



# Connecting the DOTS

Measuring quality of life  
in our communities

December 14, 2018



# WELCOME

WE'RE GLAD YOU'RE HERE!

# Land Acknowledgement

We are grateful and honoured to have the opportunity to open this workshop today with a land acknowledgment as we take some steps in our own reconciliation process.

A land acknowledgement is a way of honouring the Indigenous people who have been living on and caring for this land for thousands of years---the land on which our successes have been built.





# Land Acknowledgement

We would like to begin by acknowledging that the land on which we gather today is the land traditionally used by the Haudenosaunee, Anishinaabe and Neutral People. We also acknowledge the enduring presence and deep traditional knowledge and philosophies of the Indigenous People with whom we share this land today.





# Purpose

- Learn more about the measurement systems being used in Waterloo Region.
- Learn about the Canadian Index of Wellbeing, the Sustainable Development Goals and the World Council on City Data.
- Discuss where and when municipalities / organizations can use the measurement systems.



# Measuring quality of life

- Having standardized, reliable data is key to understanding how well a community is doing.
- Having reliable data is one important lens that area municipalities, local organizations and the community can use to:
  - Measure overall quality of life and wellbeing.
  - Identify priorities.
  - Measure progress.
  - Inspire action!



# Locally

## Wellbeing Waterloo Region



## City of Cambridge



## Sustainable Development Goals



Connecting the Dots





# But how do we choose?

- There are measurement systems that can help our community do this work.
- But how do we mix and match the most appropriate indicators?



# Agenda

- Welcome and overview
- Land acknowledgement
- Presentations by our speakers
- Question and Answers
- Break
- Panel with our presenters
- Wrap up



# Collect your insights and questions

- Feedback form
- Question and answers with audience
- Feedback will be used to inform the measurement work of Wellbeing Waterloo Region.





# Speakers today

- Jon Beale & Brock Dickinson  
Sustainable Development Goals
- Bryan Smale  
The Canadian Index of Wellbeing
- Patricia McCarney  
World Council on City Data



# The UN Sustainable Development Goals (SDGs) in a Canadian Context: Localizing the SDGs using the *Canadian Index of Wellbeing*

**Brock Dickinson**  
Sustainable Development  
Solutions Network  
(SDSN) Canada  
University of Waterloo

**Jon Beale**  
Manager, Sustainable  
Development Solutions  
Network (SDSN) Canada  
University of Waterloo

**Bryan Smale**  
Director  
*Canadian Index of  
Wellbeing*  
University of Waterloo

Wellbeing Waterloo Region, December 14,  
2018

# LOSS OF SPECIES BIODIVERSITY



BIODIVERSITY IS NECESSARY FOR HUMAN SURVIVAL  
HUMANS HOLD THE POWER TO STOP THE LOSS

# Sea level rising fastest in 2,800 years

Global warming caused more than half of oceans' rise during the 1900s

BY THOMAS SUMNER MAR 7, 2016 – 7:00 AM EST



UNIVERSITY OF  
**WATERLOO**





UNIVERSITY OF  
**WATERLOO**



“By defining our goal more clearly, by making it seem more manageable and less remote, we help all people to see it, to draw hope for it, and to move irresistibly toward it.”

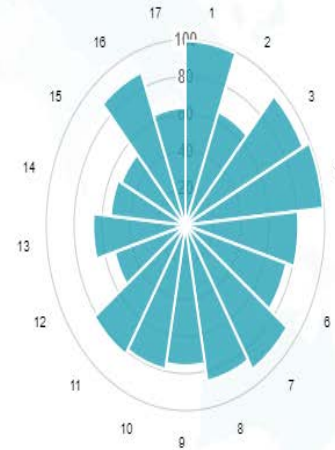
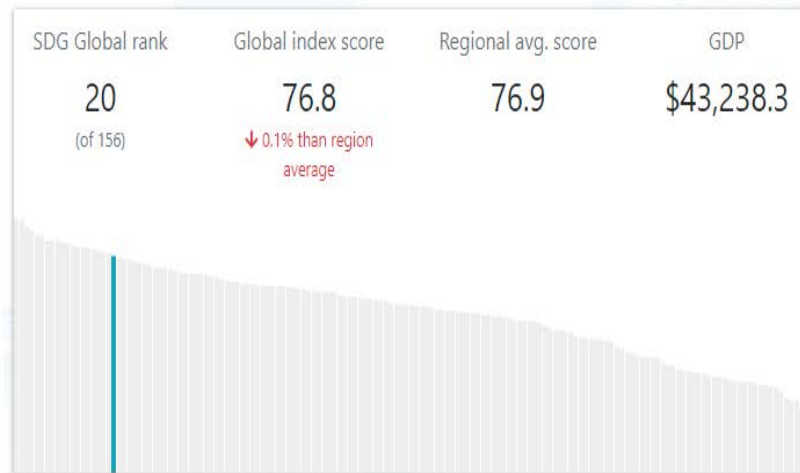
John F. Kennedy



# United Nations Sustainable Development Goals (2015-2030)







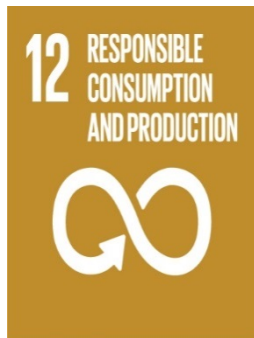
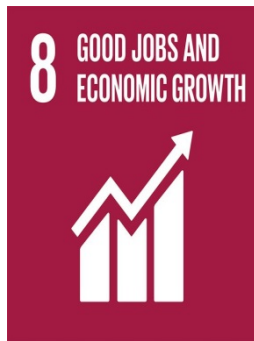
## Current Assessment – SDG Dashboard



Sustainable Development Goal	Moving backwards	Breakthrough needed	Acceleration needed	On track
1 Poverty		•	•	•••
2 Hunger & food systems	•••			
3 Good health & well-being	•	••	••••••	•••
4 Quality education	••	•		•••
5 Gender equality	•	•••••		
6 Clean water & sanitation	••	••	•	
7 Affordable & clean energy	•	•	•	•
8 Decent work & economic growth		••	•	•
9 Industry, innovation & infrastructure	•	••		
10 Reduced inequalities	•	•		
11 Sustainable cities & communities	•••			•
12 Responsible consumption & production		•••		
13 Climate action		•		
14 Life below water	•		•	••
15 Life on land		•••		•
16 Peace, justice & strong institutions	••	••	•	••
	18	26	12	17

Source: McArthur and Rasmussen (2017a).

# SDGs at the Municipal Level





# Municipalities & the SDGs

- An economic development rationale for the SDGs
- Economic Leakage
- Indicative of a Larger Process at Play
- Economic Growth & Energy Consumption



# Economic Development & the SDGs



# Economic Development & the SDGs

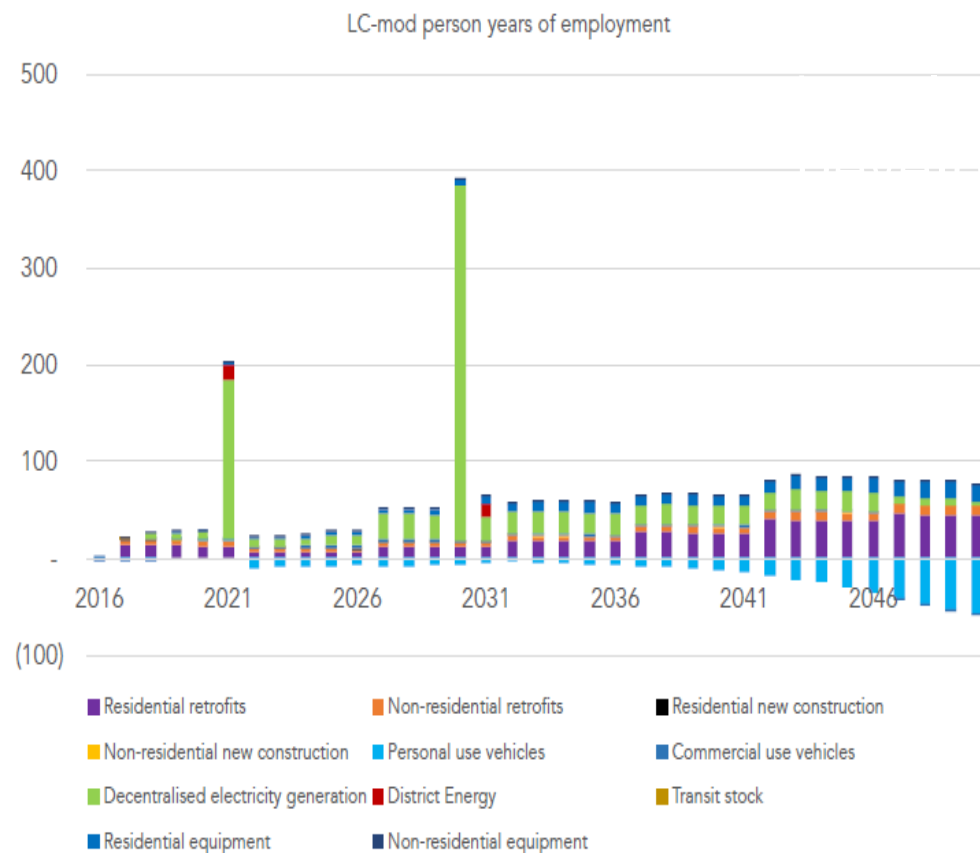


Investment opportunity	Economic benefit (2018-2050)			Energy benefit (GHG emissions reduced, 2018-2050, kilotonnes)
	Investment (\$ millions)	Savings (\$ millions)	Return on investment (%)	
Net zero and passive house performance standards: by 2030, all newly constructed buildings meet the highest energy performance standard.	1.7	15	805%	45
Retrofit existing buildings: by 2050, the envelope efficiency of all homes and apartments, and all commercial facilities is improved by 50%, and industrial facilities operate 50% more efficiently.	84	382	353%	1,290
Heat pumps: by 2050, 60% of all residential buildings and 85% of all commercial buildings have heat pumps installed.	19	105	451%	354
Solar PV and hot water: by 2050, 80% of all buildings have solar PV systems, and 50% of buildings have solar hot water systems installed.	48	80	65%	308

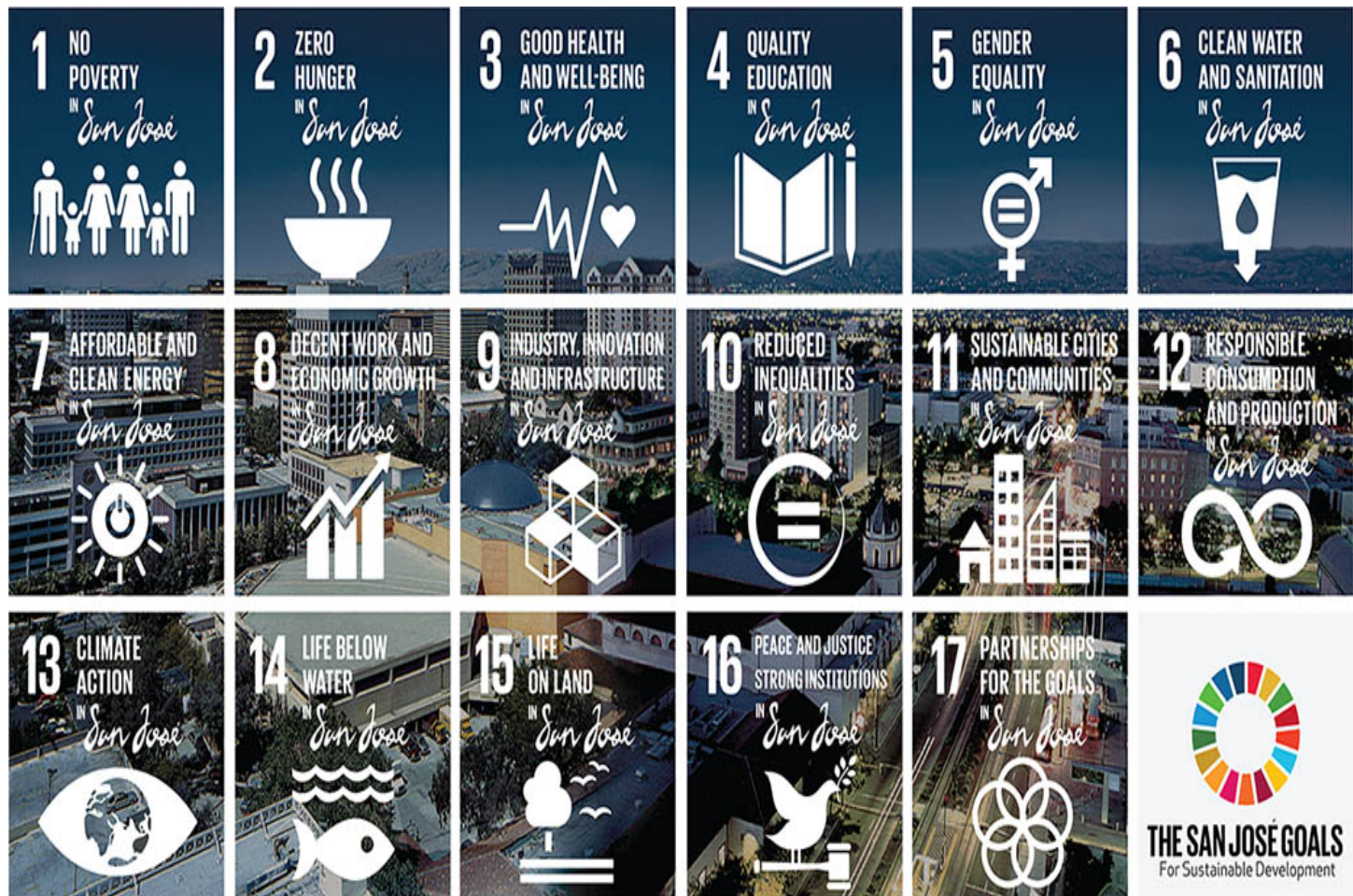


UNIVERSITY OF  
**WATERLOO**

# Economic Development & the SDGs





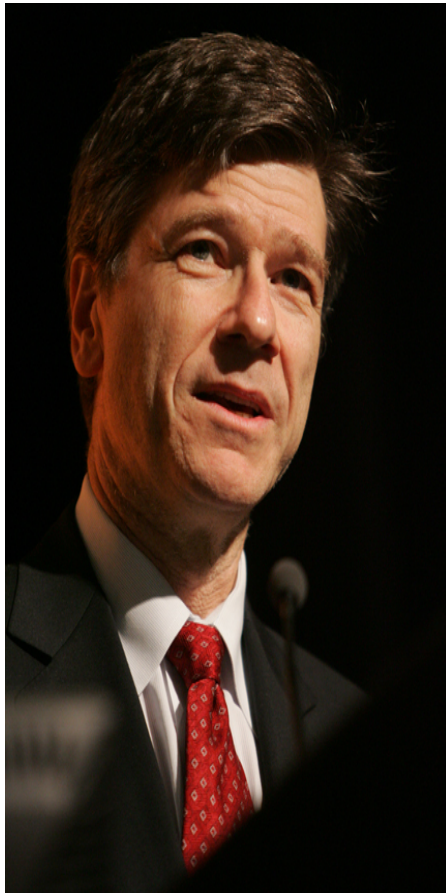


UNIVERSITY OF  
**WATERLOO**



UNIVERSITY OF  
**WATERLOO**

# Sustainable Development Solutions Network





# THE NETWORK

- Over 850 member institutions
- 26 national and regional networks

The map displays the global distribution of the network's members and national/regional networks. Members are represented by blue circles, while national and regional networks are represented by red squares and green diamonds, respectively. The map shows a high concentration of members in North America, Europe, and Asia, with a more sparse distribution in South America, Africa, and Oceania. National and regional networks are located in various countries across all continents, including the United States, Canada, Mexico, Brazil, Argentina, Chile, Bolivia, Peru, Colombia, Venezuela, Ecuador, Guyana, Suriname, French Guiana, Greenland, Iceland, Finland, Sweden, Norway, Denmark, Germany, Poland, Czech Republic, Slovakia, Austria, Hungary, Switzerland, Italy, France, Spain, Portugal, Greece, Turkey, Russia, Ukraine, Belarus, Kazakhstan, Kyrgyzstan, Tajikistan, Uzbekistan, Mongolia, China, Taiwan, South Korea, Japan, Philippines, Thailand, Vietnam, Laos, Cambodia, Myanmar, Bangladesh, India, Pakistan, Afghanistan, Iran, Iraq, Saudi Arabia, Kuwait, Oman, United Arab Emirates, Qatar, Bahrain, Brunei, Malaysia, Singapore, Indonesia, Timor-Leste, Papua New Guinea, Solomon Islands, Vanuatu, Fiji, Tonga, Samoa, American Samoa, Guam, Northern Mariana Islands, and the Marshall Islands.

