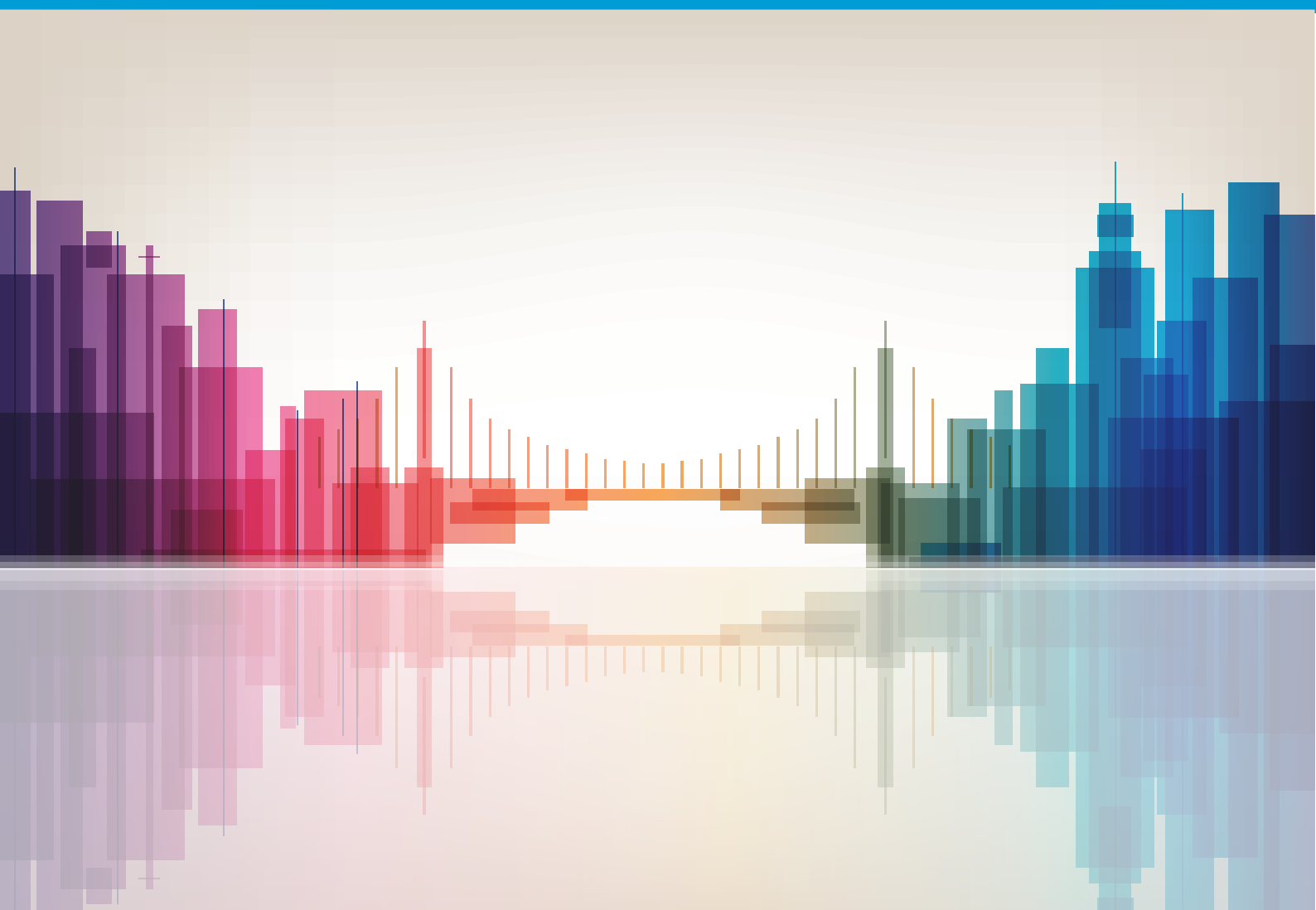


Verification Report

Quito, Ecuador

April 2025







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11 SUSTAINABLE CITIES AND COMMUNITIES





Foreword

This publication has been developed by ITU within the framework of the United for Smart Sustainable Cities (U4SSC) initiative. It provides an overview of the reporting and implementation of key performance indicators (KPIs) for smart sustainable cities (SSC) in the City of Quito, Ecuador. The U4SSC KPIs are based on [Recommendation ITU-T Y.4903](#). This set of KPIs for SSC was developed to establish the criteria to evaluate ICTs' contributions in making cities smarter and more sustainable, and to provide cities with the means for self-assessments.

