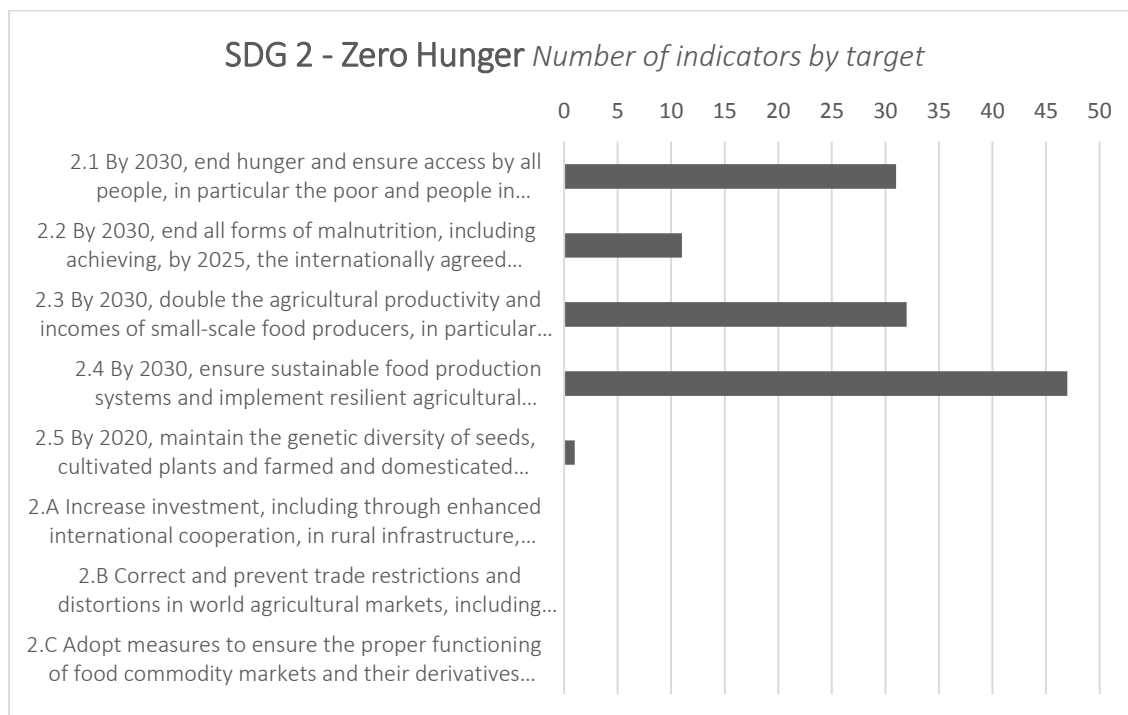
Target 2.1 (ensure food access by all) can count on a variety of indicators addressing aspects of food security, vulnerability and accessibility. Agri-prosumerism indicators were also included here with the idea that urban agriculture can contribute to lower food vulnerability.

Target 2.2 (end all form of malnutrition) gathers a good amount of indicators dealing with general and children malnutrition (undernourishment and over-nourishment), as well as household food baskets.

In contrast, targets 2.5 to 2.c have a very low or inexistent coverage by indicators. This may reflect their more national-level oriented topics. Indeed, indicators found for these targets explicitly refer to national and international responsibilities.

The biggest contribution to this SDG is the RUAF Indicator Framework, especially developed for City Region Food Systems – thus most indicators are applicable to the urban context. The units of measurement of these indicators are mostly quantitative although they are complemented by qualitative efforts.

**Figure 2: Number of indicators identified for targets of SDG 2**





## SDG 2 | Indicators

**Target 2.1. By 2030, end hunger and ensure access by all people, in particular the poor and people in vulnerable situations, including infants, to safe, nutritious and sufficient food all year round**

**Aspect General food security**

Indicator	Unit	Source
Knowledge of local population and its food demand	Rate from 1 to 5 (self-assessment)	8
Level of food security within the population	%, yes/ no, Food Insecurity Experience Scale (FIES)	24, 27
Number of policies and programmes that correspond to the *National Food-Based Dietary Guidelines or other National Food Security and Nutrition Plans	#	27

**Aspect Vulnerability & risk reduction**

Indicator	Unit	Source
Presence of food policies, targets and programmes with a specific focus on socially vulnerable groups (including women)	yes/no, qualitative	27
Existence of vulnerability assessment of all city region food system infrastructure to climate and disaster risks (including households)	yes/no	27
Existence of a food supply disaster risk reduction management plan in the city region	yes/no	27
Number of presences of disaster risk reduction, climate change and emergency plans that include food system concerns	n	27
Number of specific risk reduction and climate adaptation/resilience measures for food production, storage, transport and distribution that are in place/being developed	n	27

Aspect **Access & dependency to aid**

Indicator	Unit	Source
Access of different vulnerable groups (and specifically women/ low income groups) to food system resources and support	#, qualitative	27
Availability and accessibility to emergency food supply for those in crisis	#, qualitative	27
Annual number and type of people supported by food assistance and aid programmes	#, qualitative	27
Number and type of people requiring emergency food aid	#, qualitative	27
Proportion of population using social protection programmes that address food access	%	27
Information available about financial and human resources dedicated to food programmes	-/-	27

Aspect **Financial accessibility**

Indicator	Unit	Source
Household food consumption and expenditure patterns on processed and fast foods by income groups	N/S	27
Total consumer expenditure on “local food”	%	27
Proportional consumer expenditure by income group on key food items (fruit and veg, meat, dairy, grains, pulses)	%	27
Cost of a healthy food basket in the nearby market – (compared with average income levels for specific groups)	EUR	27
Number of hours of paid employment at the average wage required to support the minimum costs of a household healthy food basket	#	27

Aspect **Geographic accessibility**

Indicator	Unit	Source
Number of food retail outlets located in or near to low-income neighbourhoods that sell fresh fruit & vegetables	#	27
Distance from household location to healthy food retail outlets for different income groups (or degree of access to healthy food outlets within 1 km also referred to as “food deserts”)	km	27
Number of public transport options/routes connecting low income neighbourhoods to food retail locations	#	27

Demonstrate an increase over the past 3 years in the percentage of residents within a walkable 1/4-mile of a healthful retail food outlet OR Demonstrate a decrease over the past 3 years in the percentage of residents living in an urban or rural food desert	%, qualitative	24
Satisfaction on the availability of retail shops	Survey to population	11
Number and % of households without access to adequate food storage and cooking facilities (for different income groups)	#, %	27

#### Aspect **Agri-prosumerism**

Indicator	Unit	Source
Does the city have a history or culture of urban farming?	yes/no	13
Are there any areas allocated for urban agriculture/allotment gardening?	yes/no	13
Number of urban agriculture/community gardens within the city region; in low-income areas	#/100'000 inhabitants	27
Number of city residents involved with urban food growing	#/100'000 inhabitants	27
Number and type (youth, women, adults, migrants, income groups) of people growing (part of) their own food in some way and in different locations in the city region	Number by type	27
Availability of and access to urban agriculture gardens for residents in the city region (per location or income group)	-/-	27

Target **2.2 By 2030, end all forms of malnutrition, including achieving, by 2025, the internationally agreed targets on stunting and wasting in children under 5 years of age, and address the nutritional needs of adolescent girls, pregnant and lactating women and older persons**

#### Aspect **General malnutrition**

Indicator	Unit	Source
Severe Material Deprivation (by degree of urbanisation)	%	29
Prevalence of undernourishment	%	6
Obesity rate (BMI <30)	%	28, 30
Number of adults and children with other diet-related disease (total number and percentage of the population, per income group)	#	27

Aspect **Children malnutrition**

Indicator	Unit	Source
Low birth weight (<2500g)	%	28
Number of children being (chronically) malnourished	#	27
Number of stunted or wasted children	#	27
Demonstrate an increase over the past 3 years in the food service sales of fresh fruits and vegetables in the largest public-school district	%, qualitative	24
Annual number and percentage of children benefiting from school feeding programmes	#, %	27

Aspect **Household food basket**

Indicator	Unit	Source
Household food consumption basket on key food items (fruit and veg, meat, dairy, grains, pulses) towards diet quality by income group	Qualitative	27
Number and percentage of households consuming minimum 5 portions of fruits and vegetables per day (per income group)	#, %	27

**Target 2.3** By 2030, double the agricultural productivity and incomes of small-scale food producers, in particular women, indigenous peoples, family farmers, pastoralists and fishers, including through secure and equal access to land, other productive resources and inputs, knowledge, financial services, markets and opportunities for value addition and non-farm employment

Aspect **Access to land**

Indicator	Unit	Source
Access to land and secure ownership/tenure arrangements for food production in the city region for various types of producers		27

Aspect **Job creation**

Indicator	Unit	Source
Jobs created in the city region resulting from growth in the local food system (e.g. seasonal agricultural labour; processing and distribution of city region products; number of jobs created in the circular economy)	Number	27
Types of jobs in the city region food system by sectors; formal/informal; by business category etc.)	Qualitative	27
Existing jobs in the city region food system (this could be separated by sectors; formal/informal; by business category etc.)	Number by sectors, formal/informal, business categories	27
City region food system jobs	% all jobs in the urban system	27
Number of women employed in the food system	Number by food business categories	27
Jobs in sustainable agri-food tourism sector	% total city region tourism jobs	27

Aspect **Farmers' income**

Indicator	Unit	Source
Low-paid jobs in the food system (relative to relevant national benchmark/below living wage equivalent)	#	27
Differences between average wages of women compared to men	% by food business categories	27
Food system workers with low pay rate (*ELPR)	number	27
Food labour policy and social protection regulations (in government and individual food business)	yes/no	27

Aspect **Financial services**

Indicator	Unit	Source
Business planning, finance, development advice, support service available to food enterprises (including small scale businesses and the informal sector)	Number for 100'000 businesses	27

Aspect **Training opportunities**

Indicator	Unit	Source
Number of development support programmes for food businesses with a focus on improving i) performance (efficiency, profitability, marketing) and ii) sustainability, (reduced GHG emissions etc.)	#	27
Number of food education programmes with a comprehensive food systems perspective that includes health and sustainability in i) higher education; ii) vocational training	#	27
Number of businesses offering staff job skills training opportunities - by business category	#	27
Number of employees who have received job skill training in the past year – per individual business/business category	#	27
Number of food system workforce training opportunities in food safety	#	27
Number of opportunities for i) food producers and ii) food businesses to gain ICT skills	#	27
(Youth) producers who have adopted ICT in farming practices	%	27

Aspect **Local market opportunities**

Indicator	Unit	Source
Total volumes of annual local food sales in the city region for different market types (e.g. farmers markets, public sector food procurement, direct to consumers)	t	27
Types of market opportunities available to city region food producers (e.g. farmers markets, public sector food procurement, direct to consumers)	Qualitative	27
Types and numbers of outlets where regional products are sold in the city	Qualitative, #	27
Types and total annual economic value of different city region marketing channels	Qualitative, EUR	27
Number/% of farms in the city region selling direct to consumers (e.g. CSA, box schemes)		27

Aspect **Supply and value chains**

Indicator	Unit	Source
Support services to assist the development of city region food supply chains (eg produce development, transportation, logistics, marketing support, certification protocols)	Qualitative	27
Infrastructure to support city region/local food supply chains (e.g. wholesale markets, warehouse storage, new market outlets)	Qualitative	27
Local supply chain development support specifically focussed at smaller scale city region food enterprises	yes/no	27
Local supply chain development support specifically focussed at on market channels, local supply chains, infrastructure and support needs	yes/no	27
Types and numbers of local supply/value chains in entire chain is located within the city region	Qualitative, #	27

Aspect **Procurement contracts**

Indicator	Unit	Source
Food procurement contracts which purchase products from the city region	#	27
Procurement of local/total food from local sources by public institutions (municipal agencies, publicly funded community organisations, schools, hospitals, health clinics, prisons, universities)	-/-	27
Number of public and private sector organisations adopting fair and equitable food procurement policies (including Fairtrade) and paying a fair price/wage to workers in the food chain	-/-	27

**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**

Aspect **Land use**

Indicator	Unit	Source
Existence of land use, housing and development planning policy consideration of the food system within the city region	yes/no	27
Presence and number of codes/regulations that allow/promote urban and peri-urban/city region food production	yes/no, #	27

Surface areas (current and potentially available currently unfarmed) available for food production within the city region	%, ha/100 000 inhabitants	27, 6
Total surface area and production volumes of agriculture/community gardens within the city region; in low income areas	ha, t	27

### Aspect **Importance of sector**

Indicator	Unit	Source
Number of businesses in the city region food system (per type of food business or per 100,000 population)	#	27
Number of types of businesses in the city region food system	#	27
Number of categories of scale of different types of businesses in the city region food system	#	27
Number of viable independent local food businesses and farms (farm profitability)	#	27
Number of main (> 10% of total gross income) income sources for different individual food businesses, by type of business	#	27
Number of food businesses increasing the diversity of income streams (eg agri-tourism; product value addition; education; training etc.)	#	27

### Aspect **City self-sufficiency**

Indicator	Unit	Source
Number of farms in the city region i) per commodity or by type of farm eg arable, livestock, fruit, vegetables, mixed, poultry, etc, and ii) farm size operation	#	27
Total volumes of annual local food sales in the city region for different market types (e.g. farmers markets, public sector food procurement, direct to consumers)	tons	27
Self-reliance targets for the city region consumption of food	Weight for specific product/healthy food basket/total nutritional requirements or total consumption	27
Percentage of required livestock feed (fodder, recycled waste) in city region production coming from within the city region	%	27
Number of successful and viable food import substitution initiatives	#	27



Food prices for different food products or commodities and for local versus non local foods)	Currency	27
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### Aspect **Local food production**

Indicator	Unit	Source
Total volume and market value of food production within the city region	t, currency	27
Annual volume of food produced in the city region and consumed in the city	tons	27
Percentage of local food supplied from within 100 km of the urban area	%	27
Product volumes and diversity of food imported (from outside the city region) compared with food produced within the city region	t, qualitative	27, 6
Amount of food produced locally as a percentage of total food supplied OR City region food production deficit compared to total consumption requirements (for different products)	t, %	27
Customer preference/willingness to pay for city region/local food products		27

### Aspect **Eco-practices**

Indicator	Unit	Source
Total i) area of agricultural land and ii) number of farms in the city region (rural and urban) for different identifiable production systems (eg organic, agro-ecological, conventional, intensive livestock, GM etc)	ha	27
Total land surface of protected environmentally sensitive areas as a result of food production and farm conservation practices	ha	27
Number of agricultural conservation/biodiversity initiatives operational in the city region	#	27
Number of farms taking part in such initiatives (conservation/biodiversity ones)	#	27
Number of urban and rural ecosystem conservation initiatives and investments operational within the city region food system	#	27
Number of farms in city region practicing agro-forestry (eg using crop rotation and on-farm composting/green manures/mulching to maintain soil and plant health and conserve water etc)	#	27
Share of agricultural land farmed organically / Share of eco-certified agricultural companies in the urban area	%	23, 8
Number of farms reducing livestock density numbers and reporting improved animal health	#	27

Aspect **Eco-policies**

Indicator	Unit	Source
Presence of regulations supporting biodiversity, soil and ecosystem health and/or regulating use of chemical inputs/sustainable farming practices	%	27, 8
Presence of food policies, targets and programmes with a specific focus on environmental sustainability eg sustainable public sector procurement that supports reduction in use of harmful agricultural chemicals, sustainable fishing, etc	yes/no	27
Number of new climate change adaptation plans and approaches on farms (e.g. new crops, new lower input production systems, no till, low till, precision irrigation & sowing, mob grazing etc.)	#	27
Share of sustainable food in public canteen and catering	%	8
Presence and type of multi-stakeholder food policy and planning structures (e.g. food policy councils; food partnerships; food boards; food coalitions)	N/S	27

Aspect **Circular economy**

Indicator	Unit	Source
Number of ways in which city-generated waste is recycled in the city region food system (water, energy, food, organic waste, soil nutrients)	#, qualitative	27
Final Energy Use in agriculture & fisheries sectors	%	13
Annual volume of waste-water originating from the city region (safely) used in city region agricultural production	l	27
Annual amounts of (waste) energy generated in the city region and used in city region food production and processing	kWh	27
Annual volumes of city-generated organic waste recycled in the city region food system	t	27

Aspect **“Food print”**

Indicator	Unit	Source
Agricultural sector drinking water consumption	l/capita/year	13
Final Energy Use in agriculture & fisheries sectors	%	13
Nitrogen surplus per hectare of agricultural land	kg/ha	23
Number of GHG emission assessments undertaken of the various components of the food system (including different food production systems and transport to the city region)	#	27
Number of GHG emission reduction support initiatives related to the food system (e.g. land-use change, agricultural practices, refrigeration and cold-chains, transport, energy use in processing and agro-industries, packaging, cooking/preparation, waste disposal etc)	#, qualitative	27
Number and types of food businesses receiving guidance on how to reduce their GHG emissions	n	27
Number of food and types of businesses actively working to reduce their own GHG emissions	n	27

Target **2.5 By 2020, maintain the genetic diversity of seeds, cultivated plants and farmed and domesticated animals and their related wild species, including through soundly managed and diversified seed and plant banks at the national, regional and international levels, and promote access to and fair and equitable sharing of benefits arising from the utilization of genetic resources and associated traditional knowledge, as internationally agreed**

Indicator	Unit	Source
Number of types of crop varieties and livestock breeds	#, qualitative	27

Target **2.a Increase investment, including through enhanced international co-operation, in rural infrastructure, agricultural research and extension services, technology development and plant and livestock gene banks in order to enhance agricultural productive capacity in developing countries, in particular least developed countries**

*No indicators identified.*

Target **2.b** Correct and prevent trade restrictions and distortions in world agricultural markets, including through the parallel elimination of all forms of agricultural export subsidies and all export measures with equivalent effect, in accordance with the mandate of the Doha Development Round

*No indicators identified.*

Target **2.c** Adopt measures to ensure the proper functioning of food commodity markets and their derivatives and facilitate timely access to market information, including on food reserves, in order to help limit extreme food price volatility

*No indicators identified.*



## 3 GOOD HEALTH AND WELL-BEING



Taking care of the physical and mental health of humanity is important in order to build up prosperous and sustainable societies. Within the last ten years significant improvements have been made in increasing life expectancy and reducing child and maternal mortality as well as HIV infections. Still, more than six million children die before getting 5 years old every year. In our modern society people are getting older than ever before. Their wellbeing and health care has to be guaranteed. Also further, new health related issues have to be taken into account, such as substance abuse, traffic accidents, air- and water-borne pollution as well as bacterial and virus pandemics.

### Relevance for cities and local governments

Cities and their local governments can play a decisive role with regard to the health and well-being of their inhabitants. Proper housing and sanitation, access to food, health and medical facilities have a great influence on the well-being of people. Furthermore, air quality and access to green spaces like parks, gardens, sports fields as well as swimming pools or camping grounds play an important role. To improve the air that people breathe sustainable urban mobility is a key issue in terms of accessible public transport or safe walking and cycling paths. As access to addictive substances like tobacco, alcohol and drugs is easier in cities than in rural areas substance abuse is more common – and thus a challenge for the cities to take care of. Family and other social bonds tend to be less strong in cities, that's why it is important to build substitute structures especially with a view to elderly people who have no family to care for them.

**ENSURE  
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AND PROMOTE  
WELL-BEING FOR  
ALL AT ALL AGES**

## SDG 3 | Overview

The 127 indicators found for SDG 3 show a predominant concentration on targets 3.4 (preventing non-communicable diseases) and 3.9 (environmental pollution impacting human health). Here target 3.4, particularly reflects on the aspects of life expectancy, general and specific mortality rates, food safety, diet and habits influencing health and linked policies and diseases. For target 3.9, there is a considerable amount of indicators related to hazardous chemicals and air quality, as well as pollution from agriculture, electromagnetic fields, noise and light. Indicators typically assess and monitor either levels of pollution, the population exposure or the existence of policies addressing these environmental issues.

Targets 3.8 (universal health coverage) and 3.6 (road traffic injuries and deaths) are well represented by indicators showing high relevance for the corresponding targets. Targets 3.1 (maternal mortality) and 3.2 (child mortality) see fewer indicators, which however reflects the specificity of the phenomena they address.

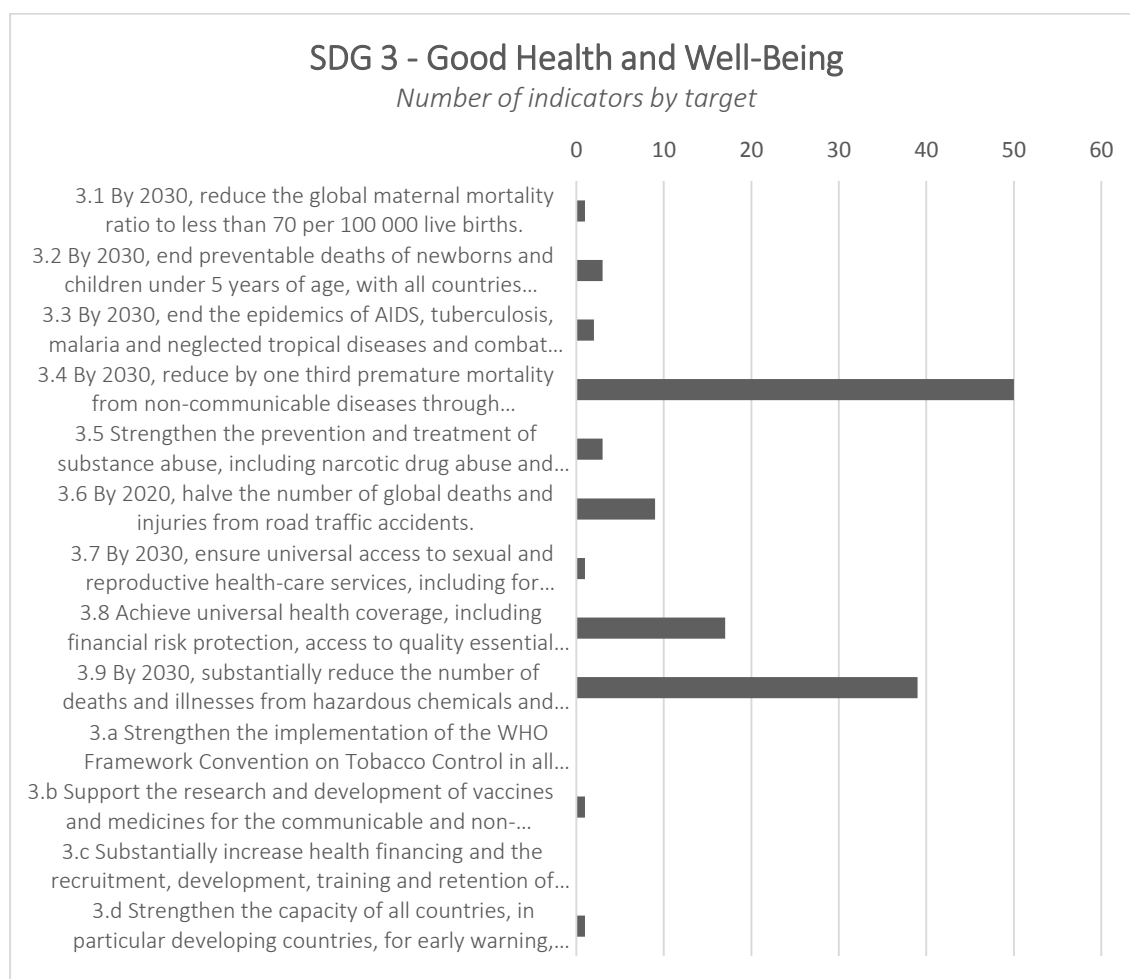
In contrast, targets 3.3 (AIDS and other communicable diseases), 3.5 (substance abuse such as tobacco and other drugs), 3.7 (family planning), 3.b (research for vaccines and medicines), show insufficient coverage by indicators. These gaps may be explained by the fact that related data are typically processed at the national level. They may however also indicate a lower level of priority of these targets at the local level.

Target 3.a (WHO convention on tobacco control) has no corresponding local indicators as it represents rules that govern the production, sale, distribution, advertisement, and taxation of tobacco, which are typically decided upon at national and international level.

In the case of target 3.c (health financing and workforce in developing countries) not a single indicator could be identified across the indicator sets. This can be explained by the target's focus on developing, least-developed countries and small islands – which does not resonate directly with European local governments' concerns.

Target 3.d (risk reduction and management of global health risks) surprisingly shows only one indicator that could be used to address pandemics coming from industrial animal farming locally. There seems to be a serious gap that should be filled with more specific indicators on bacterial and virus risks.

A large amount of the indicator sets included in this study address this SDG, such as The EU Green City Tool, City Prosperity Index, "First generation of EU Common Indicators: Towards a Local Sustainability Profile" and others. In terms of measurement units, the majority of indicators are quantitative, however some qualitative ones particularly address the satisfaction of the population with health services.

**Figure 3: Number of indicators identified for targets of SDG 3**

## SDG 3 | Indicators

Target **3.1 By 2030, reduce the global maternal mortality ratio to less than 70 per 100,000 live births**

Indicator	Unit	Source
Maternal Mortality	n/100 000 live births	4, 7

Target **3.2 By 2030, end preventable deaths of newborns and under-five children**

Indicator	Unit	Source
Number of live births per year	n/1'000	10
Infant mortality (under age one)	n/1'000	10, 25, 28, 30
Child mortality (under age five)	n/100'000	2, 3, 4, 6

Target **3.3 By 2030, end the epidemics of AIDS, tuberculosis, malaria, and neglected tropical diseases and combat hepatitis, water-borne diseases, and other communicable diseases**

Indicator	Unit	Source
Syphilis, Chlamydia, Gonorrhea Cases	n	28
Women ages 15–49 whose blood samples test positive for HIV.	%	1



Target **3.4 By 2030, reduce by one-third pre-mature mortality from non-communicable diseases (NCDs) through prevention and treatment, and promote mental health and wellbeing**

Aspect **General**

Indicator	Unit	Source
Index of physical state (> 14 yrs old)	Questionnaire	25
Index of psychological state (> 14 yrs old)	Questionnaire	25
Demonstrate that the county is a Top US Performer in regards to key behaviors that impact health	yes/no	24

Aspect **Life expectancy**

Indicator	Unit	Source
Life expectancy at birth	Years	2, 4, 6, 7, 8, 20, 21, 25, 30
Healthy life expectancy at birth	Years	25
Life expectancy	(life expectancy - 25) x 50/60 + (32 - Child mortality) x 50/31.92	3
Life expectancy at age 65	Years	8, 25
Demonstrate that the community places in the top 25 percentile of the Best Cities for Successful Aging OR Achieve a Total Index Score of 60 or greater from the Livability Index	yes/no	24
Demonstrate that the county is a Top US Performer in regards to Length of Life and Quality of Life indicators	yes/no	24

Aspect **General mortality**

Indicator	Unit	Source
Total deaths under 65 per year	absolute #	10, 23
Total deaths under 65 per year, male	absolute #	10
Total deaths under 65 per year, female	absolute #	10
Total deaths per year	absolute #	10
Total deaths per year, male	absolute #	10
Total deaths per year, female	absolute #	10

Aspect **Specific mortality**

Indicator	Unit	Source
Suicide rate	#/100 000 in-habitants	6, 25
Dementia mortality rate	#	25
Cancer mortality rate (14 - 64 yrs)	#	25
Heart Attack Deaths	#	28
Deaths under 65 due to diseases of the circulatory or respiratory systems	absolute #	10

Aspect **Food safety**

Indicator	Unit	Source
Presence of food safety legislation and implementation procedures	-/-	27
Number of annual food safety inspections carried out by enforcement officials	-/-	27
Number of food businesses penalised for non-compliance with food safety regulations	-/-	27
Number of food testing samples complying with health and safety regulations	-/-	27

Aspect **Healthy diet**

Indicator	Unit	Source
Persons (>3yrs) with healthy nutrition	%	25
Consumer knowledge on healthy diets for different age and income groups	-/-	27
Household food consumption basket on key food items (fruit and veg, meat, dairy, grains, pulses)/ Diet quality by income group	-/-	27
Household food consumption and expenditure patterns on processed and fast foods by income groups	-/-	27
Number and percentage of households consuming minimum 5 portions of fruits and vegetables per day (per income group)	-/-	27
Number of households preparing meals using fresh seasonal ingredients	-/-	27

Aspect **Diet-related policies**

Indicator	Unit	Source
Number of policies and programmes that correspond to the *National Food-Based Dietary Guidelines or other National Food Security and Nutrition Plans	-/-	27
Presence of policies or regulations promoting healthier food ingredients/consumption	-/-	27
Number of schools teaching healthy eating, nutrition and cookery	-/-	27
Annual number and type of nutritious food promotion initiatives(e.g. aimed at companies or the public)	-/-	27
Annual number of accreditations for meeting specific nutritional standards (for processors, retail and caterers)	-/-	27

Aspect **Food-related diseases**

Indicator	Unit	Source
Numbers of adults and children with other diet-related disease (total number and percentage of the population, per income group)	n	27
City population with type 2 diabetes per income group	n, %	27, 8
Number of health-related incidents/problems due to (excessive) use of pesticides, herbicides, fungicides	-/-	27
Number of food safety incidents and/or prosecutions reported by health authorities	-/-	27

Aspect **Unhealthy diet / obesity**

Indicator	Unit	Source
City population that is overweight or obese—Body Mass Index (BMI) adults and children	%	6, 27
Children with obesity at the time of entering school	%	23
Adults with obesity (> 18yrs)	%	25
Number of people eating fast /processed foods more than once a week/ one more one meal/day	-/-	27
Annual sales of sugary drinks in relation to specific target groups (e.g. in hospitals & schools)	-/-	27

Aspect **Physical activity**

Indicator	Unit	Source
Physical inaction (>14yrs)	%	25
Active lifestyle, proportion of people who report regular exercise	%	30
Demonstrate 20% or less of adults aged 20+ report no leisure time physical activity within the past month	yes/no	24
Sports facilities such as sport fields and indoor sport halls	Survey to population	11
Increase the percentage of high school students that are physically active for 60 minutes per day on 5 or more days OR Increase the percentage of public schools that require some form of physical activity daily, such as physical education classes or recess	yes/no	24
Does your city actively promote walking and cycling as a means of getting around the city?	yes/no	14

Target **3.5 Strengthen prevention and treatment of substance abuse, including narcotic drug abuse and harmful use of alcohol**

Indicator	Unit	Source
Daily smokers (>14yrs)	%	25, 30
Alcohol consuming persons (>14yrs)	%	25
Demonstrate the timely provision of mental health and substance abuse treatment programs and services OR Demonstrate improvements in the timely provision of mental health and substance abuse treatment programs and services	yes/no	24

Target **3.6 By 2020, halve global deaths and injuries from road traffic accidents**

Aspect **Accidents**

Indicator	Unit	Source
Traffic accidents with deaths	#/100 000 inhabitants	4, 7, 25, 29, 30
Traffic accidents with victims (injuries and deaths)	#/100 000 inhabitants	6, 22, 23
Demonstration that pedestrian and bicyclist fatalities are making incremental progress towards zero fatalities by 2040 OR Demonstration that vehicular fatalities are making incremental progress towards zero fatalities by 2040	yes/no	24
Potential lost years in life expectancy	years	22

Aspect **Safer infrastructure**

Indicator	Unit	Source
Does your city have a plan to improve the infrastructure, attractiveness, safety and security of walking and cycling?	yes/no	14
If you have answered YES does this include plans for increasing dedicated infrastructure for cyclists and pedestrians to separate them from heavy motorised traffic and to reduce travel distances?	yes/no	14
Moderated traffic zones	km <sup>2</sup>	22
70% of roadway length are designed for a travel speed of no more than 25 mph	yes/no	24
Minimum intersection density of 300 intersections per square mile	yes/no	24

Target **3.7 By 2030, ensure universal access to sexual and reproductive health care services, including for family planning, information and education, and the integration of reproductive health into national strategies and programs**

Indicator	Unit	Source
Teenage Births	-/-	28, 30

Target **3.8 Achieve universal health coverage (UHC), including financial risk protection, access to quality essential health care services, and access to safe, effective, quality, and affordable essential medicines and vaccines for all**Aspect **Coverage**

Indicator	Unit	Source
Health Insurance Coverage (city inhabitants covered by basic health insurance program or a public health system)	% of population	7, 21, 28
Vaccination Coverage	% of population	4
The percentage of city inhabitants with complete health records electronically accessible to all health providers	%	7
Persons aged > 65 receiving health services at home	%	25

Aspect **Quality**

Indicator	Unit	Source
Demonstrate that at least 1 hospital per 50,000 residents is accredited by the Joint Commission	yes/no	24
Demonstrate that at least 1 hospital has been recognized as a top performer by the Joint Commission	yes/no	24
Demonstrate that the local public health department is accredited by the Public Health Accreditation Board	yes/no	24
Persons aged >65 receiving health services at home	%	25
Average response time for Emergency Services	Minutes	7

Aspect **Capacity**

Indicator	Unit	Source
Number of physicians or doctors	#/100 000 inhabitants	4, 6, 7, 23, 28, 30
Number of nursing and midwifery personnel	#/100 000 inhabitants	6
Number of in-patient public hospital / social welfare organisation beds	#/100 000 inhabitants	6, 7, 25
Health care services, doctors and hospitals	Survey to population	11

Aspect **Satisfaction**

Indicator	Unit	Source
Citizens' satisfaction with the local community / municipality with regard to the level of social and health services	% of distribution of different levels	8
Satisfaction of health services	Survey to population	11
Satisfaction of social services	Survey to population	11
Satisfaction of environment condition among persons > 14 yrs	%	25

**Target 3.9 By 2030 substantially reduce the number of deaths and illnesses from hazardous chemicals and air, water, and soil pollution and contamination**

**Aspect Hazardous chemicals – population’s exposure**

Indicator	Unit	Source
Toxic release in Air, Water and Land	-/-	28
Population exposed to high concentrations of pollutants	% on surface area	12
Proportion of housing units built on hazardous locations (per 100,000 housing units).	%	1
Proportion of households living in a housing unit considered as ‘durable’, i.e. built on a non-hazardous location and has a structure permanent and adequate enough to protect its inhabitants from the extremes of climatic conditions such as rain, heat, cold, humidity. The following locations should be considered as hazardous: - Housing settled in geologically hazardous zones (landslide/earthquake and flood areas); - Housing settled on garbage-mountains; - Housing around high-industrial pollution areas; - Housing around other high-risk zones, e.g. railroads, airports, energy transmission lines. The following durability factors should be considered when categorizing housing units: - Quality of construction (e.g. materials used for wall, floor and roof); - Compliance with local building codes, standards and bye-laws.	%	1

**Aspect Hazardous chemicals - exposure reduction**

Indicator	Unit	Source
Reduce over time the number of homes below code standards that are located in designated high risk areas OR Reduce over time the percentage of residents living in designated high-risk areas	yes/no	24
Demonstrate the community’s total cancer risk from hazardous air pollutants is less than 50 per million OR Demonstrate a reduction in the total cancer risk from hazardous air pollutants in the community over time	yes/no	24
Demonstrate progress in reducing the risks and exposure to priority environmental justice conditions for priority neighborhoods	yes/no	24



Aspect **Air quality - policies & actions**

Indicator	Unit	Source
Clean air policies	Assessment of level of extensiveness (score 0 to 10)	26
Does your city have an action plan to improve air quality?	yes/no	14
If you have answered YES, does your plan include an analysis of the main sources of air pollution?	yes/no	14
If you have answered YES, does your air quality plan include: long and short term objectives to improve air quality (i.e. to meet the EU air quality limit values)?	yes/no	14
If you have answered YES, does your air quality plan include actions to achieve these objectives?	yes/no	14
If you have answered YES, does your air quality plan include an allocation of budget and a time-frame to realise these actions?	yes/no	14
If you have answered YES, has your air quality plan been updated within the last 2 years?	yes/no	14
Do you provide information to citizens on how they can help improve the air quality in their direct environment?	yes/no	14
Decrease the number of tenant complaints regarding IAQ over time	yes/no	24

Aspect **Agriculture pollution**

Indicator	Unit	Source
Number of health-related incidents/problems due to (excessive) use of pesticides, herbicides, fungicides	#	27
Number of incidents of water or farm land pollution and contamination	-/-	27
Presence of regulations supporting biodiversity, soil and ecosystem health and/or regulating use of chemical inputs/sustainable farming practices	-/-	27
Presence of food policies, targets and programmes with a specific focus on environmental sustainability e.g. sustainable public sector procurement that supports reduction in use of harmful agricultural chemicals, sustainable fishing, etc.	-/-	27

Aspect **Electromagnetic fields**

Indicator	Unit	Source
Percentage of mobile network antenna sites in compliance with WHO endorsed Electromagnetic Fields (EMF) exposure guidelines	%	7, 13

Aspect **Noise pollution – population's exposure**

Indicator	Unit	Source
Population living within 300 m of quiet areas	%	13
Population exposed to harmful environmental noise	%	6, 7, 9
Share of population exposed to total noise values of Lden, Ln <sub>night</sub>	%	6,7, 8, 9, 13, 15
Population exposed to total noise values of Lden above 55 dB(A)	%	8, 13
Population exposed to total noise values of Lden above 65 dB(A)	%	13
Daytime ambient noise levels do not exceed 60 dBA in target residential areas	yes/no	24
Population exposed to total noise values of Ln (night noise indicator) above 45 dB(A)	%	13
Population exposed to total noise values of Ln (night noise indicator) above 55 dB(A)	%	8, 10, 13
Does your city have a website / city magazine or other well established information source where citizens can easily find information on noise in the city?	yes/no	14
Does your city have a policy in place to protect more sensitive areas from noise (e.g. hospitals/schools, residential, parks)?	yes/no	14
Satisfaction with noise levels	Survey to population	11

Aspect **Noise pollution – policies & actions**

Indicator	Unit	Source
Does your city have an official up-to-date noise map and action plan to reduce noise levels?	yes/no	14, 19
If you have answered YES, does your action plan include: - The setting long and short term objectives with regards to reduce noise levels? - Defined actions to reduce noise levels, including a time-frame and budget to realise the targets? - The establishment of quiet areas in the city?	yes/no	14

Progress toward locally identified ambient noise targets in commercial and natural areas	yes/no	24
Does your city collect data on the 'quality of its acoustic environment' (i.e. the levels of noise across the city at different times of day)?	yes/no	14
Do you have a graphic representation of the sound level distribution existing in your city (i.e. a noise map) available for different times of day and different days of the week?	yes/no	14

Aspect **Light pollution**

Indicator	Unit	Source
Progress toward locally identified ambient light targets for light glare and/or light trespass	yes/no	24
Sky glow at or below 4 in the Bortle Dark-Sky Scale where the Milky Way is still visible in residential areas OR a Sky Quality Meter reading of 21.2 or greater	yes/no	24

Target **3.a. Strengthen implementation of the Framework Convention on Tobacco Control in all countries as appropriate**

*No indicators identified.*

Target **3.b. Support research and development of vaccines and medicines for the communicable and non-communicable diseases that primarily affect developing countries, provide access to affordable essential medicines and vaccines, in accordance with the Doha Declaration which affirms the right of developing countries to use to the full the provisions in the TRIPS agreement regarding flexibilities to protect public health and, in particular, provide access to medicines for all**

Indicator	Unit	Source
R&D (Research & development) intensity	% of community budget	7, 8, 13, 25, 30

Target **3.c. Increase substantially health financing and the recruitment, development and training and retention of the health workforce in developing countries, especially in LDCs and SIDS**

*No indicators identified.*

Target **3.d. Strengthen the capacity of all countries, particularly developing countries, for early warning, risk reduction, and management of national and global health risks**

Indicator	Unit	Source
Farms reducing livestock density numbers and reporting improved animal health	%	27

*See under SDG 11 target 11.7 for indicators also on green spaces to prevent heat islands that can affect the health of old and vulnerable population, as well as 11.5 and 11.b for climate-caused disasters prevention.*



## 4 QUALITY EDUCATION



Sustainable development needs quality education. It's a key instrument to tackle poverty and develop instruments and strategies to achieve progress in all aspects of sustainable development. Education is still affected by a number of existing and also growing socio-economic inequalities like gender, race, income - and age. Education doesn't stop in adolescence, adult education is an important issue. Train the trainers - also the teachers have to be taken into account. The reasons for lack of quality education are often due to a lack of adequately trained teachers or even poor conditions of schools and equity issues e.g. concerning rural children.