**Members** (Blue circle)

**Regional** (Red square)

**National** (Green diamond)

- Members 
- Regional 
- National 



# SDSN Global Initiatives

**SDG**academy

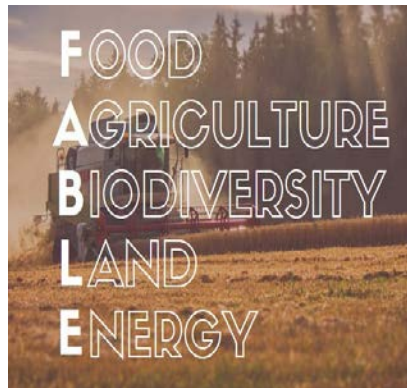


YOUTH  
SOLUTIONS  
REPORT

**human Act**

**TRENDS**

Thematic Research Network  
on Data and Statistics



**DDPP**

DEEP  
DECARBONIZATION  
PATHWAYS  
PROJECT

# Sustainable Development Solutions Network (SDSN)

Canada



UNIVERSITY OF  
**WATERLOO**

**W | G | S | I**  
Waterloo Global Science Initiative

# SDSN Canada aims to:

1. Localize the SDGs at a subnational level.
2. Promote high-quality education around sustainable development.
3. Conduct action-oriented research that helps Canada adopt and implement policies and practices that provide leadership in sustainability.
4. Organize national gatherings to identify and promote solutions initiatives.
5. Foster debate and link Canadian expertise to global initiatives.



UNIVERSITY OF  
**WATERLOO**

# SDSN Canada Initial Focus Areas

- Education and Training for Sustainability
- Sustainable and Inclusive Cities
- Canada's Energy-Climate Nexus
- Doing Justice to Life on Land and Below Water



# SDSN Canada Initiatives

- Teaching Case Studies for Sustainable Development
- Solutions Forum/National SDG Gathering
- Promoting the SDGs through Respect of First Nations Treaties in Canada
- SDSN Youth



# SDG Index for Canadian Municipalities

- Development of indicators and benchmarking systems for Canadian municipalities to track their SDG performance.
- Assessing and filling data gaps for the SDGs in municipalities in Canada.



## 11 SUSTAINABLE CITIES AND COMMUNITIES



### Ozone Levels (8-Hr)

Year: **2016** Units: **ppm** Formula: **Descending**  
 Source: **EPA**  
 Geographic Level of Source: **County**

Description: The maximum O3 (ppm) reading, weighted by county population.

Minimum Value: **0.048** Green/Yellow Threshold: **0.064**  
 Best Value: **0.05** Yellow/Orange Threshold: **0.072**  
 Worst Value: **0.093** Orange/Red Threshold: **0.084**  
 Maximum Value: **0.106034422**

Rationales: Best value set according to WHO Standard. Worst value set according to 2.5th Percentile. Dashboard set according to Jenks Natural Break.

Changes from 2017 Index: **Now weighting by population**

## 12 RESPONSIBLE CONSUMPTION AND PRODUCTION



### Toxic release of air, water and land per square mile (lbs)

Year: **2016** Units: **lb/square mile** Formula: **Descending**  
 Source: **EPA**  
 Geographic Level of Source: **MSA**

Description: Toxic industrial waste released into the Air, Water or Land per square mile of the MSA.

Minimum Value: **3.485274968** Green/Yellow Threshold: **900**  
 Best Value: **13.4575163** Yellow/Orange Threshold: **2400**  
 Worst Value: **9899.402899** Orange/Red Threshold: **6000**  
 Maximum Value: **33728.91914**

Rationales: Best value set according to Average of top 5. Worst value set according to 2.5th Percentile. Dashboard set according to Jenks Natural Break.

Changes from 2017 Index: **Data updated to 2016.**

## 15 LIFE ON LAND



### Green open space

Year: **2016** Units: **sq-meters per capita**  
 Formula: **Ascending**  
 Source: **Open Street Maps**  
 Geographic Level of Source: **Map Layer**

Description: Total amount of square meters of green open space available per person in the MSA. Recreational/Open Space polygons from the OSM database were used to calculate the area of public open space in each MSA. This was divided by population to get a per capita figure.

Minimum Value: **14.89131479** Green/Yellow Threshold: **125**  
 Best Value: **186.8824257** Yellow/Orange Threshold: **87**  
 Worst Value: **16.34886452** Orange/Red Threshold: **54**  
 Maximum Value: **225.9801791**

Rationales: Best value set according to Average of top 5. Worst value set according to 2.5th Percentile. Dashboard set according to Jenks Natural Break.

Changes from 2017 Index: **None**

### Number of brownfield and superfund sites

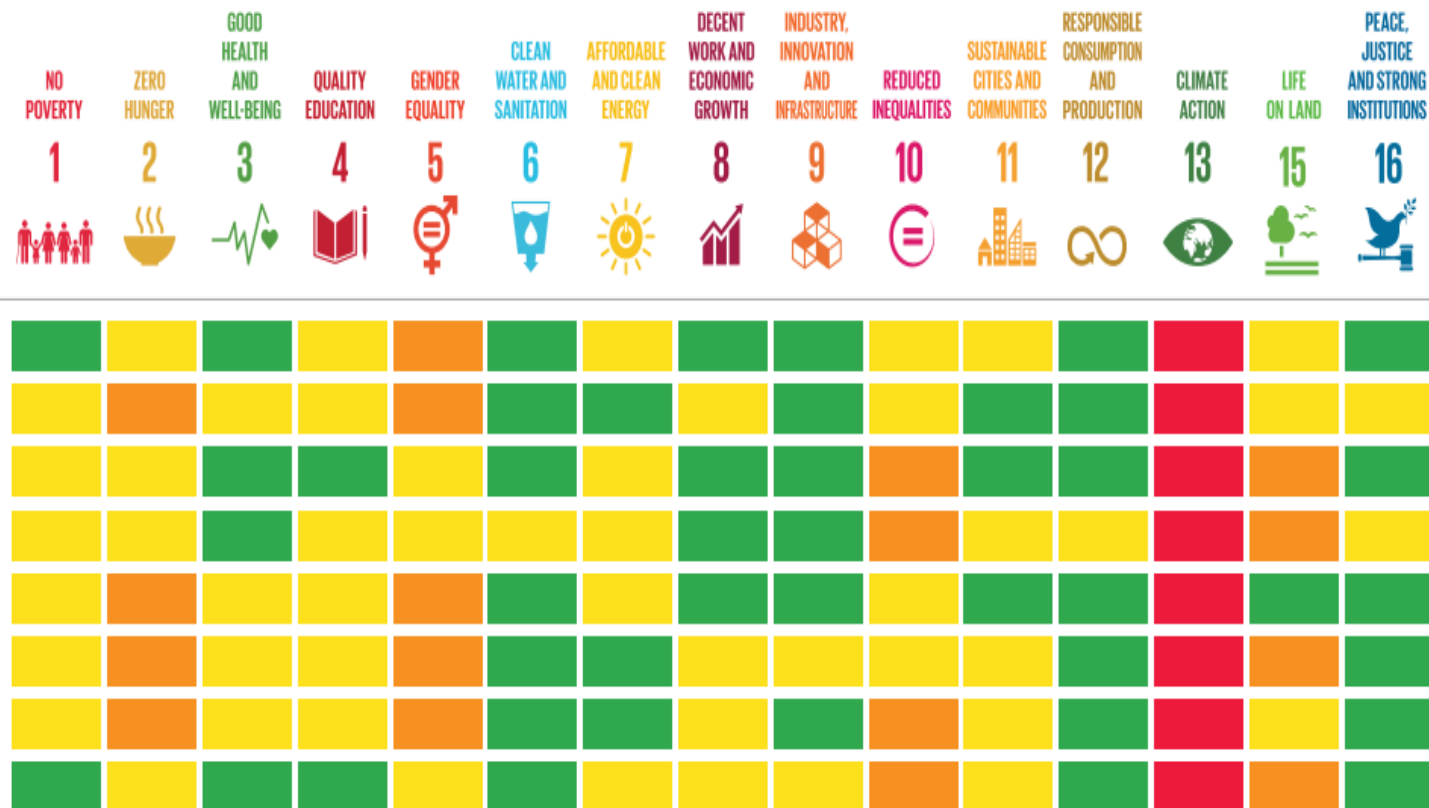
Year: **2018** Units: **Sites per square-mile**  
 Formula: **Ascending**  
 Source: **EPA**  
 Geographic Level of Source: **Site address**

Description: The number of all EPA cleanup sites per square mile of MSA area. This measures the density of brownfield, superfund and other EPA sites in the MSA.

Minimum Value: **0.002409313** Green/Yellow Threshold: **0.059**  
 Best Value: **0.004564694** Yellow/Orange Threshold: **0.1**  
 Worst Value: **0.283700652** Orange/Red Threshold: **0.18**  
 Maximum Value: **0.458674742**

Rationales: Best value set according to Average of top 5. Worst value set according to 2.5th Percentile. Dashboard set according to Jenks Natural Break.

Changes from 2017 Index: **Data updated to 2018.**







# USA Sustainable Cities Initiative

- Pilot to support SDG integration as part of City sustainability planning efforts
- New York City first city in the world to create a “Voluntary Local Review”

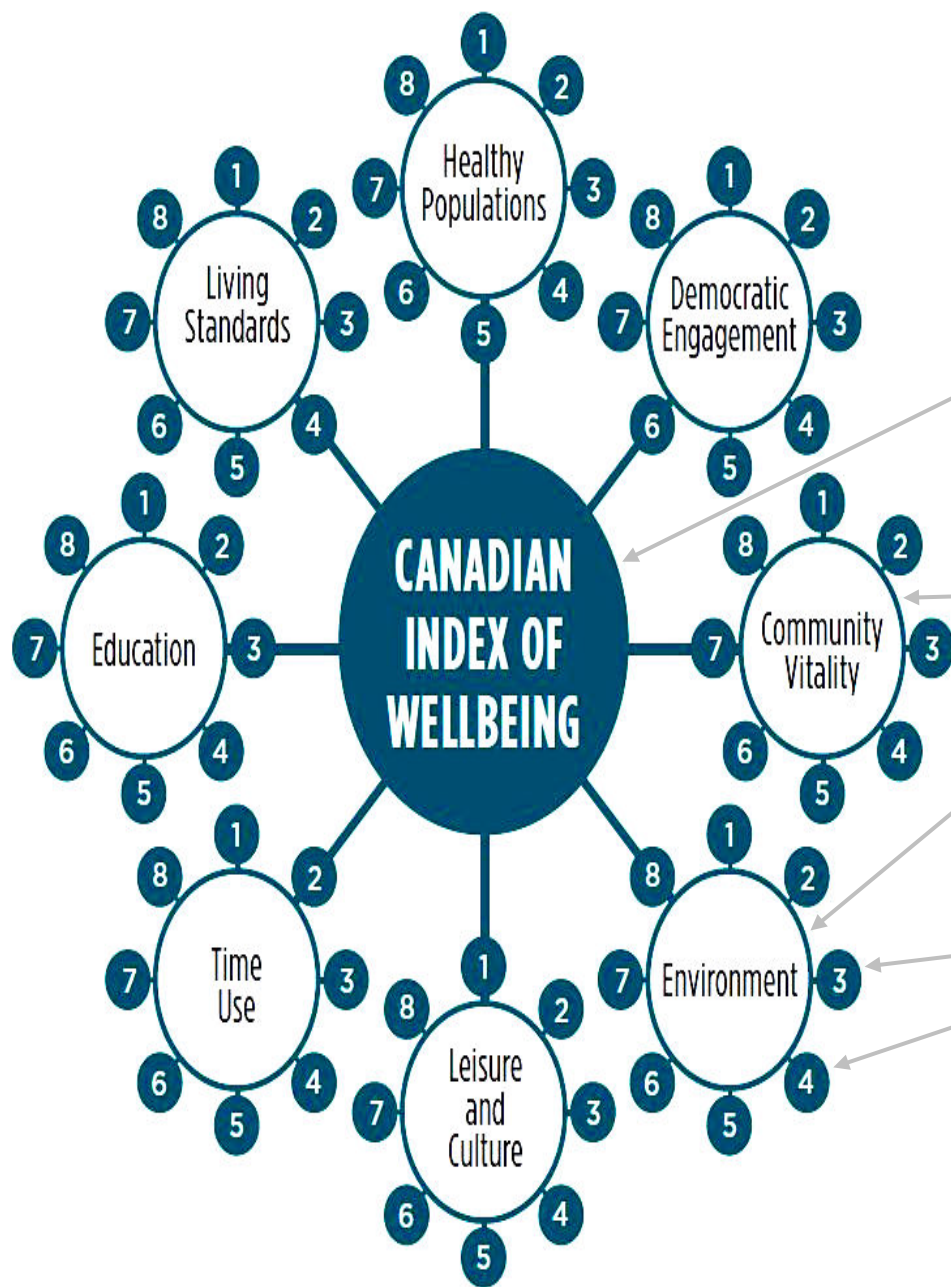


UNIVERSITY OF  
**WATERLOO**

# Final Thoughts

- SDGs provide a roadmap for a more balanced and equitable future.
- Need to adapt the SDGs into an ambitious yet realistic local agenda.
- SDGs will shape public policy priorities and guide development finance flows
- SDGs can be integrated and incorporated in many





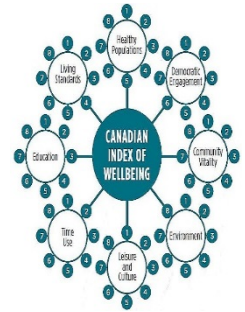
## CIW Composite Index

64 indicators consolidated into a single index

8 Domains

8 Indicators in each domain

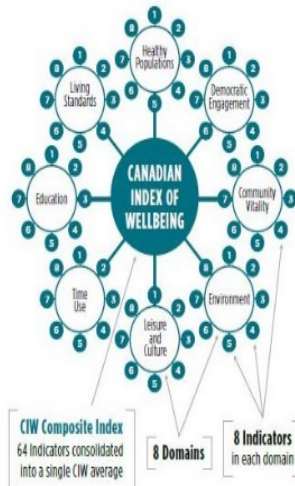
# Focus groups identify domains...



# HOW ARE CANADIANS REALLY DOING?

THE 2016 CIW NATIONAL REPORT

## EXECUTIVE SUMMARY



### WE NEED TO FOCUS IS MEANINGFUL TO

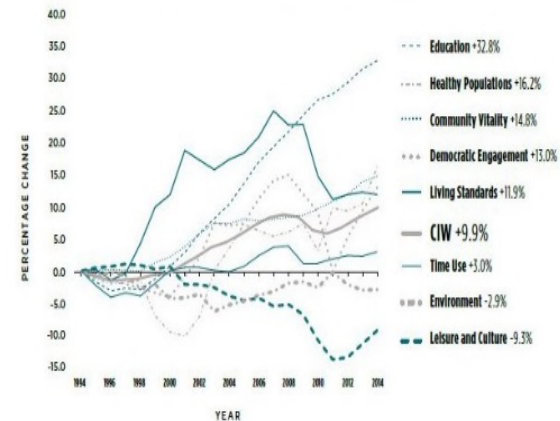
For more than 10 years, the Canadian Index of Wellbeing (CIW) at the University of Waterloo, has provided comprehensive analyses of what Canadians are really doing in the areas that matter most. It is based on almost 200 reliable data points primarily from Statistics Canada. The CIW framework is the result of consultations with Canadians across the country as well as international experts on Canadian values and what matters in our lives.

The CIW takes a systems approach and identifies key leverage points for positive impact on our well-being across several domains — Community, Democratic Engagement, Environment, Healthy Populations, and Leisure and Culture, Living Standards, and Time Use. When we tackle one part of the system, the impact can translate across a number of domains and to overall wellbeing.

