

United



Smart
Sustainable
Cities



U4SSC KEY PERFORMANCE INDICATORS

VERIFICATION REPORT

Ålesund, Norway



ÅLESUND
KOMMUNE



REGION ÅLESUND



Table of Contents

Table of Contents.....	2
1. Introduction and Verification Background	3
2. KPI Reporting and Verification Summary	4
3. KPI Data Points Reporting and Verification Summary.....	4
4. City Performance Benchmark.....	5
5. Verification Results.....	6
Dimension: Economy	8
Dimension: Environment.....	13
Dimension: Society and Culture	16
6. KPIs Not Reported	19
7. KPIs Not Verified.....	19
8. Next Steps.....	19



1. Introduction and Verification Background

This report contains the verification results for the KPI submission by the city of Ålesund, Norway 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’](#)¹.

John Smiciklas, who is certified as a U4SSC Key Performance Indicators for Smart Sustainable Cities Verifier, completed the verification in February 2019.

The verification assessment activities included:

- collecting and reviewing KPI data;
- interviewing city stakeholders;
- verifying that the data submitted was 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 during the onsite visit and that 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.

¹ <https://www.itu.int/en/publications/Documents/tsb/2017-U4SSC-Collection-Methodology/index.html>



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	11	11	92%
Advanced KPIs	5	5	5	100%
Society & Culture				
Core KPIs	19	19	19	100%
Advanced KPIs	10	9	9	90%
Overall				
Core KPIs	54	53	53	98%
Advanced KPIs	37	35	35	95%
Total	91	88	88	97%

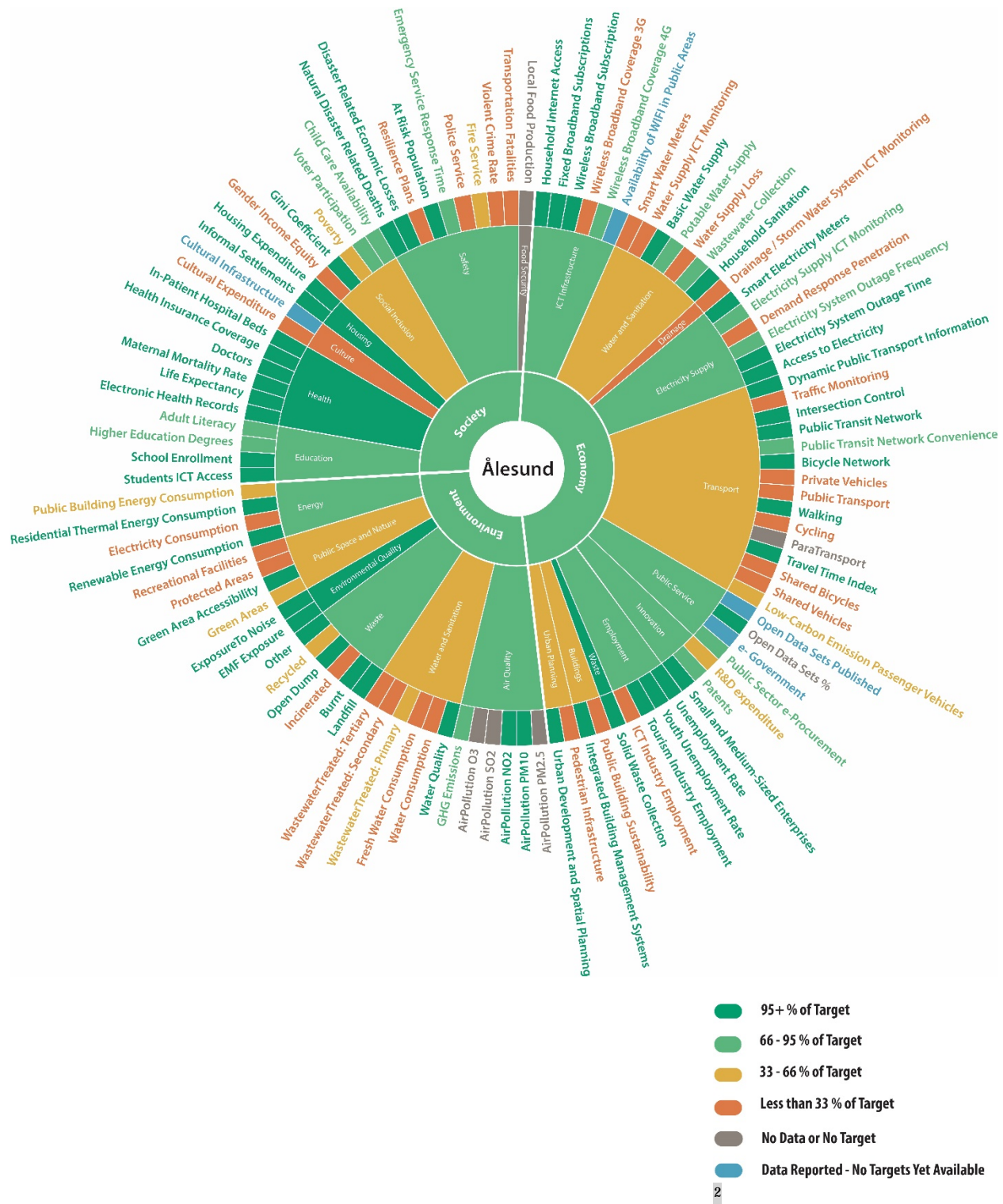
3. KPI Data Points Reporting and Verification Summary