Disclaimer

Any references made to specific countries, companies, products, initiatives, policies, frameworks, or guidelines do not in any way imply that they are endorsed or recommended by ITU, the authors, or any other organization that the authors are affiliated with, in preference to others of similar nature that are not mentioned.

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1 Introduction and Verification Background

This report contains the verification results for the KPI submission by the city of Quito to the requirements of the United for Smart Sustainable Cities (U4SSC) Key Performance Indicators (KPIs) as described within the '[Collection Methodology for Key Performance Indicators for Smart Sustainable Cities](#)'.

Quito is the first city in Ecuador to report on and undergo an external verification of the U4SSC KPIs. Quito had invested significant effort to collect and report on nearly all the U4SSC KPIs. This dedication to the initial collection of the KPIs is acknowledged and commended.

John Smiciklas, who is certified as a U4SSC Key Performance Indicators for Smart Sustainable Cities Verifier, completed the verification in March 2025.

The verification assessment activities included:

- collecting and reviewing KPI data;
- interviewing city stakeholders;
- verifying that the data submitted are in conformance with the requirements of the Collection Methodology for Key Performance Indicators for Smart Sustainable Cities; and
- preparing the Verification Report.

The verification was conducted using the information made available by the city and the information presented during follow-up activities. It was planned and performed in order to obtain limited assurance with respect to the information examined.

There were no limitations that impacted the completion of this verification.



2 KPI Reporting and Verification Summary

	Total	Reported	Verified	% KPIs Verified
Economy				
Core KPIs	23	23	23	100 %
Advanced KPIs	22	21	21	95 %
Environment				
Core KPIs	12	12	12	100 % *
Advanced KPIs	5	5	5	100 %
Society & Culture				
Core KPIs	19	17	17	89 %
Advanced KPIs	10	10	10	100 %
Overall				
Core KPIs	54	52	52	96 %
Advanced KPIs	37	36	36	97 %
Total	91	88	88	97 %

* EN:EN:WS:4C was partially reported . Counted as reported in this analysis

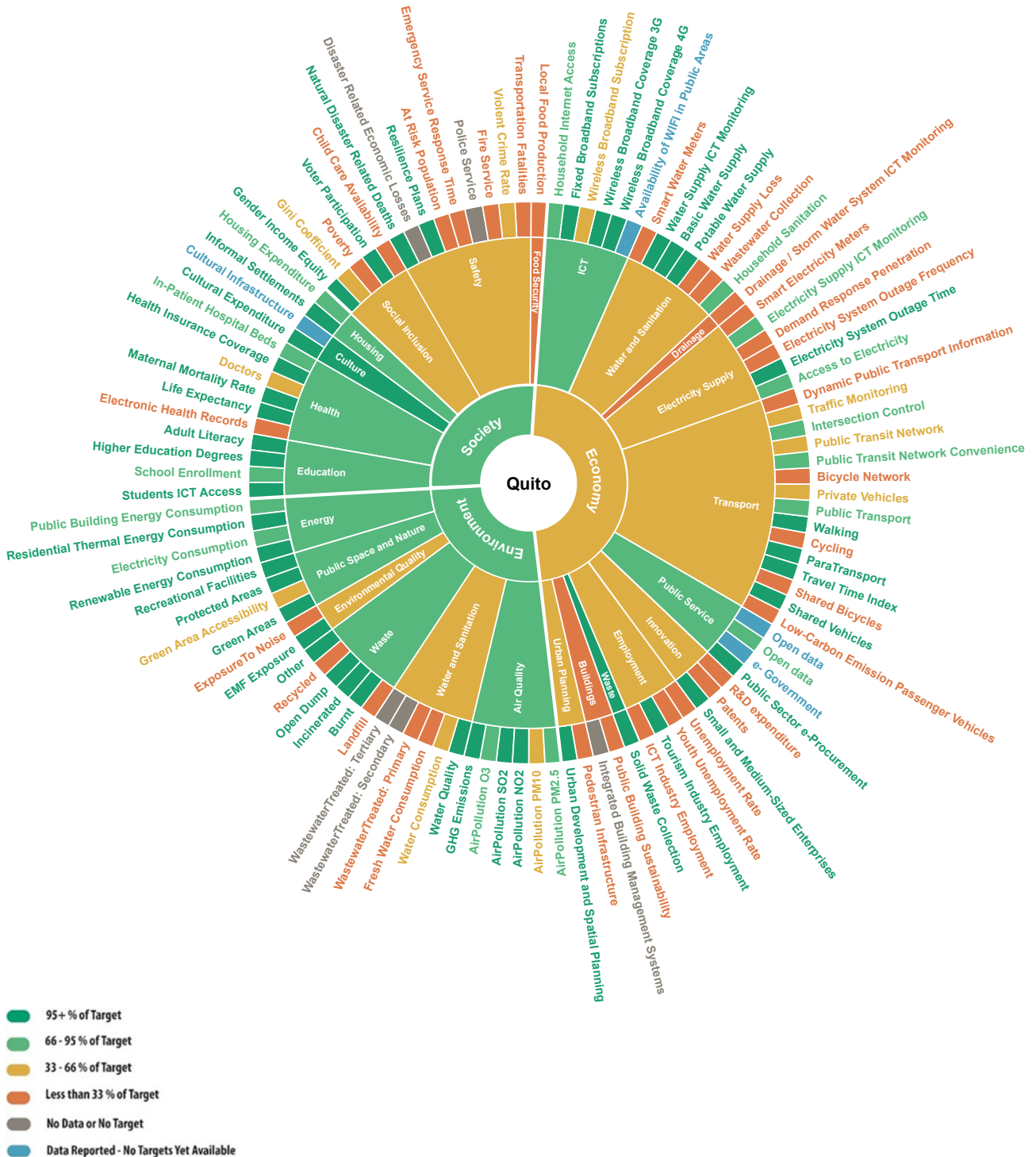
3 KPI Data Points Reporting and Verification Summary