In this 2016 CIW report, we show that Canadians are really doing well in all domains from

## EXECUTIVE SUMMARY

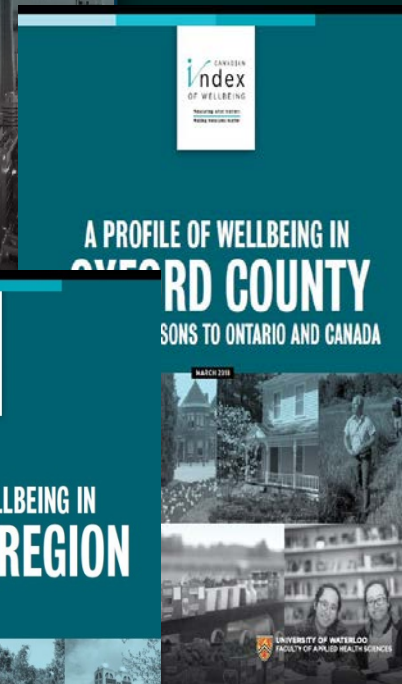
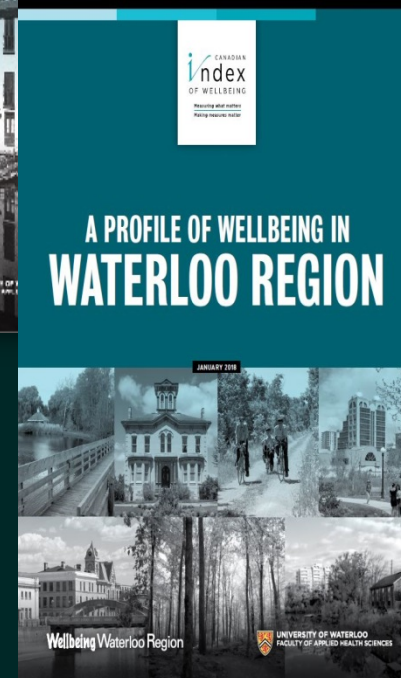
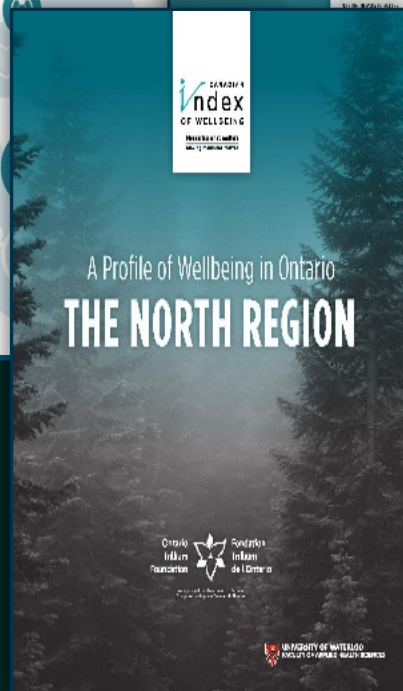
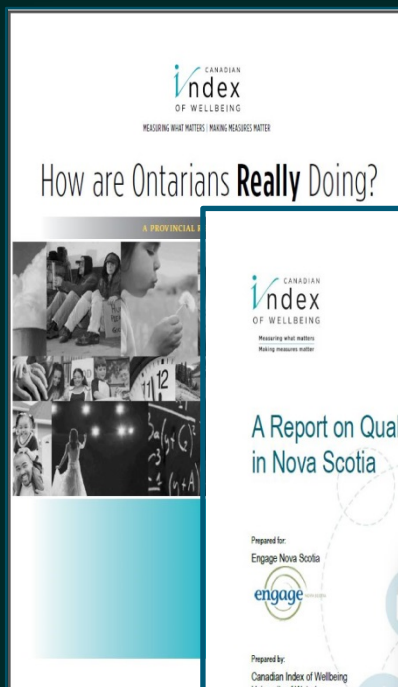
Trends in the Canadian Index of Wellbeing and its Eight Domains, 1994 to 2014



Time Use indicators show we are spending almost 30% less time with our friends. Our commute times to work are longer and only 35% of us are getting enough sleep — down from 44% in 1994. Gains in the domain come from fewer people working more than 50 hours each week and more people with flexible work hours. At the same time, work is more precarious. One in 20 people work less than 30 hours per week, and not by choice. One in three workers do not have regular, weekday work hours, up from one in four in 1994. And while the percentage of people reporting high levels of time pressure has declined somewhat since the peak of the late 1990s, overall, the numbers have returned to 1994 levels.







## Mapping the Canadian Index of Wellbeing United Nations Sustainable Development

A Working Paper

Bryan Smale and Margo Hilbrecht  
Canadian Index of Wellbeing  
University of Waterloo

November 2016



End poverty in all its forms everywhere

CIW National Indicators	CIW Community Wellbeing Survey
<p><b>Community Vitality</b></p> <ul style="list-style-type: none"> <li>Percentage of population that provides unpaid help to others on their own</li> </ul> <p><b>Living Standards</b></p> <ul style="list-style-type: none"> <li>After tax median income of economic families (2013\$)</li> <li>Percentage of persons in low income</li> <li>Gini coefficient (a measure of the income gap)</li> <li>Percentage of population who experienced food insecurity</li> <li>Housing affordability based on Shelter Consumption Affordability Ratio (SCAR)</li> </ul>	<p><b>Living Standards</b></p> <p>"How often did you have the following experiences in the past year? Please indicate how often each experience occurred for you in the past year?"</p> <ul style="list-style-type: none"> <li>Item 1: "I could not pay my bills on time (e.g., water, hydro, phone, credit card)."</li> <li>Item 2: "I could not pay my mortgage or rent on time."</li> <li>Item 3: "I ate less because there was not enough food or money for food."</li> <li>Item 4: "I did not have enough money to buy the things I needed."</li> </ul> <p><b>Overall Health and Wellbeing</b></p> <p>"We would like you to indicate your overall level of satisfaction with a variety of areas that affect wellbeing. For each of the following statements, please indicate how satisfied you are by checking the circle that best describes how you feel."</p> <ul style="list-style-type: none"> <li>Item 15: "My financial situation."</li> </ul> <p><b>Demographics</b></p> <p>"What was your total household income from all sources last year?"</p>
<p><b>Notes</b></p> <p>The selected indicators address most directly Target 1.2. Where possible depending on the data source, the national indicator can be disaggregated to examine conditions for selected subgroups within the population.</p>	

SD  
G

CIW  
Commu  
nity  
Wellbei  
ng  
Survey  
indicato  
rs

CIW  
national  
indicato  
rs



# Mapping the CIW to the UN SDGs...





# The CIW framework addresses important questions embedded within the SDGs

Are people receiving basic medical care?

Do people have:

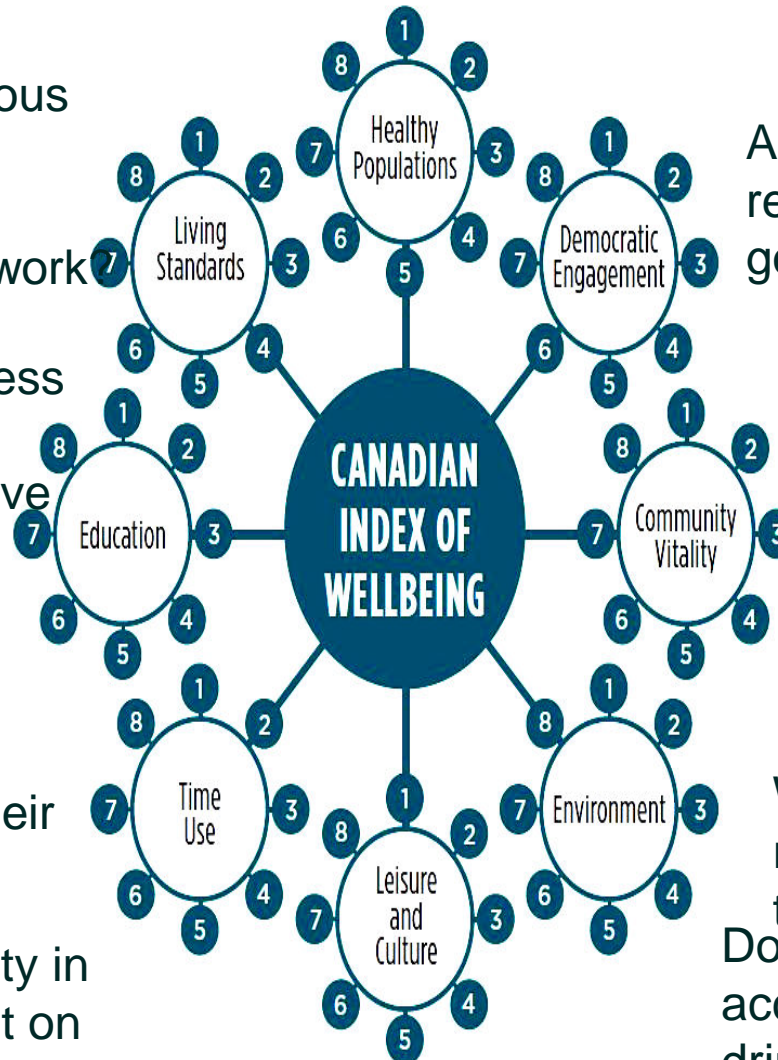
- sufficient and nutritious food to eat?
- adequate housing?
- decent and secure work?

Are women equally represented in government?

Do people have access to the educational foundations to improve their lives?

Do people feel safe?

Is everyone included?



Are people able to allocate time to all important aspects of their lives – work, family, community?  
Do women have equality in how much time is spent on unpaid care to others?

Will our natural resources be available to future generations?  
Do people have access to safe drinking water?

# The SDGs and the CIW: Complementary Approaches.



- ✓ The CIW creates a narrative around individual and community quality of life, and ultimately, human wellbeing is at the heart of the SDGs.
- ✓ The CIW's indicators have direct links to almost all of the SDGs and provide an additional means of tracking progress, nationally to locally, on targets of particular importance.
- ✓ Both approaches strive for higher wellbeing and complement one another when setting policy and developing priorities for service and program provision.



**Brock Dickinson**  
Sustainable Development  
Solutions Network  
(SDSN) Canada  
University of Waterloo

**Jon Beale**  
Manager, Sustainable  
Development Solutions  
Network (SDSN) Canada  
University of Waterloo

**Bryan Smale**  
Director  
*Canadian Index of  
Wellbeing*  
University of Waterloo





**WCCD**

# **THE WORLD COUNCIL ON CITY DATA**

---

**Region of Waterloo  
Measurement  
Workshop**

**December 14, 2018**

**Dr. Patricia McCarney**

<http://www.dataforcities.org/>

Twitter: @WCCityData

Facebook: WCCityData



# Cities and the Challenges of Comparative Data



ISO 37120

World Council on City Data



The **first** ISO  
standard for cities.



**WCCD**

WORLD COUNCIL  
ON CITY DATA

ISO  
37120

100  
Indicators



**WCCD**

WORLD COUNCIL  
ON CITY DATA

# 17 themes



Economy



Education



Energy



Environment



Finance



Governance



Health



Recreation



Safety



Shelter



Solid Waste



Telecommunications



Transportation



Urban Planning



Wastewater



Water & Sanitation



Fire & Emergency  
Response



**WCCD**

WORLD COUNCIL  
ON CITY DATA



**WCCD**

**ISO 37120**

# WORLD COUNCIL ON CITY DATA

**WELCOMING CITIES OF ALL SIZES  
TO BECOME ISO 37120 CERTIFIED**

0 – 50,000
50,000 – 100,000
100,000 – 250,000
250,000 – 500,000
500,000 – 750,000
750,000 – 1,000,000
1,000,000 – 5,000,000
5,000,000 – 10,000,000
10,000,000 +



# WCCD CERTIFICATION LEVELS

**ISO 37120**



**WORLD COUNCIL  
ON CITY DATA**

**ISO 37120**



**WORLD COUNCIL  
ON CITY DATA**

**ISO 37120**



**WORLD COUNCIL  
ON CITY DATA**

**ISO 37120**



**WORLD COUNCIL  
ON CITY DATA**

**ISO 37120**



**WORLD COUNCIL  
ON CITY DATA**

ASPIRATIONAL	BRONZE	SILVER	GOLD	PLATINUM
30-45 Core Indicators	46-59 Indicators  46 Core + 0-13 Supporting	60-75 Indicators  46 Core + 14-29 Supporting	76-90 Indicators  46 Core + 30-44 Supporting	91-100 Indicators  46 Core + 45-54 Supporting



**WCCD**

**WORLD COUNCIL  
ON CITY DATA**

@wccitydata

# WCCD ISO 37120 CERTIFIED CITIES



# HOW DO PEOPLE MOVE AROUND MY CITY?

High percentage of  
commuters using  
alternative transportation to  
a personal automobile.

74%

London  
England

ISO 37120



WORLD COUNCIL  
ON CITY DATA



# HOW WELL DOES MY CITY CONSERVE WATER?

Total water consumption  
per capita (litres/day)

325

Cambridge  
Canada

ISO 37120



WORLD COUNCIL  
ON CITY DATA

# HOW GREEN IS MY CITY?

Green area (hectares) per  
100,000 population

1,489

**Helsinki  
Finland**

ISO 37120



WORLD COUNCIL  
ON CITY DATA



# HOW POLITICALLY INCLUSIVE IS MY CITY?

Voter participation in last  
municipal election (as a  
percentage of eligible  
voters)

55.2%

Melbourne LGA  
Australia

ISO 37120



WORLD COUNCIL  
ON CITY DATA



# HOW IS MY CITY CREATING DIVERSE ECONOMIC OPPORTUNITIES?

City's unemployment rate

4.6%

Québec  
Canada

ISO 37120



WORLD COUNCIL  
ON CITY DATA



# HOW IS MY CITY DRIVING SMART CITY INNOVATIONS?

Number of new patents per  
100,000 population per  
year

383.8

San Diego  
USA

ISO 37120



WORLD COUNCIL  
ON CITY DATA



HOW IS MY CITY  
PROMOTING  
EMPLOYMENT  
OPPORTUNITIES AND  
INVESTING IN A  
PROSPEROUS  
FUTURE?

Fine particulate matter  
(PM<sub>2.5</sub>) concentration

6.7  $\mu\text{g}/\text{m}^3$

Shawinigan  
Canada

ISO 37120



WORLD COUNCIL  
ON CITY DATA



# HOW IS MY CITY LEADING SUSTAINABLE URBAN GROWTH?

Percentage of the city's  
solid waste that is recycled

72%

Surrey  
Canada

ISO 37120



WORLD COUNCIL  
ON CITY DATA



# HOW IS MY CITY CREATING A HIGHLY SKILLED WORKFORCE?

Number of higher education  
degrees per 100,000  
population

47,014

**Toronto  
Canada**

ISO 37120



WORLD COUNCIL  
ON CITY DATA

# HOW DOES MY CITY SUPPORT GROWTH?

7.8%

Capital Spending as a  
Percentage of Total  
Expenditure

**Rotterdam  
Netherlands**

ISO 37120



WORLD COUNCIL  
ON CITY DATA



HOW IS MY CITY  
ATTRACTING DIVERSE  
ECONOMIC  
INVESTMENT?

11,790

Number of businesses per  
100,000 population

Mississauga  
Canada

ISO 37120



WORLD COUNCIL  
ON CITY DATA



# HOW IS MY CITY BECOMING A SMART AND CONNECTED CITY?

424

Kilometres of light  
passenger public transport  
system per 100,000  
population

Welland  
Canada

ISO 37120



WORLD COUNCIL  
ON CITY DATA

# USING THE DATA: REPORTS AND APPLICATIONS



**WCCD**

WORLD COUNCIL  
ON CITY DATA



# CAMBRIDGE



WCCD

## HOW IS CAMBRIDGE EMBRACING THE UNITED NATIONS SUSTAINABLE DEVELOPMENT GOALS?

# 6.4%

City's unemployment rate

ISO 37120



WORLD COUNCIL  
ON CITY DATA

ISO 37120

The first international standard  
for city data – 100 city indicators

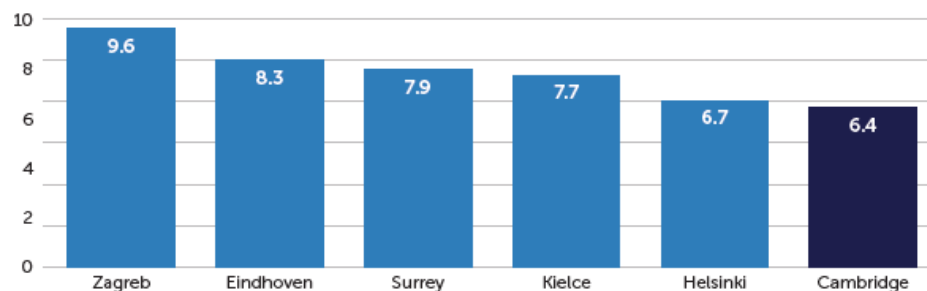
Cambridge, Canada is ISO 37120  
Platinum certified by the World  
Council on City Data

Great Data for a Great City

## HOW DID CAMBRIDGE ACHIEVE THIS?

### WCCD ISO 37120 INDICATOR 5.1:

City's unemployment rate (%)



#### Promoting business growth

Cambridge operates an Invest Cambridge office with community partners to support business growth in a collaborative manner.

#### Diverse labour sector

Home to more than 11,000 business establishments; high tech advanced manufacturing is the largest industry in the area, making up 20% of the workforce.

#### Economic Partnerships

Collaborated with the Waterloo Economic Development Corporation and the Toronto Waterloo Innovation Corridor to highlight our local competitive advantage for business.

#### Embracing global goals and taking local action

As the future location of the WCCD Local Data Hub, Cambridge is fast becoming a global leader in localizing and embracing the United Nations Sustainable Development Goals (SDGs) and the 2030 Agenda. Cities have been emerging on the global stage as economic powerhouses, engaging in a variety of global challenges including inequality, migration, unemployment, environmental degradation, and climate change. With a focus on SDG 8: Decent Work and Economic Growth, Cambridge is dedicated to promoting inclusive and sustainable economic growth, full and productive employment and safe and equal workplaces for all. As a transportation hub, home to highly skilled talent, and the ability to attract small and large businesses, Cambridge can offer a diverse economy to meet growing business demand. Cambridge is currently home to a flourishing food-manufacturing sector, Toyota Canada, and Erwin Hymer Group's North American headquarters. The development of Grand Innovations, a new technology incubator focused on advanced manufacturing and cyber security to yield innovative solutions, will be a catalyst for economic development.

#### Small city, big prospects

City officials in Cambridge have long been approaching local issues with a global perspective. Cambridge was selected as one of eight municipalities around the world - the only one in Canada - to be a part of the UN WCCD local data hubs that strive to solve global problems through transparent and standardized data. Cambridge is in the company of global cities such as Buenos Aires, Dubai, Johannesburg, and Los Angeles. Cambridge has proven itself to be a leader in forward-thinking innovation that inspires action to foster growth in cities around the world. Through the development of local initiatives, Cambridge is taking steps toward sustainability and higher quality of life.