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	20	20	87%
Advanced Data Points	5	5	5	100%
Society & Culture				
Core Data Points	19	19	19	100%
Advanced Data Points	10	9	9	90%
Overall				
Core Data Points	66	63	63	95%
Advanced Data Points	46	44	44	96%
Total	112	107	107	96%

4. City Performance Benchmark



² 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 KPI project, benchmarks were developed for most KPIs to develop a reporting framework to demonstrate to cities how their performance could be reported.

The benchmarks were set based on several factors:

- fully meeting the aligned SDG;
- performance compared to other international and transnational targets (e.g. OECD, European Commission);
- performance against the goals of a UN agency (e.g. International Telecommunicator 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 datapoint were added to give a percentage score for categories, subdimensions and dimensions and reported based on the above target scores. KPIs or data points that are not reported or for which benchmarks have not yet been defined were excluded.

Example: Education 4 KPIs

- if all 4 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 3 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 to other similar cities to determine future actions.

6. Verification Results

This section contains the data and results of the verification for Ålesund's reporting for each of the U4SSC KPIs within the three (3) dimensions:

- Economy,
- Environment,
- Society and Culture,

and the twenty- two (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 both the Economy and 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	96.00 %	
	Fixed Broadband Subscriptions	82.85 %	
	Wireless Broadband Subscriptions	116,673 / 100,000 inhabitants	
	Wireless Broadband Coverage: 3G	0.00 %	
	Wireless Broadband Coverage: 4G	92.20 %	
	Availability of WIFI in Public Areas	232 Spots	N/A





 WATER AND SANITATION	Smart Water Meters	0.76 %	
	Water Supply ICT Monitoring	20.94 %	
	Basic Water Supply	100.00 %	
	Potable Water Supply	92.00 %	
	Water Supply Loss	32.12 %	
	Wastewater Collection	93.53 %	
	Household Sanitation	100.00 %	





CATEGORY	KPI / Data Point	Results	Benchmark
 DRAINAGE	<i>Drainage/Storm Water System ICT Monitoring</i>	0.00 %	

 ELECTRICITY SUPPLY	Smart Electricity Meters	95.01%	
	<i>Electricity Supply ICT Monitoring</i>	91.41 %	
	<i>Demand Response Penetration</i>	0.04%	
	Electricity System Outage Frequency	1.05	
	Electricity System Outage Time	66.86 Minutes	
	Access to Electricity	97.39 %	










CATEGORY	KPI / Data Point	Results	Benchmark
 TRANSPORT	Dynamic Public Transport Information	100.00 %	
	Traffic Monitoring	10.20 %	
	Intersection Control	100.00 %	
	Public Transport Network	755.26 Km / 100 000 inhabitants	
	Public Transport Network Convenience	93.53 %	
	Bicycle Network	150.32 Km / 100 000 inhabitants	
	Transportation Mode Share: Private Vehicles	71.00 %	
	Transportation Mode Share Public Transport	6.00 %	
	Transportation Mode Share Walking	19.00 %	
	Transportation Mode Share Cycling	3.00 %	
	Transportation Mode Share Para Transport	NR	
	Travel Time Index	1.18	
	Shared Bicycles	0.00 / 100 000 inhabitants	
	Shared Vehicles	0.0 / 100 000 inhabitants	
	Low-Carbon Emission Passenger Vehicles	3.91 %	








CATEGORY	KPI / Data Point	Results	Benchmark
 PUBLIC SECTOR	<i>Open Data Sets Published</i>	<i>119 Data Sets Published</i>	N/A
	<i>Open Data Sets % Availability</i>	<i>100.00 %</i>	
	<i>e-Government</i>	<i>80 Services</i>	N/A
	<i>Public Sector e-Procurement</i>	<i>84.92%</i>	

 INNOVATION	R&D Expenditure	1.13 % GDP	
	Patents	35.16 / 100 000 inhabitants	
	<i>Small and Medium-Sized Enterprises</i>	<i>99.71 %</i>	








 EMPLOYMENT	Unemployment Rate	2.16 %	
	Youth Unemployment Rate	2.25 %	
	<i>Tourism Sector Employment</i>	<i>3.19 %</i>	
	<i>ICT Sector Employment</i>	<i>1.25 %</i>	