### Relevance for cities and local governments

Quality education and urban development are closely connected. Cities have always been centres of knowledge creation and innovation. National education systems as well as culture often depend on progress made in cities – they act as forerunners. Still many cities do not provide inclusive and equitable education and thus socio-economic inequalities are growing. Primary level education is a direct responsibility of local governments in most countries. Education governance therefore needs to be improved regarding inclusion, accountability and quality, and training programmes should be included in local economic development strategies. A further possibility is the support of cooperation between different schools but also research institutions and local businesses. Lifelong learning should be supported and offered.

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## SDG 4 | Overview

80 indicators are allocated to SDG 4 in a relatively balanced manner, although there is a slight focus on target 4.a (education facilities). Target 4.a has been interpreted here in a broad sense, including the existence and quality of facilities (buildings and material), their integration in urban planning and resource consumption (e.g. water, energy), green procurement practices, the stimulating learning conditions they offer, and the presence of public libraries in the city.

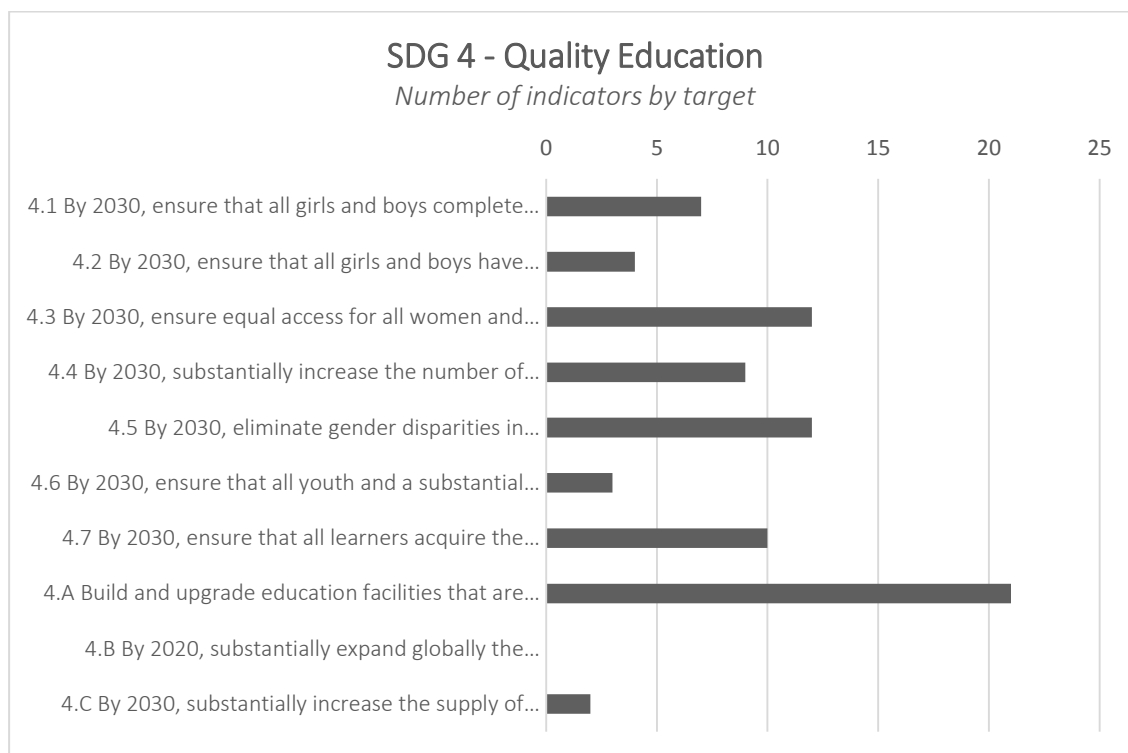
Target 4.3 is the second most represented target with indicators addressing aspects such as youth enrolment and expenditures for different levels of education, especially the post-secondary one (including universities). The phenomenon of early leavers was recurring in various indicator sets.

Target 4.5 (disparities and access to education) is covered by more general indicators as well as more specific ones on gender and vulnerable sub-groups, such as learners with special needs. School feeding programmes were integrated here as the performance of the students at school can be unfairly influenced by lifestyles at home (depending on their socio-economic status).

Targets 4.7, 4.4, 4.1 are addressed by modest but sufficient numbers of indicators. In contrast, target 4.c (increase of qualified teachers) and target 4.b (scholarships) show a very low coverage with indicators as the targets may be more relevant for cities in developing countries.

The indicators were mostly provided by the RFSC, ISTAT, STAR indicator sets - the majority of their units of measurement being percentages, slightly missing more qualitative indicators.

**Figure 4: Number of indicators identified for targets of SDG 4**



## SDG 4 | Indicators

**Target 4.1** By 2030, ensure that all girls and boys complete free, equitable and quality primary and secondary education leading to relevant and Goal-4 effective learning outcomes

Indicator	Unit	Source
School Enrolment of children	%	2, 6, 7, 28
Students completing primary education (survival rate)	%	6
Completion of secondary school (25 - 64 yrs)	%	25, 30
Demonstrate progress towards a 90% average 4-year adjusted cohort high school graduation rate for all schools in the jurisdiction in the past 3 years	N/S	24
High School Dropout Rate	%	28
How old were you when you stopped full-time education?	Survey to population	11
Mean years of schooling	#	4

**Target 4.2** By 2030, ensure that all girls and boys have access to quality early childhood development, care and pre-primary education so that they are ready for primary education

Indicator	Unit	Source
Childcare under 3 years / Pre-school age children (0-3) covered by (public and private) day-care centres	%	7, 23, 25
Childcare between 3 and 5 years	%	23, 25, 30
Childcare by low-income working families	%	8
Early Childhood Education	%	4

**Target 4.3** By 2030, ensure equal access for all women and men to affordable and quality technical, vocational and tertiary education, including university

**Aspect Post-secondary education**

Indicator	Unit	Source
Number of people gaining the above i) higher education; ii) vocational training	#	27
Students in higher education / Net enrolment rate in higher education	%	4, 16, 17, 25
Population aged 18-24 who are early leavers from education and training	%	8, 10, 23, 25, 30
Participation rate of youth and adults in formal and non-formal education and training in the last 12 months	% of 15 - 24 year old AND Percent-age of > 25 year old	8
Demonstrate progress towards 60% post-secondary attainment by 2025 including high-quality credentials and associate, bachelor, and graduate/professional degree OR Demonstrate progress towards 45% post-secondary attainment by 2025 including associate, bachelor, and graduate/professional degree	yes/no	24

**Aspect Expenditure for post-secondary education**

Indicator	Unit	Source
Public expenditure on education/training	%	8
Allocation of expenditure of local authority for ongoing vocational training and exchange programmes	% of total budget of local authority	8



Aspect **University**

Indicator	Unit	Source
Quality of Higher Education	N/S	28
University graduation success rate	%	25
Population Above 25 Years of Age with an Undergraduate Degree or Above	%	28
Number of higher education degrees per 100 000 population	#/100 000 inhabitants	6, 7, 19
University appearances in rankings:QS, Shanghai, Leiden and Times (JRC, Creative Cities)	# of appearances in rankings	30

Target **4.4 By 2030, substantially increase the number of youth and adults who have relevant skills, including technical and vocational skills, for employment, decent jobs and entrepreneurship**

Aspect **Workforce & marketplace needs**

Indicator	Unit	Source
IT competence of persons aged 16-74	%	25
Disponibility of the active population with high qualification	%	22
Skills gaps in the current workforce	%	8
Lifelong learning (citizens 25 - 64 years)	%	8, 30
Over qualification	% of employees	25
Share of academics	% of employees	25

Aspect **Role of businesses**

Indicator	Unit	Source
Number of businesses offering staff job skills training opportunities - by business category	#	27
Number of employees who have received job skill training in the past year – per individual business/business category	#	27
Number of opportunities for i) food producers and ii) food businesses to gain ICT skills	#	27

Aspect **4.5 By 2030, eliminate gender disparities in education and ensure equal access to all levels of education and vocational training for the vulnerable, including persons with disabilities, indigenous peoples and children in vulnerable situations**Aspect **General**

Indicator	Unit	Source
Combined enrollment (all levels of education)	%	3
Equitable secondary school enrollment	%	4
Demonstrate an increasing percentage of individuals within each racial, ethnic, and gender subgroup have obtained a high-quality post-secondary educational degree or credential over time	%	24

Aspect **Gender**

Indicator	Unit	Source
Female school-aged population enrolled in primary, secondary and tertiary levels in public and private schools	%	1, 6
Percentage of population with tertiary level of education by gender (2003-2012)	%	20

Aspect **Subgroups**

Indicator	Unit	Source
Increase, or maintain at 85% or above, the percentage of students meeting or exceeding third grade reading proficiency standards for all third grade students in the jurisdiction from each race/ethnicity, special education, English language learners, and low-income subgroup of students	%	24
Increase, or maintain at 90% or above, the average 4-year adjusted cohort high school graduation rate for all students in all public schools in the jurisdiction from each race/ethnicity, special education, English language learners, and low-income subgroup of students	%	24
Relation between domestic and migrant students leaving school without any exam	%	23
Young people from low income backgrounds progressing to higher education	%	8

Aspect **Learners with special needs**

Indicator	Unit	Source
Adults with learning disabilities	% of >18yr old	8
Share of students needing special support	%	23

Aspect **School feeding programmes**

Indicator	Unit	Source
Annual number and percentage of children benefiting from school feeding programmes	#	27

Aspect **4.6 By 2030, ensure that all youth and a substantial proportion of adults, both men and women, achieve literacy and numeracy**

Indicator	Unit	Source
Adult literacy rate, percentage of the population, male and female, aged 15 years-old and over who can both read and write with understanding a short simple statement on everyday life	%	1, 2, 4, 7, 21
Demonstrate at least 85% of third grade public school students meet or exceed reading proficiency standards OR Demonstrate progress towards 85% of third grade public school students meeting or exceeding reading proficiency standards	%	24

**Target 4.7** By 2030, ensure that all learners acquire the knowledge and skills needed to promote sustainable development, including, among others, through education for sustainable development and sustainable life-styles, human rights, gender equality, promotion of a culture of peace and non-violence, global citizenship and appreciation of cultural diversity and of culture's contribution to sustainable development

**Target Early environmental awareness**

Indicator	Unit	Source
Number of schools with environmental education programs	#	21
Education and Awareness: Is Biodiversity or Nature Awareness Included in the School Curriculum	Index	5
Education and Awareness: Number of Outreach or Public Awareness Events Held in the City per year	#	5
Describe cohesive programs, services, or annual events that educate residents about wide-ranging sustainability issues in the community OR Implement a local sustainability literacy program within the local public school system	Qualitative	24

**Aspect Healthy lifestyles promotion**

Indicator	Unit	Source
Number of schools teaching healthy eating, nutrition and cookery	#	27
Number of school students participating in farm to school education programmes	#	27
Number of food education programmes with a comprehensive food systems perspective that includes health and sustainability in i) higher education; ii) vocational training	#	27
Numbers of young people educated in quality food, nutrition and environmental protection through local food programmes	#	27
Increase the percentage of high school students that are physically active for 60 minutes per day on 5 or more days OR Increase the percentage of public schools that require some form of physical activity daily, such as physical education classes or recess	%	24
Demonstrate an increase over the past 3 years in the food service sales of fresh fruits and vegetables in the largest public school district	N/S	24

**Target 4.a** Build and upgrade education facilities that are child, disability and gender sensitive and provide safe, nonviolent, inclusive and effective learning environments for all

**Aspect Buildings**

Indicator	Unit	Source
Schools and other educational facilities	Survey to population	11
Schools extended services	%	8
Satisfaction with schools	% of different levels	8, 28
Percentage of students with classroom access to ICT facilities	%	7
Demonstrate that all Indoor Air Quality problems in schools are resolved in a timely manner	yes/no	24

**Aspect Integrated urban planning**

Indicator	Unit	Source
Children's journeys to and from school (mode of transportation used by children to travel between home and school)	Qualitative	9
In your transport planning processes, do you systematically involve: - all city departments that might have an interest in how the transport systems functions, including transport; land-use and spatial planning; social services; energy; health; education; enforcement and policing? - schools and/or other educational establishments?	yes/no	14

**Aspect Resource consumption**

Indicator	Unit	Source
Does your city collect (or have access to) good data on drinking water consumption by public services (i.e. schools, hospitals, municipal buildings etc.)	yes/no	14
Does your city collect (or have access to) good data on energy consumption (i.e. demand for gas, electricity etc.) by public services (i.e. schools, hospitals, municipal buildings etc.)	yes/no	14
Does your city have a strategy or plan for increasing energy efficiency / reducing energy demand in public services (i.e. schools, hospitals, municipal buildings etc.)	yes/no	14

Has your city set specific targets for increasing energy efficiency / reducing energy demand in public services (i.e. schools, hospitals, municipal buildings etc.)	yes/no	14
Does your city systematically collect data on the generation, collection and treatment of waste from public services (i.e. schools, hospitals, municipal buildings etc.)	yes/no	14

Aspect **Procurement**

Indicator	Unit	Source
Green public procurement procedures and purchasing (Photocopier/printer, washing/Cleaning detergents, Building materials, Office furniture, School furniture, Food, toilet towels, etc)	% on total purchases	19
Procurement of local/total food from local sources by public institutions (municipal agencies, publicly funded community organisations, schools, hospitals, health clinics, prisons, universities)	N/S	27

Aspect **Effective learning conditions**

Indicator	Unit	Source
Types of meal options available to school children	Qualitative	27
Recreation and Education: Number of Formal Education Visits per Child Below 16 Years to Parks	#	5
Does your city have a policy in place to protect more sensitive areas from noise (e.g. hospitals/schools, residential, parks)?	yes/no	14
Existence of violence at school, among children: 1 recurrent violence with injuries at least on a monthly basis requiring police intervention 2 some occasional violence with injury 3 some occasional violence without injury 4 none	Rate (1 to 4)	1
Demonstrate that the average rate of violent victimizations at schools is less than 10 per 1,000 students aged 12-18 in the jurisdiction	%	24

Aspect **Public libraries**

Indicator	Unit	Source
Number of Public Libraries	#	4
Use of public libraries	% (of adults)	8

**Target 4.b** By 2020, substantially expand globally the number of scholarships available to developing countries, in particular least developed countries, small island developing States and African countries, for enrolment in higher education, including vocational training and information and communications technology, technical, engineering and scientific programmes, in developed countries and other developing countries

*No indicators identified.*

**Target 4.c** By 2030, substantially increase the supply of qualified teachers, including through international cooperation for teacher training in developing countries, especially least developed countries and small island developing states

Indicator	Unit	Source
Demonstrate improvements in workforce training outcomes for participants over the past 3 years	yes/no	24
Percentage of your administration's staff that participated in training sessions and/or exchange programmes related to integrated and sustainable urban development	%	8







**5** GENDER  
EQUALITY



Under Millennium Development Goal #3 progress has been made towards gender empowerment, resulting in equal access to primary education in many regions. Still, women and girls are often more affected than men and boys by poverty, food insecurity and environmental pollution. SDG 5 aims at ending discrimination and violence against women and girls as well as ensuring that they have equal opportunities in life that boys and men already have. At the current time, 1 in 5 women and girls between the ages of 15-49 have reported experiencing physical or sexual violence by an intimate partner within a 12-month period and 49 countries currently have no laws protecting women from domestic violence (UN 2019).

#### Relevance for cities and local governments

Growing cities imply opportunities for social, economic, cultural and political participation that facilitate gender empowerment. Still not only gender, race, ethnicity or age, but also inherited income and status are discriminatory grounds for women and girls in cities – especially manifested in illegal settlements where levels of vulnerability disproportionately affect women, youth and children. Cities can address such cross-cutting issues in order to have direct impact on breaking these circles of social exclusion. Local governments need to set a good example through non-discriminatory service provision to citizens and fair employment practices. Getting more female leaders in local governments empowers women but also challenges gender stereotypes and sets an example to young girls. Targeting maternity and childcare benefits, as well as workforce integration trainings would be a further possibility.

**ACHIEVE  
GENDER  
EQUALITY AND  
EMPOWER ALL  
WOMEN AND  
GIRLS.**

## SDG 5 | Overview

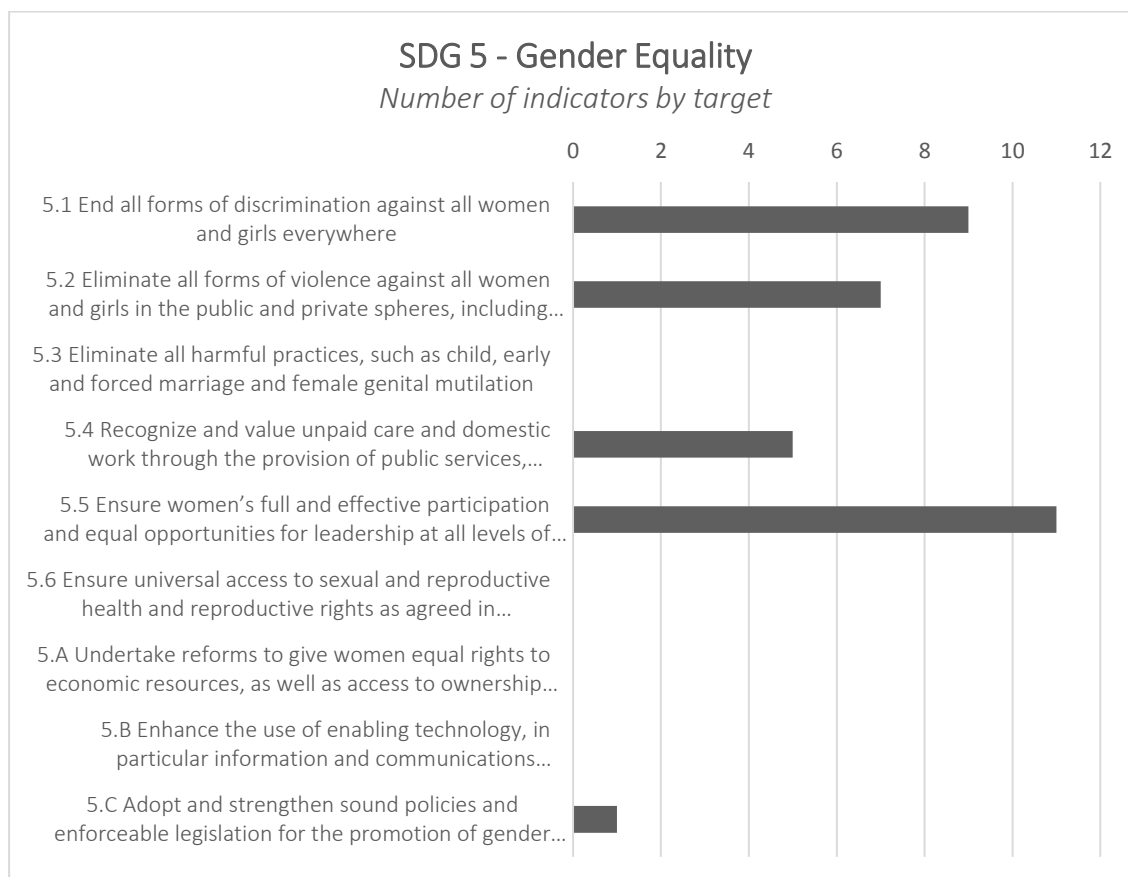
For SDG 5, 33 indicators were found and could be allocated among half of the targets. Target 5.5 (women leadership) is the most represented target, covering political participation of women and their access to decision-making positions, as well as women's representation in the local government.

Target 5.1 (end discrimination) follows in terms of numbers of indicators, addressing aspects such as education, employment and income domains.

Target 5.2 (violence against women) is mirrored by key quantitative and qualitative indicators. In contrast, target 5.4 (recognition of domestic work) and target 5.c (empowerment policies) show gaps in the availability of suitable indicators in order to fully reflect all aspects of these targets.

For all remaining targets, no indicators could be allocated. This is the case for the targets 5.3 (elimination of harmful practices), 5.6 (reproductive rights), 5.a (ownership by women), and 5.b (empowerment by technology). Although these targets appear to be “straight to the point”, indicators have not been included in any of the sets reflected in this study – which might give an indication what further development work needs to be done.

**Figure 5: Number of indicators identified for targets of SDG 5**



## SDG 5 | Indicators

**Target 5.1. End all forms of discrimination against all women and girls everywhere**

**Aspect Education**

Indicator	Unit	Source
Percentage of Population with Tertiary Level of Education by gender (2003-2012)	%	1, 20
Equitable Secondary School Enrolment	-/-	4

**Aspect Employment**

Indicator	Unit	Source
Gender unemployment gap	%	23, 30
Female employment	-/-	19, 20, 8, 4, 10
Employment rate of mothers aged 25 - 49	%	25

**Aspect Income**

Indicator	Unit	Source
Gender wage gap	%	7, 8, 23, 27, 28, 30
Proportion of i) male and ii) female food system workers earning the living wage	-/-	27
Average annual number of men-headed and women-headed households evicted from their dwellings during the past five years (1998-2003 five-year period).	#	1
Percentage of women and men-headed households situated below the poverty line (national or locally-defined poverty line).	%	1

**Target 5.2 Eliminate all forms of violence against all women and girls in the public and private spheres, including trafficking and sexual and other types of exploitation**

Indicator	Unit	Source
Physical assaults to women aged 16-70	#	25
Number of violent crimes against women	#/100 000 inh.	6, 25
Domestic violence in households	%	25
Number of reported homicides (male and female victims) annually per 10,000 population.	#/10 000 inh.	1
Sexual Violence Incidences / Rapes Reported	#/100'000 inh.	25, 28
Safety in neighbourhood perception of persons aged >14years	%	25, 30
Anxiety towards sexual assaults within persons aged 14 and more	%	25

**Target 5.3 Eliminate all harmful practices, such as child, early and forced marriage and female genital mutilation**

*No indicators identified.*

**Target 5.4 Recognize and value unpaid care and domestic work through the provision of public services, infrastructure and social protection policies and the promotion of shared responsibility within the household and the family as nationally**

Indicator	Unit	Source
Women's share of household work	%	25
Early Childhood Education	%	4
Childcare between 0 and 3 years	%	7, 23, 25
Childcare between 3 and 5 years	%	23, 25, 30
Childcare by low-income working families	%	8

**Target 5.5 Ensure women's full and effective participation and equal opportunities for leadership at all levels of decision making in political, economic and public life**

#### **Women political participation**

<b>Indicator</b>	<b>Unit</b>	<b>Source</b>
Adult (male and female) population (having reached voting age) who voted in the last municipal election	%	1

#### **Aspect Women in decision-making**

<b>Indicator</b>	<b>Unit</b>	<b>Source</b>
Share of women within local politicians	%	25
City representatives who are women	%	19, 6, 25, 23, 4, 27
Women in regional assemblies / in local legislative branches of government	%	30
Demonstrate that appointments to local advisory boards and commissions reflect the gender, racial, and ethnic diversity of the community OR Demonstrate incremental progress in appointing local advisory boards and commission members that reflect the gender, racial, and ethnic diversity of the community	yes/no	24
Demonstrate that hiring to local government leadership positions reflects the gender, racial, and ethnic diversity of the community	yes/no	24
Share of women in decision-making organisations	%	25

#### **Aspect Women working in the local authority**

<b>Indicator</b>	<b>Unit</b>	<b>Source</b>
Proportion of women lawyers working in the local authority	%	1
Proportion of women Urban Planners working in the local authority	%	1
Proportion of women Engineers working in the local authority	%	1
Proportion of women Architects working in the local authority	%	1

**Target 5.6** Ensure universal access to sexual and reproductive health and reproductive rights as agreed in accordance with the Programme of Action of the International Conference on Population and Development and the Beijing Platform for Action and the outcome documents of their review conferences

*No indicators identified.*

**Target 5.a** Undertake reforms to give women equal rights to economic resources, as well as access to ownership and control over land and other forms of property, financial services, inheritance and natural resources, in accordance with national laws

*No indicators identified.*

**Target 5.b** Enhance the use of enabling technology, in particular information and communications technology, to promote the empowerment of women

*No indicators identified.*

**Target 5.c** Adopt and strengthen sound policies and enforceable legislation for the promotion of gender equality and the empowerment of all women and girls at all levels

Indicator	Unit	Source
Do you have a gender equality action plan?	yes/no	8



## 6 CLEAN WATER AND SANITATION



Summers are getting hotter and dryer – and the global population is supposed to reach 9.6 billion by 2050. This requires the urgent need of a better management of water and sanitation to guarantee human wellbeing, while preserving the resilience of the ecosystem. At the current time, more than 2 billion people are living with the risk of reduced access to freshwater resources and by 2050, at least one in four people is likely to live in a country affected by chronic or recurring shortages of fresh water. Good water quality is not only a matter of the so called developing countries – also in Europe a lot of people prefer buying water in bottles than drinking the water that comes out of their taps. Bottles that often are made out of plastic – and mean a high waste volume.

### Relevance for cities and local governments

Due to freshwater lakes, rivers and underground water sources water supply seems to be unlimited in Europe. But environmental pollution, negative impacts of climate change as well as population growth and the increasing urbanisation have a highly negative impact on the water supply and its quality – making it a challenge especially for cities. Only 20% of the water provided by public water supply is really used. The other 80% go back to the environment primarily as treated wastewater. Sealed and concreted surfaces cause that rain water flows into the waste water system – instead of feeding the aquifers. If cities change their water supply systems they can reuse the so called grey water, such as water from taps, showers and the kitchen. It can be reused, for example, for toilet flushing.

**ENSURE  
AVAILABILITY  
AND  
SUSTAINABLE  
MANAGEMENT  
OF WATER AND  
SANITATION  
FOR ALL.**

## SDG 6 | Overview

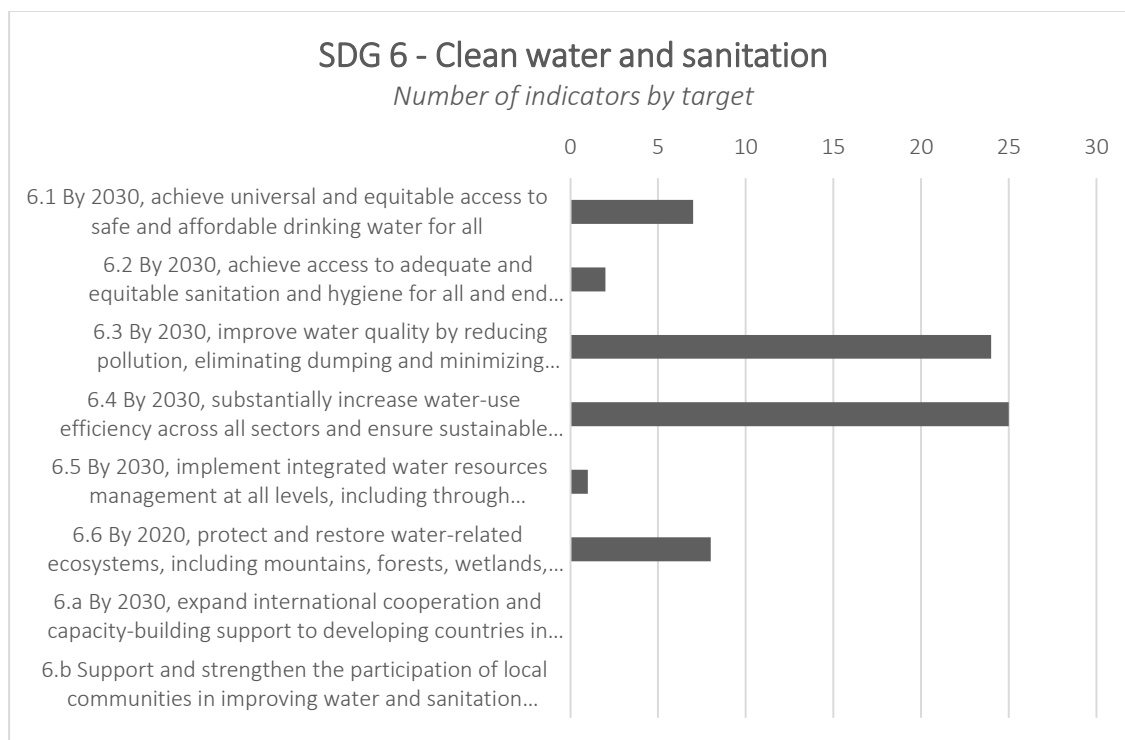
59 indicators were identified to potentially monitor progress towards SDG 6 locally. Targets 6.4 (water use efficiency) and 6.3 (wastewater reduction) have most of the indicators allocated. Proper water management strategies or policies help reduce fresh water consumption as well as the amount of treated water. Target 6.4 gathers indicators dealing with water use efficiency, water use reduction, sustainable withdrawal and stormwater management. Indicators for target 6.3 focus on wastewater treatment capacity, the quality of treatment, and how well the population is connected to it. They also address nutrient and nitrogen recovery and ground water quality. Target 6.2 (sanitation) is linked to 6.3 but only one indicator was found that specifically covers that target well.

Target 6.6 (water-related ecosystems) is strongly linked to target 15.1 (freshwater ecosystems). Target 6.1 (access to water) refers specifically to drinking water, its quality, costs and irregularities in supply, as well as specific sector consumption.

In contrast, target 6.5 (transboundary water management) is poorly represented and for target 6.b (local communities support) not a single indicator could be allocated, although both targets could be considered important and relevant for the local level.

Target 6.a (international cooperation and capacity building) has no indicators allocated either, however this gap seems justifiable with the international dimension of this target.