Certain KPIs are composed of more than one data point.

Below is a summary of the verification results of those data points.

	Total	Reported	Verified	% Data Points Verified
Economy				
Core Data Points	24	24	24	100 %
Advanced Data Points	31	30	30	97 %
Environment				
Core Data Points	23	21	21	91 %
Advanced Data Points	5	5	5	100 %
Society & Culture				
Core Data Points	19	17	17	89 %
Advanced Data Points	10	10	10	100 %
Overall				
Core Data Points	66	62	62	94 %
Advanced Data Points	46	45	45	98 %
Total	112	107	107	96 %

4 City Performance Benchmark



Note: Performance Benchmark Targets apply to all sections of the graphic. Starting from the centre: Dimensions, Categories and KPIs.



5 Benchmarks and Scoring Methodology

As part of the U4SSC KPIs project, benchmarks were developed for most KPIs in order to develop a reporting framework with which to demonstrate to cities how their performance could be reported.

The benchmarks were set based on several factors:

- fully meeting the aligned SDG(s);
- performance compared with other international and transnational targets (e.g., OECD, European Commission);
- performance against a UN agency's goals (e.g., International Telecommunication Union);
- evaluation of city performance using UN and other international statistical data; and
- performance measured versus leading city performance globally.

Performance to benchmarks were then scored in four ranges for every KPI and data point reported:

- 0 - 33 % of Target - 1 pt;
- 33 - 66 % of Target - 2 pts;
- 66 - 95 % of Target - 3 pts; and
- 95+ % of Target - 4 pts.

The scores for each reported KPI and data point were added to give a percentage score for categories, subdimensions and dimensions, and were reported based on the above target scores. KPIs or data points that are not reported or have no benchmarks yet defined were excluded.

Example: Education 4 KPIs

- If all four are reported and the scores are 1 pt, 3 pts, 4 pts and 1 pt;
Total score 9 pts out of 16 = 56.25 % reported as 33 - 66 % of target.
- If only three are reported and the scores are 3 pts, 4 pts and 2 pts;
Total score 9 pts out of 12 = 75 % reported as 66 - 95 % of target.

Targets and scoring are meant to provide additional context to KPI data and should be used in context with city goals and comparisons with other similar cities to determine future actions.