#### Establishing financial independence

Since 2015, the Government Finance Officers Association of the United States and Canada has presented Cambridge with a Canadian Award for Financial Reporting. The award recognizes a city's commitment to transparency and full disclosure. Through open communication and maximizing non-tax sources of revenue, Cambridge has created the financial independence needed to take the lead on pressing issues.



6.4% CITY'S UNEMPLOYMENT RATE

## WHICH CONTRIBUTES TO...

ECONOMIC GROWTH

ATTRACTING INVESTMENT

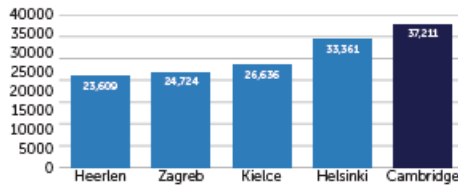
A HIGHER QUALITY OF LIFE

ECONOMIC DEVELOPMENT AND PROSPERITY

## CAMBRIDGE IN A GLOBAL CONTEXT

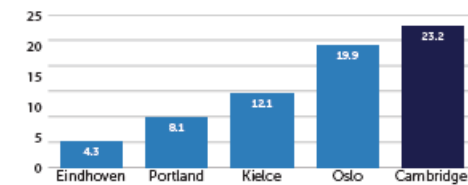
### WCCD ISO 37120 INDICATOR 6.7:

Number of higher education degrees per 100 000 population



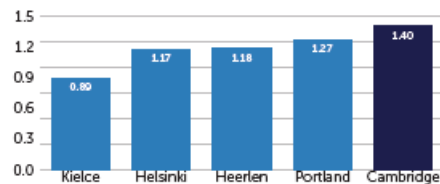
### WCCD ISO 37120 INDICATOR 9.2:

Capital spending as a percentage of total expenditures



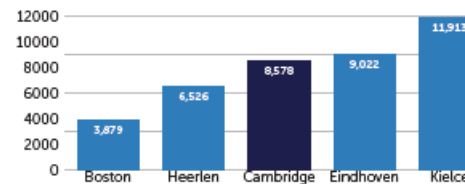
### WCCD ISO 37120 INDICATOR 19.4:

Jobs/housing ratio



### WCCD ISO 37120 INDICATOR 5.6:

Number of businesses per 100 000 population



## ABOUT THE WCCD

Discovering solutions for our rapidly urbanizing planet, the World Council on City Data (WCCD) is the global leader in standardized city data - creating smart, sustainable, resilient, and prosperous cities.

The WCCD is implementing ISO 37120 Sustainable Development of Communities: Indicators for City Services and Quality of Life, the new international standard; created by cities, for cities. The WCCD has developed the first ISO 37120 certification system and the Global Cities Registry™.

The WCCD hosts a network of innovative cities committed to improving services and quality of life with open city data and provides a consistent and comprehensive platform for standardized urban metrics.



**WCCD** | WORLD COUNCIL  
ON CITY DATA

[dataforcities.org](http://dataforcities.org)

**WCCD ISO 37120 DATA CAN HELP WITH....**



A Siemens high-speed train, white with red accents, is stopped at a station platform. The train's destination display shows 'CITY CENTRE' and the number '202'. The platform has yellow tactile paving and red banners hanging from the ceiling. The background shows the station's glass and steel structure.

# CITY INFRASTRUCTURE

## Data-driven Investment & Decision Making

WCCD ISO 37120 CERTIFIED CITY DATA



**WCCD**

WORLD COUNCIL  
ON CITY DATA



# DATA DRIVEN INFRASTRUCTURE INVESTMENT

Standardized  
Data

Baseline for  
Evidence  
based  
Decision  
Making

Measuring  
Year-over  
Year Impact

Comparative  
Analytics

DATA IS THE ESSENTIAL STARTING POINT



**WCCD**

WORLD COUNCIL  
ON CITY DATA

# Investable Cities Index

---

City Data for City Leaders



**WCCD**

WORLD COUNCIL  
ON CITY DATA

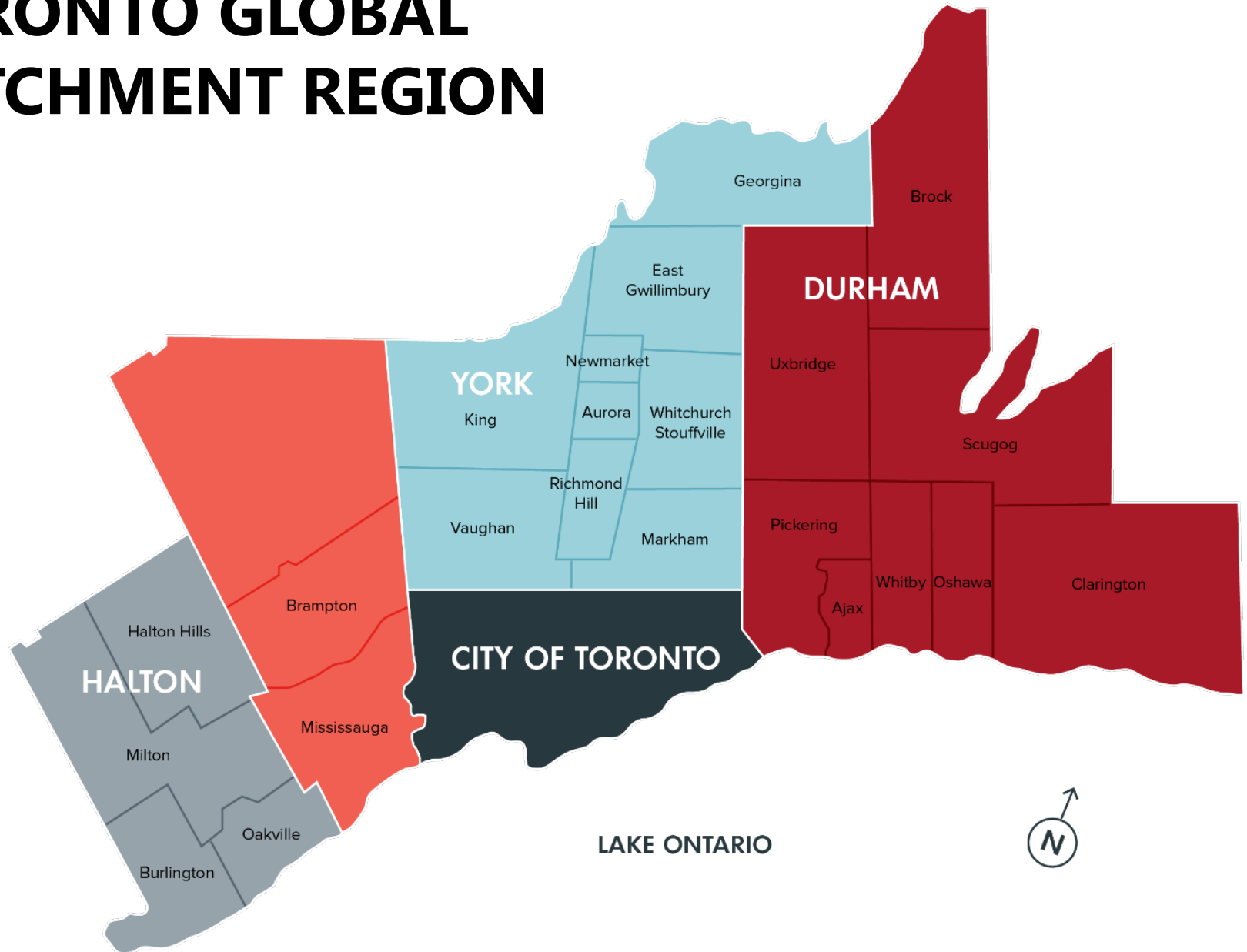


# TORONTO REGION

## RESPONSE TO AMAZON HQ2 RFP



# TORONTO GLOBAL CATCHMENT REGION







Toronto



Chicago



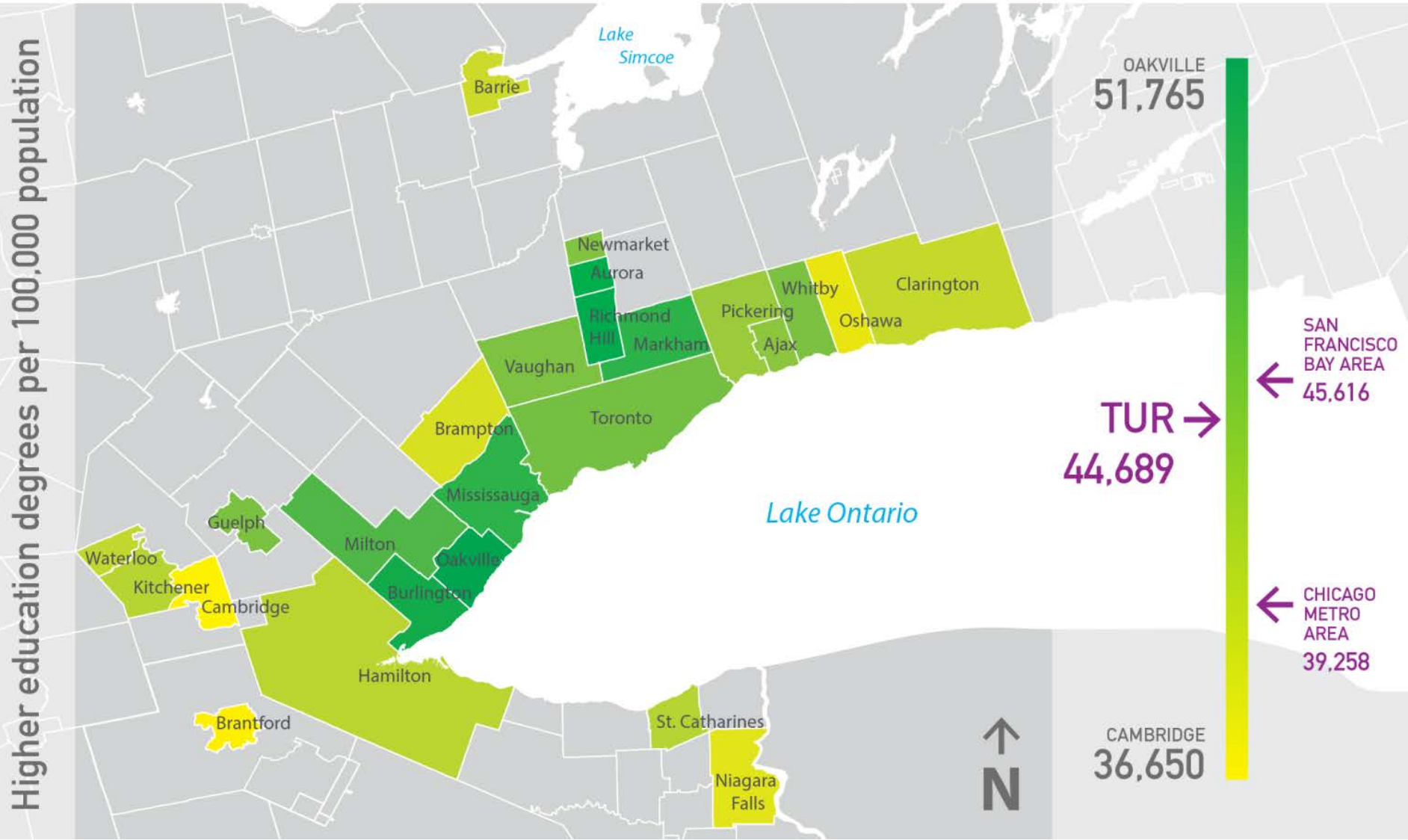
San Francisco



Shanghai-Nanjing



# Toronto Urban Region – Higher Education Degrees



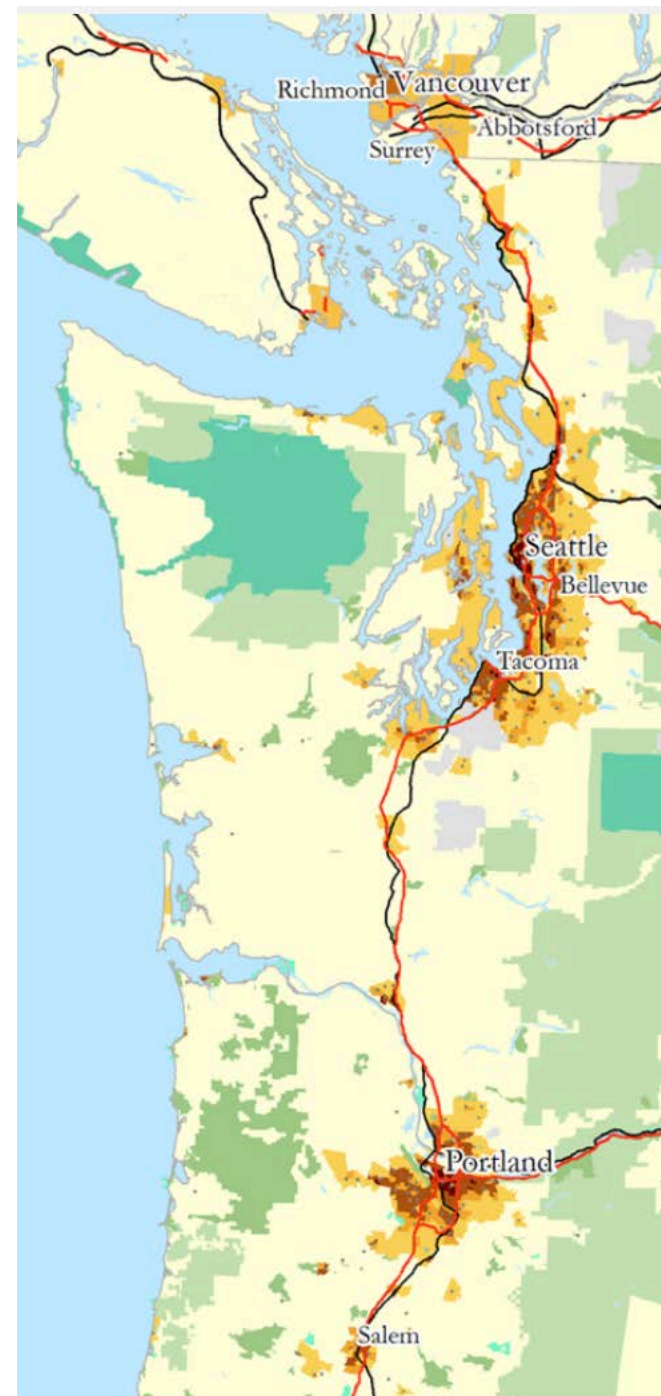
# Communities and Regions

Lower Tier and  
Upper Tier  
Municipalities –  
Aggregating the  
Data



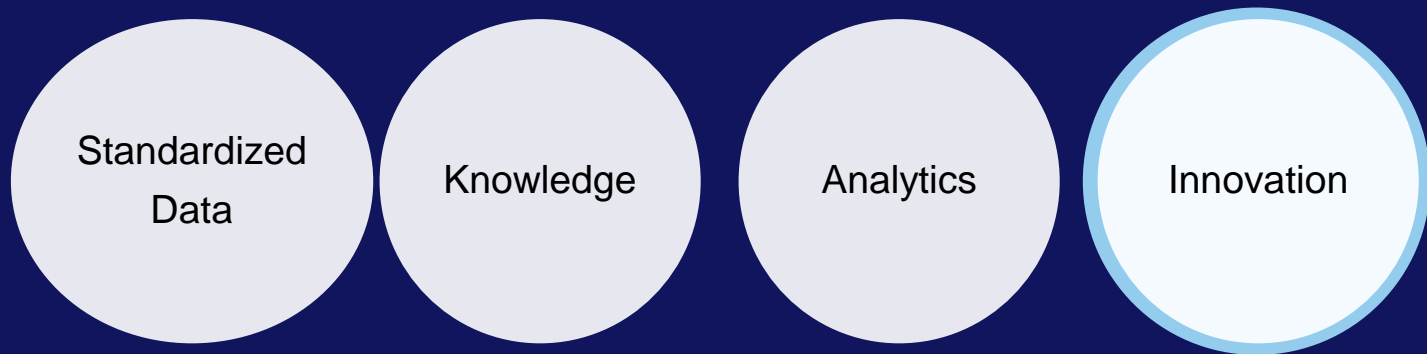
# The Cascadia Corridor Driving Urban Innovation

Vancouver and Surrey –  
Seattle –  
Portland





# DATA FOR SMART CITIES



Standardized data facilitates city to city learning, encourages city solutions to travel globally and fosters smart city innovation



**WCCD**

WORLD COUNCIL  
ON CITY DATA



**WCCD**  
**ISO 37120**

# WORLD COUNCIL ON CITY DATA



## CITY DATA FOR INDIA INITIATIVE

A WCCD - TATA TRUSTS PARTNERSHIP

# THE WCCD AND ISO 37120 LOCALIZING THE UNITED NATIONS SDGS



**WCCD**

WORLD COUNCIL  
ON CITY DATA

**LOCAL 2030**



# The United Nations Sustainable Development Goals

## 17 Goals for 2030

**1** NO POVERTY



**2** NO HUNGER



**3** GOOD HEALTH



**4** QUALITY EDUCATION



**5** GENDER EQUALITY



**6** CLEAN WATER AND SANITATION



**7** CLEAN ENERGY



**8** GOOD JOBS AND ECONOMIC GROWTH



**9** INNOVATION AND INFRASTRUCTURE



**10** REDUCED INEQUALITIES



**11** SUSTAINABLE CITIES AND COMMUNITIES



**12** RESPONSIBLE CONSUMPTION



**13** PROTECT THE PLANET



**14** LIFE BELOW WATER



**15** LIFE ON LAND



**16** PEACE AND JUSTICE



**17** PARTNERSHIPS FOR THE GOALS



**THE GLOBAL GOALS**  
For Sustainable Development



**WCCD**

# **LOCAL DATA HUBS**

# WCCD LOCAL DATA HUBS

Leading cities building WCCD ISO  
certified city data to drive progress  
towards local, national and global  
agendas through more  
sustainable, resilient, smart,  
prosperous and inclusive cities



**WCCD**

WORLD COUNCIL  
ON CITY DATA



# WCCD LOCAL DATA HUB NETWORK





**From L to R: Carlos Colombo, Chief Planner, City of Buenos Aires, Gary Dyke, CAO, City of Cambridge, Stefan Schwienfest, Director, UN Statistics Division at UN Headquarters, July 2017**



City of Cambridge  
@cityofcambridge

Follow

City Manager @DykeGary: "Sharing critical data is central to the success of smart cities throughout the world." #HLPF2017 #Local2030 #data



World Council on City Data @WCCityData

.@cityofcambridge is one of the economic drivers of Canada, says City Manager Gary Dyke at the #UnitedNations #Local2030

CambridgeTimes.ca

CambridgeTimes.ca

Full Menu Local News What's On Community Opinion Events Classifieds City Pages Home Page Search

Notice to Readers: Register now to support your local journalism!