**Figure 6: Number of indicators identified for targets of SDG 6**





## SDG 6 | Indicators

**Target 6.1** By 2030, achieve universal and equitable access to safe and affordable drinking water for all

### General access

Indicator	Unit	Source
Does your city collect (or have access to) good data on drinking water consumption by: - Private homes / households? - Businesses/industry? - Public services (i.e. schools, hospitals, municipal buildings etc.)	yes/no	14
Population connected to potable drinking water system	%	10
Total drinking water consumption	m <sup>3</sup> /year	13
Median price paid per 1000 litres of water in euros, at the time of year when water is most expensive	EUR/1 000 litres	1
How many days of non-compliance with the Drinking Water Directive?	Days	13

**Aspect Consumption in sectors**

Indicator	Unit	Source
Agricultural sector drinking water consumption	l/capita/year	13
Agricultural sector drinking water consumption	l/capita/year	13
Tourism sector drinking water consumption	litres/capita/year	13
Does your city collect (or have access to) good data on drinking water consumption by public services (i.e. schools, hospitals, municipal buildings etc.)	yes/no	14

**Target 6.2** By 2030, achieve access to adequate and equitable sanitation and hygiene for all and end open defecation, paying special attention to the needs of women and girls and those in vulnerable situations

Indicator	Unit	Source
Population with access to improved sanitation	%	6
Households Without Access to Piped Water and Sanitation	%	28

**Target 6.3** By 2030, improve water quality by reducing pollution, eliminating dumping and minimizing release of hazardous chemicals and materials, halving the proportion of untreated wastewater and substantially increasing recycling and safe reuse globally

**Aspect** Population's connection to sewage systems

Indicator	Unit	Source
Population connected to sewerage treatment system	%	1, 10, 30
Secondary WWT - Population connected to waste water treatment systems with at least secondary treatment	%	8
Tertiary WWT - Population connected to tertiary sewage treatment	%	18

**Aspect** Urban wastewater treatment plants (UWWTP)

Indicator	Unit	Source
Number of WWTP	#	13
Treatment level which is applied in each UWWTP: secondary or more stringent	Treatment level	13
Annual amounts of generated sewage sludge	t/year	13
Percentage of all wastewater undergoing some form of treatment (primary, secondary and tertiary)	%	1, 30
Average age sewer	years	18
UWWTPs organic design capacity	PE	13

If the city is located in an EU Member State, indicate whether the UWWTP complies with the treatment requirements under the urban wastewater treatment plants	yes/no	13
UWWTPs annual discharged loads (load or concentration) of BOD5, COD, Ntot and Ptot	m³/a	13

#### Aspect **Resource recovery**

Indicator	Unit	Source
Is your city reusing waste water or sewage sludge?	yes/no	14
Sewage sludge recycling; Percentage of sewage sludge recycled or re-used	%	18
Does your city have a plan or project for nutrient recovery from waste water?	yes/no	14
Does your city set targets for the reuse of the sludge from waste water plants?	yes/no	14
Nutrient recovery from the wastewater system	% nutrient recovery from the wastewater system	18
Energy recovery from the wastewater system	%	18
Operation cost recovery from wastewater	Revenues/operating costs	18

#### Aspect **Ground water quality**

Indicator	Unit	Source
Ground water of good chemical status	%	30
Share of ground water samples showing nitrate limit exceedance	%	23
Number of incidents of water or farm land pollution and contamination	no	27
Jurisdiction or water provider participates in water quality research on contaminants of emerging concern	yes/no	24
The waste water management plan contain actions to prevent ground water pollution	yes/no	14
Does your city actively promote any of the following 'nature based solutions' (NBS): (e.g. via legal obligations, or economic such as taxes and subsidies, public-private partnerships with business sector etc) - Green roofs, green walls? - SUDS (Sustainable Drainage Systems)?	yes/no	14

- Natural flood protection measures?
- Natural waste water treatment solutions?
- Protection of watersheds to safeguard infiltration areas for the city's drinking water
- Other measures?

**Target 6.4** By 2030, substantially increase water-use efficiency across all sectors and ensure sustainable withdrawals and supply of freshwater to address water scarcity and substantially reduce the number of people suffering from water scarcity

**Aspect Water-use efficiency**

Indicator	Unit	Source
Management and action plans (application of the concept of Integrated Water Resources Management (IWRM) in the city)	score (1-10) self assessment	18
Water efficiency and treatment policies. Assessment of level of comprehensiveness to improve the efficiency of water usage and the treatment of wastewater (score 0 to 10)	score (1-10)	26
WWT energy efficiency. Qualitative (score 0 to 10) self-assessment	score (1-10)	18
Percentage of the water distribution system monitored by ICT	%	7

**Aspect Water-use reduction**

Indicator	Unit	Source
Does your city have a water management plan? (This plan could be set up for your city only or include several municipalities)	yes/no	14
Has your city taken on one or more of the following measures to save water: <ul style="list-style-type: none"> <li>- Adjust urban parks and green to cope with less water?</li> <li>- Inform citizens on sustainable gardening practices?</li> <li>- Install water metering in households and link with water consumption pricing schemes?</li> <li>- Establish or enhance grey water recycling projects?</li> <li>- Inform on and promote the use of rainwater in residential buildings for e.g. toilets, washing machines, etc. (building requirement, permitting, etc.)?</li> <li>- Project to diminish losses through the supply system (detecting and solving leaks)?</li> <li>- Other innovative measures?</li> </ul>	yes/no	14
Does your city set specific targets for reducing drinking water consumption for: <ul style="list-style-type: none"> <li>- Private homes / households?</li> </ul>	yes/no	14

- Businesses/industry?
- Public services (i.e. schools, hospitals, municipal buildings etc.)

Demonstration of a 10% decrease in local government-owned public infrastructure water use	yes/no	24
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## Aspect **Withdrawals**

Indicator	Unit	Source
Source of water (surface water & ground water)	%	13
Water abstraction	million m <sup>3</sup>	17
Water consumption for all domestic uses (excludes industrial)	l/day/capita	1, 8
Demonstrate a local Watershed Health Index of greater than or equal to 70 OR Demonstrate that the amount of water withdrawn from the system for human uses does not exceed the amount of freshwater entering the system through precipitation, river flow, and other sources	Yes/no	24
Ratio of water withdrawals for human use to the total renewable water resources is less than 0.2 OR Ratio of water withdrawals for human use to the total renewable, stored, and allocated water resources is less than 0.2	yes/no	24
Demonstrate a local Watershed Vulnerability Index of less than 70	yes/no	24
Normalized Deficit (Water Stress) Index	index	28
Annual water losses	M3/person/year	20
Irregularities in water supply	% of households	25
Does your city actively promote any of the following 'nature based solutions' (NBS): (e.g. via legal obligations, or economic such as taxes and subsidies, public-private partnerships with business sector etc) - Green roofs, green walls? - SUDS (Sustainable Drainage Systems)? - Natural flood protection measures? - Natural waste water treatment solutions? - Protection of watersheds to safeguard infiltration areas for the city's drinking water - Other measures?	yes/no	14

Aspect **Stormwater**

Indicator	Unit	Source
Storm water separation. Percentage of the wastewater system for which sanitary sewage and storm water flows are separated	%	18
Use of natural water retention measures (www.nwrm.eu) and/or sustainable urban drainage systems (SUDS)?	yes/no	13
Storm water overflows	#	13
Population exposed to flood risk	% of population	8, 29
Annual proportion of COD-loads discharged via storm water overflows	%	13
Demonstrate that 35% of the jurisdiction's land area has designated green stormwater infrastructure providing bioretention and infiltration services OR Demonstrate that no more than 65% of the jurisdiction's land area contains impervious surface	yes/no	24
Percentage of drainage / storm water system monitored by ICT	%	7

Target **6.5 By 2030, implement integrated water resources management at all levels, including through transboundary cooperation as appropriate**

Indicator	Unit	Source
Annual volume of waste-water originating from the city region (safely) used in city region agricultural production	m <sup>3</sup> /a	27

Target **6.6 By 2020, protect and restore water-related ecosystems, including mountains, forests, wetlands, rivers, aquifers and lakes**

Indicator	Unit	Source
Surface water of good chemical status	%	30
Status (quality & contamination) of natural resources (water, land, forest, biodiversity)	Index	27

Target **6.a** By 2030, expand international cooperation and capacity-building support to developing countries in water- and sanitation-related activities and programmes, including water harvesting, desalination, water efficiency, wastewater treatment, recycling and reuse technologies

*No indicators identified.*

Target **6.b** Support and strengthen the participation of local communities in improving water and sanitation management

*No indicators identified.*







## 7 AFFORDABLE AND CLEAN ENERGY



Energy is needed for most of the global challenges and opportunities the world faces today. That's why access to energy for all is essential. Be it for jobs, security, climate change, food production or increasing incomes. As the global energy supply still consists for about 81.3% of - finite - fossil fuels, the transition to renewable energy is the main intention of SDG 7: Using the diversity of resources, combined with modern energy efficient technologies that address climate change mitigation, efficient energy generation and demand, and resilient energy infrastructure.

### Relevance for cities and local governments

In cities, most energy is consumed in the building, transport, water and waste sectors - with greenhouse gas emissions released due to burning fossil fuels. According to their geographical conditions as well as their design and planning cities have to move towards more decentralized and smart systems. Even if energy is often provided by private sector or national agencies, local governments can accelerate the local sustainable energy transition. They can provide leadership, guidance and regulations to support the energy transition. They can also develop or redesign energy efficient buildings. Another important tool is eco-mobility that reduces energy consumption and switches to clean fuels. Cities can encourage the use of renewables in procurement practices and in regulations for energy use by homeowners, public services, and if possible private businesses. Last but not least providing financial incentives like congestion charges or tax discounts for the use of green energy is another helpful way to encourage change.

**ENSURE  
ACCESS TO  
AFFORDABLE,  
RELIABLE,  
SUSTAINABLE  
AND MODERN  
ENERGY FOR  
ALL.**

## SDG 7 | Overview

Most indicators found for SDG 7 could be allocated to target 7.2 (share of renewable energy), including also aspects such as residential and public energy consumption, as well as local policies for cleaner and more efficient energy production.

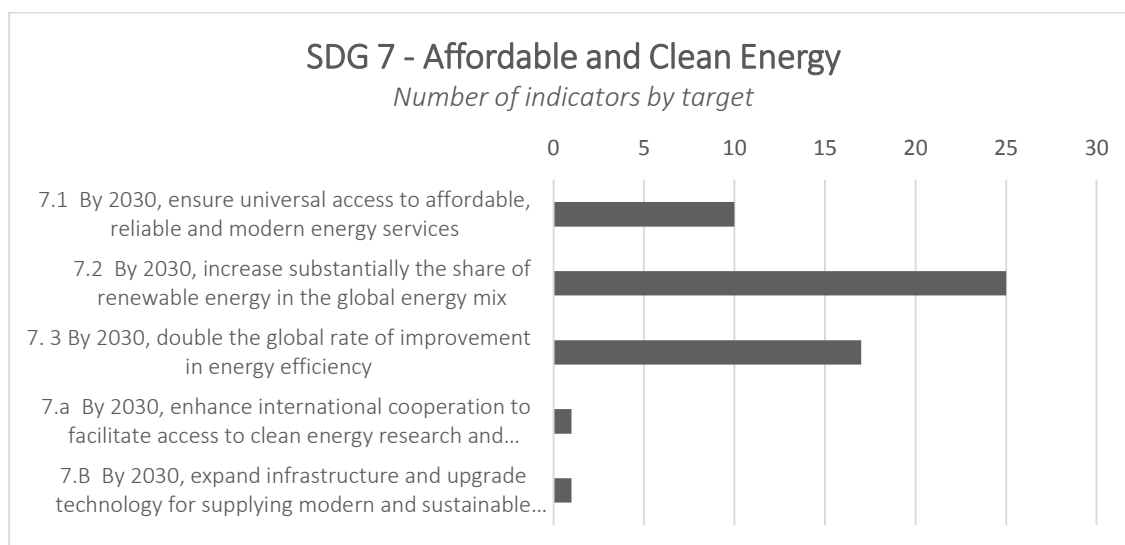
A considerable amount of indicators could also be found for target 7.3 (energy efficiency), mainly addressing aspects such as energy consumption, the availability of energy efficiency plans, and energy efficiency of buildings.

Indicators identified for target 7.1 (energy access) cover topics such as affordability, reliability and modernity of energy services.

Targets 7.a (international co-operation) and 7.b (support modern energy infrastructure in least developed countries) are hardly represented by indicators here, however this could have been expected as they explicitly address global policy issues going far beyond city borders.

In summary it can be said that those targets of SDG 7 most relevant for European local governments can be monitored sufficiently.

**Figure 7: Number of indicators identified for targets of SDG 7**



## SDG 7 | Indicators

**Target 7.1** By 2030, ensure universal access to affordable, reliable and modern energy services

### Affordable energy

Indicator	Unit	Source
Population with access to electricity	%	1, 4, 6, 7
Percentage of electricity customers with demand response capabilities	%	7
Has your city made projections of future developments in energy supply and demand? (i.e. mid-long terms – 5-10+ years)	yes/no	14
Fuel Poverty (households consuming 10% or more of their revenue in the heating costs)	%	8

### Aspect Reliable energy

Indicator	Unit	Source
Household electricity consumption variation/trend; i.e. 2000-2005/2007-2009 percentage differences	%	19
Irregularities in electricity supply	# / cap	25
Average length of electrical interruptions	Hours	7

### Aspect Modern energy services

Indicator	Unit	Source
Percentage of electricity supply system monitored by ICT	%	7
Number of charging outlets available for cars owned privately in the public space	#	13, 30
Demonstration that the number of private and public electric vehicle stations meets or exceeds 1.07 per 10,000 residents OR Demonstration that the number of private and public alternative fuel stations meets or exceeds 1.52 per 10,000 residents	yes/no	24

**Target 7.2** By 2030, increase substantially the share of renewable energy in the global energy mix

**Aspect General energy consumption**

Indicator	Unit	Source
Annual primary energy consumption by GDP in 2003 and 2012	toe/€	20
Electricity consumption per capita	kWh/year/capita	6, 7, 13, 26
Final energy consumption by sector and fuel	TJ	14, 15
Final Energy Use in the transport sector	%	13
Final Energy Use in the domestic sector	%	13
Final Energy Use in the services sector	%	13
Final Energy Use in any other sector non-listed above	%	13
Total Final Energy Use	%	13
Achieve status as a Green Power Community OR Demonstrate that the local government, businesses, and residents collectively use green power in amounts that meet or exceed EPA's Green Power Community usage requirements	yes/no	24
Energy intensity; megajoules/unit of real GDP (in euros, base year 2000)	mJ / GDP unit	26

**Aspect General renewable energy**

Indicator	Unit	Source
Energy generated locally from renewable resources	%	25, 28, 30
Locally produced renewable energies of final energy demand	%	13
Energy consumed in the city that comes from renewable sources	%	4, 6, 8, 7 13, 21, 22, 23, 25, 26,
Demonstration that the community's overall electric utility generating capacity includes a portion from renewable energy sources OR Demonstration that the community's electric utility is in compliance with RPS requirements and document the portion from renewable energy sources	yes/no	24

**Aspect Renewable energy mix**

Indicator	Unit	Source
Solar power generation (photovoltaïque/solar thermal) in public buildings	kw/1000 inhabitants	19
Installed wind power	kw/inhabitant	23
Renewable energy and energy efficiency measures across the food system	Qualitative	27
Carbon content in electricity	gCO <sub>2</sub> /kWh	8
Inhabitants connected to a district heating system	%	19
Households connected to methane gas	%	25

**Aspect Local strategy for renewables**

Indicator	Unit	Source
Does your city have a strategy or plan for increasing renewable and/low carbon energy supply sources?	yes/no	14
Has your city set specific targets for increasing renewable and/or low-carbon energy supply sources?	yes/no	14
Maximising and prioritising the use of renewable energy technology (particularly in municipal buildings)	yes/no	13
Share of total local government investment directed towards renewable energy	%	23
Do you collect (or have access to) good data on energy supply sources in your city? (i.e. wind, solar PV, fossil fuels, nuclear, bio-energy etc.)	yes/no	14

**Target 7.3 By 2030, double the global rate of improvement in energy efficiency****Aspect Residential consumption**

Indicator	Unit	Source
Residential thermal energy consumption per capita	GJ/a/capita	7
Energy consumption of residential buildings; in gigajoules/m <sup>2</sup> of residential floor space	GJ/m <sup>2</sup>	26

**Aspect Public consumption**

Indicator	Unit	Source
City administration energy consumption	KWh/an	8
Electricity consumption of public street lighting per kilometre of lighted street (supporting indicator)	kWh/a	6
Final energy consumption of public buildings per year (core indicator)	GJ/m <sup>2</sup>	6, 13, 7
Attempts to improve the energy performance (i.e. energy efficiency standards particularly of municipal buildings) above national requirements	yes/no	13
Transport energy consumption	GJ	8

**Aspect Energy policies**

Indicator	Unit	Source
Clean and efficient energy policies	yes/no	19, 26
Has your city set specific targets for increasing energy efficiency / reducing energy demand in: - Private homes / households? - Businesses/industry? - Public services (i.e. schools, hospitals, municipal buildings etc.)	yes/no	14
Has your city taken one or more of the following measures to reduce its CO <sub>2</sub> emission equivalents: - District heating and/ or cooling, CHP (combined heat and power) project or passive cooling projects? - Promotion of energy saving renovations (residential buildings) - Developing carbon capture and storage (CCS) technologies? - Other measures not listed above?	yes/no	14
Has your city made an assessment of the potential for energy efficiency / demand reduction?	yes/no	14
WWT energy efficiency	Score (1-10) self-assessment	18

**Aspect Buildings**

Indicator	Unit	Source
Climate-robust buildings (policies in place to promote energy efficiency for heating and cooling of houses and buildings, including the use of geothermal energy)	Score (1-10)	18, 24, 26
Energy-efficient buildings standards; Assessment of level of extensiveness (score 0 to 10)	Score (1-10)	26
Percentage area of public buildings with recognized sustainability certifications for ongoing operations	%	7

**Aspect Energy recovery**

Indicator	Unit	Source
Energy recovery from wastewater system	%	18
Energy recovery from solid municipal waste	%	13, 18

**Target 7.a By 2030, enhance international cooperation to facilitate access to clean energy research and technology, including renewable energy, energy efficiency and advanced and cleaner fossil-fuel technology, and promote investment in energy infrastructure and clean energy technology**

Indicator	Unit	Source
Signatory of Covenant of Mayors	yes/no	13

**Target 7.b By 2030, expand infrastructure and upgrade technology for supplying modern and sustainable energy services for all in developing countries, in particular least developed countries, small island developing States, and land-locked developing countries, in accordance with their respective programmes of support**

Indicator	Unit	Source
Smart City Policy	predefined list	8







## 8 DECENT WORK AND ECONOMIC GROWTH



Economy has an impact on practically all aspects of human life and well-being. The more important is it to develop and design it in a prospective and sustainable way. This requires societies to create the conditions that stimulate sustainable business development and job creation, while at the same time not harming the environment. These job opportunities and working conditions have to be provided for all, thus for the whole working age population. This comprises a major challenge for the whole development agenda.

### Relevance for cities and local governments

Nearly 80 percent of the Global Gross Domestic Product (GDP) is generated by and in cities. They are centers of economic production and consumption activities, commerce and money distribution. There is a direct relationship between urbanisation and sustainable economic and social development: Countries with the highest per capita income are usually more urbanised whereas low-income countries are often less urbanised. Thus sustainable economic growth of a country highly depends on the sustainable development of its cities - they need new and inclusive economic models in cities. Local governments can stimulate and support responsible local businesses that keep money in the community and provide jobs. Enhancing high-quality education is the basis to develop a skilled workforce and fight poverty, also addressing youth unemployment challenges. With view to their global responsibility local governments can support sustainable and fair trade procurement.

**PROMOTE  
SUSTAINED,  
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ECONOMIC  
GROWTH,  
FULL AND  
PRODUCTIVE  
EMPLOYMENT  
AND DECENT  
WORK FOR ALL.**

## SDG 8 | Overview

For SDG 8, a total of 108 indicators could be allocated, showing a predominating focus on targets 8.5 (full employment and decent work for all) across the indicator sets screened. This target addresses aspects such as disparities in employment and income, as well as the type of employment (part-time, temporary, instability), the role of the informal sector, the presence of ‘working poor’, and the overall satisfaction with the labor market. Many of the indicators found were variations of employment and unemployment rates and have been merged.

The second most addressed target is 8.2 (economic productivity), covering topics such as innovation, high-tech workforce, economic specialisation and density. It is followed by target 8.3 (job creation), mirrored by indicators on business and green job creation. Target 8.9 (sustainable tourism) addresses issues such as cultural heritage and the tourism sector in general, with a view on further job creation.

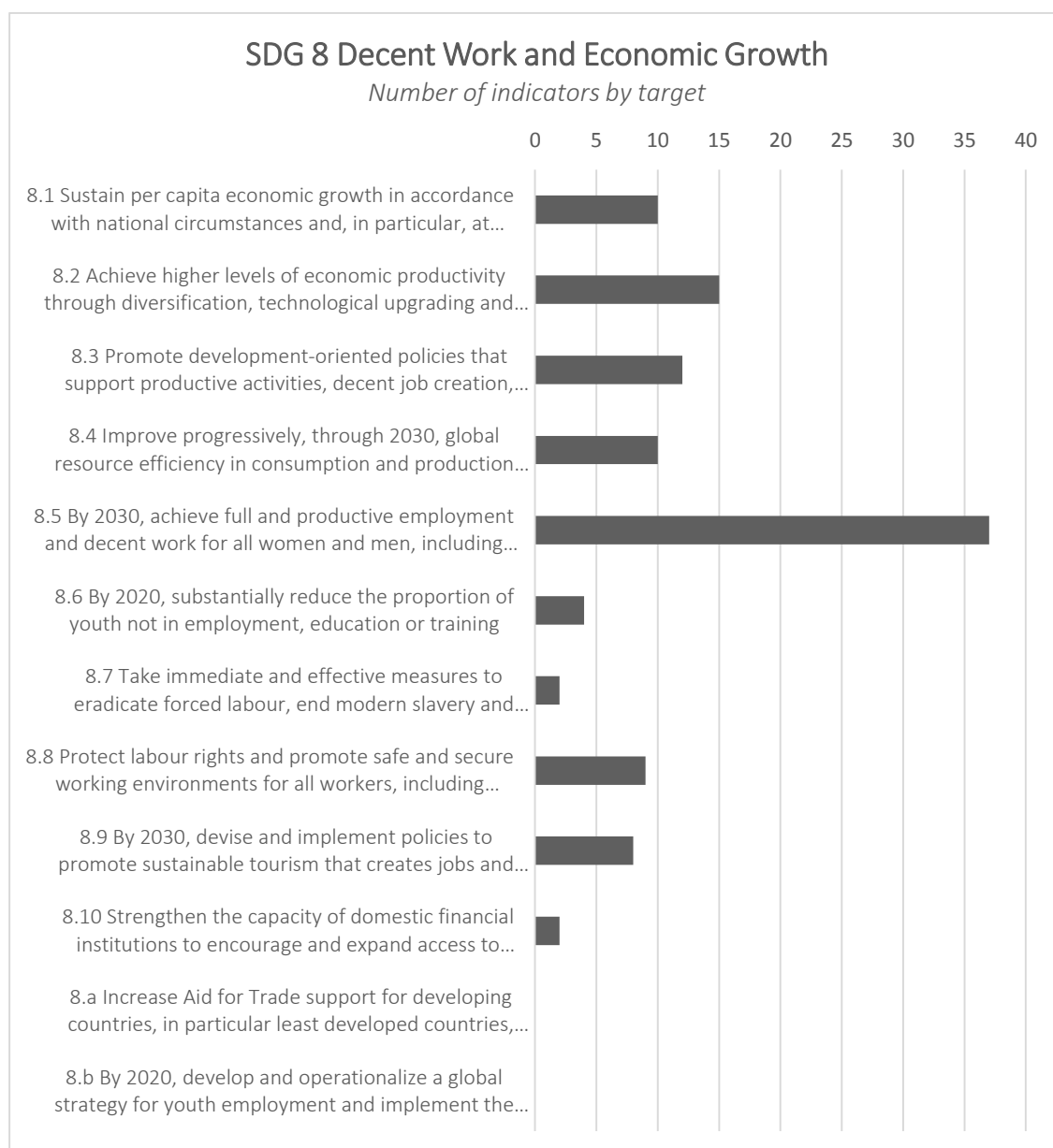
Target 8.1 (GDP) finds a broad offer of GDP-based or GDP-oriented indicators. Although questioned more and more widely over the past years, GDP growth seems to remain the number one indicator of a successful, healthy economy and society. Other societal progress indicators may be needed to measure SDG 8 “beyond GDP”.

Target 8.4 (decouple environmental degradation from economic growth) already leads the way into this narrative, supported by indicators on public and private engagement. Further indicators could be taken from SDG 12 (Responsible Consumption & Production). Target 8.8 (labour rights) addresses bad working conditions and regulations to fight them.

Targets 8.6 (disconnected youth), 8.7 (child labour) and 8.10 (domestic financial institutions) are represented by a low number of indicators only, however these targets are specific enough in order to be monitored with a limited number of indicators.

For Targets 8.a and 8.b no indicators could be allocated, which doesn’t surprise too much as they are quite specific to national and global agreements and show a focus on low development countries.

The “Equitable and Sustainable Well-Being” indicator set is one of the most interesting contributors to this SDG. The indicators compiled there are mostly quantitative and could well be complemented by some qualitative indicators.

**Figure 8: Number of indicators identified for targets of SDG 8**

## SDG 8 | Indicators

**Target 8.1** Sustain per capita economic growth in accordance with national circumstances, and in particular at least 7% per annum GDP growth in the least-developed countries

**Aspect** Gross Domestic Product (GDP)

Indicator	Unit	Source
Gross Domestic Product	EUR/inh./a	16, 20, 23, 30
Annual GDP growth rate (5 year average)	%	21, 30
Annual GNP growth rate (5 year average)	%	21
Gross Metropolitan Product Growth rate (5 year average)	%	28
City Product as defined in national accounts procedures. It may either be taken as the total income or value-added (wages plus business surplus plus taxes plus imports), or the total final demand (consumption plus investment plus exports). Method A: The Gross National Product (GNP) by industry sector is contained in National Accounts Method B: $(\text{GNP}) \times ((\text{number of households in the city}) \times (\text{average household income in the city}) / (\text{total national household income, from national accounts}))$	EUR  (log City Product - 4.61) x 100/5.99	1, 2, 3, 4
Economic losses (related to natural disasters) as a percentage of the city's gross domestic product (GDP)	%	7

**Aspect** Gross Domestic Product-related indicators

Indicator	Unit	Source
Annual deficit by GDP (2003-2012)	% of GDP	20
Annual debt by GDP (2003-2012)	% of GDP	20
Transnational firms	# of firms	17
Foreign Direct Investments	Capital/Earnings accrued from listed FDI's per annum	21

**Target 8.2** Achieve higher levels of productivity of economies through diversification, technological upgrading and innovation, including through a focus on high value added and labor-intensive sectors

**Aspect General**

Indicator	Unit	Source
Economic Specialization	-/-	4
Economic Density	-/-	4
Assessed value of commercial and industrial properties as a percentage of total assessed value of all properties	%	6

**Aspect Innovation**

Indicator	Unit	Source
R&D (Research & development) intensity	% of community budget	7, 8,13, 25, 30
Community design applications	#/million pop.	30
Patent applications	#/100'000 inh	28, 30
Patents granted	#/100 000 inhab/ year	6
Application of innovative technologies	yes/no	13
Workforce in innovative industries	% of workforce (full-time equiv)	8
Innovation hubs in the city	#	8

Aspect **High-tech workforce**

Indicator	Unit	Source
IT competence of persons aged 16-74	%	25
Percentage of employees involved with ICT	%	7
High technology specialisation employees	% of employees	25
STEM Jobs Growth Rate	%	28
Employed persons in high added value industries/businesses	% of employees	8, 22

Target **8.3 Promote development-oriented policies that support productive activities, decent job creation, entrepreneurship, creativity and innovation, and encourage formalization and growth of micro-, small- and medium-sized enterprises including through access to financial services**Aspect **Business creation**

Indicator	Unit	Source
Demonstrate there are at least 20 small businesses per 1,000 residents for cities	yes/no	24
Number of businesses per 100 000 population	#/ 100 000 inhabitants	6
Demonstrate an increased number of business establishments in the jurisdiction over time	yes/no	24
New business registration	# of new businesses/ 100,000 population	8
New business registration rate	New registrations / 10,000 inhabitants	8
Increase the total number of new businesses in targeted industry sectors over time	yes/no	24
Ratio of companies surviving up to three years (of the total active companies) in 2008, 2009 and 2010	%	20

Aspect **Green jobs creation**

Indicator	Unit	Source
Share of jobs in environmental industries	% of total jobs	8
Has your city defined and carried out projects or actions to increase green skills or jobs and promoting the circular economy with: - Citizens? - Industry? - Its own employees, integrating green economy thinking in the city's system and management?	yes/no	14
Has your city defined other, specific stakeholders and taken actions to promote green skills or jobs?	yes/no	14
Number of jobs created in green economic activities including jobs created by municipality initiatives in the private and public sector and jobs in the municipality	#	13
Number of jobs created in the city region resulting from growth in the local food system (e.g. seasonal agricultural labour; processing and distribution of city region products; number of jobs created in the circular economy)	#	27

**Target 8.4 Improve progressively through 2030 global resource efficiency in consumption and production, and endeavor to decouple economic growth from environmental degradation in accordance with the 10-year framework of programs on sustainable consumption and production with developed countries taking the lead**

Aspect **Public engagement**

Indicator	Unit	Source
R&D (Research & development) intensity	% of community budget	7, 8, 13, 25, 30
Does your city have an action plan aimed at supporting eco-innovation, the circular economy and/or green growth?	yes/no	14
If you have an action plan aimed at supporting eco-innovation, the circular economy and/or green growth, does your plan include targets on 'smart' developments for eco-innovation or circular economy, i.e. innovations that address material use & improve resource efficiency?	yes/no	14
If you have an action plan aimed at supporting eco-innovation, the circular economy and/or green growth, does your plan include dedicated budgets for future plans and strategies to promote and encourage eco-innovation and green jobs?	yes/no	14
Does your city monitor green growth and / or eco-innovation?	yes/no	14

Has your city implemented one or more of the following measures: - 'Circular economy' business models, aimed at encouraging the reuse, repair and/or recycling of products (e.g. setting up repair cafes, bicycle repair cooperatives, product leasing schemes, product char or exchange schemes etc)? - A food waste prevention programme? - Promotion of the use of recycled and recyclable, renewable and sustainable materials (e.g. FSC wood, hedges instead of fences ...)? - Support for industrial symbiosis between local businesses? - Support for more sustainable buildings (either new builds or refurbishments – using recycled materials or innovative designs that will increase the life-time of buildings and/or allow them to be more easily recycled in the future)? - Other innovative measures promoting the circular economy concept?	yes/no	14
Does your city have a plan including measures for improving the efficiency of urban logistics, including urban freight delivery?	yes/no	14

### Aspect **Private engagement**

Indicator	Unit	Source
Number of organisations with registered environmental management systems according to EMAS and/or ISO 14001	#	8
Number of development support programmes for food businesses with a focus on improving i) performance (efficiency, profitability, marketing) and ii) sustainability, (reduced GHG emissions etc)	-/-	27
Number of initiatives for promoting and enabling sharing, reuse and repair such as, repair cafés, etc. initiated or facilitated by the municipality	#	13

## Target **8.5 By 2030, achieve full and productive employment and decent work for all women and men**

### Aspect **Employment**

Indicator	Unit	Source
Economically active population, total	Absolute #	10
City Employment Rate	% population aged 18-64	4, 8, 23, 25
Employment rate for women and men aged 20-64 (with reference value of 75%)	% persons aged 20 to 64	8
Percentage of persons in full-time employment (supporting indicator)	%	6
Citizens' satisfaction with the local community with regards to employment opportunities	% of distribution of different levels	8



Increase total employment in targeted industry sectors over time	yes/no	24
Demonstrate the percentage change between the jurisdiction's employment rate and the national rate is 10% or better	yes/no	24

### Aspect **Unemployment**

Indicator	Unit	Source
City Unemployment Rate	% population aged 18-64	1, 2, 4, 6, 78, 16, 17, 22, 28
Economic dependency ratio; non-employed persons /100 employed	%	8
It is easy to find a job in the city	Survey to population	11
Long-term unemployment (longer than 1 year)	%	8, 23, 30
If you have an action plan aimed at supporting eco-innovation, the circular economy and/or green growth, does your plan include programmes or actions for training of unemployed citizens?	yes/no	14
Disconnected Youth (not in education, employment, or training) - NEET	%	8, 25, 28, 30

### Aspect **Employment disparities by gender**

Indicator	Unit	Source
Economically active population, male	Absolute #	10
Economically active population, female	Absolute #	10
Unemployment rate by gender	%	20
Female Employment Rate	% of female population	8
Employment rate of mothers aged 25 - 49	%	25

Aspect **Employment disparities by other category**

Indicator	Unit	Source
Territorial disparities (neighbourhoods) in employment	Coefficient of variation of territorial employment rates of age group 15-64	8
Demonstrate the percentages of employed are proportional to the population in the labor force for each racial/ethnic group	yes/no	24
Demonstrate unemployment rates are proportional to the population in the civilian labor force for each racial/ethnic group	yes/no	24

Aspect **Underemployment**

Indicator	Unit	Source
Underemployment/employment/unemployment rates	%	21
Low work intensity households	%	25

Aspect **Instability**

Indicator	Unit	Source
Employees with at least 5 yrs occupation	% of organisations	25
Ratio of instable work per stable work (unclear)	%	25
Number of temporary/seasonal jobs	#	27
Irregular employees	% of employees	25

Aspect **Informal sector**

Indicator	Unit	Source
Informal employment	%	2
Employed population, men and women, whose activity is part of the informal sector	% of employed pop	1

Aspect **Working poor**

Indicator	Unit	Source
Low income household	%	16
Working poor	% of inhabitants	8
Employed inhabitants receiving social aid	%	23
Low-paid jobs in the food system (relative to relevant national benchmark/below living wage equivalent)	#	27

Aspect **Satisfaction**

Indicator	Unit	Source
Your personal job situation	Survey to population	11
Satisfaction with work	Index	25
Absence in work force (unclear)	%	25

Target **8.6 By 2020, substantially reduce the proportion of youth not in employment, education or training**

Indicator	Unit	Source
Disconnected Youth (not in education, employment, or training) - NEET	%	8, 25, 28, 30
Youth Unemployment	%	4, 6, 7
Population aged 18-24 who are early leavers from education and training	%	8, 10, 23, 25
Participation rate of youth and adults in formal and non-formal education and training in the last 12 months	% of 15 - 24 year old AND % of > 25 years old	8

**Target 8.7** Take immediate and effective measures to secure the prohibition and elimination of the worst forms of child labor, eradicate forced labor, and by 2025 end child labor in all its forms including recruitment and use of child soldiers

Indicator	Unit	Source
Number of children under age (child labour) employed in the city region food system	#	27
Number of young people employed (under 18 yrs)	#	27

**Target 8.8** Protect labour rights and promote safe and secure working environments of all workers, including migrant workers, particularly women migrants, and those in precarious employment

**Aspect Unhealthy working conditions**

Indicator	Unit	Source
Workload exceeding 60 hrs per week	% of pop	25
Insecure work	% of employed pop	25
Work induced mortality	#/10,000 employees	25
Number of food system workplace i) non-fatal; ii) fatal injuries (# and annual % change)	# and % change	27
Time lost and temporary incapacity due to injury in food system business employees	Average hours/ employee	27

Aspect **Protection regulations**

Indicator	Unit	Source
Food labour policy and social protection regulations (in government and individual food business)	Qualitative	27
Number of workplace health and safety inspections per year (for public and private food business)	#	27
Number of prosecutions or requirements to improve workplace conditions/procedures in different types of food business	#	27
Food worker's injury compensation rates by food industry/category (and annual % change)	%	27

Target **8.9 By 2030, devise and implement policies to promote sustainable tourism which creates jobs, promotes local culture and products**Aspect **Cultural heritage**

Indicator	Unit	Source
Annual expenses of community for cultural heritage	EUR	25
Financial resources donated to cultural heritage	EUR/100 km <sup>2</sup>	25
Demonstrate an increase over the past 3 years in the production of goods from local working lands OR Demonstrate an increase over the past 3 years in sales from goods produced on local working lands	yes/no	24
Demonstrate that historic preservation efforts have had a positive, measurable impact on the local economy	yes/no	24

Aspect **Tourism**

Indicator	Unit	Source
Percentage of the city-related labour force working in the tourism industry	%	7
Proportion of jobs in sustainable agri-food tourism sector out of total city region tourism jobs	%	27
Percentage of the city-related labour force working in the tourism industry	%	7
Tourism: Nights spent	%	17

Target **8.10 Strengthen the capacity of domestic financial institutions to encourage and to expand access to banking, insurance and financial services for all**

Indicator	Unit	Source
Increase of the total funds deposited in locally owned and operated financial institutions over time	yes/no	24
Achieve a Best Quality or High Quality bond rating with 1 or more of the 3 major rating agencies	yes/no	24

Target **8.a. Increase Aid for Trade support for developing countries, particularly LDCs, including through the Enhanced Integrated Framework for LDCs**

*No indicators identified.*

Target **8.b. By 2020, develop and operationalize a global strategy for youth employment and implement the ILO Global Jobs Pact**

*No indicators identified.*



## 9 INDUSTRY, INNOVATION AND INFRASTRUCTURE



Closely related to SDG 8, built infrastructure and manufacturing determines employment, economic development and well-being. Sustainable investments in infrastructure like transport, irrigation, energy and information and communication technology are thus crucial for achieving sustainable development. The technological progress is also important to achieve environmental objectives, such as increased resource and energy-efficiency. Without technology and innovation, industrialisation will not happen, and without industrialisation, development will not happen.