6 Verification Results

This section contains the data and results of the verification for the City of Quito's reporting for each of the U4SSC KPIs within the three dimensions:

- Economy
- Environment
- Society and Culture

and the 22 categories of the dimensions:

- | | |
|------------------------|---------------------------|
| • ICT Infrastructure | • Air Quality |
| • Water and Sanitation | • Environmental Quality |
| • Drainage | • Public Space and Nature |
| • Electricity Supply | • Energy |
| • Transport | • Education |
| • Public Sector | • Health |
| • Innovation | • Culture |
| • Employment | • Housing |
| • Waste | • Social Inclusion |
| • Buildings | • Safety |
| • Urban Planning | • Food Security |

















Note: The following categories are reported under the Economy and the Environment dimensions.

- Water and Sanitation
- Waste















Note: For the results on following pages.

- **Core KPIs are highlighted in bold.**
- *Advanced KPIs are in italics.*

















Dimension: Economy

CATEGORY	KPI / Data Point	Results	Benchmark
 ICT INFRASTRUCTURE	Household Internet Access	78.88 %	
	Fixed Broadband Subscriptions	78.59 %	
	Wireless Broadband Subscriptions	64 813 / 100 000 inhabitants	
	Wireless Broadband Coverage: 3G	95.80 %	
	Wireless Broadband Coverage: 4G	95.91 %	
	<i>Availability of Wi-Fi in Public Areas</i>	<i>1 000</i>	N/A
 WATER AND SANITATION	Smart Water Meters	0.00 %	
	<i>Water Supply ICT Monitoring</i>	<i>95.11 %</i>	
	Basic Water Supply	98.35 %	
	Potable Water Supply	98.35 %	
	Water Supply Loss	29.12 %	
	Wastewater Collection	3.38 %	
 DRAINAGE	Household Sanitation	94.15 %	
	<i>Drainage/Storm Water System ICT Monitoring</i>	<i>0.00 %</i>	

Dimension: Economy (continued)


















CATEGORY	KPI / Data Point	Results	Benchmark
 ELECTRICITY SUPPLY	Smart Electricity Meters	0.00 %	 
	<i>Electricity Supply ICT Monitoring</i>	94.09 %	  
	<i>Demand Response Penetration</i>	0.52 %	 
	Electricity System Outage Frequency	2.36	 
	Electricity System Outage Time	2.51 Minutes	
	Access to Electricity	85.43 %	  

Dimension: Economy (continued)










CATEGORY	KPI / Data Point	Results	Benchmark
 TRANSPORT	Dynamic Public Transport Information	0.00 %	
	Traffic Monitoring	33.14 %	
	<i>Intersection Control</i>	<i>69.88 %</i>	
	Public Transport Network	104.74 km / 100 000 inhabitants	
	<i>Public Transport Network Convenience</i>	<i>67.33 %</i>	
	Bicycle Network	5.12 km / 100 000 inhabitants	
	<i>Transportation Mode Share: Private Vehicles</i>	<i>26.90 %</i>	
	<i>Transportation Mode Share: Public Transport</i>	<i>51.30 %</i>	
	<i>Transportation Mode Share: Walking</i>	<i>14.80 %</i>	
	<i>Transportation Mode Share: Cycling</i>	<i>0.60 %</i>	
	<i>Transportation Mode Share: Para Transport</i>	<i>6.30 %</i>	
	<i>Travel Time Index</i>	<i>1.28</i>	
	<i>Shared Bicycles</i>	<i>4.26 / 100 000 inhabitants</i>	
	<i>Shared Vehicles</i>	<i>937.64 / 100 000 inhabitants¹</i>	
	<i>Low-Carbon Emission Passenger Vehicles</i>	<i>2.25 %</i>	

¹ Based on the number of taxis organized onto a cooperative















Dimension: Economy (continued)

CATEGORY	KPI / Data Point	Results	Benchmark
 PUBLIC SECTOR	Open Data Sets Published	269	N/A
	Open Data Sets % Availability	93.73 %	
	e-Government	225 Services	N/A
	Public Sector e-Procurement	100.00 %	
 INNOVATION	R&D Expenditure	0.92 %	
	Patents	0.25 / 100 000 inhabitants	
	Small and Medium-Sized Enterprises	99.25 %	
 EMPLOYMENT	Unemployment Rate	7.94 %	
	Youth Unemployment Rate	10.35 %	
	Tourism Sector Employment	7.57 %	
	ICT Sector Employment	2.40 %	
 WASTE	Solid Waste Collection	98.43 %	
 BUILDINGS	Public Building Sustainability	0.00 %	
	Integrated Building Management Systems in Public Buildings	Not Reported	





