## City selected to be new UN data hub

WAS Jul 26 2017 by Ray Martin Cambridge Times

Having the right information can help bring about positive change.

With that in mind, city officials are looking to gain a more global perspective when it comes to approaching issues in our community, courtesy of its participation in a new initiative.

The United Nations' World Council of City Data (WCCD) recently selected Cambridge as one of eight municipalities — the only one in Canada — to be the first of a global network of local data hubs designed to share information to improve efficiencies and solve problems, without significant cost for taxpayers.

CBC MENU

news Top Stories Local The National Opinion World Canada Politics Indigenous More

Kitchener-Waterloo

## Cambridge joins world megacities on data hub network

Sharing data between cities can help improve city services and programs

CBC News • Posted: Jul 25, 2017 4:44 PM ET | Last Updated: July 25, 2017

The City of Cambridge is among eight of the world's megacities, including Los Angeles and Dubai, that have linked in a global network allowing cities to share knowledge and ideas on how to grow and develop, while improving quality of life for residents.

"A good idea is a good idea no matter where it comes from," said Gary Dyke, city manager for the City of Cambridge.

"It's standardized data so you are comparing apples to apples and oranges to oranges between municipalities whether it comes from North America, Asia or Africa."



WCCD

WORLD COUNCIL  
ON CITY DATA

# WCCD CITY DATA FOR THE UNITED NATIONS SUSTAINABLE DEVELOPMENT GOALS 2017



**WCCD**

**WORLD COUNCIL  
ON CITY DATA**



# WCCD CITY DATA FOR THE UNITED NATIONS SUSTAINABLE DEVELOPMENT GOALS 2018



**WCCD**

**WORLD COUNCIL  
ON CITY DATA**



**WCCD**

**WCCD ISO 37120  
CERTIFIED DATA  
FOR THE UN SDGs**



# **INDICATOR MAPPING**

**WCCD/ISO 37120 and SDG 4-**

**QUALITY EDUCATION**



# WCCD CITY DATA SUPPORTING SDG 4:

## QUALITY EDUCATION



WCCD SUPPORTS THE SDGS

UN TARGETS		UN INDICATORS	WCCD INDICATORS ISO 37120 Certified City Data
4.1	By 2030, <b>ensure</b> that all girls and boys <b>complete</b> free, equitable and quality <b>primary and secondary education</b> leading to relevant and effective learning outcomes	4.1.1 Proportion of children and young people: (a) in grades 2/3; (b) at the end of primary; and (c) at the end of lower secondary achieving at least a minimum proficiency level in (i) reading and (ii) mathematics, by sex	Percentage of school-aged population enrolled in schools Percentage of students completing primary education: survival rate Primary education student/teacher ratio Percentage of students completing secondary education: survival rate Percentage of female school-aged population enrolled in schools Percentage of male school-aged population enrolled in schools
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	4.2.1 Proportion of children under 5 years of age who are developmentally on track in health, learning and psychosocial well-being, by sex 4.2.2 Participation rate in organized learning (one year before the official primary entry age), by sex	
4.3	By 2030, <b>ensure equal access</b> for all women and men to affordable and quality <b>technical, vocational and tertiary education</b> , including university	4.3.1 Participation rate of youth and adults in formal and non-formal education and training in the previous 12 months, by sex	Number of higher education degrees per 100,000 population Percentage of male school-aged population enrolled in schools Percentage of female school-aged population enrolled in schools Percentage of students completing secondary education: survival rate
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	4.4.1 Proportion of youth and adults with information and communications technology (ICT) skills, by type of skill	



# WCCD CITY DATA SUPPORTING SDG 4:

## QUALITY EDUCATION



WCCD SUPPORTS THE SDGS

UN TARGETS		UN INDICATORS	WCCD INDICATORS ISO 37120 Certified City Data
4.5	By 2030, <b>eliminate gender disparities in education</b> 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	4.5.1 Parity indices (female/male, rural/urban, bottom/top wealth quintile and others such as disability status, Indigenous peoples and conflict-affected, as data become available) for all education indicators on this list that can be disaggregated	Percentage of female school-aged population enrolled in schools Percentage of male school-aged population enrolled in schools
4.6	By 2030, <b>ensure that</b> all youth and a substantial proportion of adults, both men and women, <b>achieve literacy and numeracy</b>	4.6.1 Proportion of population in a given age group achieving at least a fixed level of proficiency in functional (a) literacy and (b) numeracy skills, by sex	Percentage of students completing primary education: survival rate
4.7	By 2030, ensure that all learners acquire the knowledge and skills needed to promote sustainable development, including, among others, through education for sustainable development and sustainable lifestyles, human rights, gender equality, promotion of a culture of peace and non-violence, global citizenship and appreciation of cultural diversity and of culture's contribution to sustainable development	4.7.1 Extent to which (i) global citizenship education and (ii) education for sustainable development, including gender equality and human rights, are mainstreamed at all levels in: (a) national education policies; (b) curricula; (c) teacher education; and (d) student assessment	
4.a	Build and upgrade education facilities that are child, disability and gender sensitive and provide safe, non-violent, inclusive and effective learning environments for all	4.a.1 Proportion of schools with access to: (a) electricity; (b) the Internet for pedagogical purposes; (c) computers for pedagogical purposes; (d) adapted infrastructure and materials for students with disabilities; (e) basic drinking water; (f) single-sex basic sanitation facilities; and (g) basic handwashing facilities (as per the WASH indicator definitions)	

# **DATA**

**WCCD/ISO 37120 and SDG 4-  
QUALITY EDUCATION**

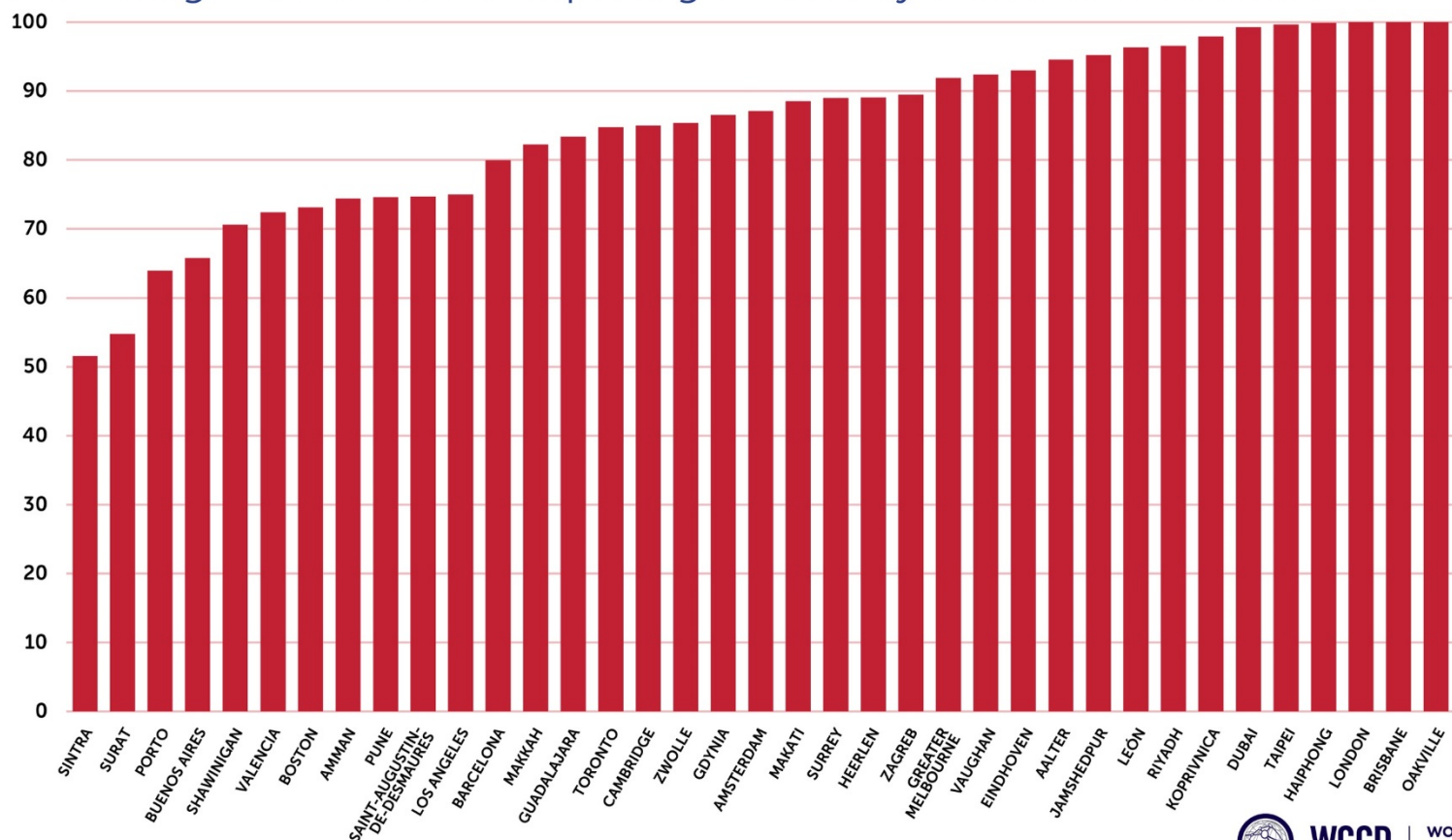
# WCCD CITY DATA SUPPORTING SDG 4 – QUALITY EDUCATION

WCCD SUPPORTS THE SDGS

ENSURE THAT ALL COMPLETE  
QUALITY PRIMARY AND SECONDARY EDUCATION

ISO 37120 Indicator 6.3:

Percentage of students completing secondary education: survival rate





# WCCD CITY DATA SUPPORTING SDG 4 – QUALITY EDUCATION

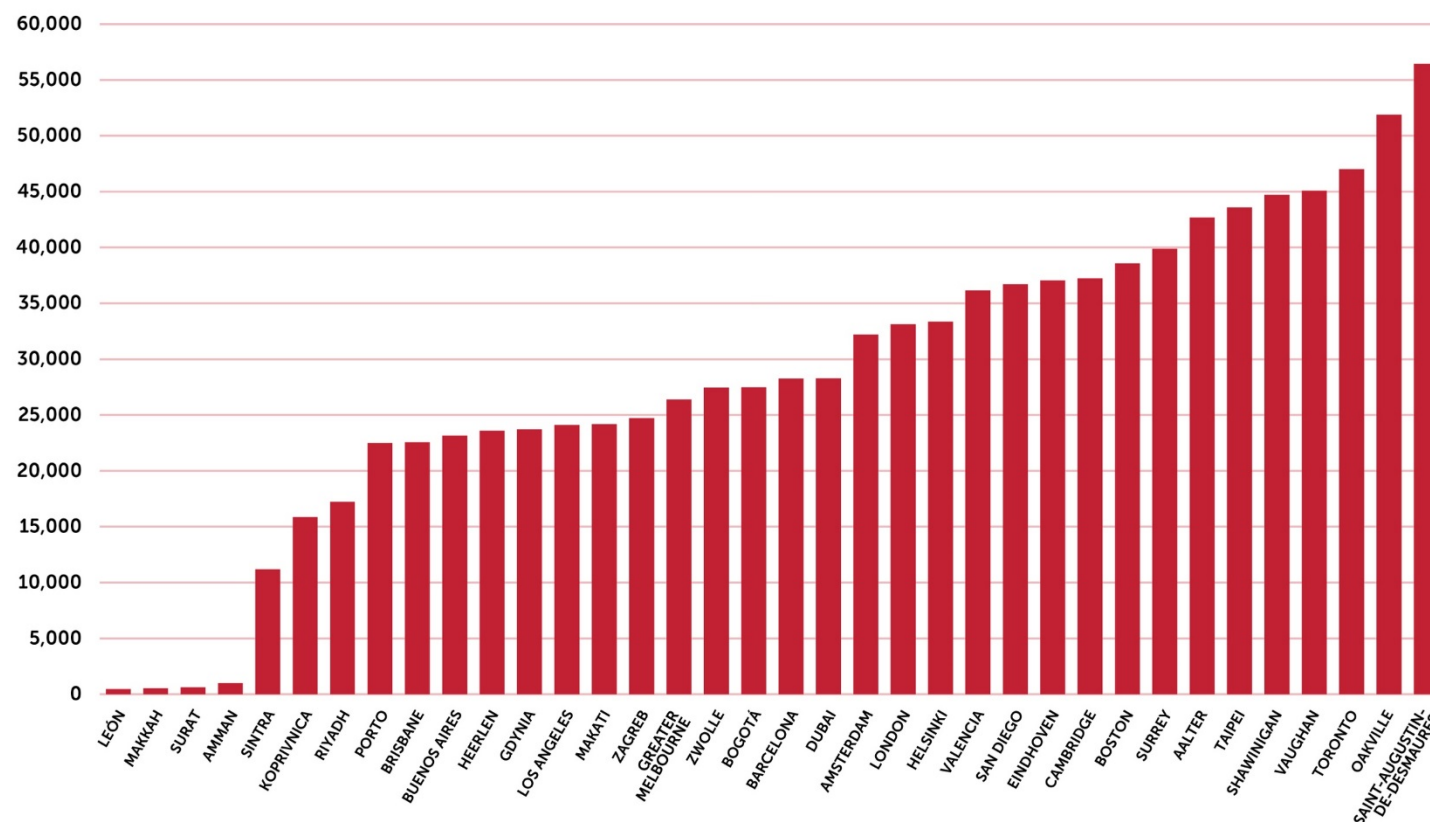


WCCD SUPPORTS THE SDGS

## AFFORDABLE AND QUALITY TERTIARY EDUCATION

ISO 37120 Indicator 6.7:

Number of higher education degrees per 100,000 population



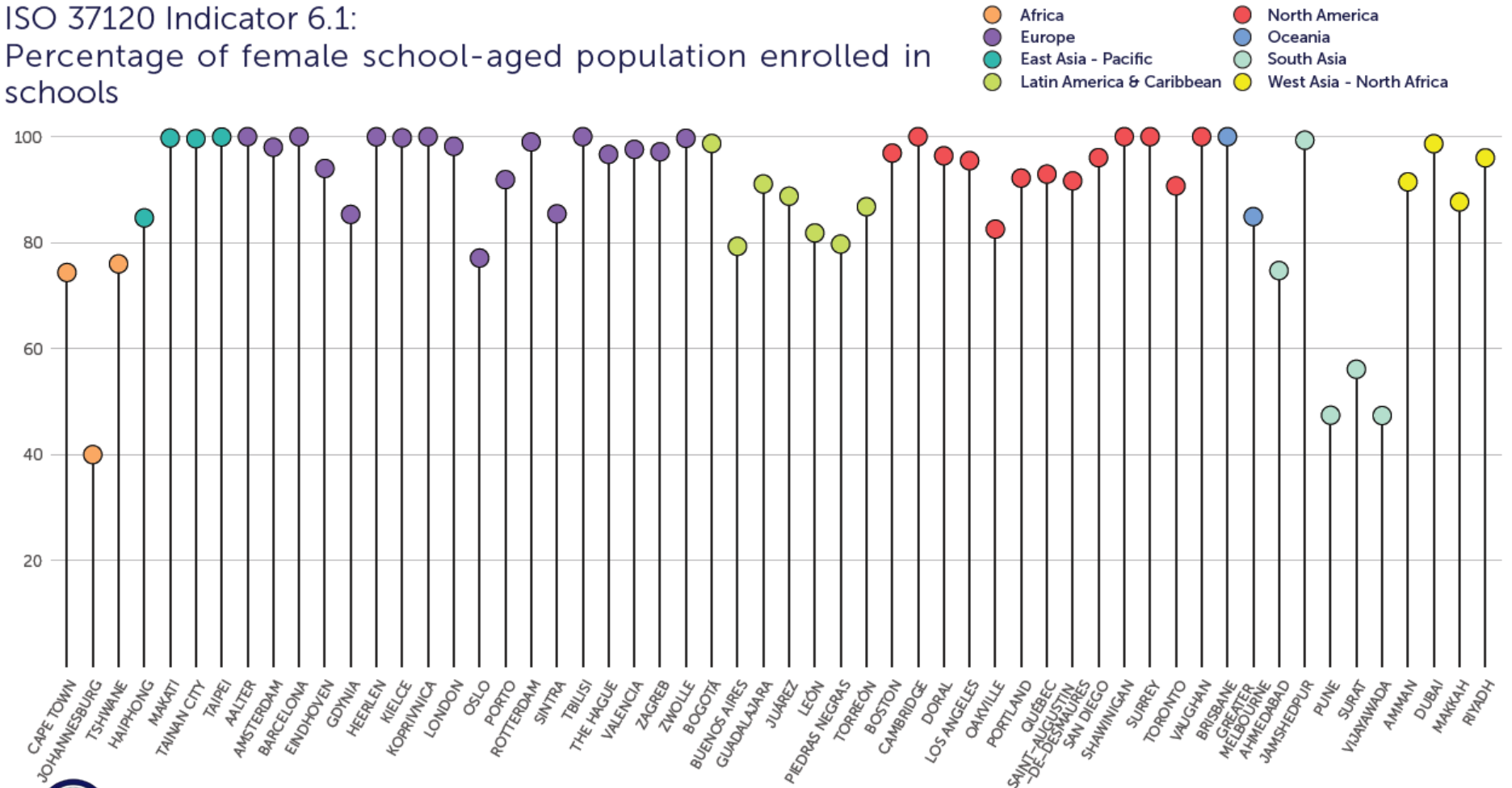




WCCD SUPPORTS THE SDGS

END DISCRIMINATION AND EMPOWER  
WOMEN AND GIRLS

ISO 37120 Indicator 6.1:  
Percentage of female school-aged population enrolled in schools