### Relevance for cities and local governments

Infrastructure and technological and social innovation are highly related to the city and spatial planning. Often there is a coexistence of different areas in cities: Those that are well developed and those that are less developed with inadequate housing, scarce services, and deficient mobility and logistical networks. The role of local governments is quite complex, overseeing the interconnected urban systems, services and flows related to local production and consumption (e.g. waste management, energy supply, water and sanitation, transportation). For a prosperous development of a city it is important to support also “the little ones”, thus integrating small-scale industries and start-ups into local economic development strategies. To increase the resilience of a city a mix of green, blue and gray infrastructure is needed. This means also an increasing sustainability of infrastructure, buildings and industry through cradle-to-cradle construction (full life cycle planning).

**BUILD  
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TION AND  
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INNOVATION.**

## SDG 9 | Overview

This SDG is mirrored by 62 different indicators with an unbalanced distribution among its targets. With 40 indicators allocated to it, target 9.1 (infrastructure) represents the key target of SDG 9. Aspects addressed include regional collaboration, transport infrastructure in general and more specifically public and soft mobility modes. Electric mobility, water infrastructure and food infrastructure are also integrated here although more indicators can be found in related topic specific targets under other SDGs (SDG 2, SDG 6 and SDG 11). Phone and internet networks are important indicators here, but can also be found under SDG 17.

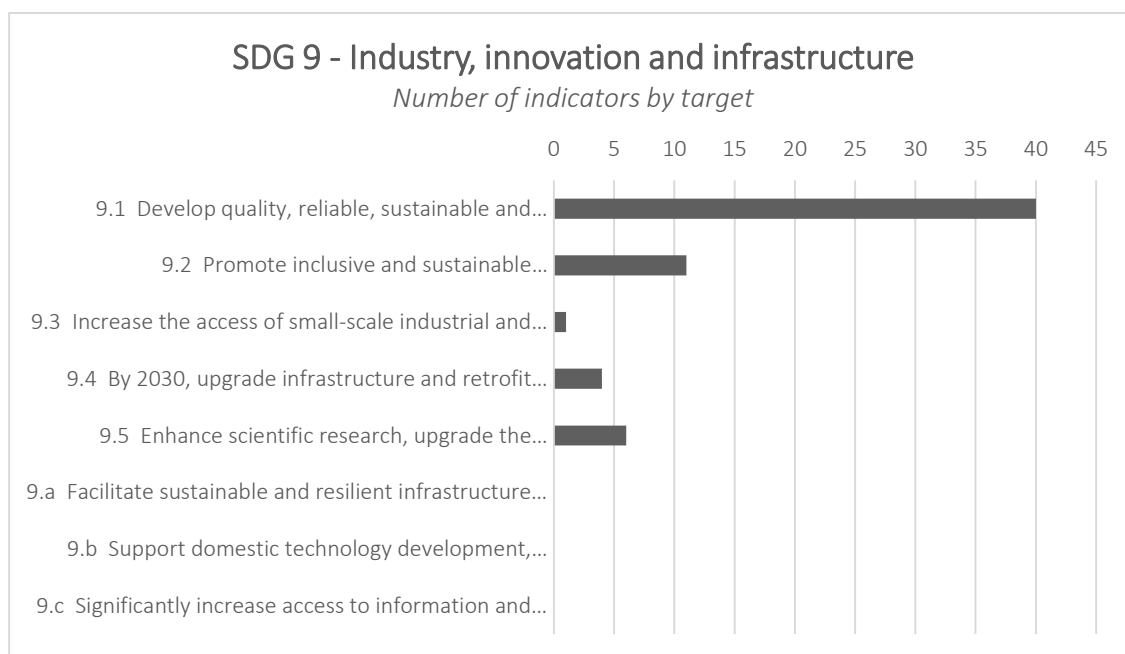
Target 9.2 (industrialization) comes far behind as the second most addressed target of this SDG. Its indicators focus on green jobs, innovative businesses and skill training. Target 9.5 (technological capabilities) refers to monitoring the number of researchers and the financial resources spent on research in relation to local GDP.

Targets 9.3 (increase access to financial services) and 9.4. (retrofit industries to resource-use efficiency and clean technologies) are addressed by a few indicators only and could clearly benefit from an identification of some more relevant ones.

Targets 9.a (facilitate resilient infrastructure development in developing countries), 9.b (support domestic research and development in developing countries), and 9.c (access to information and communication technologies in least developed countries) all refer to measures targeted to developing and least developed countries, which explains the absence of indicators found to assess them in European cities.

In summary, the choice of indicators found in the sets screened for this study appears too small to assess and monitor SDG 9 and improve infrastructure and industry at the local level.

**Figure 9: Number of indicators identified for targets of SDG 9**





## SDG 9 | Indicators

**Target 9.1** Develop quality, reliable, sustainable and resilient infrastructure, including regional and transborder infrastructure, to support economic development and human well-being, with a focus on affordable and equitable access for all

**Aspect** Regional collaboration

Indicator	Unit	Source
Does your city cooperate with other authorities at different levels or other organisations (regional, national, EU, international) on environmental and sustainability issues?	yes/no	13
In your transport planning processes, do you systematically involve: - all city departments that might have an interest in how the transport systems functions, including transport; land-use and spatial planning; social services; energy; health; education; enforcement and policing? - neighbouring urban areas? - neighbouring rural areas? - different levels of administration and government? (e.g. district, municipality, agglomeration, region, and Member States) - citizens and/or representatives of civil society? - major employers in the city? - schools and/or other educational establishments?	yes/no	14
Number of local/regional policies and programmes that adhere to national food loss and waste programmes and guidelines		27
Number of regional and local development framework documents and plans reflecting sustainable food system concerns and values		27
Existence of land use, housing and development planning policy consideration of the food system within the city region		27
Increase the amount of natural or restored areas directly connected to regional natural systems in order to improve ecosystem services	yes/no	24

**Aspect** Transport infrastructure - general

Indicator	Unit	Source
Total transport infrastructure	% of land	10
Road density	% land	12, 28
Percentage of roadways in good conditions	%	21

Potential road accessibility	indicator computed based on road network data by RU Groningen within a project commissioned by DG REGIO	30
Does your city set goals and objectives in relation to future performance of transport/mobility for the following transport modes: - public transport - private motorised transport - non-motorised transport (cycling and walking)	yes/no	14
Does your city have a plan including measures for improving the efficiency of urban logistics, including urban freight delivery?	yes/no	14

#### Aspect **Transport infrastructure – public & soft mobility**

Indicator	Unit	Source
Non-car transport network (cycling lanes and public transport)	km/m2 of city area	26
Public transport network	km/100 000 inhabitants	6, 7, 25
Public transport by rail (underground and tram lines in the urban area)	Meters/100 inhabitants	19
Direct trains to other cities	#/million pop.	30
Population living within 300 metres of an hourly (or more frequent) public transport service	%	13
Population living within 500 m to public transport service	%	7, 22
Satisfaction with level of public transport services	% of distribution of different levels	8, 30
Bicycle paths and lanes	km/100 000 inhabitants	6, 7, 19, 26
90% of roadway length contains sidewalks on both sides or connection pathways	yes/no	24
Percentage of public buildings using integrated ICT systems to automate building management and create flexible, effective, comfortable and secure environment	%	7

Aspect **Transport infrastructure – e-mobility**

Indicator	Unit	Source
Charging outlets available for cars owned privately in the public space	#	13, 30

Aspect **Water infrastructure**

Indicator	Unit	Source
Water system leakages; percentage of water lost in the distribution system due to leaks (typically arising from poor maintenance and/or system age)	%	18

Aspect **Food infrastructure**

Indicator	Unit	Source
Infrastructure to support city region/local food supply chains (e.g. wholesale markets, warehouse storage, new market outlets)	yes/no	27
Investment in rural-urban infrastructure (e.g. storage facilities, food hubs, transport facilities, wholesale markets etc)	yes/no	27
Number of specific risk reduction and climate adaptation/resilience measures for food production, storage, transport and distribution that are in place/being developed	#	27
Existence of vulnerability assessment of all city region food system infrastructure to climate and disaster risks (including households)	yes/no	27
Types and numbers of outlets where regional products are sold in the city	#	27

Aspect **Phone infrastructure**

Indicator	Unit	Source
Percentage of households which, within their housing unit, are connected to telephone	%	1
Number of mobile phone connections per 100 000 population (supporting indicator)	#/100 000 inhabitants	6
Have you got a mobile phone?	Survey to population	11
Have you got a landline phone?	Survey to population	11

Aspect **Internet infrastructure**

Indicator	Unit	Source
Home computer access	yes/no	4
Households with internet access	%	4, 7, 30
Households with high speed / broadband internet access	%	7, 8, 23, 28
Households served by wireless broadband	%	7
Households served by fixed/wired broadband	%	7
Number of internet connections per 1,000 population	#/100,000 in-habitants	6, 8
Number of (public) WIFI hotspots in the city	#	7

Target **9.2 Promote inclusive and sustainable industrialization and, by 2030, significantly raise industry's share of employment and gross domestic product, in line with national circumstances, and double its share in least developed countries****Green jobs**

Indicator	Unit	Source
Increase total employment in targeted industry sectors over time	yes/no	24
Share of jobs in environmental industries, as percentage of total jobs	%	8
Number of initiatives for promoting and enabling sharing, reuse and repair such as, repair cafés, etc. initiated or facilitated by the municipality	#	13
Number of jobs created in the city region resulting from growth in the local food system (e.g. seasonal agricultural labour; processing and distribution of city region products; number of jobs created in the circular economy)	#	27

Aspect **Innovative businesses**

Indicator	Unit	Source
Workforce in innovative industries, as percentage of workforce (full-time equivalent) in innovative fields	%	25
Increase the total number of new businesses in targeted industry sectors over time	yes/no	24
Newly founded businesses	#/1000 inh./a	23
Percentage of small and medium-sized enterprises (SMEs)	%	7

Aspect **Skill training**

Indicator	Unit	Source
Demonstrate improvements in workforce training outcomes for participants over the past 3 years	yes/no	24
Number of businesses offering staff job skills training opportunities - by business category	#	27
Number of employees who have received job skill training in the past year – per individual business/business category	#	27

Target **9.3 Increase the access of small-scale industrial and other enterprises, in particular in developing countries, to financial services, including affordable credit, and their integration into value chains and markets**

Aspect **Finance access**

Indicator	Unit	Source
Number of business planning, finance, development advice, support service available to food enterprises (including small scale businesses and the informal sector)	#	27

**Target 9.4** By 2030, upgrade infrastructure and retrofit industries to make them sustainable, with increased resource-use efficiency and greater adoption of clean and environmentally sound technologies and industrial processes, with all countries taking action in accordance with their respective capabilities

Indicator	Unit	Source
Energy recovery from solid municipal waste	%	13, 18
Energy recovery from the wastewater system	%	18
Operation cost recovery from wastewater	Revenues/ operating costs	18

**Target 9.5** Enhance scientific research, upgrade the technological capabilities of industrial sectors in all countries, in particular developing countries, including, by 2030, encouraging innovation and substantially increasing the number of research and development workers per 1 million people and public and private research and development spending

Indicator	Unit	Source
Smart City Policy	predefined list	8
R&D (Research & development) intensity	% community budget	7, 8, 13, 25, 30
Does your city have an action plan aimed a supporting eco-innovation, the circular economy and/or green growth?	yes/no	23
Does your city monitor green growth and / or eco-innovation?	yes/no	14
Community design applications	#/million pop.	30
Patent Applications	#/100'000 inh	28, 30
Patents granted	#/100 000 inhabitants / year	6
Innovation hubs in the city	#	25

Target **9.a** Facilitate sustainable and resilient infrastructure development in developing countries through enhanced financial, technological and technical support to African countries, least developed countries, land-locked developing countries and small island developing States

*No indicators identified.*

Target **9.b** Support domestic technology development, research and innovation in developing countries, including by ensuring a conducive policy environment for, inter alia, industrial diversification and value addition to commodities

*No indicators identified.*

Target **9.c** Significantly increase access to information and communications technology and strive to provide universal and affordable access to the Internet in least developed countries by 2020

*No indicators identified.*







## 10 REDUCED INEQUALITIES



Economic growth can only be suited to reduce poverty if it is inclusive, and if it goes along with reducing the use of natural resources to levels within global boundaries. This means sustainable development and making the planet better for all won't be possible if people are excluded from opportunities, services, and the chance for a better life. Despite progress in some areas, income inequality continues to rise in many parts of the world.

### Relevance for cities and local governments

Today, cities generate nearly 80 percent of the global GDP. But they also have the highest economic gaps between people. Most inequalities happen to be a result of different combined factors such as weak economic development and planning as well as rapid and uncontrolled processes of urbanisation. To manage these processes well is the challenge for cities and their governments. Otherwise, economic gaps and social fragmentation will grow. In practice this means to provide equal access to urban services, strengthen governance by promoting accountability and fighting corruption, institutional and financial support for the most deprived areas, provide information on how to recover from disasters and poverty traps and support sustainable business ethics – not only with a view to the local and regional economy but also globally: How can a city reduce inequality in foreign countries? And how do my local activities impact on other countries?

**REDUCE  
INEQUALITY  
WITHIN AND  
AMONG  
COUNTRIES.**

## SDG 10 | Overview

In total 47 indicators were identified to address SDG 10, with target 10.2 (inclusion of all) clearly predominating the other targets. Indicators display different aspects of inclusion, spanning from social, economic and political to cultural inclusion.

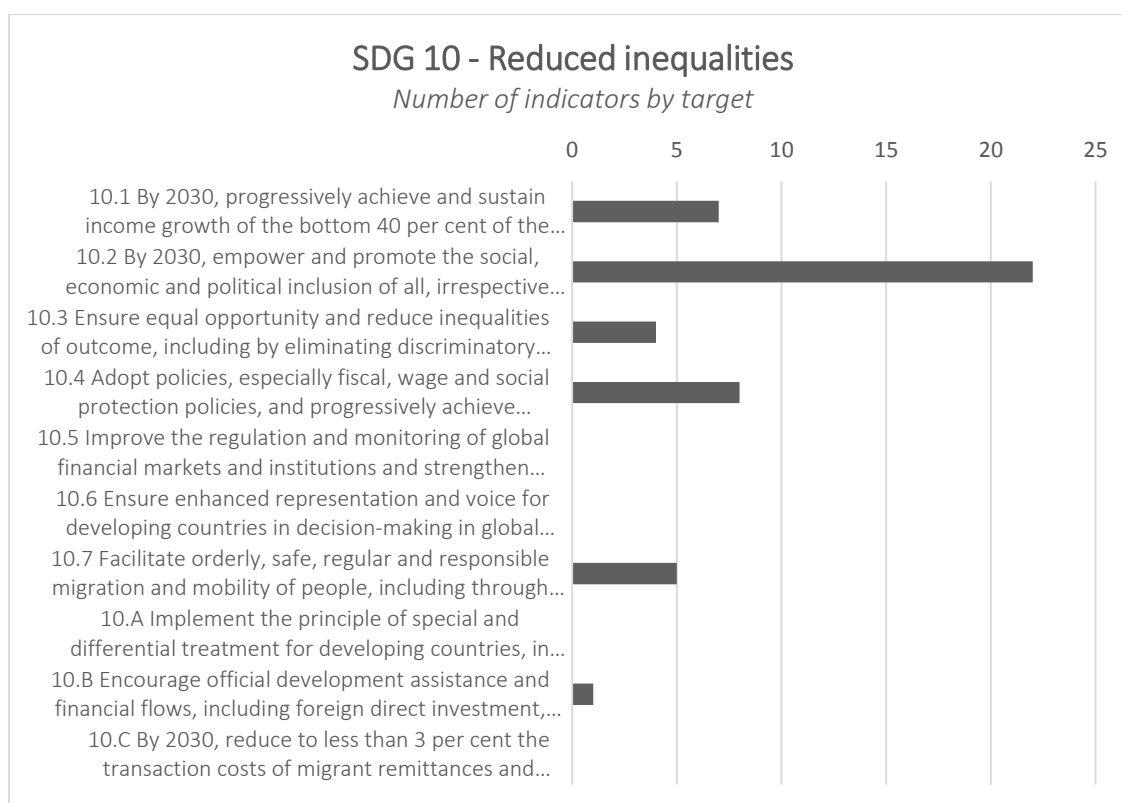
Target 10.4 (social protection policies) is also well covered with a focus on housing subsidies and social aid. Target 10.1 (income growth) is mainly mirrored by indicators on income levels and inequalities. Indicators from SDG 1 could be used to complete these targets when/if needed.

Target 10.3 (equal opportunity) showcases indicators dealing with care and education, linking up to gender equality and upward mobility. Target 10.7 (migration policies) is addressed by a low number of indicators, however they may be sufficient to assess and monitor this target thanks to the good balance between qualitative and quantitative indicators.

Out of ten, the remaining five targets are hardly addressed by any indicators at all. This may mainly be due to the fact that these targets are about global policy issues and go far beyond city borders.

Most SDG 10 targets are tightly intertwined with SDG 1, and only few of those targets related to global or national policies and measures can be handled by local policies.

**Figure 10: Number of indicators identified for targets of SDG 10**



## SDG 10 | Indicators

**Target 10.1** By 2030, progressively achieve and sustain income growth of the bottom 40 per cent of the population at a rate higher than the national average

**Aspect Income levels**

Indicator	Unit	Source
Family income and size	EUR/#	25
Low income household	%	16
Mid-level income households: Share of households with an annual income between 25.000 and 50.000 EUR	%	23
High income households: Share of households with more than 50.000 EUR annual income	%	23

**Aspect Income inequalities**

Indicator	Unit	Source
Gini Coefficient	Coefficient (1-100)	4, 7, 8, 28, 30
Income inequalities	Ratio	8, 21, 25
Demonstrate that income inequality in the region and locally is decreasing over time	yes/no	24

**Target 10.2** By 2030, empower and promote the social, economic and political inclusion of all, irrespective of age, sex, disability, race, ethnicity, origin, religion or economic or other status

**Aspect Social inclusion**

Indicator	Unit	Source
People at risk of poverty or social exclusion	%	2, 8, 17, 25, 29, 30
Percentage of local budget dedicated to Deprived Neighbourhoods Areas compared to global local budget	%	8
Demonstrate that at least 80% of residents report positive levels of neighborhood cohesion through community surveys OR Demonstrate an increased percentage of residents reporting positive levels of neighborhood cohesion through community surveys	yes/no	24
Demonstrate that 70% or more of surveyed seniors view the community as meeting their needs	yes/no	24
Demonstrate the following challenges to seniors living independently are less than the national values for: <ul style="list-style-type: none"> <li>• Responsibility for grandchildren;</li> <li>• Disability;</li> <li>• Unemployment;</li> <li>• Food Stamp/SNAP benefits;</li> <li>• 100% below the Poverty Level;</li> <li>• Monthly owner housing costs 30 percent or more of household income; and</li> <li>• Gross rent as a percentage of household income 30 percent or more.</li> </ul>	yes/no	24

**Aspect Cultural inclusion**

Indicator	Unit	Source
Number of food wholesalers and retailers offering specific cultural foods		27
Number of halal meat sales outlets		27
Number of catering companies offering various culturally appropriate meal options		27
Number of vegetarian (or vegan) eating out places		27

Aspect **Economical inclusion**

Indicator	Unit	Source
Economic dependency ratio; non-employed persons /100 employed	%	8
Territorial disparities (neighbourhoods) in employment	Coefficient of variation of territorial employment rates of age group 15-64	8
Demonstrate the percentages of employed are proportional to the population in the labor force for each racial/ethnic group	yes/no	24
Demonstrate unemployment rates are proportional to the population in the civilian labor force for each racial/ethnic group	yes/no	24
Economically active population, male	Absolute #	10
Economically active population, female	Absolute #	10
Unemployment rate by gender	%	8, 20
Employment rate of mothers aged 25 - 49	%	25

Aspect **Political inclusion**

Indicator	Unit	Source
Demonstrate that hiring to local government staff positions reflects the gender, racial, and ethnic diversity of the community	yes/no	24
Demonstrate that appointments to local advisory boards and commissions reflect the gender, racial, and ethnic diversity of the community OR Demonstrate incremental progress in appointing local advisory boards and commission members that reflect the gender, racial, and ethnic diversity of the community	yes/no	24
Demonstrate that hiring to local government leadership positions reflects the gender, racial, and ethnic diversity of the community	yes/no	24
Level of involvement of inhabitants in the elaboration and implementation of projects and programmes in deprived neighbourhoods; i.e. percentage of people living in deprived neighbourhoods participating to the elaboration of projects and programmes	%	8
Demonstrate that public engagement techniques include practices that intentionally and directly engage all residents, including traditionally unrepresented or underrepresented groups, through inclusive, context-sensitive, and transparent decision-making processes	yes/no	24

**Target 10.3** Ensure equal opportunity and reduce inequalities of outcome, including by eliminating discriminatory laws, policies and practices and promoting appropriate legislation, policies and action in this regard

**Aspect** Care and education

Indicator	Unit	Source
Demonstrate an increasing percentage of individuals within each racial, ethnic, and gender subgroup have obtained a high-quality post-secondary educational degree or credential over time	yes/no	24
Increase, or maintain at 85% or above, the percentage of students meeting or exceeding third grade reading proficiency standards for all third grade students in the jurisdiction from each race/ethnicity, special education, English language learners, and low-income subgroup of students	yes/no	24
Increase, or maintain at 90% or above, the average 4-year adjusted cohort high school graduation rate for all students in all public schools in the jurisdiction from each race/ethnicity, special education, English language learners, and low-income subgroup of students	yes/no	24
Absolute Upward Mobility	-/-	28

**Target 10.4** Adopt policies, especially fiscal, wage and social protection policies, and progressively achieve greater equality

**Aspect** Housing

Indicator	Unit	Source
Achievement of targets for creation of new subsidized affordable housing identified in a locally adopted comprehensive housing strategy OR New affordable housing strategies are being produced at a rate of 5% annually	yes/no	1, 24
Building and land subdivision regulations reflect affordability constraints of low income groups (LIG): 1 yes, fully reflecting affordability constraints of LIG 2 yes, reflecting some affordability constraints of LIG 3 no, but revisions are planned 4 no revision is planned given the present constraints	Qualitative	1
Demonstration of no loss of subsidized affordable housing units due to expiring subsidies in the past 3 years	yes/no	24

Aspect **Social aid**

Indicator	Unit	Source
Share of recipients of social aid	%	8, 22, 23
Share of inhabitants under 15 receiving social aid	%	23
Share of inhabitants between 15 and 17 receiving social aid	%	23
Share of inhabitants over 65 receiving social aid	%	23

Aspect **Other**

Indicator	Unit	Source
Funded initiatives that help to reduce the inequalities experienced by vulnerable groups (eg investment in fresh food retail; improvements to housing and kitchens; household fuel bill support; school feeding programmes, etc)	Qualitative indicator	22, 27

Target **10.5 Improve the regulation and monitoring of global financial markets and institutions and strengthen the implementation of such regulations**

*No indicators identified.*

Target **10.6 Ensure enhanced representation and voice for developing countries in decision-making in global international economic and financial institutions in order to deliver more effective, credible, accountable and legitimate institutions**

*No indicators identified.*

Target **10.7 Facilitate orderly, safe, regular and responsible migration and mobility of people, including through the implementation of planned and well-managed migration policies**

Indicator	Unit	Source
Foreigners who live in my city are well integrated	Survey to population	11
The presence of foreigners is good for my city	Survey to population	11

Relation between employment rates of domestic inhabitants and migrants	%	23
Relation between domestic and migrant students leaving school without any exam	%	23
Racial segregation	-/-	28

**Target 10.a** Implement the principle of special and differential treatment for developing countries, in particular least developed countries, in accordance with World Trade Organization agreements

*No indicators identified.*

**Target 10.b** Encourage official development assistance and financial flows, including foreign direct investment, to States where the need is greatest, in particular least developed countries, African countries, small island developing States and landlocked developing countries, in accordance with their national plans and programmes

Indicator	Unit	Source
Foreign Direct Investments	Capital/Earnings accrued from listed FDI's per annum	21

**Target 10.c** By 2030, reduce to less than 3 per cent the transaction costs of migrant remittances and eliminate remittance corridors with costs higher than 5 per cent

*No indicators identified.*





## 11 SUSTAINABLE CITIES AND COMMUNITIES



The 2030 Agenda for Sustainable Development emphasises the importance of cities and their sustainable development and the role they play for the well-being of all people. Over 3.5 billion people live in cities today and in future even more people will live there: By 2030, almost 75 percent of the world's population will be urban inhabitants. Cities are responsible for up to 80 percent of overall energy use and 75 percent of greenhouse gas emissions – their impact is quite big!

### Relevance for cities and local governments

SDG 11 explicitly refers to cities. Common urban challenges include traffic, lack of funds to provide basic services, a shortage of adequate housing, declining infrastructure and rising air pollution within cities. Local governments can support integrated and sustainable urban planning and management. It's in their responsibility to ensure that housing services are affordable, adequate and safe. Low carbon development strategies, sustainable waste management and closed material cycles reduce environmental impacts and the resource foot-prints of cities. In this regard sustainable urban mobility and inclusive public transport systems play an important role. To increase the living quality in cities it's important to provide access to green and public spaces for all. Not only the city itself plays an important role – it is highly connected to peri-urban and rural areas and thus should support positive economic, social and environmental links between those areas. Strategic partnerships with businesses as well as green public procurement can foster sustainable local economies and technological development.

**MAKE CITIES  
AND HUMAN  
SETTLEMENTS  
INCLUSIVE,  
SAFE,  
RESILIENT AND  
SUSTAINABLE.**

## SDG 11 | Overview

Not unexpectedly, a total of 389 different indicators could be allocated to SDG 11. Their distribution shows a focus on target 11.2 (transport systems) that mainly deals with transport modes and public transport. It addresses aspects such as existing transport planning policies and targets, and green transport (e.g. electric vehicles, low emissions public transport fleet).

Target 11.3 (inclusive and sustainable urbanisation) is the second most represented target and includes aspects such as land use, city planning, urban sprawl and citizen participation. There are fewer indicators for sustainable urbanisation, e.g. compactness or land recycling.

Target 11.6 (environmental impact of cities) is displayed by indicators focusing on three topics regulated by European Commission Directives: Air quality (levels of pollutants and exceedance), noise (people exposed to high levels of noise) and waste (solid waste and hazardous waste). This target overlaps strongly with SDG 3 and SDG 12.

Target 11.7 (access to green public space) is addressed by indicators on public open spaces, green areas and parks (with a wide range of metrics), as well as urban blue areas, presence of trees and the perception by local residents.

Target 11.1 (access to adequate housing and basic services) is strongly focused on quality and affordability of housing conditions, including living space, informal housing, evictions and homeless people, housing costs, social housing and subsidies. Accessibility to basic services and food is also addressed.

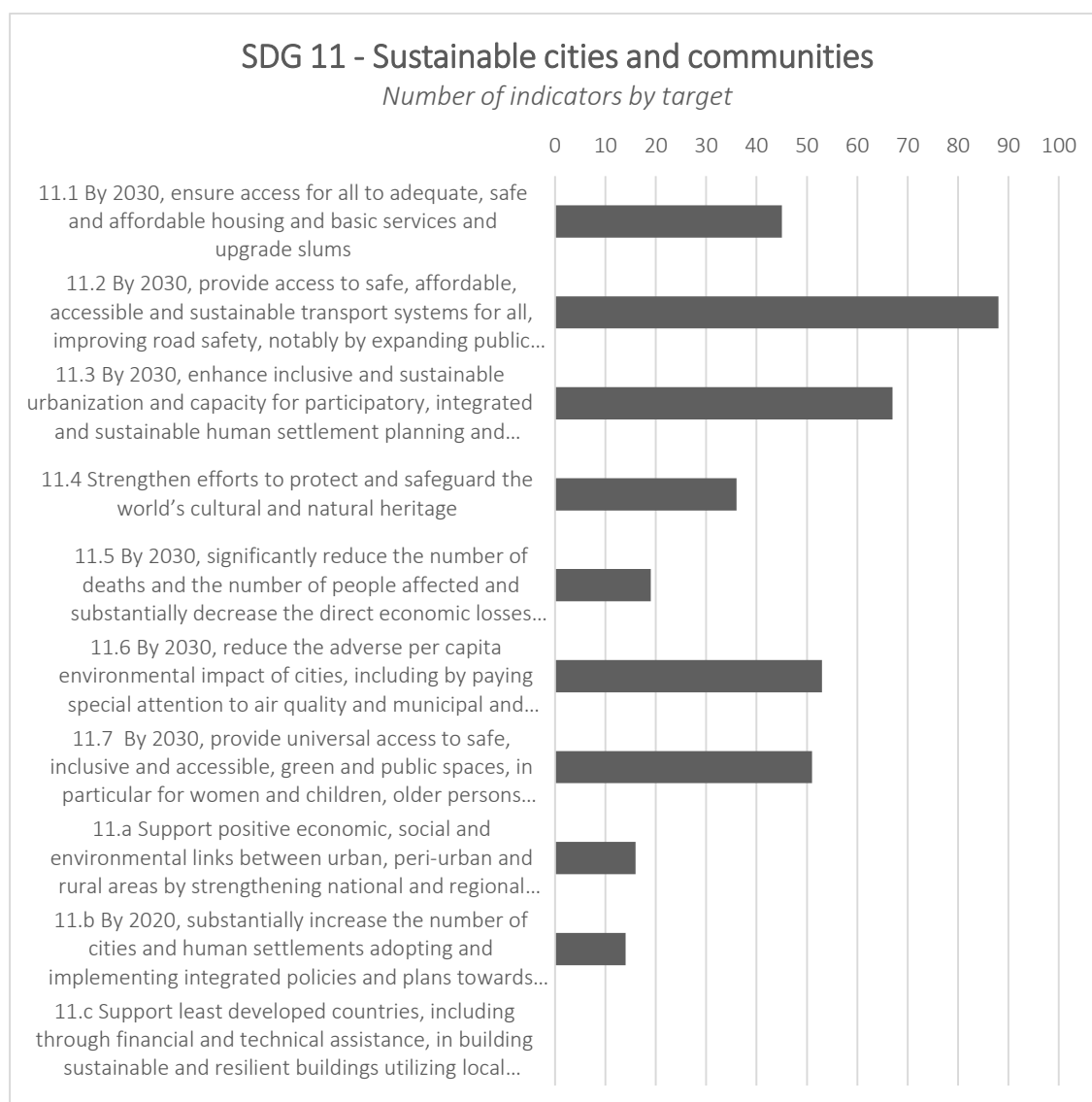
Target 11.4 (cultural heritage) gathers indicators on the presence of historic cultural and natural value found in the city and their related preservation policies. It also proposes indicators on the living culture and recreation possibilities.

Target 11.5 (human and economic impacts of disasters) is mirrored by indicators on related human and economic loss, vulnerability to general environmental disasters and more specifically to floods. It also provides important indicators on the response to emergencies from the public services. Target 11.b (adaptation to, and mitigation of climate change) goes in the continuity of this target as it casts indicators on knowledge of climate change impact and risks, disaster preparedness and resilience, water-related disasters management and respect to code standards to diminish buildings vulnerability.

Target 11.a (regional development planning) compiles a few indicators on urban-urban linkages, including the topic of green infrastructure.

The only target without any indicator allocated is target 11.c (support use of local material in least developed countries), which can be explained by the international dimension of this target – outside of the scope of a European local government.

In summary, there is a good, even overwhelming, coverage of SDG 11 targets with potential indicators. This doesn't surprise too much, as this SDG explicitly addresses cities. In order to assess and further monitor the progress made towards this goal, a thorough selection of the most relevant indicators is recommended.