 WASTE	Solid Waste Collection	100.00 %	
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CATEGORY	KPI / Data Point	Results	Benchmark
 BUILDINGS	<i>Public Building Sustainability</i>	13.70 %	   
	<i>Integrated Building Management Systems in Public Buildings</i>	100.00 %	   




 URBAN PLANNING	<i>Pedestrian Infrastructure</i>	0.00 %	   
	<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)	Not Reported	
	Particulate Matter (PM 10)	15.00 µg / m ³	
	Nitrogen Dioxide (NO ₂)	21.00 µg / m ³	
	Sulphur Dioxide (SO ₂)	Not Reported	
	Ozone (O ₃)	Not Reported	
	GHG Emissions	5.70 tonnes eCO ₂ / capita	

 WATER AND SANITATION	Drinking Water Quality	99.45 %	
	Water Consumption	605.47 ℓ / day / capita	
	Freshwater Consumption	100.00 %	
	Wastewater Treatment: Primary	62.85 %	
	Wastewater Treatment: Secondary	31.74 %	
	Wastewater Treatment: Tertiary	00.00%	






CATEGORY	KPI / Data Point	Results	Benchmark
 WASTE	Solid Waste: Landfill	3.88 %	
	Solid Waste: Burnt	0.00 %	
	Solid Waste: Incinerated	56.34 %	
	Solid Waste: Open Dump	0.00 %	
	Solid Waste: Recycled	34.42 %	
	Solid Waste: Other	5.36 %	








 ENVIRONMENTAL QUALITY	EMF Exposure	100.00 %	
	Noise Exposure	6.09 %	



 PUBLIC SPACE AND NATURE	Green Areas	35.90 ha / 100 000 inhabitants	
	Green Area Accessibility	98.86 %	
	Protected Natural Areas	2.88 %	
	Recreational Facilities:	77,745.85 m ² / 100 000 inhabitants	




CATEGORY	KPI / Data Point	Results	Benchmark
 ENERGY	Renewable Energy Consumption	100.00 %	
	Electricity Consumption	14,369.36 kWh / yr. / capita	
	Residential Thermal Energy Consumption	0.70 GJ / yr. / capita	
	Public Building Energy Consumption	157.27 kWh / m ² / yr.	







Dimension: Society and Culture











CATEGORY	KPI / Data Point	Results	Benchmark
 EDUCATION	Student ICT Access	100.00 %	
	School Enrollment	100.25 %	
	Higher Education Degrees	25,027.88 / 100 000 inhabitants	
	Adult Literacy	94.80 %	



 HEALTH	Electronic Health Records	99.90 %	
	Life Expectancy	82.20 Years	
	Maternal Mortality Rate	0.00 / 100 000 live births	
	Physicians	510.38 / 100 000 inhabitants	
	In-Patient Hospital Beds	343.08 / 100 000 inhabitants	
	Health insurance / Public Health Coverage	100.00 %	

 CULTURE	Cultural Expenditure	0.00%	
	Cultural Infrastructure	116.38 / 100 000 inhabitants	N/A

CATEGORY	KPI / Data Point	Results	Benchmark
 HOUSING	Informal Settlements	0.04 %	
	Housing Expenditure	13.93 %	

 SOCIAL INCLUSION	Gender Income Equity	0.62 Ratio Female: Male	
	Gini Coefficient	0.23	
	Poverty Rate	4.34 %	
	Voter Participation	54.66 %	
	Child Care Availability	68.13 %	

CATEGORY	KPI / Data Point	Results	Benchmark
 SAFETY	Natural Disaster Related Deaths	0.0 / 100 000 inhabitants	
	Disaster Related Economic Losses	0.00% / City GDP	
	Resilience Plans	No	
	Population Living in Disaster Prone Areas	0.93 %	
	Emergency Service Response Time	6.07 Minutes	
	Police Service	78.80 FTE / 100 000 inhabitants	
	Fire Service:	59.68 FTE / 100 000 inhabitants	
	Violent Crime Rate	828.00 / 100 000 inhabitants	
	Traffic Fatalities	2.42 / 100 000 inhabitants	

 FOOD SECURITY	Local Food Production:	Not reported	
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7. KPIs Not Reported

KPI Number	Description
EN: EN: AQ: 1C	Partial - Following not reported Particulate Matter (PM 2.5) Sulphur Dioxide (SO ₂) Ozone (O ₃)
EC: I: T: 4A	Partial - Following not reported Para Transport Ålesund is able to collect the number of people with access to a para transport card (TT Card). The TT Card is usually used for discounted taxi fares as there is no dedicated para transport system. The modes add up to 99 % and the remaining 1 % would include mopeds and motorcycles which are not defined within the KPIs at this time
SC: SH: FS: 1A	Local Food Production

8. KPIs Not Verified

All reported KPIs were verified

9. Next Steps

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

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

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

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