Dimension: Economy (continued)

CATEGORY	KPI / Data Point	Results	Benchmark
 URBAN PLANNING	<i>Pedestrian Infrastructure</i>	0.04 %	   
	<i>Urban Development and Spatial Planning: Compact</i>	YES	   
	<i>Urban Development and Spatial Planning: Connected</i>	YES	
	<i>Urban Development and Spatial Planning: Integrated</i>	YES	
	<i>Urban Development and Spatial Planning: Inclusive</i>	YES	
	<i>Urban Development and Spatial Planning: Resilient</i>	YES	


















Dimension: Environment

CATEGORY	KPI / Data Point	Results	Benchmark
 AIR QUALITY	Particulate Matter (PM 2.5)	30.00 $\mu\text{g} / \text{m}^3$	
	Particulate Matter (PM 10)	71.00 $\mu\text{g} / \text{m}^3$	
	Nitrogen Dioxide (NO2)	22.50 $\mu\text{g} / \text{m}^3$	
	Sulphur Dioxide (SO2)	4.24 $\mu\text{g} / \text{m}^3$	
	Ozone (O3)	83.00 $\mu\text{g} / \text{m}^3$	
	GHG Emissions	1.87 $\mu\text{g} / \text{m}^3$	
 WATER AND SANITATION	Drinking Water Quality	99.82 %	
	Water Consumption	173.74 $\ell / \text{day} / \text{capita}$	
	Freshwater Consumption	100.00 %	
	Wastewater Treatment: Primary	1.61 %	
	Wastewater Treatment: Secondary	Not Reported	
	Wastewater Treatment: Tertiary	Not Reported	



















Dimension: Environment

CATEGORY	KPI / Data Point	Results	Benchmark
 WASTE	Solid Waste: Landfill	86.83 %	
	Solid Waste: Burnt	0.00 %	
	Solid Waste: Incinerated	0.02 %	
	Solid Waste: Open Dump	0.00 %	
	Solid Waste: Recycled	13.15 %	
	Solid Waste: Other	0.00 %	
 ENVIRONMENTAL QUALITY	EMF Exposure	100.00 %	
	<i>Noise Exposure</i>	<i>100.00 %</i>	
 PUBLIC SPACE AND NATURE	Green Areas	10 570 ha / 100 000 inhabitants	
	<i>Green Area Accessibility</i>	<i>33.47 %</i>	
	<i>Protected Natural Areas</i>	<i>44.87 %</i>	
	<i>Recreational Facilities</i>	<i>1 047 711 m² / 100 000 inhabitants</i>	
 ENERGY	Renewable Energy Consumption	61.18 %	
	Electricity Consumption	1 121 kWh / yr / capita	
	Residential Thermal Energy Consumption	1.03 GJ / yr / capita	
	Public Building Energy Consumption	25.83 ekWh / m² / yr	

Dimension: Society and Culture

CATEGORY	KPI / Data Point	Results	Benchmark
 EDUCATION	Student ICT Access	96.40 %	
	School Enrolment	92.00 %	
	Higher Education Degrees	29 300/ 100 000 inhabitants	
	Adult Literacy	98.50 %	
 HEALTH	<i>Electronic Health Records</i>	19.62 %	
	Life Expectancy	81.70 Years	
	Maternal Mortality Rate	16.15/ 100 000 live births	
	Physicians	288.01/ 100 000 inhabitants	
	<i>In-Patient Hospital Beds</i>	243.22 / 100 000 inhabitants	
	<i>Health insurance/ Public Health Coverage</i>	100.00 %	
 CULTURE	Cultural Expenditure	2.49 %	
	<i>Cultural Infrastructure</i>	32.20/ 100 000 inhabitants	N/A
 HOUSING	Informal Settlements	0.66 %	
	<i>Housing Expenditure</i>	22.89 %	

Dimension: Society and Culture (continued)