**Figure 11: Number of indicators identified for targets of SDG 11**

## SDG 11 | Indicators

**Target 11.1** By 2030, ensure access for all to adequate, safe and affordable housing and basic services and upgrade slums

**Aspect** Living space

Indicator	Unit	Source
Housing space	m <sup>2</sup> / capita	8, 10
Households with more than three persons par room	%	1
Residential Overcrowding (by degree of urbanisation)	%	29
Public indoor recreation space	m <sup>2</sup> / capita	6
Public outdoor recreation space	m <sup>2</sup> / capita	6
Sufficient Living Area	%	4

**Aspect** Informal housing

Indicator	Unit	Source
Registered buildings in 2001 versus 2011 (Census Data) over the total surface area of land in the municipality	n/km <sup>2</sup>	20
City inhabitants living in slums, informal settlements or inadequate housing	%	4, 7, 8,
Households that exist without registered legal Indicators	%	6
Area size of informal settlements as a percentage of city area	%	6
Improved Shelter	%	4
Are there regularisation programmes for informal settlements ? 1 yes - already or being implemented year of completion of last regularisation programme: 2 yes - not implemented yet 3 to be implemented soon 4 not planned yet	index	1

Aspect **Adequate housing**

Indicator	Unit	Source
Inadequate housing index	index	25
City population living in inadequate housing	%	6
Total housing stock in compliance with current land and building regulations	%	1
Household connections	n	2
Dwellings lacking basic amenities	%	16

Aspect **Evictions & homeless people**

Indicator	Unit	Source
Men-headed and women-headed households evicted from their dwellings during the past five years (1998-2003 five-year period).	annual number	1
Evictions	%	2
Homeless persons	n/100 000 in-habitants	6
Homeless persons	%	8
Demonstrate the homeless population within the community receives timely housing services or resources	yes/no	24
Beds in social welfare organisation	beds / 1,000 residents	22, 25

Aspect **Housing costs**

Indicator	Unit	Source
Percentage of population living in affordable housing	%	6, 8, 28
Percentage share of income expenditure for housing	%	7
House price & rent	n	2, 8
Rent burdened residents	%	28, 30
Mortgaged Homeowners Spending 30 Percent or More of Household Income on Select Owner Costs	%	28
Ratios between the median price of 1 square metre of highly-developed, de-veloped and raw land and the median household income per month	Ratio	1

Ratio of the median free-market price of a dwelling unit and the median annual household income	Ratio	1, 2
Ratio of the median annual rent of a dwelling unit and the median annual household income of tenants	Ratio	1, 2, 7, 8
Housing cost overburden where the total housing costs (net of housing allowances) represent more than 40% of the total disposable household income (net of housing allowances), rent Burdened Residents	% of pop	28, 29, 30

### Aspect **Social housing & subsidies**

Indicator	Unit	Source
Social/affordable homes delivered	absolute number	8, 10
Social/affordable housing rate	%	8, 21
Achievement of targets for creation of new subsidized affordable housing identified in a locally adopted comprehensive housing strategy OR New affordable housing starts are being produced at a rate of 5% annually	yes/no	1, 24
Demonstration of no loss of subsidized affordable housing units due to expiring subsidies in the past 3 years	yes/no	24
Building and land subdivision regulations reflect affordability constraints of low income groups (LIG): 1 yes, fully reflecting affordability constraints of LIG 2 yes, reflecting some affordability constraints of LIG 3 no, but revisions are planned 4 no revision is planned given the present constraints	Qualitative	1
Citizens' satisfaction with the local community / municipality with regard to standard of housing and its availability and affordability	%	8, 30

### Aspect **Basic services**

Indicator	Unit	Source
Existing basic infrastructure	index	8
Basic services access/proximity	%	6, 8, 9, 21
Difficulties in accessing basic services	% of households	25
Access time to services	Minutes, %	8
Compare "basic services proximity" in the Deprived Neighbourhood Areas relatively to the whole city	% of population	8

Demonstrate increased access and proximity to community facilities, services, and infrastructure in neighbourhoods with the highest percentage of low-income residents and people of colour

yes/no

24

Children's journeys to and from school

n

9

**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

**Aspect Financial accessibility**

Indicator	Unit	Source
Affordability of Transport	N/S	4
Passenger transport prices	index	8
At least 80% of Census block groups where a household earning the Area Median Income (AMI) would spend less than 45% on housing and transportation combined	yes/no	24
At least 60% of Census block groups where a household earning 80% AMI would spend less than 45% on housing and transportation combined	yes/no	24
Average total driving cost is 15% or less of the regional typical household income	yes/no	24

**Aspect Infrastructure – public transport & bikes**

Indicator	Unit	Source
Road density	-/-	28
Non-car transport network (cycling lanes and public transport)	km/m2 of city area	26
Percentage of population living within 0.5 km of public transit running at least every 20 minutes during peak periods	%	6, 7, 8, 28
Proportion (%) of population living within 300 metres of an hourly (or more frequent) public transport service	%	13
Public transport network	km/100 000 inhabitants	4, 6, 7, 25
Public transport by rail (underground and tram lines in the urban area)	Meters/100 inhabitants	19

Percentage of urban public transport stops for which traveller information is dynamically available to the public in real time	%	7
Satisfaction with level of public transport services	% of distribution of different levels	8, 30
Length of bicycle paths and lanes per 100,000 population	km/100 000 inhabitants	6, 7, 19
Number of public transport options/routes connecting low income neighbourhoods to food retail locations	n	27

Aspect **Infrastructure – pedestrians & bikes**

Indicator	Unit	Source
Percentage of pedestrian streets and walkways	%	8
Percentage of the city designated as a pedestrian/car free zone	%	7
90% of roadway length contains sidewalks on both sides or connection pathways	yes/no	24
100% of crosswalks are ADA accessible	yes/no	24
Minimum intersection density of 300 intersections per square mile	yes/no	24
Does your city actively promote walking and cycling as a means of getting around the city?	yes/no	14
Spatial distribution of runners and bikers	n of bikers or runners/hour/km	12

Aspect **Private car**

Indicator	Unit	Source
Number of registered cars	n/100 inhab	19
Drive Alone rate of 60% or less	yes/no	24
Does your city actively discourage the use of private cars as a means of getting around the city?	yes/no	14



Aspect **Shared vehicles**

Indicator	Unit	Source
Number of shared bicycles	n/100,000 inhabitants	in- 7
Number of shared vehicles	n/100,000 inhabitants	in- 7

Aspect **Low-emission vehicles**

Indicator	Unit	Source
Transport energy consumption	GJ	8, 13
Percentage of low-carbon emission passenger vehicles	%	7
Proportion of buses operating in the city that are low emission (at least Euro VI)	%	13, 19
Proportion of buses operating in the city that are alternatively fuelled (electric, hydrogen, LNG etc.)	%	13
Share of electric vehicles owned by the municipality (as a percentage of all cars owned by the municipality)	%	13
Local authority's green bus fleet (not including green diesel)	% of total fleet	19
Number of charging outlets available for cars owned privately in the public space	n/100'000 inhab	13, 30
Demonstration that the number of private and public electric vehicle stations meets or exceeds 1.07 per 10,000 residents OR Demonstrate that the number of private and public alternative fuel stations meets or exceeds 1.52 per 10,000 residents	yes/no	24
Green transport promotion	Assessment of level of extensiveness (score 0 to 10)	26

Aspect **Modal share – all trips**

Indicator	Unit	Source
Does your city have detailed data on the origins and destinations of the journeys taken by the different modes of transport in the city? (e.g. through household destination surveys)	yes/no	14
Does your city systematically collect data about the use and share of different transport modes?	yes/no	14
Local mobility and passenger transportation	Daily passenger transportation distances and modes of transportation	9
Traffic modal split (foot, bicycle, public transport, motorbike, car, unknown)	%	8, 13, 19, 21, 23
Traffic modal share of sustainable transportation for all travel (units: percentage of people by modal type) in 2001 and 2011.	%	20
For all journeys under 5 km, proportion of these journeys undertaken by mixed/multimodal (with a car)	%	13
For all journeys under 5 km, proportion of these journeys undertaken by mixed/multimodal (without a car)	%	13
For all journeys under 5 km, proportion of these journeys undertaken by any other means	%	13
Modal split of freight transport	percentage of trips made by road, rail and inland waterways	8
Percentage of trips by private motorised transport	% of trips	8
Annual number of public transport trips	n/capita	4, 6
Passengers travelling on public transport within the urban area / Public transport passengers	passengers/capita/year	19, 22
Km traveled by public transport	km/capita	19
Car use in all trips (administrative area, inner city)	%	19

Aspect **Modal share – commuters**

Indicator	Unit	Source
Total work trips undertaken by: a) private car; b) train, tram or ferry; c) bus or minibus; d) motorcycle; e) bicycle; f) foot; g) other modes.	%	1, 2, 6, 7, 11
Working population going to work on public transport, by bicycle and by foot	% (to convert on a score 0 to 10)	26
Annual number of public transport trips per capita	n/capita	6
Public Transport Use for Work Commute	%	4, 28
Walking or Bicycling for Work Commute	%	28
Percentage of commuters using a travel mode to work other than a personal vehicle	%	6
Achievement the following thresholds for journey-to-work trips: Drive alone maximum: 60% Bike + Walk + Transit minimum: 25% Bike + Walk minimum: 5%	yes/no	24

Aspect **Commuting time**

Indicator	Unit	Source
Jobs/housing ratio	n	6
Daily Travel / Commuting time (average of all modes of transport)	minutes	1, 2, 4, 6, 25, 28
Average commute time and cost	hours & euros	21
Ratio of travel time during peak periods to travel time at free flow periods	Ratio	7
Demonstration of an annual decrease in vehicle miles traveled measured from a baseline year	yes/no	24

Aspect **Traffic management**

Indicator	Unit	Source
Congestion index	minutes or seconds	8
Congestion reduction policies	level of efforts to reduce vehicle traffic (score 0 to 10)	26
Percentage of road intersections using adaptive traffic control or prioritization measures	%	7
Percentage of major streets monitored by ICT	%	7
Traffic-calming zones	n	22

Aspect **Traffic accidents**

Indicator	Unit	Source
Traffic accidents with deaths	#/100 000 inhabitants	4, 7, 25, 29, 30
Traffic accidents with victims (injuries and deaths)	#/100 000 inhabitants	6, 22, 23
Demonstration that pedestrian and bicyclist fatalities are making incremental progress towards zero fatalities by 2040 OR Demonstration that vehicular fatalities are making incremental progress towards zero fatalities by 2040	yes/no	24

Aspect **Road safety**

Indicator	Unit	Source
Percentage of roadways in good conditions	%	21
At least 90% of existing public infrastructure is in good or better condition OR Demonstration of an increased percentage of existing public infrastructure is in good or better condition over time	yes/no	24
Moderated traffic zones	km <sup>2</sup>	22
70% of roadway length are designed for a travel speed of no more than 25 mph	yes/no	24
Percentage of road intersections using adaptive traffic control or prioritization measures	%	7

Does your city have a plan to improve the infrastructure, attractiveness, safety and security of walking and cycling?	yes/no	14
If you have answered YES does this include plans for increasing dedicated infrastructure for cyclists and pedestrians to separate them from heavy motorised traffic and to reduce travel distances?	yes/no	14

### Aspect **Mobility strategy**

Indicator	Unit	Source
Does your city have a strategy to improve the integration of different modes of transport, including measures aimed and facilitating easy movement between them?	yes/no	14
Has your city undertaken an analysis of the likely future demand (i.e. 5 year forecast or more) for the different transport modes in the city?	yes/no	14
Does your city set goals and objectives in relation to future performance of transport/mobility for the following transport modes: - public transport - private motorised transport - non-motorised transport (cycling and walking)	yes/no	14

### Aspect **Mobility plan**

Indicator	Unit	Source
Does your city have a long-term strategy and implementation plan for the future development of transport and mobility infrastructure and services?	yes/no	14
If you have answered YES does this mobility plan include a clear timetable and budget for delivery?	yes/no	14
If you have answered YES is this mobility plan publicly available?	yes/no	14
If you have answered YES is this mobility plan up to date? (i.e. less than two years old?)	yes/no	14
If you have answered YES does this mobility plan favour a shift towards active modes of transport? (i.e. cycling and walking)	yes/no	14
In your transport planning processes, do you systematically involve:- all city departments that might have an interest in how the transport systems functions, including transport; land-use and spatial planning; social services; energy; health; education; enforcement and policing? - neighbouring urban areas? - neighbouring rural areas? - different levels of administration and government? (e.g. district, municipality, agglomeration, region, and Member States) - citizens and/or representatives of civil society? - major employers in the city? - schools and/or other educational establishments?	yes/no	14

Aspect **Seniors' needs**

Indicator	Unit	Source
Demonstrate the following challenges to seniors living independently are less than the national values for: <ul style="list-style-type: none"> <li>• Responsibility for grandchildren;</li> <li>• Disability;</li> <li>• Unemployment;</li> <li>• Food Stamp/SNAP benefits;</li> <li>• 100% below the Poverty Level;</li> <li>• Monthly owner housing costs 30 percent or more of household income; and</li> <li>• Gross rent as a percentage of household income 30 percent or more.</li> </ul>	yes/no	24
Demonstrate that 70% or more of surveyed seniors view the community as meeting their needs	Yes/no	24

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**Aspect **Land take**

Indicator	Unit	Source
Land take	index	15
Land annually taken for Built-up Areas per Inhabitant	m <sup>2</sup> /capita	29
Ratio of land consumption to population growth rate	m <sup>2</sup> / capita	8, 25
Land uptake per person inside and outside UMZ (LUP)	m <sup>2</sup>	17
Change of Land uptake per person inside and outside UMZ (LUP-DIF)	m <sup>2</sup>	17
Difference of Land uptake per person (LUP)	%	17

Aspect **Land use**

Indicator	Unit	Source
Green land use policies	index	26
Does your city have a detailed map of land-use types for the city and surrounding area?	yes/no	14
Sustainable land use	index	9

Land Use Mix	index	4
Land Use Efficiency	index	4
Share of different land uses	%	10, 12, 13, 23
Built-up Areas per Inhabitant (Residential, Industrial and Commercial areas)	m <sup>2</sup> /capita	12, 29
Is there a vision or strategy for sustainable land use (including urban sprawl, soil sealing and/or redeveloping underused areas)?	yes/no	13
40% of primarily commercial blocks have ground floor street frontages free from blank walls and loading docks, and do not have structured or surface parking as the principal land use along the street	yes/no	24

### Aspect **Urban sprawl**

Indicator	Unit	Source
Urban sprawl index	index	25
Urban Sprawl	%	12
Compactness	%	17
Do you measure and monitor levels of urban sprawl (the spread of built up area) in your city and the surrounding area?	yes/no	14
Dispersion inside and outside UMZ (DIS)	UPU/m2	17
Difference of Dispersion (DIS)	%	17
Change of Dispersion inside and outside UMZ (DIS-DIF)	UPU/m2	17
Urban permeation inside and outside UMZ (UP)	UPU/m2	17
Change of Urban permeation inside UMZ (UP-DIF)	UPU/m2	17
Difference of Urban permeation (UP)	%	17
Change of Urban permeation inside and outside UMZ (UP-DIF)	UPU/m2	17
Landscape fragmentation pressure from urban and transport infrastructure expansion	index	15
80% of buildings along primarily single-family residential blocks have front setbacks that are not more than 25 feet from the property line	yes/no	24

Aspect **Soil sealing**

Indicator	Unit	Source
Soil sealing	%	5, 8, 12, 15, 17, 22, 30
Highly sealed areas	%	17
Low sealed areas	%	17
Demonstrate that 35% of the jurisdiction's land area has designated green stormwater infrastructure providing bioretention and infiltration services OR Demonstrate that no more than 65% of the jurisdiction's land area contains impervious surface	yes/no	24

Aspect **Land recycling**

Indicator	Unit	Sources
Land recycling and densification	index	15
Are the short and long term objectives, and strategic approaches which address the rehabilitation of brown field sites (derelict and/or contaminated land), both for new development and/or desealing measures designed specifically for environmental purposes?	yes/no	13
At least 51% of new residential and non-residential development occurred in locally designated infill and redevelopment areas or on infill sites that were previously developed, brownfield, and/or greyfield sites OR Demonstration of an increased percentage of all new residential and non-residential development occurred in locally designated infill and redevelopment areas or on infill sites that were previously developed, brownfield, and/or greyfield sites	yes/no	24
Brownfield redevelopment	% of total brownfield area	8



Aspect **Future development strategy**

Indicator	Unit	Source
Carry out prospective urban studies	index	8
Within the past 5 years, adopt a systems-based comprehensive plan that establishes a clear vision for the future, concretely addresses subjects in all STAR Goal Areas, identifies performance measures and specific actions that will enable the community to achieve its goals, provides a clear process for implementation, and includes annual reporting on progress OR Achieve official Sustaining Places Designation for the community's comprehensive plan from the American Planning Association (APA)	yes/no	24
Amount of land reserved by the city authorities for future development 1 More than 50% of the present total urban agglomeration 2 30 to 50% of the present total urban agglomeration 3 10 to 30% of the present total urban agglomeration 4 less than 10% of the present total urban agglomeration 5 no land reserve made	index	1
Is there a strategic plan for new developments for the city ? 1 yes, being implemented 2 yes, being implemented partly 3 yes, not implemented 4 plan to be elaborated soon 5 no plan existing nor planned	index	1
Existence of urban development and spatial planning strategies or documents at the city level	yes/no	7

Aspect **Demography**

Indicator	Unit	Source
Demographic / old-age dependency ratio	%	4, 16, 17
The impact of ageing on public expenditure	ratio	8

Aspect **Local budget**

Indicator	Unit	Source
Is there a dedicated budget for implementing the environmental vision?	yes/no	13, 14
Is the city strategic plan accompanied with appropriate funding for implementation?	index	1
1 yes, full funding available		
2 yes, major part of the funds available		
3 yes, some funds available		
4 no funds		

Aspect **Integrated planning**

Indicator	Unit	Source
Has your city a specific policy with measures aimed at:	yes/no	14
- Restricting or minimizing urban sprawl?		
- Optimizing population density both in the total area of the city and inside the built-up area?		
- Converting derelict land (brownfield sites) for use as public green space?		
- Increasing access to green urban areas (e.g increasing connections between the green areas)?		
- Promoting the city's green spaces for citizens and visitors?		
Does your city have an integrated environmental policy framework, vision or management plan?	yes/no	1, 13, 14
Level of implementation of Agenda 21	index	8, 19
Adoption of integrated urban plans (environment, transport, land use)	yes/no	8
Is your city's environmental vision reflected in different strategies and action plans?	yes/no	14
If you have answered YES, does it include links to other policy documents (e.g. urban planning, infrastructure)?	yes/no	14
If you have answered YES have city departments, other than the environmental department, adopted your city's environmental vision or elements of it?	yes/no	14
If you have answered YES does your city have an administrative committee or team, which is devoted to the integration of environmental or sustainability strategies?	yes/no	14
If you have answered YES, does it include a short and long term actions to achieve a more integrated management of environmental policy?	yes/no	14
If you have answered YES, does it include agreed actions to be executed by or for other policy fields?	yes/no	14
Latest approval or revision date of a master plan with an integrated vision for the city as a whole	yes/no	8

Aspect **Participatory planning**

Indicator	Unit	Source
Is the city involving the civil society in a formal participatory process prior to: a. new major roads and highway proposals? b. alteration in zoning? c. major public projects?	yes/no	1, 2
Has it involved representatives from the following? 1 Non-governmental organisations 2 Community based organizations 3 women groups 4 the private sector 5 research institutions 6 universities 7 youth groups	index	1
Has the budgeting process of the strategic plan formally involved representatives from the following? 1 Non-governmental organisations 2 Community based organizations 3 The private sector 4 Universities 5 Women groups 6 Research 7 Youth groups	Qualitative	1
In your transport planning processes, do you systematically involve: - all city departments that might have an interest in how the transport systems functions, including transport; land-use and spatial planning; social services; energy; health; education; enforcement and policing? - neighbouring urban areas? - neighbouring rural areas? - different levels of administration and government? (e.g. district, municipality, agglomeration, region, and Member States) - citizens and/or representatives of civil society? - major employers in the city? - schools and/or other educational establishments?	yes/no	14

Aspect **Satisfaction**

Indicator	Unit	Source
Citizen satisfaction to live in the city	Survey to population	11
Citizens' satisfaction with the local community	% of distribution of different levels	8

Demonstrate that at least 80% of residents report positive levels of neighborhood cohesion through community surveys OR Demonstrate an increased percentage of residents reporting positive levels of neighborhood cohesion through community surveys	yes/no	24
Satisfaction of environment condition among persons > 14 yrs	%	25
Does your city have a prevention plan for litter in the public spaces (and/ or marine litter reduction plan)?	yes/no	14, 26
The level of cleanliness in the city is good	Survey to population	11

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

Aspect **Cultural heritage**

Indicator	Unit	Source
Do you have a heritage preservation policy?	yes/no	8
Good state of historic buildings	%	25
Presence of typical rural landscapes	km <sup>2</sup>	25
Sights and landmarks	Nr/100'000	30
Museums	Nr/100'000	30
Share of listed building restored	%	8
Increase over time the annual number of eligible structures, sites, and landscapes designated as local historic landmarks, added to local historic districts, and/or rehabilitated, restored, or converted through adaptive reuse	yes/no	24
Expenditure of local authority dedicated to the preservation, protection and conservation of cultural heritage per inhabitant	€ / capita	7, 8
Designate at least 1 local historic district per 100,000 residents with specific design standards and a process for reviewing new projects	yes/no	24
Demonstrate that historic preservation efforts have had a positive, measurable impact on the local economy	yes/no	24
Annual expenses of community for cultural heritage	€	25
Financial resources donated to cultural heritage	€/ 100 km <sup>2</sup>	25

Aspect **Living culture**

Indicator	Unit	Source
Number of the cultural institutions per 100,000 inhabitants	n/100 000 in-habitants	7
Engagement in cultural activities of persons > 6yrs	%	25
Engagement in cultural activities of persons > 18yrs	%	8
Demonstrate that public events celebrating social and cultural diversity are held in the community	yes/no	24
Demonstrate that at least 75% of residents live within 1 mile of a community venue that is open to the public and offers free services and/or events for residents	yes/no	24
Demonstrate that at least 20% of adult residents in the county or city visit an art museum annually	yes/no	24
Demonstrate that at least 30% of adult residents in the county or city attend a live performing arts event annually	yes/no	24
Area of total public recreational facilities per 100,000 inhabitants	m <sup>2</sup> /100 000 in-habitants	7
Percentage of municipal budget allocated to cultural and leisure activities	%	8, 22
Concerts & shows	Nr/100'000	30
Citizen's satisfaction with cultural facilities	Nr/100'000	30
Citizens' satisfaction with the local community / municipality with regard to the level of cultural, recreational and leisure services	% of distribution of different levels	8

Aspect **Recreation**

Indicator	Unit	Source
Number of recreation sites	n	12
Area of total public recreational facilities per 100,000 inhabitants	m <sup>2</sup> /100 000 in-habitants	6}, 7}
Accessibility to public recreation sites	Inhabitants within x m from a public park	12

Aspect **Natural heritage**

Indicator	Unit	Source
Native biodiversity in built up area	Number of species	8
Natural Areas in the City	%	5, 12
Percentage of city area protected as natural sites	%	7, 12, 20, 25, 27
Variation rate of the municipality surface area (km <sup>2</sup> ) covered by Natura 2000 network and national network of protected areas registered, in 2003 and 2012.	%	20
Natura 2000 Area in good quality	%	30
Maintain natural resource acreage at 20 acres per 1,000 residents or greater OR Maintain natural resource acreage at 11.5% or more of total jurisdictional land area	yes/no	24
Reduce the difference between the actual acreage restored and targeted acreage established in the natural systems plan or land conservation plan OR Restore degraded natural resource areas at a ratio greater than 1% of developed land area in the jurisdiction	yes/no	24
Landscape deterioration according to persons aged > 14 yrs	%	25
EPA Cleanup sites	#	28

**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

**Aspect Deaths**

Indicator	Unit	Source
Number of natural-hazard-related deaths	n/100 000 inhabitants	6
Number deaths caused by industrial accidents	n/100 000 inhabitants	6
Number of fire related deaths	n/100 000 inhabitants	6

**Aspect Economic loss**

Indicator	Unit	Source
Number and direct economic loss of food production and distribution facilities affected by climate disruptions or disasters	€	27
Economic losses (related to natural disasters) as a percentage of the city's gross domestic product (GDP)	%	7

**Aspect Vulnerability**

Indicator	Unit	Source
Population living in natural hazards prone areas	%	7, 25
Proportion of households living in a housing unit considered as 'durable', i.e. built on a non-hazardous location and has a structure permanent and adequate enough to protect its inhabitants from the extremes of climatic conditions such as rain, heat, cold, humidity. The following locations should be considered as hazardous: - Housing settled in geologically hazardous zones (landslide/earthquake and flood areas); - Housing settled on garbage-mountains; - Housing around high-industrial pollution areas; - Housing around other high-risk zones, e.g. railroads, airports, energy transmission lines. The following durability factors should be considered when categorizing housing units: - Quality of construction (e.g. materials used for wall, floor and roof); - Compliance with local building codes, standards and bye-laws.	%	1

Housing units built on hazardous locations	n/100'000 housing units	1
Demonstrate progress in reducing the risks and exposure to priority environmental justice conditions for priority neighborhoods	yes/no	24
Fire probability index	Index	16

Aspect **Floods**

Indicator	Unit	Source
Population exposed to flood risk, flood prone population	% of population	8, 12, 16
Area prone to flooding	%	16
Areas exposed to flooding	ha	12, 16
Urban Flood Risk	n.a.	29

Aspect **Response to emergencies**

Indicator	Unit	Source
Response time for emergency response services from initial call	minutes	6
Demonstrate that the emergency management community is prepared to manage emergency incidents involving all threats and hazards OR Demonstrate that the local government has received accreditation by the Emergency Management Accreditation Program (EMAP)	yes/no	24
Number of firefighters	n/100 000 inhabitants	6
Number of volunteer and part-time firefighters	n/100 000 inhabitants	6
Demonstrate that 90% of response times are in compliance with standards set by the National Fire Protection Association (NFPA)	yes/no	24
Demonstrate that the fire department has obtained Commission on Fire Accreditation International (CFAI) accreditation	yes/no	24



**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

**Aspect** Air pollution – CO2 emissions

Indicator	Unit	Source
CO2 emissions	t/ inhabitant	4, 26
CO2 intensity	g/ unit of real GDP (base year 2000)	26
CO2 equivalent emissions	CO2equ/ habitant	6, 7, 22, 25
Demonstration of incremental progress towards achieving a 28% reduction by 2025 and/or an 80% reduction by 2050 greenhouse gas (GHG) emissions	yes/no	24
Demonstrate decreased greenhouse gas (GHG) intensity over time	yes/no	24
Number of GHG emission assessments undertaken of the various components of the food system (including different food production systems and transport to the city region)	n	27

**Aspect** Air pollution – Co2 reduction

Indicator	Unit	Source
CO2 reduction strategy	index	26
Has your city taken one or more of the following measures to reduce its CO2 emission equivalents: - District heating and/ or cooling, CHP (combined heat and power) project or passive cooling projects? - Promotion of energy saving renovations (residential buildings) - Developing carbon capture and storage (CCS) technologies? - Other measures not listed above?	yes/no	14
Setting of an energy balance and CO2 reduction target	% by date	19
Number of GHG emission reduction support initiatives related to the food system (e.g. land-use change, agricultural practices, refrigeration and cold-chains, transport, energy use in processing and agro-industries, packaging, cooking/preparation, waste disposal etc)	n	27
Number and types of food businesses receiving guidance on how to reduce their GHG emissions	n	27

Number of food and types of businesses actively working to reduce their own GHG emissions n 27

### Aspect **Air quality**

Indicator	Unit	Source
Quality of the air	Survey to population	11
Air quality index (AQI) based on reported value for: Particulate matter (PM10, and PM2.5), NO2 (nitrogen dioxide), SO2 (sulphur dioxide), O3 (ozone)	µg / m3	7, 12, 22, 23
Exceedances of air quality limit values due to traffic	µg / m3	15
Emissions of pollutants into the atmospheric air	µg / m3	7
Quality of local outdoor air	# of days with good and healthy air quality	7, 9, 25
Is real-time air quality information available on your city's air quality via the internet?	yes/no	14
Number of times the limit of main air pollutants emissions defined by the European directives on air quality is exceeded in urban areas (O3, NO2, SO2, PM2.5 and PM10)	# of days or hours OR %	8, 15, 20
Achieve attainment or maintenance status for all measured criteria pollutants OR Demonstrate a decrease in the annual concentration of the non-attainment criteria pollutant(s) that have the greatest impacts on public health over the past 5 years, specifically PM 2.5, PM10, and ozone + Demonstrate a decrease trend in the annual number of days in which the Air Quality Index (AQI) exceeds 100 over the past 5 years	yes/no	24
Pollutants removed by trees and shrubs (PM10 and PM2.5, SO2, NO2, CO, O3, CO2)	t /ha/year	12

Aspect **Air quality - particulate matter (PM10)**

Indicator	Unit	Source
Number of PM10 monitoring stations	#	13
PM10 concentrations	ug/m3 (annual daily mean)	13, 19, 21, 26
Number of annual occurrences of 24 hour mean of PM10 > 50 ug m-3 (where the limit PM10 permitted by the European directives on air quality is exceeded)	# of exceed- ance (hours/days)	8, 12, 13

Aspect **Air quality - particulate matter (PM2.5)**

Indicator	Unit	Source
Number of PM2.5 monitoring stations	#	13
PM2.5 concentrations	µg/m3	4, 13, 21, 28, 30

Aspect **Air quality - nitrogen dioxide (NO<sub>2</sub>)**

Indicator	Unit	Source
Number of NO <sub>2</sub> monitoring stations	#	13
NO <sub>2</sub> concentrations	ug/m3 (annual daily mean)	13, 19, 26, 30
Number of annual occurrences of hourly mean of NO <sub>2</sub> > 200 ug m-3 (where the limit NO <sub>2</sub> permitted by the European directives on air quality is exceeded)	# of exceed- ance (hours/days)	8, 12, 13

Aspect **Air quality - ozone (O<sub>3</sub>)**

Indicator	Unit	Source
O <sub>3</sub> concentrations	ug/m3 (annual daily mean)	19, 26, 28
Number of annual occurrences of maximum daily 8 hour mean of O <sub>3</sub> > 120 ug m-3 (where the limit Ozone (O <sub>3</sub> ) permitted by the European directives on air quality is exceeded)	# of exceed- ance (hours/days)	8, 12

Aspect **Air quality - sulphur dioxide (SO<sub>2</sub>)**

Indicator	Unit	Source
SO <sub>2</sub> concentrations	ug/m3 (annual daily mean)	26

Aspect **Noise exposure**

Indicator	Unit	Source
Population living within 300 m of quiet areas	%	13
Population exposed to harmful environmental noise	%	6, 7, 9
Share of population exposed to total noise values of Lden, Ln <sub>night</sub>	%	6,7, 8, 9, 13, 15
Population exposed to total noise values of Lden above 55 dB(A)	%	8, 13
Population exposed to total noise values of Lden above 65 dB(A)	%	13
Daytime ambient noise levels do not exceed 60 dBA in target residential areas	yes/no	24
Population exposed to total noise values of Ln (night noise indicator) above 45 dB(A)	%	13
Population exposed to total noise values of Ln (night noise indicator) above 55 dB(A)	%	8, 10, 13
Does your city have a website / city magazine or other well established information source where citizens can easily find information on noise in the city?	yes/no	14
Does your city have a policy in place to protect more sensitive areas from noise (e.g. hospitals/schools, residential, parks)?	yes/no	14
Satisfaction with noise levels	Survey to population	11

Aspect **Noise – policies & actions**

Indicator	Unit	Source
Does your city have an official up-to-date noise map and action plan to reduce noise levels?	yes/no	14, 19
If you have answered YES, does your action plan include: - The setting long and short term objectives with regards to reduce noise levels? - Defined actions to reduce noise levels, including a time-frame and budget to realise the targets? - The establishment of quiet areas in the city?	yes/no	14

Progress toward locally identified ambient noise targets in commercial and natural areas	yes/no	24
Does your city collect data on the 'quality of its acoustic environment' (i.e. the levels of noise across the city at different times of day)?	yes/no	14
Do you have a graphic representation of the sound level distribution existing in your city (i.e. a noise map) available for different times of day and different days of the week?	yes/no	14

#### Aspect **Hazardous waste**

Indicator	Unit	Source
Toxic Release in Air, Water and Land	%	28
Hazardous waste generation	t/capita	6

#### Aspect **Solid waste**

Indicator	Unit	Source
Percentage of municipal waste sent to landfill (or other forms of disposal (Dcodes)	%	13
Diversion of Landfill of biodegradable waste	% of biodegradable waste treated per landfilled	8
The level of cleanliness is good	Survey to population	11

### 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**

#### Aspect **Public open spaces**

Indicator	Unit	Source
Percentage of people living within 300m of a public open area	%	8, 13
Public spaces such as markets, squares, pedestrian areas	Survey to population	11
Land suitable for outdoor recreation	%	12
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	%	28

Does your city have a spatial planning policy or strategy specifically aimed at preserving and adapting open spaces to improve quality of life of citizens?	yes/no	14
If you have answered YES does this include: - specific and measurable objectives and associated actions? - are roles and responsibilities defined? - is there a time-frame for implementation?	yes/no	14
If you have answered YES is the strategy regularly updated?	yes/no	14
If you have answered YES is the strategy publicly available via the internet?	yes/no	14
Accessibility to Open Public Areas	% of population	4

### Aspect **Urban green spaces – surface**

Indicator	Unit	Source
Green area / infrastructure (inside and outside the city)	%	17, 29, 30
Green and blue area which is essential to combat the heat island effect in urban areas (area defined as built-up area lying less than 200 meters apart)	%	18
Green areas (urban or natural)	%	19
Urban green spaces	%	12, 16, 17, 29, 30
Public Green Area	%	13
Private Green Area	%	13
Density of green area	ha/100 000 inhabitants	4, 6, 7, 12, 19, 21, 23, 29
Density of public green urban areas	m <sup>2</sup> /100m <sup>2</sup>	17, 25
Are there any areas allocated for urban agriculture/allotment gardening?	yes/no	13
Does your city measure and monitor changes of total area of green open spaces in the city over time?	yes/no	14
Variation rate of the surface area (km <sup>2</sup> ) of green (urban forests, parks or green spaces) public spaces for 2003 and 2012	%	20

Aspect **Urban green spaces - access**

Indicator	Unit	Source
Percentage of inhabitants with accessibility to green areas	%	7
Percentage of people living within 300 m of green urban areas of any size	%	13
Percentage of people living within 300 m of green urban areas of >5,000 m <sup>2</sup>	%	13
Availability of local public green areas and local services	index	9
Accessibility of green urban areas	m <sup>2</sup> / capita	25, 29
Green urban areas (parks and gardens) availability	m <sup>2</sup> per inhabitant	19
Availability of and access to urban agriculture gardens for residents in the city region (per location or income group)	ha/capita	27
Green zones and recreational areas proximity	% of population	8

Aspect **Parks**

Indicator	Unit	Source
Area of Parks with Natural Areas	ha/inhabitant	5
Demonstration that housing units are located within a 1/2-mile walk distance of public parkland based on population density as follows: High or Intermediate-High: 85% or greater Intermediate-Low or Low: 70% or greater	y/n	24
Ample parkland based on population density as follows: High: 6.8 acres per 1,000 residents Intermediate-High: 7.3 acres per 1,000 residents Intermediate-Low: 13.5 acres per 1,000 residents Low: 20.3 acres per 1,000 residents	index	24
66% or more of surveyed residents visit a park at least once a year OR 66% or more of surveyed residents respond favorably regarding the quality of the community's public park system	yes/no	24
Access to parks	%	28
Frequency of visit to parks	n/year	12
Number of Formal Education Visits per Child Below 16 Years to Parks	n visits	5

Aspect **Urban water**

Indicator	Unit	Source
Urban blue areas	%	17
Demonstrate that all non-industrial water bodies are swimmable and fishable during 90% of days in the past year OR Demonstrate a steady reduction in water closures of at least 2% annually towards achieving 90% of days being swimmable and fishable	Yes/no	24
Contribution of surface water features to the attractiveness of the city and wellbeing of its inhabitants	Self-assessment (score 0 to 10)	18
Bathing water quality of coasts (proportion of coasts with bathing water quality)	%	25
Are there actions to improve the quality of surface waters in your city area and beyond?	yes/no	14
Existence of projects to reconnect citizens with waterbodies e.g. creation of wetland parks, improving water quality to allow for swimming	yes/no	13

Aspect **Presence of trees**

Indicator	Unit	Source
Percentage of trees in the city in relation to city area and/or population size	%	21
60% of block faces contain street trees at no more than 40 feet intervals	yes/no	24
Demonstrate that 85% of the population lives within a 1/3-mile distance from green infrastructure features that provide localized cooling through tree canopy cover or vegetative surfaces	yes/no	24

Aspect **Public spaces – perception**

Indicator	Unit	Source
Satisfaction with public spaces	%	8
The state of the streets and buildings in your neighbourhood	Survey to population	11
The level of cleanliness is good	Survey to population	11
Are green urban areas/green infrastructure perceived as beneficial or costly?	yes/no	13
Is there a budget or plan?	yes/no	13



Does your city monitor user satisfaction with the available green urban spaces? yes/no 14

**Target 11.a Support positive economic, social and environmental links between urban, peri-urban and rural areas by strengthening national and regional development planning**

**Aspect Urban-urban linkages - governance**

Indicator	Unit	Source
To what extent does your city promote the cooperation and /or coordination with other municipalities and/or other levels of government?	List	8
Does your city cooperate with other authorities at different levels or other organisations (regional, national, EU, international) on environmental and sustainability issues?	yes/no	13
Is the city part of national, European or international climate adaptation initiatives like the 'Covenant of Mayors for Climate and Energy'?	yes/no	13

**Aspect Urban-rural linkages - food**

Indicator	Unit	Source
Existence and types of policies, regulations and support for preservation of agricultural land; use of open space/ zoning etc. relevant for the city region in both rural and urban areas	-/-	27
Number of rural-urban linkages that feature in city region food policies, structures and plans	n	27
Existence of land use, housing and development planning policy consideration of the food system within the city region	yes/no	27
Level of coherence of policies and plans that at national level ensure the linkages with the local food system policies	index	27
Presence and number of codes/regulations that allow/promote urban and peri-urban/city region food production	n	27
Total surface area and production volumes of agriculture/community gardens within the city region; in low income areas	ha, t	27
Food procurement contracts which purchase products from the city region	#	27

Aspect **Green infrastructure**

Indicator	Unit	Source
Effective green infrastructure (urban hinterland)	%	17
Hotspot ratio (hinterland)	%	17
Is there a vision on green areas/green infrastructure within the urban tissue (or on the connection of urban green landscapes to rural or natural 'hinterland')?	yes/no	13
The concept of 'corridors' or connected spaces for wildlife across the city is included in the action plans	yes/no	14, 24
Increase the amount of natural or restored areas directly connected to regional natural systems in order to improve ecosystem services	yes/no	24
Connectivity measures in place	ha	5, 8

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**

Aspect **Risk knowledge**

Indicator	Unit	Source
Existence of hazard mapping? 1 yes - fully operational and used for all properties 2 yes - not used for all properties 3 yes - no operational yet 4 planned to be implemented in the next five years 5 not planned yet	qualitative	1
Existence of vulnerability assessment of all city region food system infrastructure to climate and disaster risks (including households)	yes/no	27

Aspect **Disaster preparedness & resilience**

Indicator	Unit	Source
Disaster prevention & mitigation	yes/no	2
Number of presence of disaster risk reduction, climate change and emergency plans that include food system concerns	-/-	27
Number of specific risk reduction and climate adaptation/resilience measures for food production, storage, transport and distribution that are in place/being developed	-/-	27
Resilience Plans: This involves implementation of risk and vulnerability assessments, financial (capital and operating) plans and technical systems for disaster mitigation addressing natural and human induced disasters and hazards	Qualitative (e.g. yes/no), including possible additional remarks on any response provided. For example: a city may have infrastructure and systems for resilience, yet they may not be adequate.	7, 8
Has your city taken the following measures to improve its flood resilience? - Rainwater is kept on site (infiltration, buffering ...)? - Inform, promote and realise green roof projects or (semi) permeable surfaces for instance for driveways? - Improving green-blue networks to e.g. increase infiltration capacity? - Inform citizens on the importance of behavioral change? (awareness raising campaigns on flood prevention, for instance the importance of using permeable paving or no paving in a garden, and on what to do when a flood occurs) - Other innovative measures?	yes/no	14
Demonstrate a measurable reduction in vulnerability and/or increase in resiliency to existing communitywide hazard threats over time	yes/no	24

Aspect **Water-related disasters management**

Indicator	Unit	Source
Does your city have a flood protection management plan? (This plan could be set up for your city only or include several municipalities)	yes/no	14
If you have answered YES, does it include: - targets and actions to reduce the likelihood of floods occurring? - targets and actions to increase your city's capacity to react to a flood when it does occur?	yes/no	14

Climate adaptation measures and their implementation to protect citizens against flooding and water scarcity related to climate change (e.g. green roofs, rainwater harvesting, safety plans etc.).	Score 0-10	18
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Aspect **Respect to code standards**

Indicator	Unit	Source
Reduce over time the number of homes below code standards that are located in designated high risk areas OR Reduce over time the percentage of residents living in designated high-risk areas	yes/no	24
Reduce over time the critical infrastructure below code standards that is located in designated high risk areas	yes/no	24
Existence of building codes to prevent the effects of natural disasters? 1 yes, with codes always applied 2 yes, with codes applied in some cases 3 yes, with codes never applied 4 none	index	1

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

*No indicators identified.*



## 12 RESPONSIBLE CONSUMPTION AND PRODUCTION



Sustainable consumption and production is important to achieve global development plans, reduce future economic, environmental and social costs, strengthen economic competitiveness and reduce poverty. If human society continues to develop at its current pace, it is estimated that global resource use will quadruple within the next two decades. Thus sustainable consumption and production is key to promoting resource and energy efficiency, sustainable infrastructure, and providing access to basic services, green and decent jobs and a better quality of life for all.