WCCD

WORLD COUNCIL  
ON CITY DATA



## SDG 5: GENDER EQUALITY

Achieve gender equality and empower all women and girls

### WCCD CITY DATA SUPPORTING UN 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



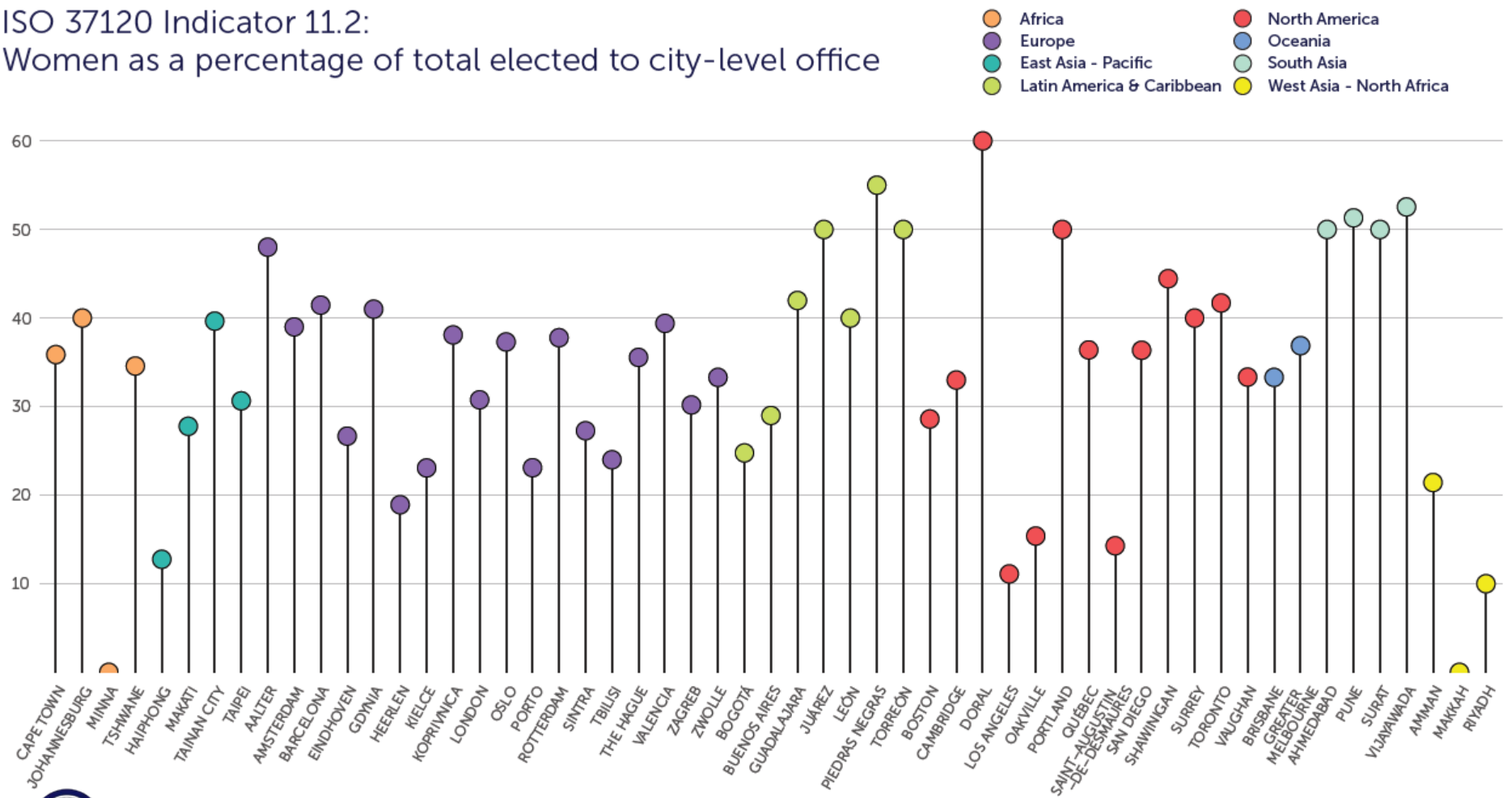
**WCCD**

WORLD COUNCIL  
ON CITY DATA



ENSURE WOMEN’S FULL PARTICIPATION

ISO 37120 Indicator 11.2:  
Women as a percentage of total elected to city-level office







WCCD SUPPORTS THE SDGS



## SDG 6: CLEAN WATER AND SANITATION

Ensure availability and sustainable management of water and sanitation for all

### WCCD CITY DATA SUPPORTING UN TARGET 6.1

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



**WCCD**

WORLD COUNCIL  
ON CITY DATA

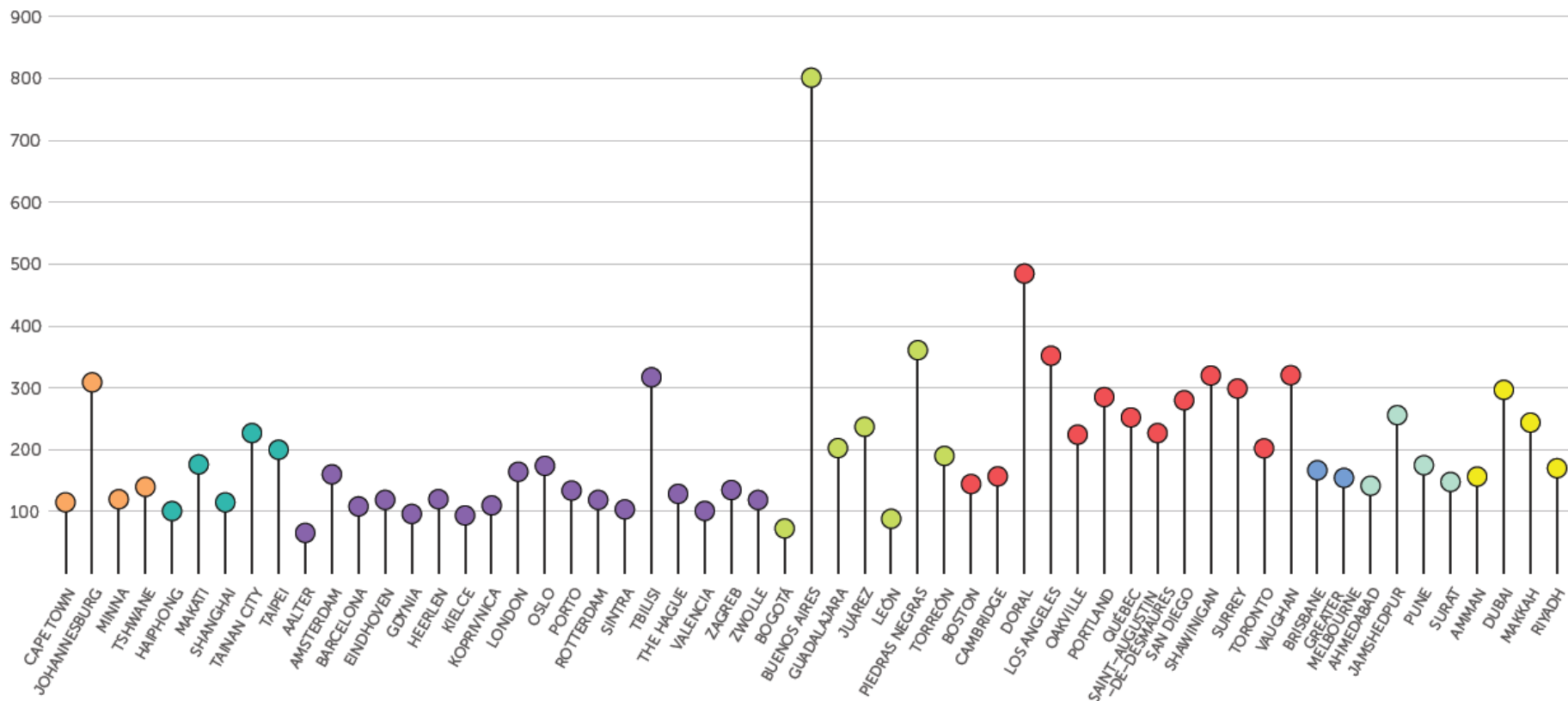
# WCCD CITY DATA SUPPORTING SDG 6 – CLEAN WATER AND SANITATION

WCCD SUPPORTS THE SDGs

## ACCESS TO SAFE DRINKING WATER

ISO 37120 Indicator 21.4:  
Total domestic water consumption per capita (litres/day)

- Africa
- Europe
- East Asia - Pacific
- Latin America & Caribbean
- North America
- Oceania
- South Asia
- West Asia - North Africa



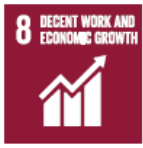


**8 DECENT WORK AND  
ECONOMIC GROWTH**





WCCD SUPPORTS THE SDGS



## SDG 8: DECENT WORK AND ECONOMIC GROWTH

Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all

### WCCD CITY DATA SUPPORTING UN TARGET 8.1 AND 8.2

**UN Target 8.1:** Sustain per capita economic growth in accordance with national circumstances and, in particular, at least 7 per cent gross domestic product growth per annum in the least developed countries

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



**WCCD**

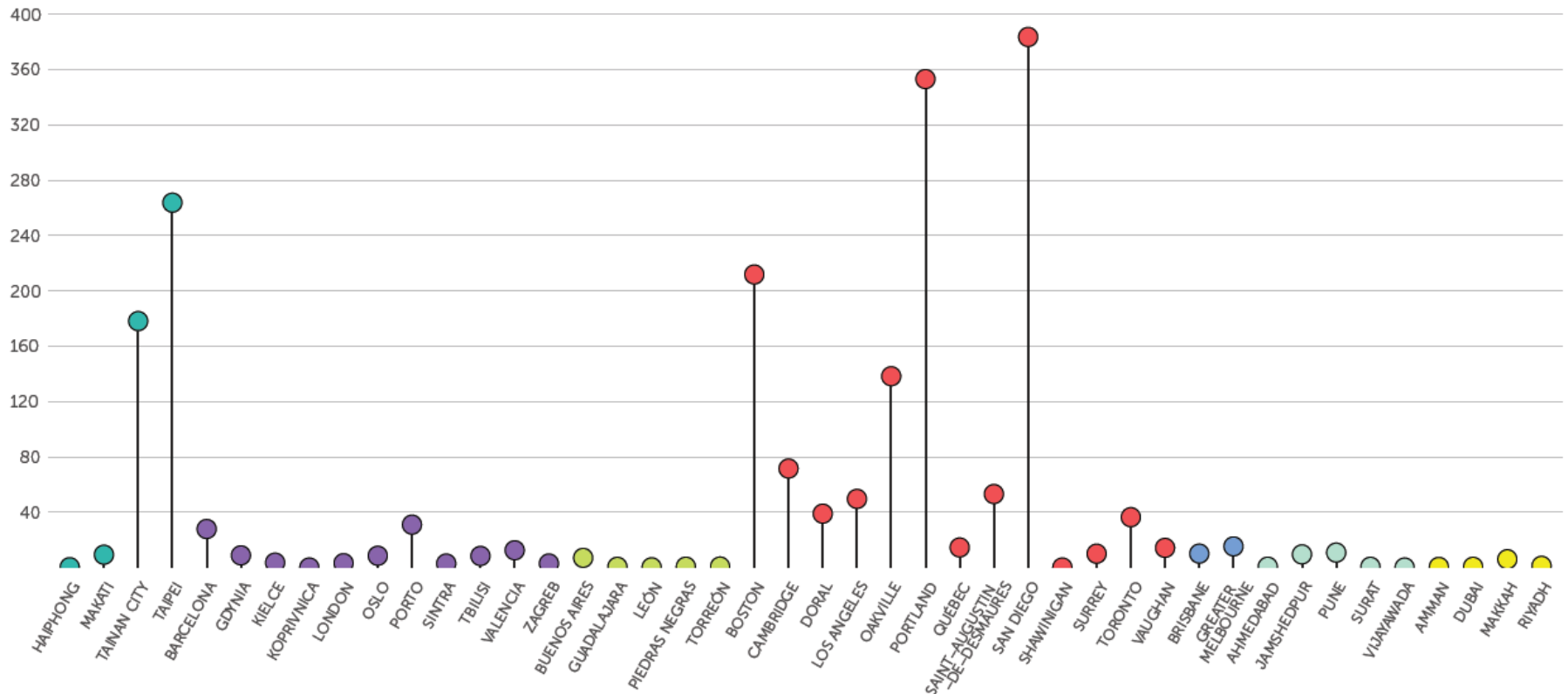
WORLD COUNCIL  
ON CITY DATA

# WCCD CITY DATA SUPPORTING SDG 8 – DECENT WORK AND ECONOMIC GROWTH

## ECONOMIC GROWTH, HIGHER PRODUCTIVITY AND INNOVATION

ISO 37120 Indicator 5.7:  
Number of new patents per 100,000 population per year

- Africa
- Europe
- East Asia - Pacific
- Latin America & Caribbean
- North America
- Oceania
- South Asia
- West Asia - North Africa



**9** **INDUSTRY, INNOVATION  
AND INFRASTRUCTURE**







WCCD SUPPORTS THE SDGS



## SDG 9: INDUSTRY, INNOVATION AND INFRASTRUCTURE

Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation

### WCCD CITY DATA SUPPORTING

### UN 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



**WCCD**

WORLD COUNCIL  
ON CITY DATA

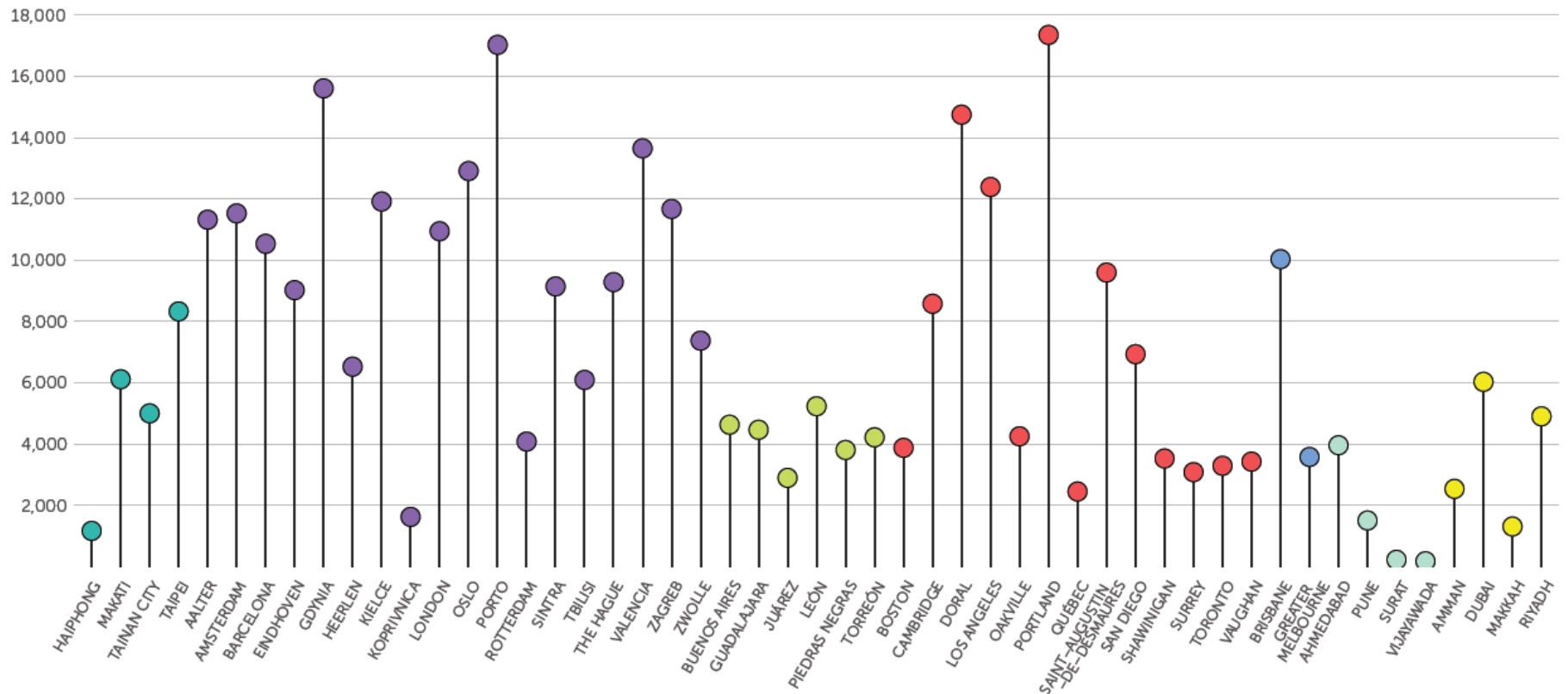
# WCCD CITY DATA SUPPORTING SDG 9 – INDUSTRY, INNOVATION AND INFRASTRUCTURE

WCCD SUPPORTS THE SDGS

## INCLUSIVE AND SUSTAINABLE INDUSTRIALIZATION

ISO 37120 Indicator 5.6:  
Number of businesses per 100,000 population

- Africa
- Europe
- East Asia - Pacific
- Latin America & Caribbean
- North America
- Oceania
- South Asia
- West Asia - North Africa