CATEGORY	KPI / Data Point	Results	Benchmark
 SOCIAL INCLUSION	Gender Income Equity	0.96	
	Gini Coefficient	0.45	
	Poverty Rate	10.95 %	
	Voter Participation	82.69 %	
	<i>Childcare Availability</i>	13.64 %	
 SAFETY	Natural Disaster-Related Deaths	0.00/ 100 000 inhabitants	
	Disaster-Related Economic Losses	Not Reported	
	<i>Resilience Plans</i>	YES	
	<i>Population Living in Disaster-Prone Areas</i>	14.01 %	
	<i>Emergency Service Response Time</i>	15.68 Minutes	
	Police Service	Not Reported	
	Fire Service	28.47 FTE / 100 000 inhabitants	
	Violent Crime Rate	708.57 / 100 000 inhabitants	
	Traffic Fatalities	11.67 / 100 000 inhabitants	
 FOOD SECURITY	<i>Local Food Production</i>	10.98 %	



7 KPIs Not Reported

KPI Number	Description
EC: I: B: 2A	Integrated Building Management Systems in Public Buildings
EN: EN: WS: 4C	Wastewater Treated - Partially Reported
SC: SH: SA: 2C	Disaster Related Economic Losses
SC: SH: SA: 6C	Police Service

8 KPIs Not Verified

All reported KPIs were verified.

9 Next Steps

Quito is encouraged to focus on KPIs that have been reported as falling within the benchmarks of 0 - 33 % and 33 - 66 % of targets, determine which of these KPIs indicates critical issues for the city and develop plans for improvement.

Quito is encouraged to review the KPIs for which no data were reported and determine plans for future data collection and reporting.

Quito is encouraged to continue ongoing data collection to determine trends in performance against benchmarks over time.

Quito is encouraged to stay engaged within the U4SSC process and continue to provide feedback on KPIs and benchmarks.



10 Using KPIs for SSC to Reach the SDGs

The **United for Smart Sustainable Cities (U4SSC)** initiative has developed the Key Performance Indicators (KPIs) for Smart Sustainable Cities (SSC) to support cities worldwide in evaluating the role and contribution of ICTs in smart sustainable cities, and to provide cities with the tools for self-assessments in order to achieve the United Nations Sustainable Development Goals (SDGs).

United for Smart Sustainable Cities (U4SSC)

A United Nations Platform Empowering Cities and Communities



The United for Smart Sustainable Cities (U4SSC) initiative is a global UN collaboration coordinated by ITU, UNEP, and UNECE, and supported by a wide network of partners, including: UN-Habitat, CBD, ECLAC, FAO, UNDESA, UNDP, UNECA, UNESCO, UNEP-FI, UNFCCC, UNIDO, UNOPS, UNU-EGOV, UN-Women, UNWTO, and WMO.

U4SSC serves as a dynamic international platform for the exchange of knowledge, best practices, and policy innovation—uniting cities, governments, academia, industry, and civil society to co-create people-centred, digitally inclusive, and climate-resilient cities and communities to advance the Sustainable Development Goals, the Global Digital Compact, and the Pact for the Future. [Find out more...](#)

These indicators are developed based on an international standard – Recommendation ITU-TY.4903 ‘Key performance indicators for smart sustainable cities to assess the achievement of sustainable development goals’.

These indicators have been developed to provide cities with a consistent and standardized method to collect the necessary data to measure performance and progress with regard to:

- achieving the Sustainable Development Goals (SDGs);
- becoming a smarter city; and
- becoming a more sustainable city.

The U4SSC KPIs consist of 91 indicators. Each indicator forms part of a holistic view of a city’s performance in three dimensions: **Economy**, **Environment** and **Society and Culture**. Each of these dimensions provides a separate view of progress, and when reported together they provide a holistic view of a smart sustainable city.



By providing a common set of metrics to benchmark a city's performance, the indicators will also enable cities to compare their performance with those of other cities, so allowing for the dissemination of best practices and the setting of standards for progression in meeting the Sustainable Development Goals (SDGs) at the city level.

The list of all the U4SSC KPIs for SSC, along with its collection methodology, are contained in:

- the Flipbook on the '[Collection Methodology for Key Performance Indicators for Smart Sustainable Cities](#)'.

Over 200 cities worldwide are already implementing these KPIs. All cities are invited to participate in this project and employ these KPIs.

To find out more, contact the U4SSC Secretariat at: u4ssc@itu.int.







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