### Relevance for cities and local governments

Cities as public authorities can play a key role and set a good example: They are large buyers and thus have a certain market power. The increasing urbanisation will cause also increasing consumption of energy, land and water. The purchasing decisions cities make can help influencing the development of new, more sustainable products and services. Therefore, ensuring sustainable public procurement that takes resource use and emissions into account plays a key role for SDG 12. A further step needed is to support and develop short supply chains to avoid transport and carbon emissions. Like in SDG 11 strengthening waste management systems, encouraging recycling, reduction and recovery of waste supports a sustainable way of development. Citizens should be encouraged and enabled to choose products and services with a lower resource footprint.

**ENSURE  
SUSTAINABLE  
CONSUMPTION  
AND  
PRODUCTION  
PATTERNS.**

## SDG 12 | Overview

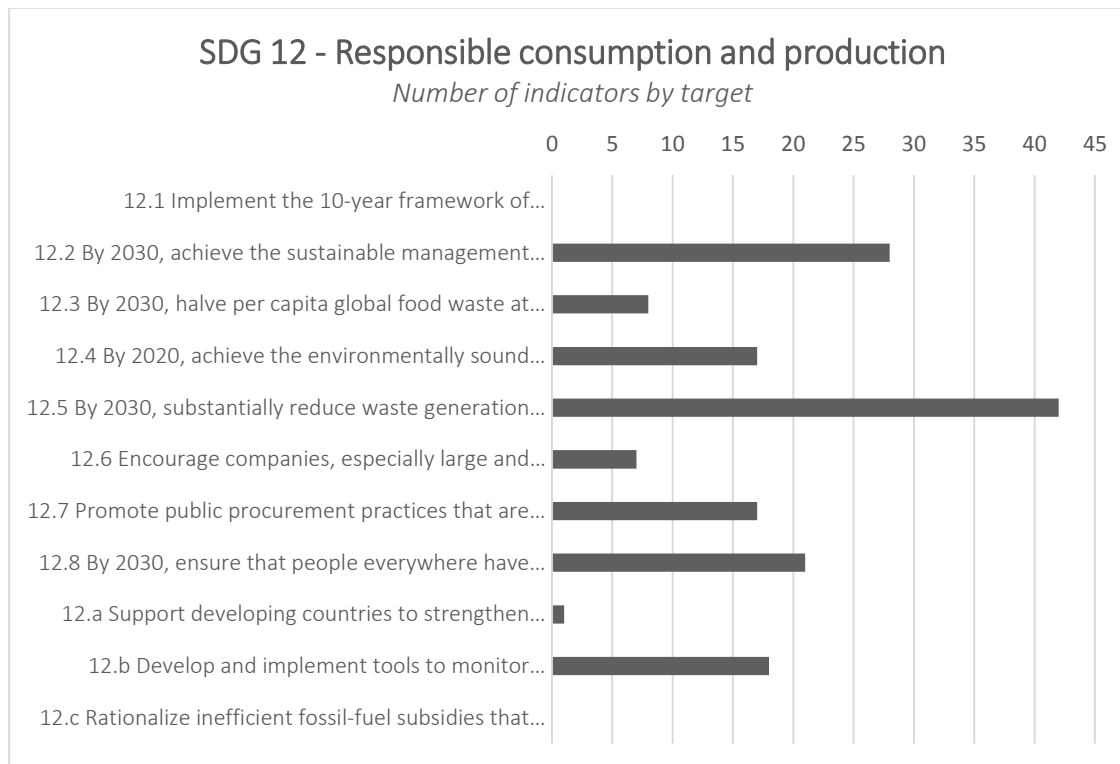
In SDG 12, a variety of aspects of a circular economy and a sustainable society are addressed. Indicators allocated show a predominance in target 12.5 (waste reduction), measuring aspects such as waste generation, collection, recycling, management, prevention and reduction, as well as waste recovery in the food system.

Target 12.2 (sustainable and efficient use of natural resources) is the target second most represented by indicators, which address issues such as general resource management and resource use efficiency (e.g. land, buildings, energy, industry, water, food and forests). Targets 12.8 (information and awareness), 12.7 (sustainable public procurement) and 12.4 (management of chemicals and other wastes) can count on decent numbers of potential indicators as well.

Most other targets are sufficiently covered by indicators, except for targets 12.1 and 12.c: Whilst target 12.1 is specifically linked to the UN 10-Year Framework Programme on sustainable production and consumption, target 12.c seems not to be of much relevance for local policy making as it is about subsidies for fossil-fuels, which are typically decided at national level.

A large number of those indicators sets screened contributes to this SDG, particularly the EU Green City Tool and EEA Urban Metabolism Framework. There is a good balance between qualitative and quantitative units of measurement.

**Figure 12: Number of indicators identified for targets of SDG 12**



## SDG 12 | Indicators

**Target 12.1** Implement the 10-Year Framework of Programs on sustainable consumption and production (10YFP), all countries taking action, with developed countries taking the lead, taking into account the development and capabilities of developing countries

*No indicators identified.*

**Target 12.2** By 2030, achieve sustainable management and efficient use of natural resources

**Aspect General**

Indicator	Unit	Source
Has the city established a long-term strategic plan for sustainable development? 1 yes, being implemented 2 yes, being implemented partly 3 yes, not implemented 4 plan to be elaborated soon 5 no plan existing nor planned	qualitative	1
Has your city taken initiatives to promote the creative 'green industry' (e.g. jobs in energy efficiency, circular economy, promoting nature and biodiversity in cities etc.)?	yes/no	14
Has your city defined and carried out projects or actions to increase green skills or jobs and promoting the circular economy with: - Citizens? - Industry? - Its own employees, integrating green economy thinking in the city's system and management?	yes/no	14
If you have answered YES, does your plan include targets on 'smart' developments for eco-innovation or circular economy, i.e. innovations that address material use & improve resource efficiency?	yes/no	14

Aspect **Energy**

Indicator	Unit	Source
Clean and efficient energy policies	Assessment of level of extensiveness (score 0 to 10)	19, 26
Has your city made an assessment of the potential for energy efficiency / demand reduction?	yes/no	14
Economic value of energy production (including biogas) from organic and food waste in city region	euros	27

Aspect **Buildings**

Indicator	Unit	Source
Adopt innovative sets of codes or ordinances that comprehensively advance sustainable practices and raise environmental standards	yes/no	24
Energy-efficient buildings standards	Assessment of level of extensiveness (score 0 to 10)	26
Energy-efficient buildings initiatives	Assessment of level of extensiveness (score 0 to 10)	26
Percentage of public buildings using integrated ICT systems to automate building management and create flexible, effective, comfortable and secure environment	%	7
Attempts to improve the energy performance (i.e. energy efficiency standards particularly of municipal buildings) above national requirements	yes/no	13
Does your city have an strategy or plan for increasing energy efficiency / reducing energy demand in: - Private homes / households? - Businesses/industry? - Public services (i.e. schools, hospitals, municipal buildings etc.)	yes/no	14
Climate-robust buildings (policies in place to promote energy efficiency for heating and cooling of houses and buildings, including the use of geothermal energy)	Qualitative (score 0 to 10)	18
Demonstration of incremental progress towards achieving an 80% reduction by 2050 in energy used by community buildings or industrial processes OR Demonstrate incremental progress towards achieving an 80% reduction by 2050 in energy use within specific residential, commercial, and industrial sectors	yes/no	24



Aspect **Food Sector**

Indicator	Unit	Source
Number of development support programmes for food businesses with a focus on improving i) performance (efficiency, profitability, marketing) and ii) sustainability, (reduced GHG emissions etc)	Number	27
Renewable energy and energy efficiency measures across the food system	Number & Qualitative	27
Number of farms with closed loop input systems & lower external input requirements	Number	27

Aspect **Forest**

Indicator	Unit	Source
Share of forests with sustainable management certification	%	23

Aspect **Industry**

Indicator	Unit	Source
Increase the percentage of working lands that use certified management practices for a locally selected industry over time	yes/no	24

Aspect **Water**

Indicator	Unit	Source
Ratio of water withdrawals for human use to the total renewable water resources is less than 0.2 OR Ratio of water withdrawals for human use to the total renewable, stored, and allocated water resources is less than 0.2	yes/no	24
Demonstrate a local Watershed Health Index of greater than or equal to 70 OR Demonstrate that the amount of water withdrawn from the system for human uses does not exceed the amount of freshwater entering the system through precipitation, river flow, and other sources	yes/no	24
Annual water losses in 2003 and 2012	m3/person/year	20
WWT energy efficiency	Qualitative (score 0 to 10) self-assessment	18
Management and action plans (application of the concept of Integrated Water Resources Management (IWRM) in the city)	Qualitative (score 0 to 10) self-assessment	18
Water efficiency and treatment policies	Assessment of level of comprehensiveness to improve the efficiency of water usage and the treatment of wastewater (score 0 to 10)	26
Water efficiency measures	Qualitative (score 0 to 10) self-assessment based on information from public sources (national/regional/local policy document, reports and websites of actors (e.g. water companies, cities, provincial or national authorities)	18

**Target 12.3** By 2030, halve per capita global food waste at the retail and consumer level, and reduce food losses along production and supply chains including post-harvest losses

**Aspect Quantity**

Indicator	Unit	Source
Total volume, economic value and percentage of food lost & wasted along the food chain in the city region	Tons/capita, euros, %	27
Volumes of total on-farm food losses (e.g. due to lack of adequate storage, lack of labour etc)	Tons/capita	27
Annual volume of total urban food waste sent for disposal	Tons/capita	27
Annual volume and proportion of total food waste produced by specific food businesses (by type of business)	Tons/capita, %	27
Annual volume and proportion of total food waste produced by households in the city region	Tons/capita, %	27

**Aspect Policies**

Indicator	Unit	Source
Presence of policy or strategy that appropriately addresses practical issues of i) food loss and waste prevention, ii) reduction and iii) recycling	Qualitative	27
Number of local/regional policies and programmes that adhere to national food loss and waste programmes and guidelines	Number	27
Has your city implemented one or more food waste prevention programme?	yes/no	14

**Target 12.4** By 2020, achieve environmentally sound management of chemicals and all wastes throughout their life cycle in accordance with agreed international frameworks and significantly reduce their release to air, water and soil to minimize their adverse impacts on human health and the environment

**Aspect General**

Indicator	Unit	Source
Status (quality & contamination) of natural resources (water, land, forest, biodiversity)	Index	27
Contaminated sites	m <sup>2</sup>	25

**Aspect Hazardous waste**

Indicator	Unit	Source
Toxic Release in Air, Water and Land	%	28
Hazardous waste generation	t/capita	6
Percentage of the city's hazardous waste that is recycled	%	6
Established collection systems for hazardous waste for WEEE	kg/capita/year	13
Established collection systems for hazardous waste for batteries	kg/capita/year	13
Established collection systems for hazardous waste for waste oils	kg/capita/year	13
Established collection systems for hazardous waste for household chemicals	kg/capita/year	13
Established collection systems for hazardous waste for asbestos	kg/capita/year	13
Established collection systems for hazardous waste for construction & demolition waste	kg/capita/year	13
Established collection systems for hazardous waste for unused pharmaceuticals	kg/capita/year	13
Demonstrate that the emergency management community is prepared to manage emergency incidents involving all threats and hazards OR Demonstrate that the local government has received accreditation by the Emergency Management Accreditation Program (EMAP)	yes/no	24

Aspect **Agriculture**

Indicator	Unit	Source
Presence of regulations supporting biodiversity, soil and ecosystem health and/or regulating use of chemical inputs/sustainable farming practices	-/-	27
Proportion of agricultural area under productive and sustainable agriculture	% of agricultural area	8
Organic farming	% of agricultural area	8
Share of eco-certified agricultural companies in the urban area	% of agricultural companies	8

Target **12.5 By 2030, substantially reduce waste generation through prevention, reduction, recycling, and reuse****Waste generation**

Indicator	Unit	Source
Waste generation	index	15
Total municipal (solid) waste generated (domestic and commercial)	kg/capita/year	6, 8, 10, 13, 17, 18, 19, 20, 21, 22, 23, 26, 30
Household waste generated	kg/capita/year	19
Has your city made projections of future levels of waste generation?	yes/no	14
Does your city systematically collect data on the generation, collection and treatment of waste from: - Private homes / households - Businesses/industry - Public services (i.e. schools, hospitals, municipal buildings etc.)	yes/no	14

Aspect **Waste collection**

Indicator	Unit	Source
Solid waste collected	kg/capita/year	4, 6, 18
Urban waste at waste deposits	% of urban waste	25
Municipal waste processed according to differentiated reuse collection schemes (separated / recycled)	%	19, 20, 22, 25
City households with regular solid waste collection	%	1, 6, 7
Percentage of municipal waste that is collected separately	%	13
Percentage of packaging waste that is collected separately	%	13
Are the following fractions collected and/or sorted separately after kerbside collection in your city? - Plastics - Glass - Cardboard and paper - Metal - Food waste - Green waste - Waste electrical and electronic equipment - Hazardous waste - Other fractions	yes/no	14
Which of the following fractions can be disposed of separately or sorted at publicly accessible waste disposal sites (i.e. by citizens, companies etc)? - Plastics - Glass - Cardboard and paper - Metal - Food waste - Green waste - Waste electrical and electronic equipment - Hazardous waste - Other fractions	yes/no	14

Aspect **Waste recycling**

Indicator	Unit	Source
Percentage of the city's solid waste that is recycled	%	6, 8, 13, 21, 25, 30
The percentage of solid waste dealt with in the following ways should be reported on: a) disposed to sanitary landfills; b) burnt in an open area; c) incinerated; d) disposed in an open dump; e) recycled; f) composted; g) digested; h) other (with regard to total amount of solid waste produced).	% for each treatment	1, 2, 3, 6, 7, 18, 19
Energy recovery from solid municipal waste	%	13, 18
Percentage of municipal waste sent to landfill (or other forms of disposal (Dcodes)	%	13
Percentage of recycled packaging waste	%	13
Diversion of Landfill of biodegradable waste	% of biodegradable waste treated per landfilled	8
Percentage of municipal bio-waste that is recycled (through composting and digestion)	%	13
Demonstration of incremental progress towards achieving a 100% reduction by 2050 in total solid waste generated within the jurisdiction that is disposed of via landfill, waste-to-energy facility, or incinerator	yes/no	24
Achievement of a solid waste recycling rate of 40% or greater	yes/no	24

Aspect **Waste management**

Indicator	Unit	Source
Do you have a policy relating to the management of biodegradable municipal waste?	yes/no	14
If you have answered YES does your programme include: - A description and evaluation of the existing waste prevention measures? - An overview of planned prevention measures? - Short and long term waste prevention objectives with appropriate specific qualitative or quantitative benchmarks? - A monitoring/assessment programme?	yes/no	14
If you have answered YES does your programme include: - Measures to fight street littering? - Measures aimed at reducing the use of unnecessary packaging? - A ban on free plastic carrier bags? - Other litter prevention measures not listed above?	yes/no	14
The level of cleanliness is good	Survey to population	11

Aspect **Waste prevention & reduction**

Indicator	Unit	Source
Does your city set recycling targets for household or municipal wastes?	yes/no	14
Waste reduction and policies	Assessment of level of extensiveness (score 0 to 10)	26
Has your city estimated the financial costs / investment needed to maintain and develop waste management in the city in the future? (including planned new installations, closure of old installations)?	yes/no	14
Does your city have a published, up-to-date management plan for municipal waste?	yes/no	14
Does your city (or region) have a waste prevention programme (separately or as part of a waste management plan) relating to municipal waste?	yes/no	14



Aspect **Waste recovery - food systems**

Indicator	Unit	Source
Annual volume of waste-water originating from the city region (safely) used in city region agricultural production	Litres	27
Annual amounts of (waste) energy generated in the city region and used in city region food production and processing	kWh	27
Annual volumes of city-generated organic waste recycled in the city region food system	Tons/capita	27
Annual volume of food waste recycled in feed, compost, energy recovery, etc – as context allows	Tons/capita	27
Annual volume of total urban safe and nutritious food recovered and redistributed for direct human consumption	Tons/capita	27
Annual amounts of (waste) energy generated in the city region and used in city region food production and processing	Tons/capita	27
Number of ways in which city-generated waste is recycled in the city region food system (water, energy, food, organic waste, soil nutrients)	Number & Qualitative	27

Aspect **Waste reduction - food systems**

Indicator	Unit	Source
Number of public campaigns on reducing or recycling of packaging materials targeting food business and consumers	Number	27
Number and type of food business promoting minimal use of packaging or using recyclable or bio-degradable packaging materials	Number & Qualitative	27

Aspect **Circular economy**

Indicator	Unit	Source
Has your city implemented one or more of the following measures: - 'Circular economy' business models, aimed at encouraging the reuse, repair and/or recycling of products (e.g. setting up repair cafes, bicycle repair cooperatives, product leasing schemes, product char or exchange schemes etc)? - Promotion of the use of recycled and recyclable, renewable and sustainable materials (e.g. FSC wood, hedges instead of fences ...)? - Support for industrial symbiosis between local business?	yes/no	14
Number of initiatives for promoting and enabling sharing, reuse and repair such as, repair cafés, etc. initiated or facilitated by the municipality	#	13

**Target 12.6 Encourage companies, especially large and trans-national companies, to adopt sustainable practices and to integrate sustainability information into their reporting cycle**

Indicator	Unit	Source
Green management	Assessment (score 0 to 10)	26
Sustainable management of the local authority and local businesses (public and private organisations adopting and using environmental and social management procedures)	%	9 8
Sustainable management of the local authority and local businesses with certification (organisations (that have adopted certified environmental or social management procedures)	%	8
Number of organisations with registered environmental management systems according to EMAS and/or ISO 14001	Number/1000 businesses	8, 23
Eco-labels	Number/1000 businesses	8
Increase the percentage of working lands that use certified management practices for a locally selected industry over time	yes/no	24
Share of eco-certified agricultural companies in the urban area	% of agri companies	8

**Target 12.7 Promote public procurement practices that are sustainable in accordance with national policies and priorities**

**Aspect General public procurement**

Indicator	Unit	Source
Including of elements of locality and sustainability in public procurement regulations	rate of 1 - 5	8
Products promoting sustainability - green purchasing of local authority	% of retail outlets selling eco-labelled, organic, energy-efficient, certified timber and fair-trade products	8, 9
Share of Green Public Procurement	% of annual procurement	8

Number of public and private sector organisations adopting fair and equitable food procurement policies (including Fairtrade) and paying a fair price/wage to workers in the food chain	nr	27
Green public procurement procedures and purchasing (Photocopier/printer, washing/Cleaning detergents, Building materials, Office furniture, School furniture, Food, toilet towels, etc)	% on total purchases	19

### Aspect **Food procurement**

Indicator	Unit	Source
Number of sustainable and local food public procurement policies and action plans that are being implemented	nr	27
Share of sustainable food in public canteen and catering	%	8
Demonstrate an increase over the past 3 years in the food service sales of fresh fruits and vegetables in the largest public school district	yes/no	24
Total volumes of annual local food sales in the city region for different market types (e.g. farmers markets, public sector food procurement, direct to consumers)	Tons & Qualitative	27
Procurement of local/total food from local sources by public institutions (municipal agencies, publicly funded community organisations, schools, hospitals, health clinics, prisons, universities)	Qualitative	27

### Aspect **Other**

Indicator	Unit	Source
Share of total local government investment directed towards renewable energy	%	23
Share of public expenditures used for fair trade products	%	23

Aspect **Certifications**

Indicator	Unit	Source
Eco-management and audit scheme for municipal operations	yes/no	13
Does your city organisation have a certification of "Environmental management systems"?	no. of EMAS orgs	8
EMAS and ISO 14001 certification for the local authority	% of all departments	19
Use of recycled paper in offices / Local governments' recycled paper purchasing	% on total purchased paper	19
Percentage area of public buildings with recognized sustainability certifications for ongoing operations	%	7

Target **12.8 By 2030, ensure that people everywhere have the relevant information and awareness for sustainable development and lifestyles in harmony with nature**Aspect **Awareness level**

Indicator	Unit	Source
Awareness of climate change	%	16
Consumer awareness on healthy diets/ safe food/ environmental impacts of their food consumption among different groups	Qualitative	27
Number of city residents involved in community –based food activities (education, campaigns, food growing, processing or marketing, communication etc.)	Number	27

Aspect **Access to information**

Indicator	Unit	Source
Level of implementation of Agenda 21	index	8, 19
Existence of a place opened frequently to inhabitants and focussed on local sustainable development projects or policies	Y/N	8
Does your city have policies aimed at raising awareness amongst citizens and city visitors about the benefits nature and biodiversity in the city?	yes/no	14
Do you provide information to citizens on how they can help improve the air quality in their direct environment?	yes/no	14

Does your city have a website / city magazine or other well established information source where citizens can easily find information on noise in the city?	yes/no	14
Percentage of urban public transport stops for which traveller information is dynamically available to the public in real time	%	7

### Aspect **Awareness campaigns**

Indicator	Unit	Source
Measures to trigger stakeholder engagement in the city to improve overall energy demand performance preferably including local government institutions, local market actors and citizens, cooperations	yes/no	13
Education and Awareness: Number of Outreach or Public Awareness Events Held in the City per year	n	5
Presence of wider communication and public awareness campaigns about collective action on food system changes	Qualitative	27
Are following innovative tools or methods used in the environmental department? - Citizen participation in environmental enforcement and/or policy making? - Using apps, smart city initiatives and citizen science applications? - Awareness raising campaigns on environmental issues? - Setting up co-creation processes and developing projects together with groups of citizens or external stakeholders, for example? - Other innovative measures?	yes/no	14
Has your city taken on one or more of the following measures to save water: - Inform citizens on sustainable gardening practices? - Inform on and promote the use of rainwater in residential buildings for e.g. toilets, washing machines, etc. (building requirement, permitting, etc.)? - Other innovative measures?	yes/no	14
Has your city taken the following measures to improve its flood resilience? - Rainwater is kept on site (infiltration, buffering ...)? - Inform, promote and realise green roof projects or (semi) permeable surfaces for instance for driveways? - Improving green-blue networks to e.g. increase infiltration capacity? - Inform citizens on the importance of behavioral change? (awareness raising campaigns on flood prevention, for instance the importance of using permeable paving or no paving in a garden, and on what to do when a flood occurs) - Other innovative measures?	yes/no	14
Number of public campaigns on reducing or recycling of packaging materials targeting food business and consumers	number	27

Aspect **Children awareness**

Indicator	Unit	Source
Describe cohesive programs, services, or annual events that educate residents about wide-ranging sustainability issues in the community OR Implement a local sustainability literacy program within the local public school system	yes/no	24
Education and Awareness: Is Biodiversity or Nature Awareness Included in the School Curriculum	index	5
Number of school students participating in farm to school education programmes	number	27

Target **12.a Support developing countries to strengthen their scientific and technological capacities to move towards more sustainable patterns of consumption and production**

Indicator	Unit	Source
Share of the city budget dedicated to support environmental R&D by public and private entities	%	13

Target **12.b Develop and implement tools to monitor sustainable development impacts for sustainable tourism which creates jobs, promotes local culture and products**Aspect **Tourism sector**

Indicator	Unit	Source
Tourism: Nights spent	%	17
Tourism sector drinking water consumption	litres/capita/year	13

Aspect **Cultural heritage**

Indicator	Unit	Source
Do you have a heritage preservation policy?	yes/no	8
Good state of historic buildings	%	25
Sights and landmarks	Nr/100'000	30
Museums	Nr/100'000	30
Share of listed building restored	%	8
Increase over time the annual number of eligible structures, sites, and landscapes designated as local historic landmarks, added to local historic districts, and/or rehabilitated, restored, or converted through adaptive reuse	yes/no	24
Expenditure of local authority dedicated to the preservation, protection and conservation of cultural heritage per inhabitant	€ / capita	7, 8
Designate at least 1 local historic district per 100,000 residents with specific design standards and a process for reviewing new projects	yes/no	24
Demonstrate that historic preservation efforts have had a positive, measurable impact on the local economy	yes/no	24
Annual expenses of community for cultural heritage	€	25
Financial resources donated to cultural heritage	€/ 100 km <sup>2</sup>	25

Aspect **Jobs**

Indicator	Unit	Source
Percentage of the city-related labour force working in the tourism industry	%	7
Percentage of green jobs in the local economy	%	21
Proportion of jobs in sustainable agri-food tourism sector out of total city region tourism jobs	%	27

Aspect **Products**

Indicator	Unit	Source
Number of brands and labels developed for food from the city region (e.g. "local food")		27
Demonstrate an increase over the past 3 years in the production of goods from local working lands OR Demonstrate an increase over the past 3 years in sales from goods produced on local working lands	yes/no	24

Target **12.c Rationalize inefficient fossil fuel subsidies that encourage wasteful consumption by removing market distortions, in accordance with national circumstances, including by restructuring taxation and phasing out those harmful subsidies, where they exist, to reflect their environmental impacts, taking fully into account the specific needs and conditions of developing countries and minimizing the possible adverse impacts on their development in a manner that protects the poor and the affected communities**

*No indicators identified.*





## 13 CLIMATE ACTION



Climate change doesn't know any borders, it's affecting every country and every continent. Its impacts are changing weather patterns and rising sea levels. Weather events are becoming more extreme and greenhouse gas emissions are currently at their highest levels ever. If no action is undertaken the world's average surface temperature will surpass 3 degrees centigrade this century. Thus countries adopted the Paris Agreement at the COP21 in Paris, which went into force in November of 2016 and had been ratified by 175 parties as of April 2018. In the agreement, all countries take responsibility to limit global temperature rise to below 2 degrees centigrade. The solution of this challenge are cleaner and more resilient economies, based on renewable energy and energy efficiency to reduce emissions, adapt to climate change and enhance resilience.

### Relevance for cities and local governments

70% of energy-related carbon dioxide is generated by cities because of energy production and transportation based on fossil fuels, industry, and biomass consumption. Reason enough to take responsibility. Greenhouse gas emissions have to be decreased, and low emission plans have to be developed. As stated above, extreme weather events like storms, floods and heavy rains are issues cities more and more have to cope with. Inclusive approaches to achieve climate change mitigation and adaptation are thus crucial for all local governments, followed by low emission development strategies that include plans for carbon neutral transportation systems, smart grid networks, and green growth. Urban planning has to face construction and infrastructure that are more resilient to climate change risks. And citizens need to be involved.

**TAKE URGENT ACTION TO COMBAT CLIMATE CHANGE AND ITS IMPACTS.**

## SDG 13 | Overview

SDG 13 gathers 42 different indicators for the assessment and monitoring of only two of its five targets.

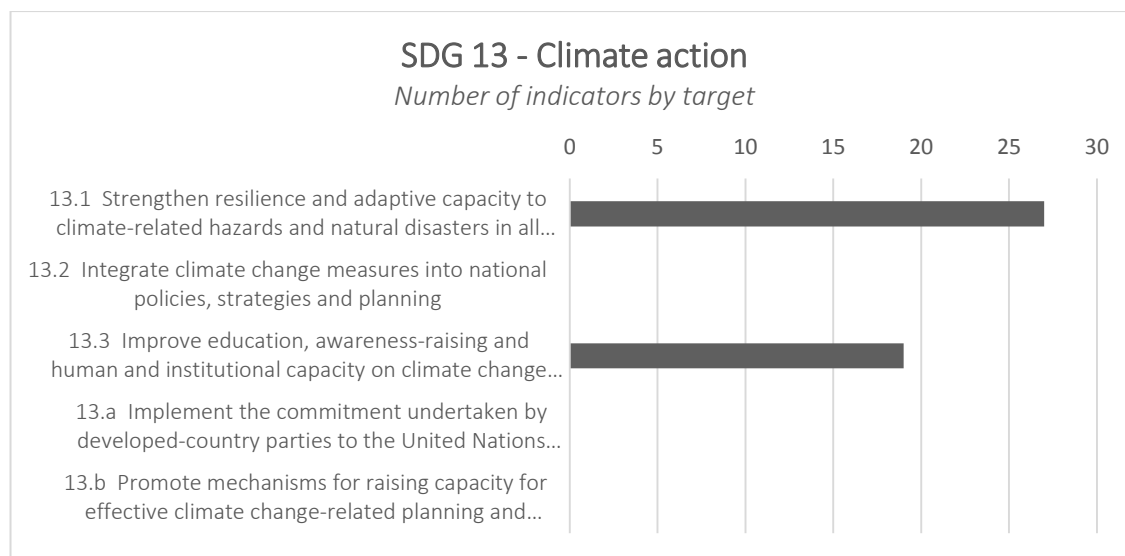
The largest amount of indicators found could be allocated to target 13.1 (strengthen climate resilience and adaptation), reflecting mainly aspects such as risk reduction and resilience plans, impact assessments, adaptation and mitigation measures as well as the reduction of greenhouse gas emissions.

Target 13.3 (education and awareness raising on climate change) is supported well by indicators mirroring aspects such as the level of public awareness of the topic, human and institutional capacity, and general monitoring of CO<sub>2</sub> emissions.

Together, these two targets are at the heart of local climate action. In contrast, the three remaining targets 13.2 (integration into national policies), 13.a (UN commitment) and 13.b (capacity for climate change-related planning in least developed countries) can hardly be handled at the city level, which explains the absence of indicators.

In summary, SDG 13 is fairly supported by the availability of relevant indicators and does not show significant gaps for the local level.

**Figure 13: Number of indicators identified for targets of SDG 13**



## SDG 13 | Indicators

Target **13.1 Strengthen resilience and adaptive capacity to climate-related hazards and natural disasters in all countries**

Aspect **Resilience**

Indicator	Unit	Source
Resilience Plans: This involves implementation of risk and vulnerability assessments, financial (capital and operating) plans and technical systems for disaster mitigation addressing natural and human induced disasters and hazards	Qualitative (e.g. yes/no), including possible additional remarks on any response provided. For example: a city may have infrastructure and systems for resilience, yet they may not be adequate.	7, 8
Demonstrate a measurable reduction in vulnerability and/or increase in resiliency to existing communitywide hazard threats over time	yes/no	24
Number of presence of disaster risk reduction, climate change and emergency plans that include food system concerns	-/-	27
Number of specific risk reduction and climate adaptation/resilience measures for food production, storage, transport and distribution that are in place/being developed	-/-	27
Has your city taken the following measures to improve its flood resilience? - Rainwater is kept on site (infiltration, buffering ...)? - Inform, promote and realise green roof projects or (semi) permeable surfaces for instance for driveways? - Improving green-blue networks to e.g. increase infiltration capacity? - Inform citizens on the importance of behavioral change? (awareness raising campaigns on flood prevention, for instance the importance of using permeable paving or no paving in a garden, and on what to do when a flood occurs) - Other innovative measures?	yes/no	14

Aspect **Impact assessment**

Indicator	Unit	Source
Does the city have a systematic vulnerability and risk assessment to identify and prioritise the future climate change impacts in your city?	yes/no	13
Does your city have a system in place to collect information on extreme weather events (in order to assess trends in a systematic way)?	yes/no	14
Are new developments in your city systematically adapted to possible climate change effects? (e.g. through a climate 'adaptation check' for new developments and through horizontal (across sectoral departments) and vertical (across governance levels) coordination) as well as stakeholder engagement).	yes/no	14
Disaster prevention & mitigation	yes/no	2

Aspect **Adaptation and mitigation measures**

Indicator	Unit	Source
Does the city have a climate change adaptation strategy and/or an action plan?	yes/no	13, 14, 16
Has your city taken one or more of the following measures to reduce its CO2 emission equivalents: - District heating and/ or cooling, CHP (combined heat and power) project or passive cooling projects? - Promotion of energy saving renovations (residential buildings) - Developing carbon capture and storage (CCS) technologies? - Other measures not listed above?	yes/no	14, 26
Is the city part of national, European or international climate adaptation initiatives like the 'Covenant of Mayors for Climate and Energy'?	yes/no	13, 14
Do you mainstream measures into other sectors like water management, climate mitigation, green spaces or other to use win-win-options?	yes/no	13
Number of new climate change adaptation plans and approaches on farms (e.g. new crops, new lower input production systems, no till, low till, precision irrigation & sowing, mob grazing etc.)	#	27
Demonstrate that 85% of the population lives within a reasonable distance from a heat island mitigation feature that provides - of the following functions: Localized cooling through tree canopy cover, green roofs or green walls; White roofs or cool roofs; and/or Light colored pavement or groundcover OR Demonstrate that the surface temperature of the community is no more than 5 degrees Fahrenheit higher than surrounding suburban or rural areas when measured on a summer and winter night	yes/no	24

Green and blue area which is essential to combat the heat island effect in urban areas (area defined as built-up area lying less than 200 meters apart)	%	18
Climate adaptation measures and their implementation to protect citizens against flooding and water scarcity related to climate change (e.g. green roofs, rainwater harvesting, safety plans etc.)	Score 1 - 10	18, 24

Aspect **Greenhouse gas reduction**

Indicator	Unit	Source
CO2 reduction strategy	index	26
Does your city have a reduction target for CO2 emission equivalents?	yes/no	13, 14
CO2 emissions reduction target(s) (e.g. 20% by 2020 compared to 1990)	%	13, 19, 24
Number of GHG emission reduction support initiatives related to the food system (e.g. land-use change, agricultural practices, refrigeration and cold-chains, transport, energy use in processing and agro-industries, packaging, cooking/preparation, waste disposal etc)	n	27
Presence of policies, action plans, incentive schemes and practical initiatives to encourage 'low emission' food systems	yes/no	27
Number and types of food businesses receiving guidance on how to reduce their GHG emissions	n	27
Number of food and types of businesses actively working to reduce their own GHG emissions	n	27
Number and type of Initiatives that promote carbon sequestration eg. reforestation, grassland conservation etc	#	27
Demonstration of incremental progress towards achieving a 28% reduction by 2025 and/or an 80% reduction by 2050 in local government greenhouse gas (GHG) emissions	yes/no	24
Demonstrate decreased greenhouse gas (GHG) intensity over time	yes/no	24

Target **13.2 Integrate climate change measures into national policies, strategies and planning**

*No indicators identified.*

Target **13.3 Improve education, awareness-raising and human and institutional capacity on climate change mitigation, adaptation, impact reduction and early warning**

Aspect **Awareness**

Indicator	Unit	Source
Awareness of climate change	%	16
Do you involve stakeholders and citizens in any climate change mitigation actions undertaken by your city?	yes/no	14
Consumer awareness on healthy diets/ safe food/ environmental impacts of their food consumption among different groups	Qualitative	27
Has your city taken the following measures to improve its flood resilience? - Rainwater is kept on site (infiltration, buffering ...)? - Inform, promote and realise green roof projects or (semi) permeable surfaces for instance for driveways? - Improving green-blue networks to e.g. increase infiltration capacity? - Inform citizens on the importance of behavioral change? (awareness raising campaigns on flood prevention, for instance the importance of using permeable paving or no paving in a garden, and on what to do when a flood occurs) - Other innovative measures?	yes/no	14

Aspect **Human and institutional capacity**

Indicator	Unit	Source
Is the city part of national, European or international climate adaptation initiatives like the 'Covenant of Mayors for Climate and Energy'?	yes/no	13
Demonstrate that the local government has designated and funded at least 1.0 FTE employee directly responsible for coordinating on sustainability issues across departments or that an Office of Sustainability has been established with a clear direction to act on the local government's behalf	yes/no	24
Do you involve stakeholders and citizens in any climate change mitigation actions undertaken by your city?	yes/no	14

Aspect **General monitoring**

Indicator	Unit	Source
Does your climate plan include a monitoring framework?	yes/no	14, 20, 24, 26
Does your city collect (or have access to) good data on its CO2 emission equivalents covering at least the last 2 years?	yes/no	14

Greenhouse Gas (CO2 equivalent) emissions	t/capita/yr	6, 7, 8, 13, 21, 22, 25, 26, 33
CO2 emissions	t/capita/yr	4, 13, 26, 28, 30
CO2 intensity	g/unit of real GDP (base year 2000)	26
CO2 emissions from transport	t/inh./year	20, 23, 28, 29
CO2 emissions of main sectors: industry, agriculture, services, transports, residential and others in 2003 and 2012	t CO <sub>2</sub>	20
CO2 emissions of private households	t/inh./a	23
CO2 emissions of businesses	t/inh./a	23
CO2 emissions (tonnes) per MWh electricity consumed, Carbon content in electricity	t/MWh	8, 13
Number of GHG emission assessments undertaken of the various components of the food system (including different food production systems and transport to the city region)	#	27
Percentage of low-carbon emission passenger vehicles	%	7, 33

**Target 13.a** Implement the commitment undertaken by developed-country parties to the United Nations Framework Convention on Climate Change to a goal of mobilizing jointly \$100 billion annually by 2020 from all sources to address the needs of developing countries in the context of meaningful mitigation actions and transparency on implementation and fully operationalize the Green Climate Fund through its capitalization as soon as possible

*No indicators identified.*

**Target 13.b** Promote mechanisms for raising capacity for effective climate change-related planning and management in least developed countries and small island developing States, including focusing on women, youth and local and marginalized communities

*No indicators identified.*







**14** LIFE  
BELOW WATER



World's oceans are an essential global resource and important for our future. More than 3 billion people depend on the oceans for their survival, while fisheries directly or indirectly employ over 200 million people. But in the end we all depend on them: the rainwater, drinking water, weather, climate, coastlines, a lot of our food, and also the oxygen in the air we breathe, it's all influenced by the sea. Unfortunately, the world's oceans are strongly harmed by human activities, including contamination, loss of habitats and livestock depletion. The same applies for the planet's rivers and seas.

#### Relevance for cities and local governments

Two-thirds of the sewage from cities is discharged untreated into lakes, rivers and marine water. Many coastal cities still discharge wastewater directly into marine ecosystems. But also every non-coastal city influences life at and below water e.g. by micro plastic or air pollution. Local governments can act positively by implementing integrated water resources management and programmes to capture, treat and reuse urban stormwater runoff. If located at the coast, they can foster their integrated coastal zone management and conservation strategies as well as they can encourage sustainable fishing practices through ethical municipal procurement. Local governments should adopt regulations against industrial, municipal and agricultural pollution. Also in case of SDG 14 it's important to involve all citizens to make them aware of their own impact they have and how they can conserve and sustainably use the oceans, seas and marine resources.

**CONSERVE AND  
SUSTAINABLY  
USE THE  
OCEANS, SEAS  
AND MARINE  
RESOURCES  
FOR  
SUSTAINABLE  
DEVELOPMENT.**

## SDG 14 | Overview

Only 33 indicators could be allocated to SDG 14, although this goal is highly connected to other SDGs, such as SDG 2 (via farming practices that impact on all water bodies), SDG 6 (via the sewage systems that impact on all water bodies), and SDG 13 (because the health of the oceans' ecosystems contributes more to climate protection than in-land ecosystems do).

Yet, this SDG is one of the most neglected ones, both at international, national and local levels. This lack of interest is also reflected in the lack of data availability and thus of existing indicators for the majority of targets: 6 out of 10 targets are not supported by any of the local indicators screened for this study.

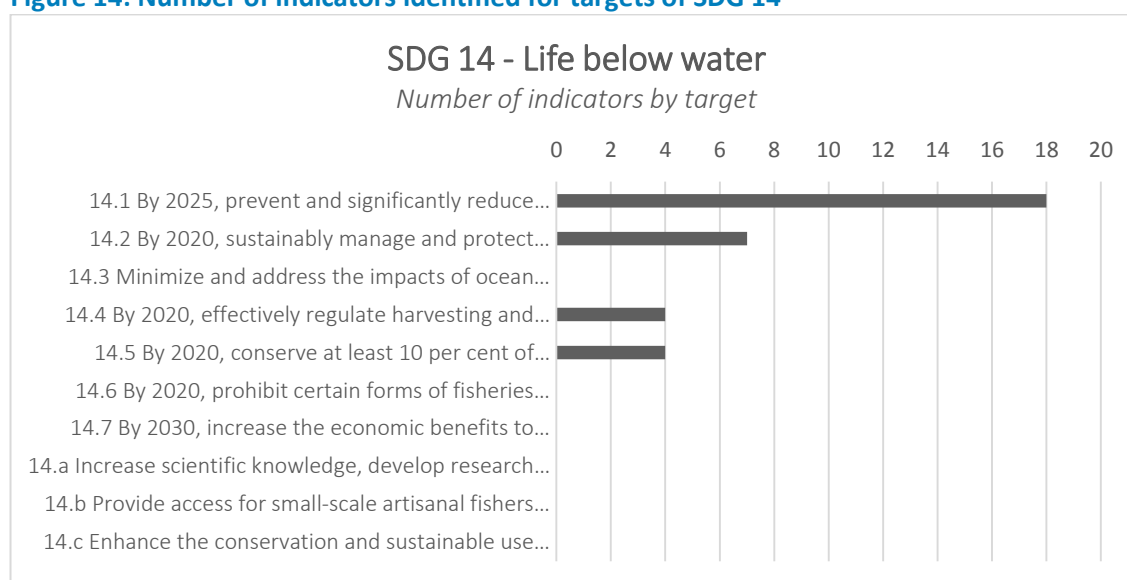
There is a significant coverage of target 14.1 (reduce marine pollution), with most of the indicators appearing also under SDG 2 and SDG 6. Target 14.2 (restoration and protection of coastal ecosystems) also shows a good range of indicators, focusing on water quality in general and ecosystem services, with target 14.5 (conserve 10 percent of marine areas) being linked directly.

Target 14.4 (overfishing) shows a low and insufficient coverage of indicators while it could/should be monitored by coastal cities depending on fish stock for their local economy. Target 14.b (small-scale artisanal fishers) is affiliated to target 14.4 and has no indicators. Target 14.6 (end fisheries subsidies) concerns national policies which explains the absence of urban local indicators here.

Target 14.3 (ocean acidification) is very broad, explaining the difficulty to allocate indicators, although it is linked to other targets. None of the indicators made any direct reference to target 14.c (implementing UNCLOS law). Target 14.a (marine technology and scientific knowledge development) was not reflected in any of the indicators either.

Despite the contributions made by the RUAF and STAR indicator sets, there seem to be clear awareness and indicator gaps to fill for this SDG.

**Figure 14: Number of indicators identified for targets of SDG 14**



## SDG 14 | Indicators

**Target 14.1** By 2025, prevent and significantly reduce marine pollution of all kinds, in particular from land-based activities, including marine debris and nutrient pollution (linked to SDG 2 and SDG 6)

### Aspect **General**

Indicator	Unit	Source
Number of incidents of water or farm land pollution and contamination	#	27
Jurisdiction or water provider participates in water quality research on contaminants of emerging concern	yes/no	24
Industrial/commercial flood-prone	%	14
Does your city have a prevention plan for litter in the public spaces (and/or marine litter reduction plan)?	yes/no	14, 26

### Aspect **Agricultural pollution**

Indicator	Unit	Source
Total land surface of protected environmentally sensitive areas as a result of food production and farm conservation practices	ha	27
Share of agricultural land farmed organically / Share of eco-certified agricultural companies in the urban area	%	23, 8
Total i) area of agricultural land and ii) number of farms in the city region (rural and urban) for different identifiable production systems (eg organic, agro-ecological, conventional, intensive livestock, GM etc)	ha	27
Number of farms reducing livestock density numbers and reporting improved animal health	#	27
Nitrogen surplus per hectare of agricultural land	kg/ha	23

Aspect **Agricultural pollution – strategy & policy**

Indicator	Unit	Source
Presence of regulations supporting biodiversity, soil and ecosystem health and/or regulating use of chemical inputs/sustainable farming practices	%	27, 8
Presence of food policies, targets and programmes with a specific focus on environmental sustainability eg sustainable public sector procurement that supports reduction in use of harmful agricultural chemicals, sustainable fishing, etc	yes/no	27

Aspect **Wastewater pollution**

Indicator	Unit	Source
Population connected to the sewage system	%	10, 26
Population connected to waste water treatment systems with at least secondary treatment	%	8
Population connected to tertiary sewage treatment	%	18
Pollution levels at the exit of water sanitation facilities (DBO5, DCO, Ptot)	m <sup>3</sup> /a	13, 22
If the city is located in an EU Member State, indicate whether the UWWTP complies with the treatment requirements under the UWWTD	yes/no	13

Aspect **Wastewater pollution – strategy & policy**

Indicator	Unit	Source
Does your city have a wastewater management plan or strategy? (This plan could be set up for your city only or include several municipalities)	yes/no	14
Water efficiency and treatment policies. Assessment of level of comprehensiveness to improve the efficiency of water usage and the treatment of wastewater (score 0 to 10)	Score (1-10)	26

**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 (linked to SDG 13)

**Aspect Quality**

Indicator	Unit	Source
Share of surface water rated 'very good', 'good' or 'moderate'	%	28
Status (quality & contamination) of natural resources (water, land, forest, biodiversity)	Index	27
Demonstrate that all non-industrial water bodies are swimmable and fishable during 90% of days in the past year OR Demonstrate a steady reduction in water closures of at least 2% annually towards achieving 90% of days being swimmable and fishable	yes/no	24
Bathing water quality of coasts (proportion of coasts with bathing water quality)	%	25
Are there actions to improve the quality of surface waters in your city area and beyond?	yes/no	14

**Aspect Ecosystem services**

Indicator	Unit	Source
Does your city officially recognise the concept of "ecosystem services", acknowledging the importance of urban ecosystems (such as parks, water bodies) for delivering societal benefits (such as air purification, water regulation, cultural values)?	yes/no	14
Increase the amount of natural or restored areas directly connected to regional natural systems in order to improve ecosystem services	yes/no	24

**Target 14.3** Minimize and address the impacts of ocean acidification, including through enhanced scientific cooperation at all levels

*No indicators identified.*

**Target 14.4** By 2020, effectively regulate harvesting and end overfishing, illegal, unreported and unregulated fishing and destructive fishing practices and implement science-based management plans, in order to restore fish stocks in the shortest time feasible, at least to levels that can produce maximum sustainable yield as determined by their biological characteristics

Indicator	Unit	Source
Presence and extent of implementation of natural resource policy and protection regulations	N/S	27
Presence of food policies, targets and programmes with a specific focus on environmental sustainability eg sustainable public sector procurement that supports reduction in use of harmful agricultural chemicals, sustainable fishing, etc	N/S	27
Show that the population of at least 1 threatened species has reached optimal population size OR Show that the population of at least 1 threatened species achieved their rate of recovery goal within the past 5 years	yes/no	24
Final Energy Use in agriculture & fisheries sectors	%	13

**Target 14.5** By 2020, conserve at least 10 per cent of coastal and marine areas, consistent with national and international law and based on the best available scientific information

Indicator	Unit	Source
Achieve no net loss of habitat areas for threatened species OR Increase the connectivity between habitats needed for threatened species	yes/no	24
Achieve no net loss of wetlands, streams, and shoreline buffers	yes/no	24
Protected marine areas	km <sup>2</sup>	25
Percentage of coastal city area protected as natural sites	%	7

**Target 14.6** By 2020, prohibit certain forms of fisheries subsidies which contribute to overcapacity and overfishing, eliminate subsidies that contribute to illegal, unreported and unregulated fishing and refrain from introducing new such subsidies, recognizing that appropriate and effective special and differential treatment for developing and least developed countries should be an integral part of the World Trade Organization fisheries subsidies negotiation

*No indicators identified.*

**Target 14.7** By 2030, increase the economic benefits to Small Island developing States and least developed countries from the sustainable use of marine resources, including through sustainable management of fisheries, aquaculture and tourism

*No indicators identified.*

**Target 14.a** Increase scientific knowledge, develop research capacity and transfer marine technology, taking into account the Intergovernmental Oceanographic Commission Criteria and Guidelines on the Transfer of Marine Technology, in order to improve ocean health and to enhance the contribution of marine biodiversity to the development of developing countries, in particular small island developing States and least developed countries

*No indicators identified.*

**Target 14.b** Provide access for small-scale artisanal fishers to marine resources and markets

*No indicators identified.*

**Target 14.c** Enhance the conservation and sustainable use of oceans and their resources by implementing international law as reflected in UNCLOS, which provides the legal framework for the conservation and sustainable use of oceans and their resources, as recalled in paragraph 158 of The Future We Want

*No indicators identified.*







**15** LIFE  
ON LAND



Because of deforestation and desertification caused by human activities and climate change every single year, thirteen million hectares of forests are lost. Forests that are habitats for about 80% of all terrestrial species of animals, homes of the indigenous population and subsistence providers for 1.6 billion people. Harvesting natural resources for industrial production and urbanisation is one of the most important causes of biodiversity loss. Land degradation and desertification are burning issues.

#### Relevance for cities and local governments

As cities are growing their demands for mineral, land and biodiversity resources are increasing. Existing urban biodiversity can be preserved by zoning schemes, plans and strategic choices as well as enforcement policies. The protection of life on land should have a monetary budget within local governments. Further it's important to build more green spaces, also in city centres. They improve the air quality and can be a chance to promote active living and learning about nature. Local governments can also act as mediator or initiator of cooperation between public institutions, enterprises as well as citizens to foster actions of biodiversity and wildlife protection.

**PROTECT,  
RESTORE AND  
PROMOTE  
SUSTAINABLE  
USE OF  
TERRESTRIAL  
ECOSYSTEMS,  
SUSTAINABLY  
MANAGE  
FORESTS,  
COMBAT  
DESERTIFICA-  
TION, HALT  
AND REVERSE  
LAND  
DEGRADATION  
AND HALT  
BIODIVERSITY  
LOSS.**

## SDG 15 | Overview

SDG 15 is represented by 64 indicators with a strong focus on target 15.5 (reduce habitat and biodiversity loss). They assess the presence and quality of natural areas in the city, as well as the presence of specific protected natural areas, the abundance of biodiversity and changes in the numbers of species. Indicators on biodiversity action plans and (the existence of) single actions are included as well.

Target 15.9 (integrate biodiversity in planning) is affiliated to target 15.5 and complements it with indicators on green infrastructure, ecosystem services, heat islands, and biodiversity awareness. This target is further affiliated to target 15.a (financial resources for biodiversity and ecosystems).

Since target 15.3 (land degradation) can be considered going beyond desertification and flood damages, indicators on urban sprawl and soil sealing are relevant here. Indicators overlap with target 11.3 and can be complemented further by referring to this other target.

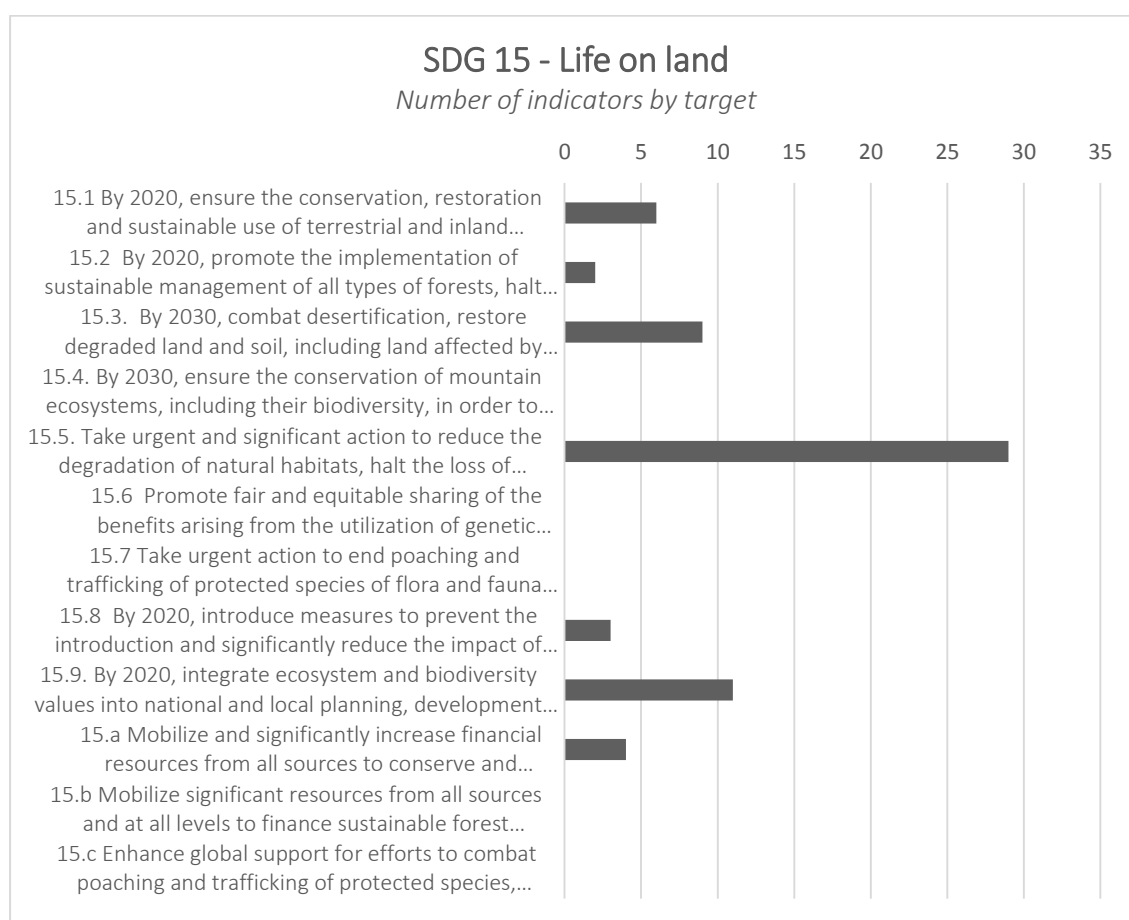
Targets 15.1 (freshwater ecosystems) and 15.8 (alien species) have a few key indicators that help embracing the target despite their small number. In contrast, target 15.2 (sustainable forest management) is underrepresented. This can be explained by the fact that this target would typically be addressed in rural rather than urban areas.

Also some other targets could not be supported by indicators from the sets considered for this report, for different reasons. This applies for the geographic scope of target 15.4 (mountain ecosystems) for example, or the national level of governance for target 15.7 (trafficking of protected species) and target 15.c (global support to combat poaching).

Generally, three types of indicators have been found:

- Indicators of status (e.g. percentage of protected areas)
- Dynamic indicators which show progress: changes (e.g. increase of protected areas) and distance to target (e.g. percentage of actions implemented)
- Binary indicators related to action plans and implementation: Existence or non-existence (yes/no)

In summary, the most relevant targets from an urban perspective are covered by a good range of indicators. However, some targets reveal indicator gaps.

**Figure 15: Number of indicators identified for targets of SDG 15**

## SDG 15 | Indicators

**Target 15.1** By 2020, ensure the conservation, restoration and sustainable use of terrestrial and inland freshwater ecosystems and their services, in particular forests, wetlands, mountains and drylands, in line with obligations under international agreements

Indicator	Unit	Source
Surface Water of Good ecological Status	%	30
Achieve no net loss of wetlands, streams, and shoreline buffers	yes/no	24
Actions adopted to improve the quality of surface waters in the city area and beyond	yes/no	14
Demonstrate a local Watershed Health Index of greater than or equal to 70 OR Demonstrate that the amount of water withdrawn from the system for human uses does not exceed the amount of freshwater entering the system through precipitation, river flow, and other sources	yes/no	24
Demonstrate a local Watershed Vulnerability Index of less than 70	yes/no	24
Demonstrate that all non-industrial water bodies are swimmable and fishable during 90% of days in the past year OR Demonstrate a steady reduction in water closures of at least 2% annually towards achieving 90% of days being swimmable and fishable	yes/no	24

**Target 15.2** By 2020, promote the implementation of sustainable management of all types of forests, halt deforestation, restore degraded forests and substantially increase afforestation and reforestation globally

Indicator	Unit	Source
Share of forests with sustainable management certification	%	23
Number of farms in city region practicing agro-forestry (eg using crop rotation and on-farm composting/green manures/mulching to maintain soil and plant health and conserve water etc)	#	27

**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**

**Aspect Soil sealing and urban sprawl**

Indicator	Unit	Source
Sustainable land use	index	9
Land take	index	15, 29
Sustainable land use	index	9
Urban Sprawl	%	12
Urban sprawl	index	25
Landscape fragmentation pressure from urban and transport infrastructure expansion	index	15
Soil sealing	%	5, 8, 12, 15, 17, 22, 30
Land recycling and densification	index	15
EPA Cleanup sites	Number	28

*See target 11.3 for more sustainable land use indicators*

**Target 15.4. By 2030, ensure the conservation of mountain ecosystems, including their biodiversity, in order to enhance their capacity to provide benefits that are essential for sustainable development**

*No indicators identified.*

**Target 15.5. Take urgent and significant action to reduce the degradation of natural habitats, halt the loss of biodiversity and, by 2020, protect and prevent the extinction of threatened species**

Aspect **Natural areas**

Indicator	Unit	Source
Natural Areas in the City	%	5
Natura 2000 Area in good quality	%	30
Area of Parks with Natural Areas	ha/inhabitant	5
Maintain natural resource acreage at 20 acres per 1,000 residents or greater OR Maintain natural resource acreage at 11.5% or more of total jurisdictional land area	yes/no	24
Reduce the difference between the actual acreage restored and targeted acreage established in the natural systems plan or land conservation plan OR Restore degraded natural resource areas at a ratio greater than 1% of developed land area in the jurisdiction	yes/no	24
Increase the amount of natural or restored areas directly connected to regional natural systems in order to improve ecosystem services	yes/no	24
Variation rate of the surface area (km <sup>2</sup> ) of green (urban forests, parks or green spaces) public spaces for 2003 and 2012	%	20

Aspect **Natural protected areas**

Indicator	Unit	Source
City area under protection (inside the city and within 10 km)	%	5, 6, 7, 8, 13, 14, 22, 23, 25
Variation rate of the municipality protected areas (2002, 2013)	%	20
Achieve no net loss of habitat areas for threatened species OR Increase the connectivity between habitats needed for threatened species	yes/no	24

Aspect **Biodiversity**

Indicator	Unit	Source
Number and abundance of bird species	index	12, 22
Number and abundance of species of conservation interest	index	12
Distance-to-target for bird species populations	%	23
Native biodiversity in built up area	number	5, 8

Aspect **Change in number of species**

Indicator	Unit	Source
Change in Number of Vascular Plant Species	number	5, 8
Change in Number of Bird Species	number	5, 8
Change in Number of Butterfly Species	number	5, 8
Percentage change in number of native species (supporting indicator)	%	6
Show that the population of at least 1 threatened species has reached optimal population size OR Show that the population of at least 1 threatened species achieved their rate of recovery goal within the past 5 years	yes/no	24

Aspect **Biodiversity action plan**

Indicator	Unit	Source
The city has a specific nature and biodiversity policy, strategy or action plan	yes/no	5, 14
The biodiversity plan has been updated in the last two years	yes/no	14
The biodiversity plan includes medium/long term targets for nature and biodiversity in the city	yes/no	14
Specific and measurable objectives defined in relation to protection of the biodiversity in the city	yes/no	14
Date and time horizon of your city's Biodiversity Action Plan	Date	13
The biodiversity plan clearly defines the roles and responsibilities of city actors	yes/no	14
Monitoring system in place to evaluate the progress of biodiversity plan	yes/no	14

Aspect **Concrete actions**

Indicator	Unit	Source
Number of agricultural conservation/biodiversity initiatives operational in the city region	#	27
Number of farms taking part in such initiatives (conservation/biodiversity ones)	#	27
Presence of regulations supporting biodiversity, soil and ecosystem health and/or regulating use of chemical inputs/sustainable farming practices	%	27, 8

**Target 15.6 Promote fair and equitable sharing of the benefits arising from the utilization of genetic resources and promote appropriate access to such resources, as internationally agreed**

*No indicators identified.*

**Target 15.7 Take urgent action to end poaching and trafficking of protected species of flora and fauna and address both demand and supply of illegal wildlife products**

*No indicators identified.*

**Target 15.8 By 2020, introduce measures to prevent the introduction and significantly reduce the impact of invasive alien species on land and water ecosystems and control or eradicate the priority species**

Indicator	Unit	Source
Number of alien species	number/ha	12
Proportion of Invasive Alien Species	%	5, 8
Show that existing invasive species have been eradicated or contained so as to prevent their population growth and expansion	yes/no	24



**Target 15.9. By 2020, integrate ecosystem and biodiversity values into national and local planning, development processes, poverty reduction strategies and accounts**

**Aspect Green infrastructure**

Indicator	Unit	Source
Green area / infrastructure (inside and outside the city)	%	17, 29, 30
The city has defined objectives and actions aimed at increasing Green Infrastructure	yes/no	14
The concept of 'corridors' or connected spaces for wildlife across the city is included in the action plans	yes/no	14, 24
Connectivity measures in place	ha	5, 8
Percentage of trees in the city in relation to city area and/or population size	%	21

**Aspect Ecosystem services**

Indicator	Unit	Source
Does your city officially recognise the concept of "ecosystem services", acknowledging the importance of urban ecosystems (such as parks, water bodies) for delivering societal benefits (such as air purification, water regulation, cultural values, ...)?	yes/no	14
The concept of "ecosystem services" for delivering societal benefits (air purification, water regulation, cultural values, ...) is adopted by the city	yes/no	14

**Aspect Heat islands**

Indicator	Unit	Source
Green and blue area which is essential to combat the heat island effect in urban areas (area defined as built-up area lying less than 200 meters apart)	%	18
Demonstrate that 85% of the population lives within a reasonable distance from a heat island mitigation feature that provides - of the following functions: Localized cooling through tree canopy cover, green roofs or green walls; White roofs or cool roofs; and/or Light colored pavement or ground-cover OR Demonstrate that the surface temperature of the community is no more than 5 degrees Fahrenheit higher than surrounding suburban or rural areas when measured on a summer and winter night	yes/no	24

Aspect **Biodiversity awareness**

Indicator	Unit	Source
Education and Awareness: Is Biodiversity or Nature Awareness Included in the School Curriculum	Index	5
Does your city have policies aimed at raising awareness amongst citizens and city visitors about the benefits nature and biodiversity in the city?	yes/no	14

Target **15.a Mobilize and significantly increase financial resources from all sources to conserve and sustainably use biodiversity and ecosystems**

Indicator	Unit	Source
Number of Biodiversity Projects Implemented by the City Annually	n	5
Specific budget set aside for the protection of nature and biodiversity	yes/no	14
Budget Allocated to Biodiversity	%	5
Has your city taken initiatives to promote the creative 'green industry' (e.g. jobs in energy efficiency, circular economy, promoting nature and biodiversity in cities etc.)?	yes/no	14

Target **15.b Mobilize significant resources from all sources and at all levels to finance sustainable forest management and provide adequate incentives to developing countries to advance such management, including for conservation and reforestation**

*No indicators identified.*

Target **15.c Enhance global support for efforts to combat poaching and trafficking of protected species, including by increasing the capacity of local communities to pursue sustainable livelihood opportunities**

*No indicators identified.*



## 16 PEACE, JUSTICE AND STRONG INSTITUTIONS



Essential conditions to achieve the Sustainable Development Goals are peaceful, just and inclusive societies. The United Nations declare that *“people everywhere need to be free of fear from all forms of violence and feel safe as they go about their lives whatever their ethnicity, faith or sexual orientation. In order to advance the SDGs we need effective and inclusive public institutions that can deliver quality education and healthcare, fair economic policies and inclusive environmental protection.”*

### Relevance for cities and local governments

The aim of this goal is to keep people safe and to make sure that governments work fairly and effectively. Cities and thus their local governments are responsible for the well-being of their inhabitants. This goal addresses local governments to become even more effective and accountable to their citizens. It's important to tackle corruption and increase access to public information. The bigger a city is the bigger is the mixture of ethnicity, faith or sexual orientation. It's on the local governments to take care of every one of them and to make sure that no group is excluded. Cities are not only hubs of innovation but also centres of crime. Reducing violence in urban areas has to have high priority.

**PROMOTE  
PEACEFUL AND  
INCLUSIVE  
SOCIETIES FOR  
SUSTAINABLE  
DEVELOPMENT,  
PROVIDE  
ACCESS TO  
JUSTICE FOR  
ALL AND BUILD  
EFFECTIVE,  
ACCOUNTABLE  
AND INCLUSIVE  
INSTITUTIONS  
AT ALL LEVELS.**

## SDG 16 | Overview

With a total of 91 indicators allocated to SDG 16, the distribution among its targets shows an uneven coverage. There is a clear focus on target 16.1 (violence and related deaths), mainly referring to aspects such as the general level, amount and perception of violence in the city, but also to specific crimes against women, violence in schools and property infractions. Indicators on assistance programmes and response capacity against crimes, fires and other emergencies to protect the population are included as well.

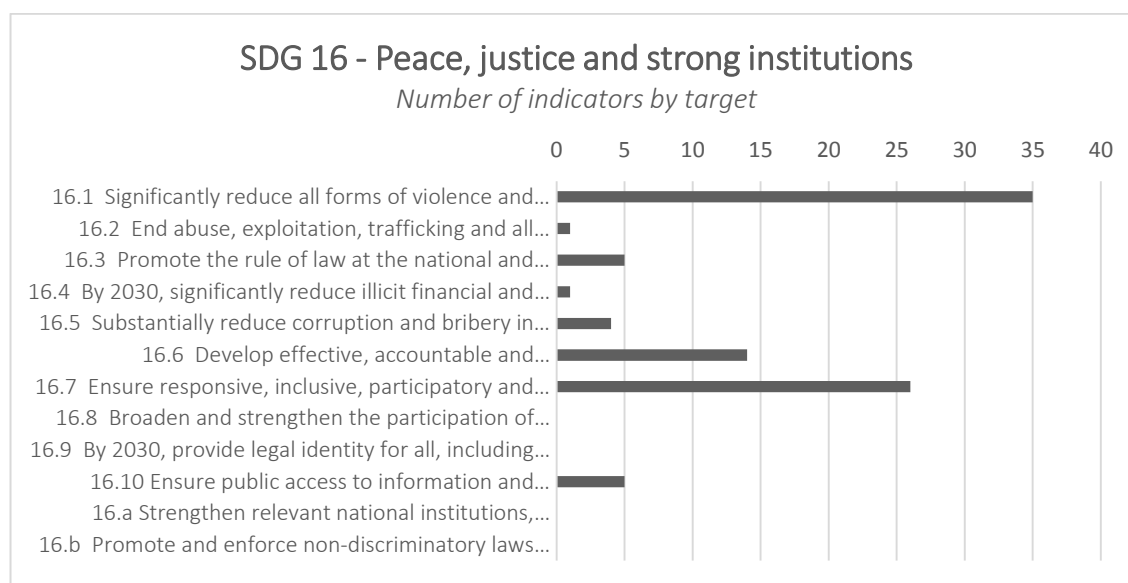
Target 16.7 (representative decision-making) is supported by indicators addressing aspects such as civil diversity and societal engagement, participatory decision-making, autonomy and election turn-out at the local level, participation rates in EU elections and international agreements.

Target 16.6 (accountable and transparent institutions) displays indicators for effectiveness, accountability and transparency of the local government, including topics such as financial documentation and e-government. Target 16.3 (rule of law) presents affiliated indicators dealing with the fairness of police services vis-à-vis citizens, and the fairness of the justice system in responding to complaints. Also, target 16.5 (corruption and bribery) is addressed by only a few indicators which however tackle the target directly.

Target 16.10 (access to information) can be assessed through indicators for open data practices, however less so for other aspects. In contrast, the remaining targets are hardly represented by indicators as they mainly refer to international policy. This is particularly the case for target 16.8 (participation of developing countries in global governance), target 16.a (combat terrorism and violence), and target 16.b (non-discriminatory laws in developing countries).

In summary, there is a good basis for monitoring SDG 16 at the local level, nonetheless minor gaps are present.

**Figure 16: Number of indicators identified for targets of SDG 16**



## SDG 16 - Indicators

Target **16.1 Significantly reduce all forms of violence and related death rates everywhere**

Aspect **General violence**

Indicator	Unit	Source
Demonstrate that the average crime rate for the past 3 years is below the following thresholds: 5.5 homicides per 100,000 residents 70 incidents of rape or attempted rape per 100,000 residents	yes/no	24
Physical Security (by degree of urbanisation)	%	29
Living in an Area with Crime, Violence or Vandalism (by degree of urbanisation)	%	29
Intentional homicides, by sex and age	nr/100'000	1, 28, 10, 4, 6, 30
Violent crimes	#/100 000 inhabitants	7, 28
Gun violence	#/100 000 inhabitants	28

Aspect **Crimes against women**

Indicator	Unit	Source
Physical assaults to women aged 16-70	#	25
Sexual assaults to women aged 16-70	#	25
Number of violent crimes against women	#/100 000 inh.	6, 25
Domestic violence in households	%	25
Existence of official policy against domestic violence: 1 yes, fully implemented 2 yes, somewhat implemented, with support to victims 3 yes, rarely implemented 4 yes, not implemented because of various constraints	qualitative	1

5 none, but planned  
6 none and not planned yet

### Aspect **Violence at school**

Indicator	Unit	Source
Demonstrate that the average rate of violent victimizations at schools is less than 10 per 1,000 students aged 12-18 in the jurisdiction	yes/no	24
Existence of violence at school, among children: 1 recurrent violence with injuries at least on a monthly basis requiring police intervention 2 some occasional violence with injury 3 some occasional violence without injury 4 none	Qualitative	1

### Aspect **Property crimes**

Indicator	Unit	Source
Pickpocketing rate	per 1,000 families	25, 4
Burglaries	nr/100'000	30
Robberies	nr/100'000	30
Crimes against property	#/100 000 inhabitants	6, 25

### Aspect **Safety perception**

Indicator	Unit	Source
I feel safe in my neighbourhood	Survey to population	11
Safety in neighbourhood perception of persons aged >14years	%	25, 30
Anxiety towards sexual assaults within persons aged 14 and more	%	25
Anxiety to be subject of an assault in the last 3 month among persons aged > 14years	%	25
Existence of areas considered as inaccessible or dangerous to the police: 1 yes, in many areas, representing more than 20% of the city's population 2 yes, in a number of areas, representing 10 to 20% of the city's population 3 yes, in some areas, representing less than 10% of the population 4 yes, in very few areas 5 none	Qualitative	1

Aspect **Assistance programmes**

Indicator	Unit	Source
Existence of assistance programme(s) for victims of violence: 1 yes, fully implemented, with official shelters available for the victims 2 yes, fully implemented, with official legal and psychological available to the victims 3 yes, somewhat implemented, with support to victims 4 yes, rarely implemented 5 yes, not implemented because of various constraints 6 none, but planned 7 none and not planned yet	Qualitative	1
Existence of assistance programme(s) for offenders of domestic violence: 1 yes, fully implemented, with psychological programmes for offenders 2 yes, somewhat implemented, with support to offenders 3 yes, rarely implemented 4 yes, not implemented because of various constraints 5 none, but planned 6 none and not planned yet	Qualitative	1

Aspect **Response against crimes**

Indicator	Unit	Source
Police officers	#/100 000 in-habitants	7
Demonstrate that the police department has obtained Commission on Accreditation for Law Enforcement Agencies (CALEA) accreditation	yes/no	24
Demonstrate that all police-related civil and human rights complaints in the past 3 years have been investigated and violations redressed in a timely manner	yes/no	24
Demonstrate that all non-police-related civil and human rights complaints in the past 3 years have been investigated and violations redressed in a timely manner	yes/no	24
Demonstrate that all child and adult/elderly abuse and neglect complaints in the past 3 years have been investigated and redressed in a timely manner	yes/no	24

Aspect **Response against fires**

Indicator	Unit	Source
Number of firefighters per 100 000 population	n/100 000 inhabitants	6
Number of volunteer and part-time firefighters per 100 000 population	n/100 000 inhabitants	6
Demonstrate that 90% of response times are in compliance with standards set by the National Fire Protection Association (NFPA)	yes/no	24
Demonstrate that the fire department has obtained Commission on Fire Accreditation International (CFAI) accreditation	yes/no	24

Aspect **Response against other emergencies**

Indicator	Unit	Source
Demonstrate that 90% of response times are in compliance with standards set by the National Fire Protection Association (NFPA)	yes/no	24
Demonstrate that the fire department has obtained Commission on Fire Accreditation International (CFAI) accreditation	yes/no	24

Target **16.2 End abuse, exploitation, trafficking and all forms of violence against and torture of children**

Indicator	Unit	Source
Number of children under age (child labour) employed in the city region food system	#.	27

Target **16.3 Promote the rule of law at the national and international levels and ensure equal access to justice for all**Aspect **Fair police**

Indicator	Unit	Source
Demonstrate that the police department has obtained Commission on Accreditation for Law Enforcement Agencies (CALEA) accreditation	yes/no	24
Demonstrate that all police-related civil and human rights complaints in the past 3 years have been investigated and violations redressed in a timely manner	yes/no	24



Aspect **Response to justice**

Indicator	Unit	Source
Average length of civil cases	days	25
Demonstrate that all non-police-related civil and human rights complaints in the past 3 years have been investigated and violations redressed in a timely manner	yes/no	24
Demonstrate that all child and adult/elderly abuse and neglect complaints in the past 3 years have been investigated and redressed in a timely manner	yes/no	24

Target **16.4 By 2030, significantly reduce illicit financial and arms flows, strengthen the recovery and return of stolen assets and combat all forms of organized crime**

Indicator	Unit	Source
Existence of weapons control policy: 1 yes, fully implemented 2 yes, somewhat implemented 3 yes, rarely implemented 4 yes, not implemented because of various constraints 5 none, but planned 6 none and not planned yet	Qualitative	1

Target **16.5 Substantially reduce corruption and bribery in all their forms**

Indicator	Unit	Source
Proportion of persons who had at least one contact with a public official and who paid a bribe to a public official, or were asked for a bribe by those public officials, during the previous 12 months	%	6
Is the following process followed by the local authorities: Sanctions against faults of civil servants?	yes/no	1
Is the following process followed by the local authorities: A local hotline to receive complaints and information on corruption?	yes/no	1
Is the following process followed by the local authorities: A local agency to investigate and report cases of corruption?	yes/no	1

## Target **16.6** Develop effective, accountable and transparent institutions at all levels

### Effective

Indicator	Unit	Source
Quality of local government (computed indicator measuring the quality of government in three areas of public services: education, healthcare and law enforcement)	index	30
E-government availability	% of services	8
E-government usage	%	8

### Aspect **Accountable**

Indicator	Unit	Source
Citizen satisfaction per municipal services identified	%	8
Confidence in juridical system of persons aged > 14yrs	scale	25
Confidence in political parties of persons aged > 14yrs	scale	25
Confidence in regional government of persons aged > 14yrs	scale	25
Confidence in other institutions of persons aged > 14yrs	scale	25
Confidence in EU parliament	Scale	25

### Aspect **Transparent**

Indicator	Unit	Source
Is the amount of fund transfers from higher governments known in advance of the local budget setting process?	all/ some	1
Total local government revenue from all sources in euros annually, both capital and recurrent, for all local governments in the metropolitan area, averaged over the last three years (2000, 2001, 2003), divided by the population.	EUR	1
Is the following process followed by the local authorities: Regular independent auditing of municipal accounts?	yes/no	1
Is the following process followed by the local authorities: Formal publication of contracts and tenders for municipal services?	yes/no	1
Is the following process followed by the local authorities: Formal publication of budgets and accounts?	yes/no	1

Target **16.7 Ensure responsive, inclusive, participatory and representative decision-making at all levels**

Aspect **Civil representation**

Indicator	Unit	Source
Number of Agencies/Private Companies/NGOs/Academic Institutions/International organizations	Index	5
Number of Neighbourhood Councils and Structures for inhabitants associations per 1.000 persons	n	8
Public participation (people involved or doing voluntary work)	%	8, 18
Demonstrate that at least 30% of residents in large jurisdictions or 35% of residents in small or mid-sized jurisdictions volunteered in the past year	yes/no	24
Number of voluntary non-profit organisations, including NGOs, political sporting or social organisations, registered or with premises in the city, per 10,000 population	#/10 000 inhabitants	1

Aspect **Participatory decision-making**

Indicator	Unit	Source
Existence of a place opened frequently to inhabitants and focussed on local sustainable development projects or policies	Y/N	8
Demonstrate that public engagement techniques include practices that intentionally and directly engage all residents, including traditionally unrepresented or underrepresented groups, through inclusive, context-sensitive, and transparent decision-making processes	yes/no	24
Demonstrate both high-tech and high-touch on-going engagement techniques that empower the public in shaping the future of the community	yes/no	24
Level of involvement of inhabitants in the elaboration and implementation of projects and programmes in deprived neighbourhoods. Percentage of people living in deprived neighbourhoods participating to the elaboration of projects and programmes	%	8
In your transport planning processes, do you systematically involve: - all city departments that might have an interest in how the transport systems functions, including transport; land-use and spatial planning; social services; energy; health; education; enforcement and policing? - neighbouring urban areas? - neighbouring rural areas? - different levels of administration and government? (e.g. district, municipality, agglomeration, region, and Member States) - citizens and/or representatives of civil society? - major employers in the city? - schools and/or other educational establishments?	yes/no	14

Are following innovative tools or methods used in the environmental department? yes/no 14

- Citizen participation in environmental enforcement and/or policy making?
- Awareness raising campaigns on environmental issues?
- Setting up co-creation processes and developing projects together with groups of citizens or external stakeholders, for example?
- Other innovative measures?

Public participation in green policy	Assessment (score 0 to 10)	26
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Number of informal public participation processes	#/1000 inh./a	23
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#### Aspect **Local autonomy / governance**

Indicator	Unit	Source
Decentralisation	index	2
People who feel they can influence decisions in their locality	% of adults	8
Is the Mayor elected by the citizens?	yes/no	1
Is the Mayor nominated?	yes/no	1
Percentage of the eligible population that voted during the last municipal election	%	7, 1, 4, 6
Can higher levels of government (national, state/provincial) close the local government (e.g. appoint an administrator or a new council, call new elections)?	yes/no	1
Can higher levels of government (national, state/provincial) remove councilors from office?	all/some	1
Demonstrate how the sets of codes or ordinances are being legally enforced in the community	yes/no	24

Aspect **Local turnout**

Indicator	Unit	Source
Demonstrate at least a 65% voter turnout rate in local elections during presidential election years or at least 50% during non-presidential election years	yes/no	24
Demonstrate at least a 65% voter turnout rate by the community's 3 lowest performing wards or districts in the most recent local election during presidential election years or at least 50% during non-presidential election years OR Increase the voter turnout rates for the community's 3 lowest performing wards or districts in local elections over time	yes/no	24

Aspect **EU elections**

Indicator	Unit	Source
Participation in EU parliament votes	%	25

Aspect **International agreements**

Indicator	Unit	Source
Signatory of CoM	yes/no	13
Signatory of Aalborg	yes/no	13

Target **16.8 Broaden and strengthen the participation of developing countries in the institutions of global governance**

*Too national/international specific.*

Target **16.9 By 2030, provide legal identity for all, including birth registration**

*No indicators identified.*

Target **16.10 Ensure public access to information and protect fundamental freedoms, in accordance with national legislation and international agreements**

#### Access to information

Indicator	Unit	Source
Access to Public Information	yes/no	4

Aspect **Open data**

Indicator	Unit	Source
Percentage and number of inventoried open datasets that are published	%	7
Demonstrate that data made available to the public meet the Open Data Policy Guidelines, as described by the Sunlight Foundation OR Adopt the What Works Cities Standard and describe efforts within the 4 components: Commit, Measure, Take Stock, and Act	yes/no	24
If you have answered YES is the data (systematic monitoring program for CO2 emission equivalents) publicly available via the internet?	yes/no	14
Is real-time air quality information available on your city's air quality via the internet?	yes/no	14

Target **16.a Strengthen relevant national institutions, including through international cooperation, for building capacity at all levels, in particular in developing countries, to prevent violence and combat terrorism and crime**

*No indicators identified.*

Target **16.b Promote and enforce non-discriminatory laws and policies for sustainable development**

*No indicators identified for broad sustainable development, but you can refer to target 5.1 (end gender discrimination) and target 10.3 (equal opportunity).*



## 17 PARTNERSHIPS FOR THE GOALS



SDG 17 is about working together to achieve the SDGs. It addresses the need for partnerships between governments, the private sector and civil society. These inclusive partnerships are needed at the global, regional, national as well as the local level. The United Nations see the most important actions in long-term investments, including foreign direct investment, especially in developing countries. These should go to sustainable energy, infrastructure and transport, as well as information and communication technologies. The public sector is addressed to set a clear direction and to revise and proof frameworks, regulations and incentive structures that enable such investments.

### Relevance for cities and local governments

Cities and local governments are in an ideal position to support and encourage networks like private public partnerships, including also the civil society in the communities. Such municipal cooperation can also attract financial means to implement different projects, and can promote better inclusiveness during their implementation. The possibilities of partnerships and projects are numerous and diverse as cities are hubs of education, culture, economic development and infrastructure. Cities can also take an active part by assisting stakeholders with coordinated policies aimed at fostering debt financing, debt relief and debt restructuring to achieve long-term debt sustainability.

**STRENGTHEN  
THE MEANS OF  
IMPLEMENTA-  
TION AND  
REVITALIZE THE  
GLOBAL  
PARTNERSHIP  
FOR  
SUSTAINABLE  
DEVELOPMENT.**

## SDG 17 | Overview

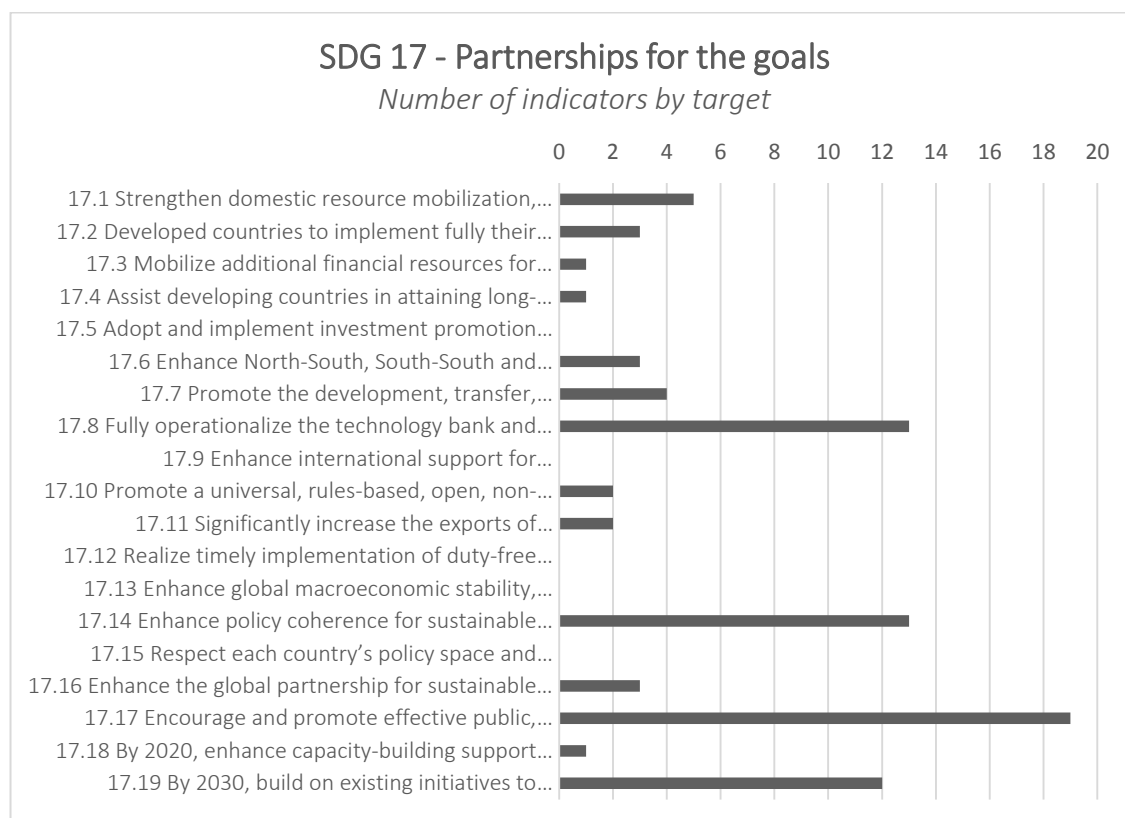
Last but not least, SDG 17 is represented by 82 indicators dealing with the optimisation of resources, knowledge and tools to reach all the SDGs, in an interdisciplinary and multiscale glance. There is a predominating coverage of target 17.17 (multistakeholder partnerships), addressing aspects such as the general type and level of involvement of the society, the diversity of stakeholders, the engagement of the local government with other governments and private entities, and the harmonization of visions among departments beyond jurisdictions. Specific indicators are provided for the food, energy, water and urban planning sectors.

Many indicators were found for assessing target 17.8 (access to information and communications technology), target 17.14 (policy coherence for sustainable development), as well as for target 17.19 (data, monitoring and accountability practices). Other targets see a lower number of indicators, which however represent a basis for monitoring them.

Targets 17.5 (investment promotion regimes for least developed countries), 17.9 (international support), 17.12 (duty-free quota-free market access for least developed countries), 17.13 (macroeconomic stability), 17.15 (country's policy leadership) are not supported by any of the indicators screened as these targets are too much oriented towards the national level.

Various indicator sets contributed to this SDG, among them the EU Green City Tool and the Reference Framework for Sustainable Cities. There is a good balance between quantitative and qualitative indicators.

**Figure 17: Number of indicators identified for targets of SDG 17**





## SDG 17 | Indicators

**Target 17.1 Strengthen domestic resource mobilization, including through international support to developing countries, to improve domestic capacity for tax and other revenue collection**

Indicator	Unit	Source
Local government revenue & expenditures	-/-	2
Own Revenue Collection, Own-source revenue	% of total revenues	4, 6
Capital spending	% of total expenditures	6
Tax collected as a percentage of tax billed	%	6
Can your local government, without permission from higher governments: a. Set local tax levels (property tax etc.)? b. Set user charges for services? c. Borrow funds? d. Choose contractors for projects?	all/some/ none	1

**Target 17.2 Developed countries to implement fully their official development assistance commitments, including the commitment by many developed countries to achieve the target of 0.7 per cent of ODA/GNI to developing countries and 0.15 to 0.20 per cent of ODA/GNI to least developed countries; ODA providers are encouraged to consider setting a target to provide at least 0.20 per cent of ODA/GNI to least developed countries**

Indicator	Unit	Source
Public assistance to international mutual aid actions	Budget for international mutual aid actions / entire local budget.	8
Official development assistance	yes/no	8
Untied assistance	%	8

Target **17.3 Mobilize additional financial resources for developing countries from multiple sources**

Indicator	Unit	Source
Foreign Direct Investments	Capital/Earnings accrued from listed FDI's per annum	21

Target **17.4 Assist developing countries in attaining long-term debt sustainability through coordinated policies aimed at fostering debt financing, debt relief and debt restructuring, as appropriate, and address the external debt of highly indebted poor countries to reduce debt distress**

Indicator	Unit	Source
Subnational debt	-/-	4

Target **17.5 Adopt and implement investment promotion regimes for least developed countries**

*No indicators identified.*

Target **17.6 Enhance North-South, South-South and triangular regional and international cooperation on and access to science, technology and innovation and enhance knowledge sharing on mutually agreed terms, including through improved coordination among existing mechanisms, in particular at the United Nations level, and through a global technology facilitation mechanism**

Indicator	Unit	Source
R&D (Research & development) intensity	% of community budget	7, 8, 13, 30
International cooperation	yes/no	2
Is the city leading by example in (integrated) environmental behaviour by: - Using Green Public Procurement guidelines for purchasing and contracting external services and goods? - Cooperating with other authorities and organisations on environmental	yes/no	14

topics?

- Enabling employees to develop their skills on environmental topics and sustainable city development?
- Another exemplary practices?

**Target 17.7 Promote the development, transfer, dissemination and diffusion of environmentally sound technologies to developing countries on favourable terms, including on concessional and preferential terms, as mutually agreed**

**Aspect Innovative engagement tools**

Indicator	Unit	Source
Are following innovative tools or methods used in the environmental department? - Using apps, smart city initiatives and citizen science applications? - Other innovative measures?	yes/no	14
Demonstrate both high-tech and high-touch on-going engagement techniques that empower the public in shaping the future of the community	yes/no	24
In delivering its environmental policy does the city use any innovative approaches, tools or instruments?	yes/no	13
Are following innovative tools or methods used in the environmental department? - Citizen participation in environmental enforcement and/or policy making? - Using apps, smart city initiatives and citizen science applications? - Awareness raising campaigns on environmental issues? - Setting up co-creation processes and developing projects together with groups of citizens or external stakeholders, for example? - Other innovative measures?	yes/no	14

**Target 17.8 Fully operationalize the technology bank and science, technology and innovation capacity-building mechanism for least developed countries by 2017 and enhance the use of enabling technology, in particular information and communications technology**

**Aspect Phone**

Indicator	Unit	Source
Percentage of households which, within their housing unit, are connected to telephone	%	1
Number of mobile phone connections per 100 000 population (supporting indicator)	#/100 000 inhabitants	6
Have you got a mobile phone?	Survey to population	11
Have you got a landline phone?	Survey to population	11

**Aspect Internet**

Indicator	Unit	Source
Home computer access	yes/no	4
Households with internet access	%	4, 7, 30
Households with high speed / broadband internet access	%	7, 8, 23, 28
Households served by wireless broadband	%	7
Households served by fixed/wired broadband	%	7
Number of internet connections per 1,000 population	#/100,000 inhabitants	6, 8
Number of (public) WIFI hotspots in the city	#	7

Aspect **Other tools**

Indicator	Unit	Source
Are following innovative tools or methods used in the environmental department? - Using apps, smart city initiatives and citizen science applications? - Other innovative measures?	yes/no	14
Demonstrate both high-tech and high-touch on-going engagement techniques that empower the public in shaping the future of the community	yes/no	24

Target **17.9 Enhance international support for implementing effective and targeted capacity-building in developing countries to support national plans to implement all the sustainable development goals, including through North-South, South-South and triangular cooperation**

*No indicators identified.*

Target **17.10 Promote a universal, rules-based, open, non-discriminatory and equitable multilateral trading system under the World Trade Organization, including through the conclusion of negotiations under its Doha Development Agenda**

Indicator	Unit	Source
Share of public expenditures used for fair trade products	%	23
Number of public and private sector organisations adopting fair and equitable food procurement policies (including Fairtrade) and paying a fair price/wage to workers in the food chain	-/-	27

Target **17.11 Significantly increase the exports of developing countries, in particular with a view to doubling the least developed countries' share of global exports by 2020**

Indicator	Unit	Source
Net Export Growth rates (increase of country's total exports minus the value of its total imports per annum)	%	21
Domestic material consumption, of raw materials extracted from the domestic territory of an economy, plus all physical imports, minus all physical exports	Quantity	8

**Target 17.12 Realize timely implementation of duty-free and quota-free market access on a lasting basis for all least developed countries, consistent with World Trade Organization decisions, including by ensuring that preferential rules of origin applicable to imports from least developed countries are transparent and simple, and contribute to facilitating market access**

*No indicators identified.*

**Target 17.13 Enhance global macroeconomic stability, including through policy coordination and policy coherence**

*No indicators identified.*

**Target 17.14 Enhance policy coherence for sustainable development**

**Aspect Integrated environmental plan**

Indicator	Unit	Source
Local environmental plans	yes/no	2
Adoption of integrated urban plans (environment, transport, land use)	yes/no	8
Does your city have an integrated environmental policy framework, vision or management plan?	yes/no	14
Does your integrated environmental policy framework, vision or management plan include a short and long term actions to achieve a more integrated management of environmental policy?	yes/no	14
Does your integrated environmental policy framework, vision or management plan include links to other policy documents (e.g. urban planning, infrastructure)?	yes/no	14
Does your integrated environmental policy framework, vision or management plan include agreed actions to be executed by or for other policy fields?	yes/no	14
Does your integrated environmental policy framework, vision or management plan include a dedicated budget for the implementation of the environmental vision?	yes/no	13, 14
Have city departments, other than the environmental department, adopted your city's environmental vision or elements of it?	yes/no	14

Aspect **Other plans**

Indicator	Unit	Source
Is your climate change mitigation plan actively linked with other policy fields, strategies, plans or projects, such as energy, urban planning, transport, etc.?	yes/no	14
Are new developments in your city systematically adapted to possible climate change effects? (e.g. through a climate 'adaptation check' for new developments and through horizontal (across sectoral departments) and vertical (across governance levels) coordination) as well as stakeholder engagement).	yes/no	14
Increase cross-sectoral policies that at national level ensure the linkages with the local food system policies	yes/no	27
Existence of multiscale level in the Urban Masterplan within focus on Deprived Neighbourhood Areas	Qualitative indicators	8
Percentage of local budget dedicated to Deprived Neighbourhoods Areas compared to global local budget	% of city expenditure	8 8

Target **17.15 Respect each country's policy space and leadership to establish and implement policies for poverty eradication and sustainable development**

*No indicators identified.*

Target **17.16 Enhance the global partnership for sustainable development, complemented by multi-stakeholder partnerships that mobilize and share knowledge, expertise, technology and financial resources, to support the achievement of the sustainable development goals in all countries, in particular developing countries**

Aspect **International agreements**

Indicator	Unit	Source
Signatory of CoM	yes/no	13
Signatory of Aalborg	yes/no	13
Level of implementation of Agenda 21	index	8, 19

**Target 17.17 Encourage and promote effective public, public-private and civil society partnerships, building on the experience and resourcing strategies of partnerships**

**Aspect Multistakeholder (general) partnerships**

Indicator	Unit	Source
Share of public expenditures allocated for local development cooperation	%	23
Measures to trigger stakeholder engagement in the city to improve overall energy demand performance preferably including local government institutions, local market actors and citizens, cooperations	yes/no	13
Presence and type of multi-stakeholder food policy and planning structures (e.g. food policy councils; food partnerships; food boards; food coalitions)	-/-	27
Levels of activity and effectiveness of multi-stakeholder participation in city region food system policy and planning	-/-	27

**Target Civil society in partnerships**

Indicator	Unit	Source
Diversity of citizen composition in multi-stakeholder groups	-/-	27
Are there actions dealing with water management that involve citizens?	yes/no	14
Do the actions of the waste water management plan include citizen participation?	yes/no	14
Level of involvement of inhabitants in the elaboration and implementation of projects and programmes in deprived neighbourhoods	%	8
Do you involve stakeholders and citizens in any climate change mitigation actions undertaken by your city?	yes/no	14



Target **Public-private partnerships**

Indicator	Unit	Source
Public-private partnership	-/-	2
Does your city actively promote any of the following 'nature based solutions' (NBS): (e.g. via legal obligations, or economic such as taxes and subsidies, <b>public-private partnerships with business sector</b> etc) - Green roofs, green walls? - SUDS (Sustainable Drainage Systems)? - Natural flood protection measures? - Natural waste water treatment solutions? - Protection of watersheds to safeguard infiltration areas for the city's drinking water - Other measures?	yes/no	14

Aspect **Cross-sectoral / cross-jurisdictional / cross-departmental partnerships**

Indicator	Unit	Source
Demonstrate that the local government has designated and funded at least 1.0 FTE employee directly responsible for coordinating on sustainability issues across departments or that an Office of Sustainability has been established with a clear direction to act on the local government's behalf	yes/no	24
Frequency and new forms of cross-sectoral and cross-jurisdictional collaboration in food systems policies and programmes	-/-	27
Form and frequency of cross-jurisdictional and cross-sectoral collaboration (between various tiers and departments of local governments, towns and cities) in food plans, policies, programmes and structures	-/-	27
Presence of an interdepartmental government body for decision making on food policy and programmes	-/-	27

Aspect **Public-public cooperation**

Indicator	Unit	Source
Institutional Capacity: Number of City or Local Government Agencies Involved in Inter-agency Cooperation	n	5
To what extent does your city promote the cooperation and /or coordination with other municipalities and/or other levels of government?	List	8
Does your city cooperate with other authorities at different levels or other organisations (regional, national, EU, international) on environmental and sustainability issues?	yes/no	13
Is the city part of national, European or international climate adaptation initiatives like the 'Covenant of Mayors for Climate and Energy'?	yes/no	13

**Target 17.18** By 2020, enhance capacity-building support to developing countries, including for least developed countries and small island developing States, to increase significantly the availability of high-quality, timely and reliable data disaggregated by income, gender, age, race, ethnicity, migratory status, disability, geographic location and other characteristics relevant in national contexts

Indicator	Unit	Source
Presence of disaggregated data collection and analysis for different social and income groups in the city region	Yes/no	27

**Target 17.19** By 2030, build on existing initiatives to develop measurements of progress on sustainable development that complement gross domestic product, and support statistical capacity-building in developing countries

**Aspect General**

Indicator	Unit	Source
Are there any monitoring and performance evaluation schemes?	yes/no	13
Do you have a mechanism or plan established for city diagnosis, monitoring and improvement annually	yes/no	8
Is the city leading by example in (integrated) environmental behaviour by: - Using Green Public Procurement guidelines for purchasing and contracting external services and goods? - Using an environmental management system to track progress, monitor and set targets? - Cooperating with other authorities and organisations on environmental topics? - Enabling employees to develop their skills on environmental topics and sustainable city development? - Another exemplary practices?	yes/no	14

Aspect **Types**

Indicator	Unit	Source
Local expenditure per sustainable pillar	EUR/inhab	8
Does your city collect data on the 'quality of its acoustic environment' (i.e. the levels of noise across the city at different times of day)?	yes/no	14
Does your city monitor green growth and / or eco-innovation?	yes/no	14
Does your climate plan include a monitoring framework?	yes/no	14
Do you regularly report on progress with implementing the climate plan?	yes/no	14
If part of the Covenant of Mayors, have you submitted your CoM monitoring report?	yes/no	14
Does your city monitor user satisfaction with the available green urban spaces?	Yes/no	14
Existence of a monitoring system for the city emissions reductions targets	yes/no	20
Does your city collect (or have access to) good data on its CO2 emission equivalents covering at least the last 2 years?	yes/no	14

## List of screened indicator sets (sources)

No.	Indicator Set	Published by
1	<a href="#">Global Urban Indicators Guidelines</a>	UN-Habitat (UNHAB)
2	<a href="#">Global Urban Indicator Database v.2</a>	UN-Habitat (UNHAB)
3	<a href="#">City Development Index (UN-Habitat)</a>	UN-Habitat (UNHAB)
4	<a href="#">City Prosperity Index (UN-Habitat)</a>	UN-Habitat (UNHAB)
5	<a href="#">City Biodiversity Index Manual</a>	(UNEP-SCBD)
6	<a href="#">ISO 37120 - Indicators for city services and quality of life</a>	ISO
7	<a href="#">U4SSC Collection Methodology for KPIs for Smart Sustainable Cities</a>	United for Smart Sustainable Cities (U4SSC)
8	<a href="#">Reference Framework for Sustainable Cities</a>	Reference Framework for Sustainable Cities (RFSC)
9	<a href="#">First generation of EU Common Indicators: Towards a Local Sustainable Profile</a>	Directorate-General for Environment (DGNV), European Commission (EC)
10	<a href="#">Indicators for EU cities - Urban Audit</a>	Statistisches Amt der Europäischen Union (EU-ROSTAT)
11	<a href="#">Perception of Quality of Life - Urban Audit</a>	DG Regio (EU)
12	<a href="#">Mapping and Assessment of Ecosystems and their Services (MAES)</a>	European Commission
13	<a href="#">EU Green Capital Award</a>	Directorate-General for Environment (DGNV)
14	<a href="#">EU Green City Tool</a>	Directorate-General for Environment (DGNV)
15	<a href="#">EEA Urban Metabolism Framework</a>	European Environment Agency (EEA)
16	<a href="#">EEA indicators - Urban vulnerability Map book</a>	European Environment Agency (EEA)
17	<a href="#">EEA indicators - Similarities and diversity of European cities</a>	European Environment Agency (EEA)
18	<a href="#">City Blueprint Framework</a>	European Innovation Partnerships (EIP)
19	<a href="#">Informed Cities - Urban Ecosystem Europe (ICLEI &amp; Ambiente Italia)</a>	ICLEI, Ambiente Italia
20	<a href="#">POCACITO - Report on Key performance indicators</a>	Post-Carbon Cities of Tomorrow (POCACITO)

21	<a href="#">Indicators for Sustainability</a>	Sustainable Cities International (CIDA)
22	<a href="#">Cercle d'indicateurs des villes suisses</a>	Office Fédéral du Développement territorial / Office Fédéral de la Statistique - Suisse
23	<a href="#">Bertelsmann - SDG indicators for municipalities</a>	Bertelsmann Stiftung
24	<a href="#">Sustainability Tools for Assessing and Rating Communities</a>	Star Communities
25	<a href="#">Equitable and Sustainable Well-Being in Italy</a>	Istituto Nazionale di Statistica (ISTAT)
26	<a href="#">EU Green City Index</a>	Economist Intelligence Unit / Siemens
27	<a href="#">City Region Food System Indicator Framework</a>	Resource Centres on Urban Agriculture and Food Security (RUAF)
28	<a href="#">US Cities SDG Index - SDG Mapping Worksheet</a>	Sustainable Development Solutions Network (SDSN)
29	<a href="#">Urban Data Platform</a>	Joint Research Center (JRC) Directorate General (DG) Regio
30	<a href="#">Euro Cities SDG Index – SDG mapping Worksheet</a> (prototype version)	Sustainable Development Solutions Network (SDSN)

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