**11 SUSTAINABLE CITIES  
AND COMMUNITIES**



12

RESPONSIBLE  
CONSUMPTION  
AND PRODUCTION



15

LIFE  
ON LAND

14

LIFE  
BELOW WATER



REDUCED  
INEQUALITIES

5

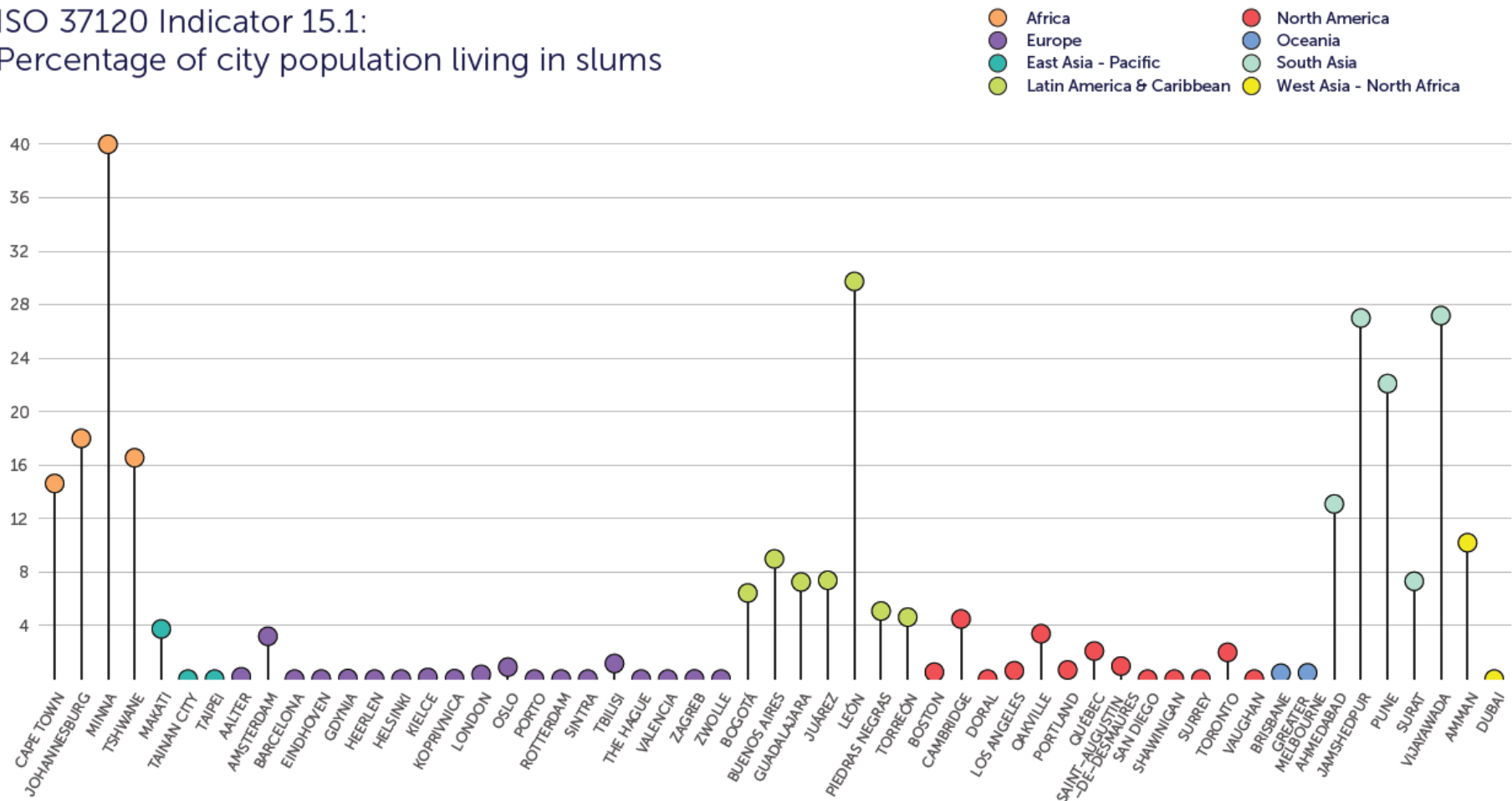
Gender Equality



# WCCD CITY DATA SUPPORTING SDG 11 – SUSTAINABLE CITIES AND COMMUNITIES

## ADEQUATE, SAFE AND AFFORDABLE HOUSING

ISO 37120 Indicator 15.1:  
Percentage of city population living in slums





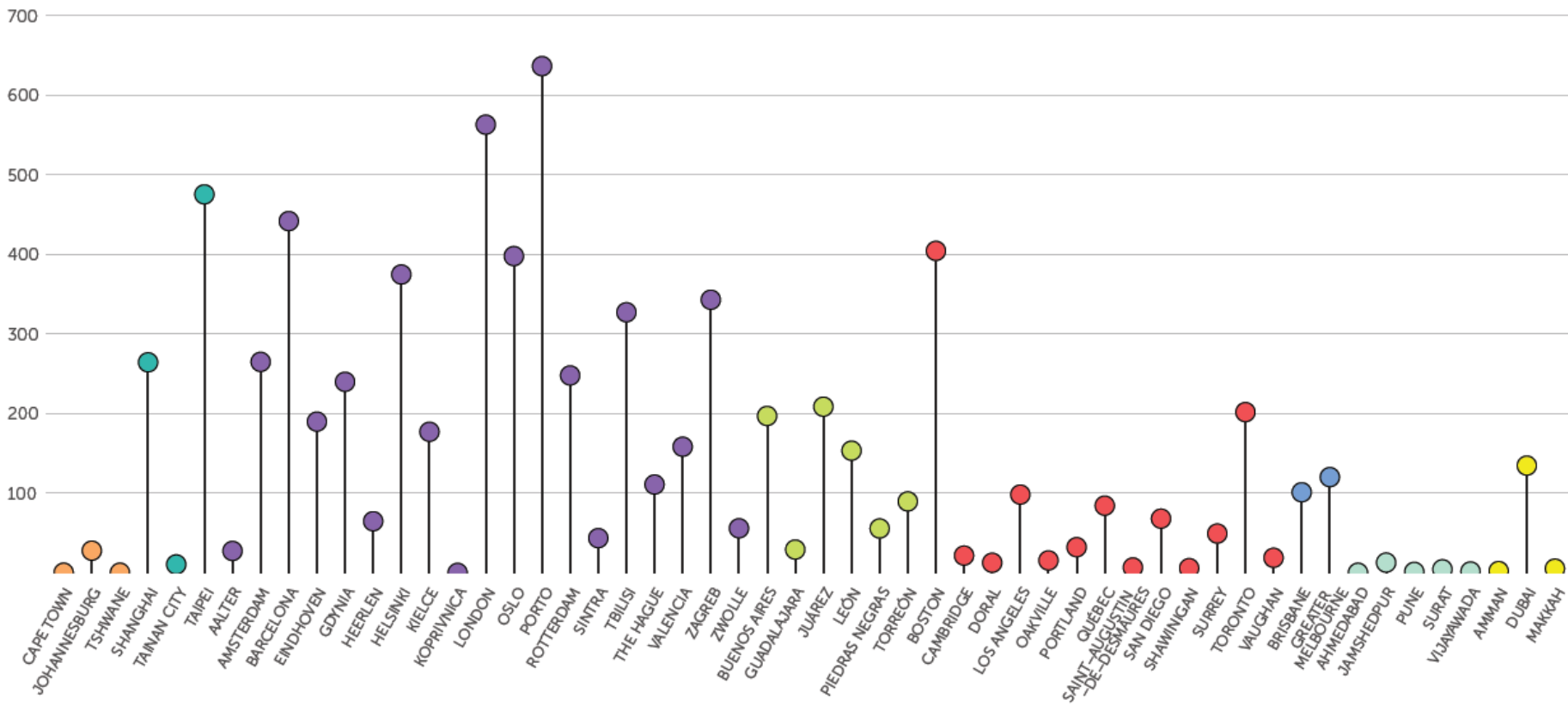
# WCCD CITY DATA SUPPORTING SDG 11 – SUSTAINABLE CITIES AND COMMUNITIES

WCCD SUPPORTS THE SDGs

## ACCESS TO TRANSPORT

ISO 37120 Indicator 18.3:  
Annual number of public transport trips per capita

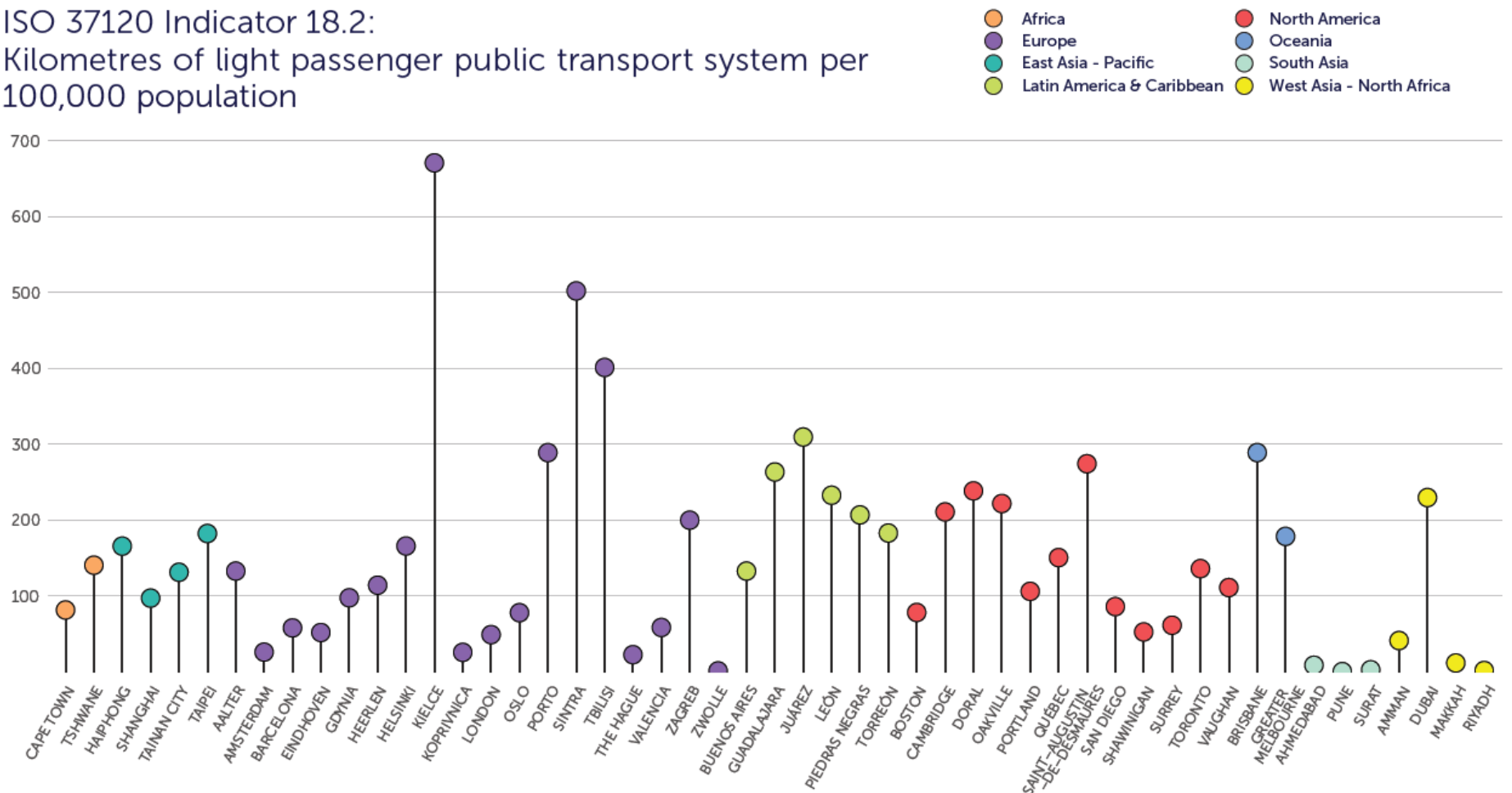
- Africa
- Europe
- East Asia - Pacific
- Latin America & Caribbean
- North America
- Oceania
- South Asia
- West Asia - North Africa



# WCCD CITY DATA SUPPORTING SDG 11 – SUSTAINABLE CITIES AND COMMUNITIES

## ACCESS TO TRANSPORT

ISO 37120 Indicator 18.2:  
Kilometres of light passenger public transport system per  
100,000 population



# WCCD CITY DATA SUPPORTING SDG 11 – SUSTAINABLE CITIES AND COMMUNITIES

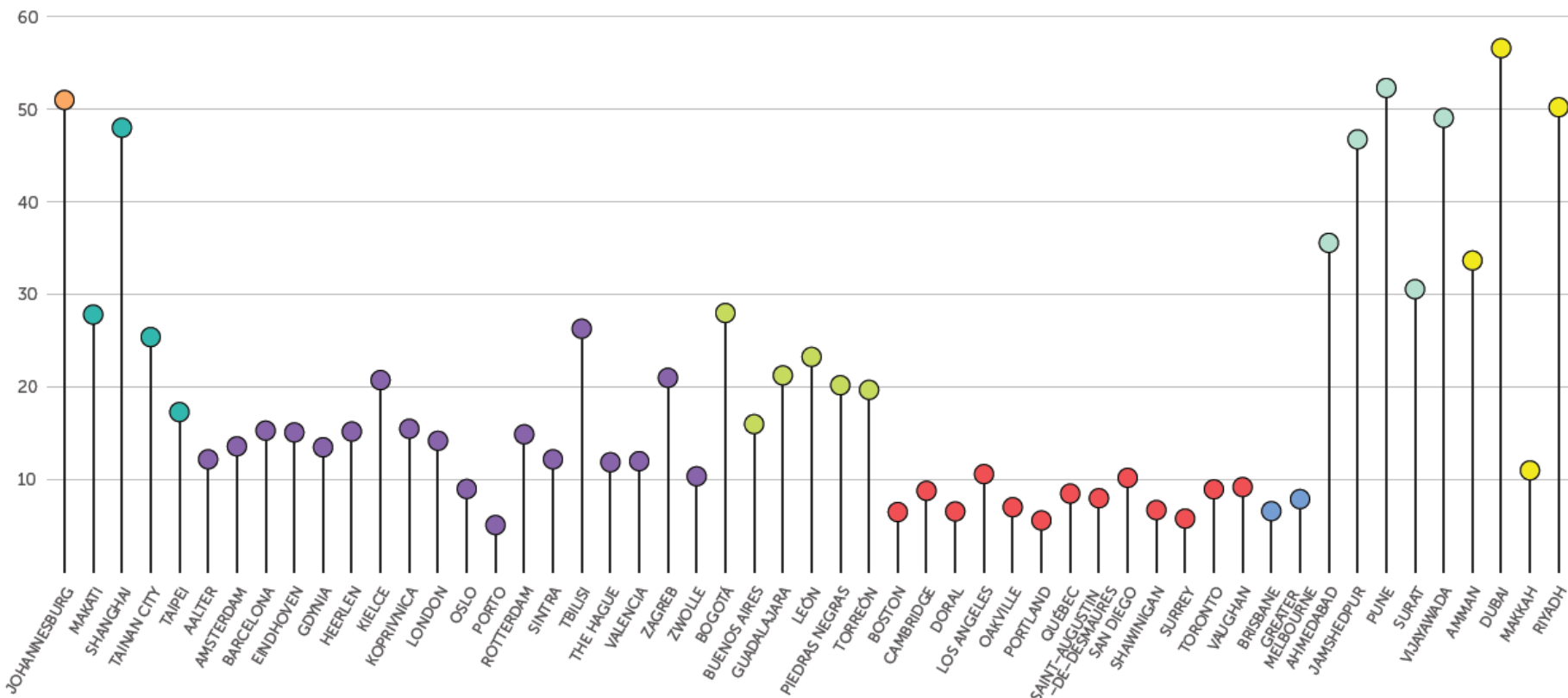
WCCD SUPPORTS THE SDGs

## ENVIRONMENT OF CITIES - AIR QUALITY

ISO 37120 Indicator 8.1:

Fine particulate matter (PM<sub>2.5</sub>) concentration (micrograms/m<sup>3</sup>)

- Africa
- Europe
- East Asia - Pacific
- Latin America & Caribbean
- North America
- Oceania
- South Asia
- West Asia - North Africa



**12** RESPONSIBLE  
CONSUMPTION  
AND PRODUCTION







# SDG 12: RESPONSIBLE CONSUMPTION AND PRODUCTION

Ensure sustainable consumption and production patterns

## WCCD CITY DATA SUPPORTING UN TARGET 12.4 AND 12.5

**UN Target 12.4:** By 2020, achieve the 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 in order to minimize their adverse impacts on human health and the environment

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



**WCCD**

WORLD COUNCIL  
ON CITY DATA

# WCCD CITY DATA SUPPORTING SDG 12 – RESPONSIBLE CONSUMPTION AND PRODUCTION



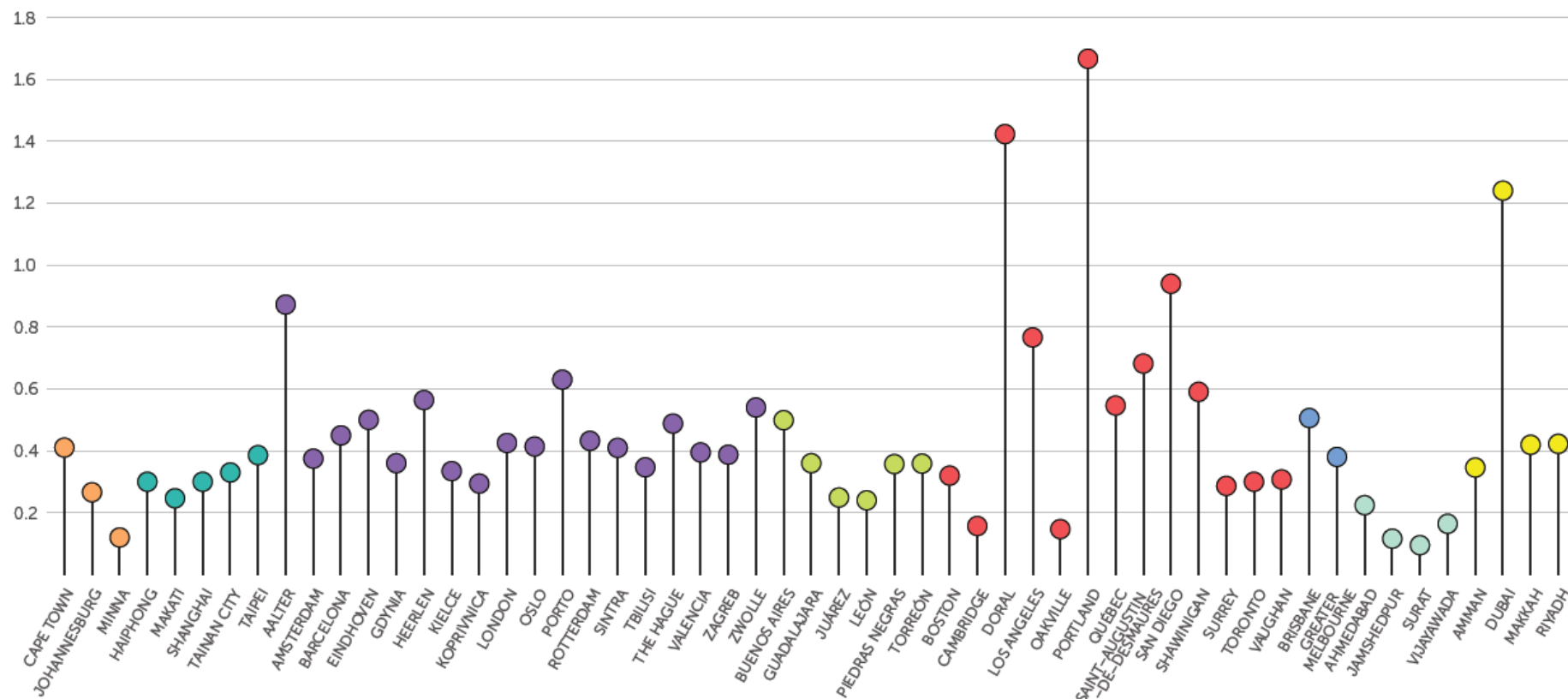
WCCD SUPPORTS THE SDGs

## WASTE PREVENTION, REDUCTION, RECYCLING AND REUSE

ISO 37120 Indicator 16.2:

Total collected municipal solid waste per capita (tonnes/capita)

- Africa
- Europe
- East Asia - Pacific
- Latin America & Caribbean
- North America
- Oceania
- South Asia
- West Asia - North Africa



WCCD

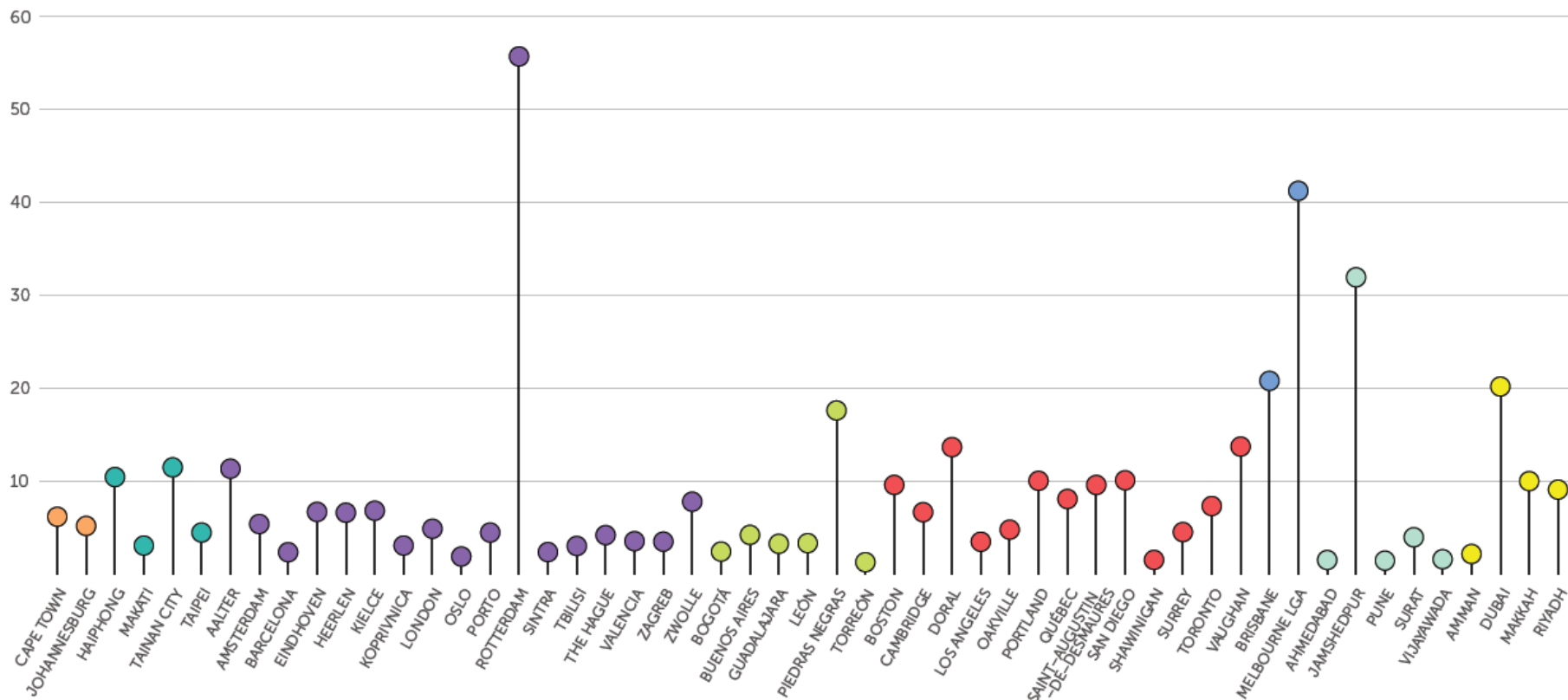
WORLD COUNCIL  
ON CITY DATA



## FOSTER CLIMATE RESILIENCE AND LOW GREENHOUSE GAS EMISSIONS

ISO 37120 Indicator 8.3:  
Greenhouse gas emissions measure in tonnes per capita

- Africa
- Europe
- East Asia - Pacific
- Latin America & Caribbean
- North America
- Oceania
- South Asia
- West Asia - North Africa







# WCCD CITY DATA SUPPORTING SDG 15 – LIFE ON LAND



WCCD SUPPORTS THE SDGS

## CONSERVATION, RESTORATION AND SUSTAINABLE USE OF TERRESTRIAL ECOSYSTEMS

ISO 37120 Indicator 19.2:  
Annual number of trees planted per 100,000 population

- Africa

Europe

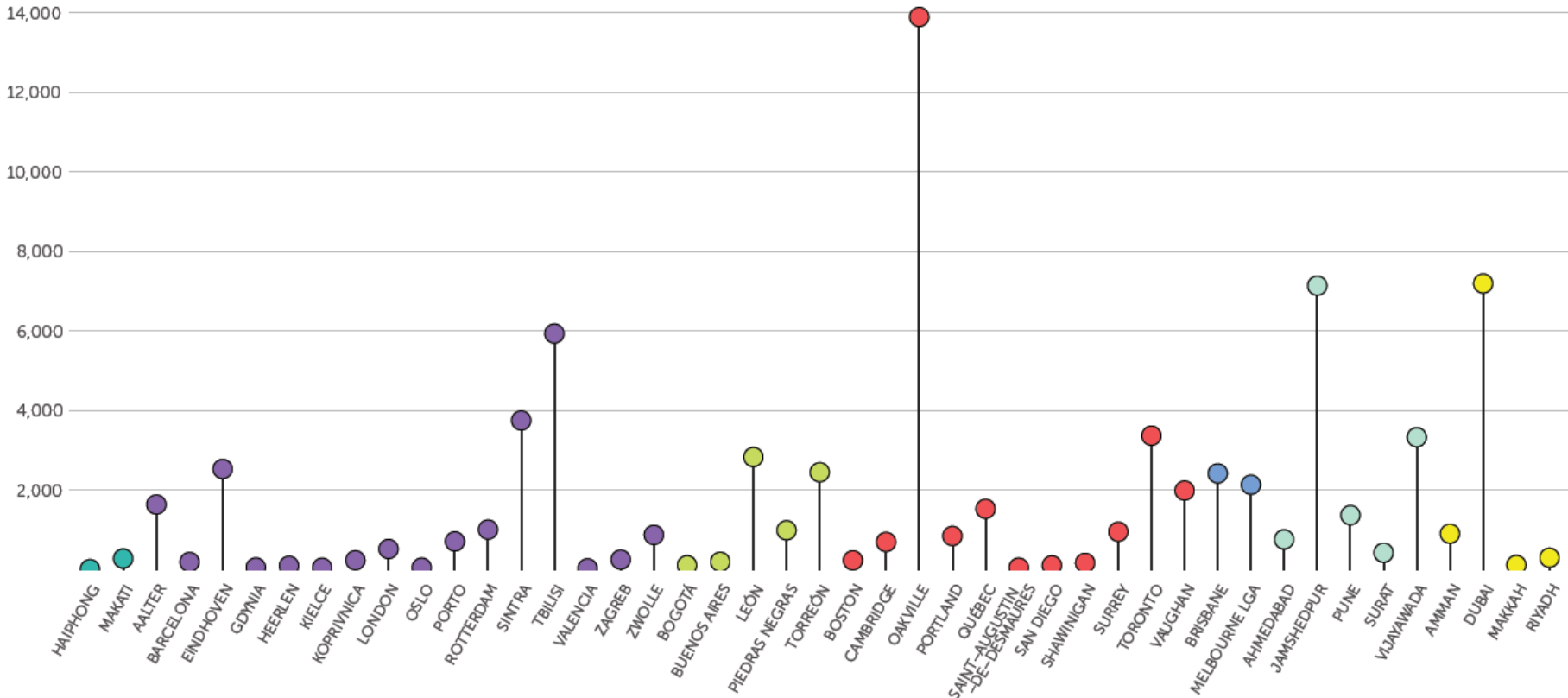
East Asia - Pacific

Latin America & Caribbean
- North America

Oceania

South Asia

West Asia - North Africa



# WCCD CITY DATA SUPPORTING SDG 15 – LIFE ON LAND

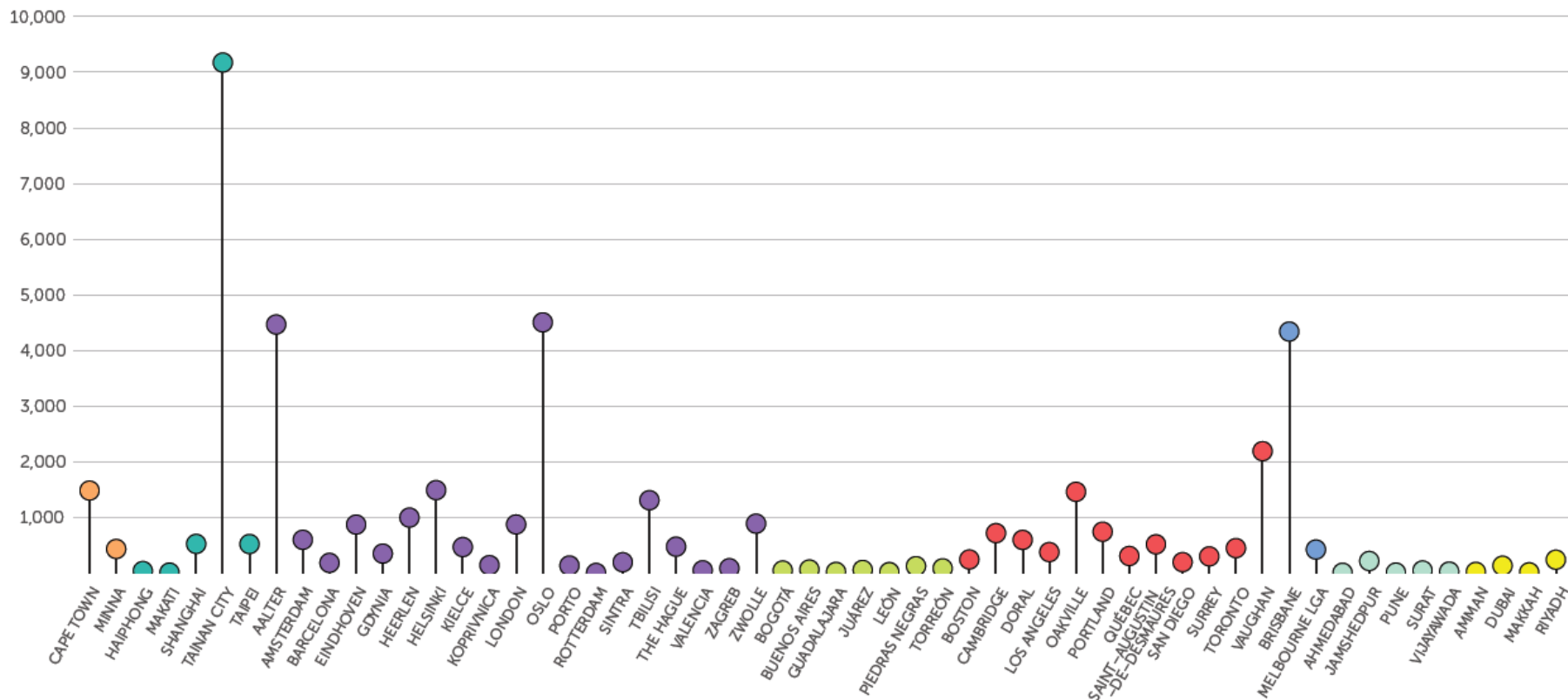
WCCD SUPPORTS THE SDGS

## CONSERVATION, RESTORATION AND SUSTAINABLE USE OF TERRESTRIAL ECOSYSTEMS

ISO 37120 Indicator 19.1:

Green area (hectares) per 100,000 population

- Africa
- Europe
- East Asia - Pacific
- Latin America & Caribbean
- North America
- Oceania
- South Asia
- West Asia - North Africa







# WCCD CITY DATA SUPPORTING SDG 16 – PEACE, JUSTICE AND STRONG INSTITUTIONS

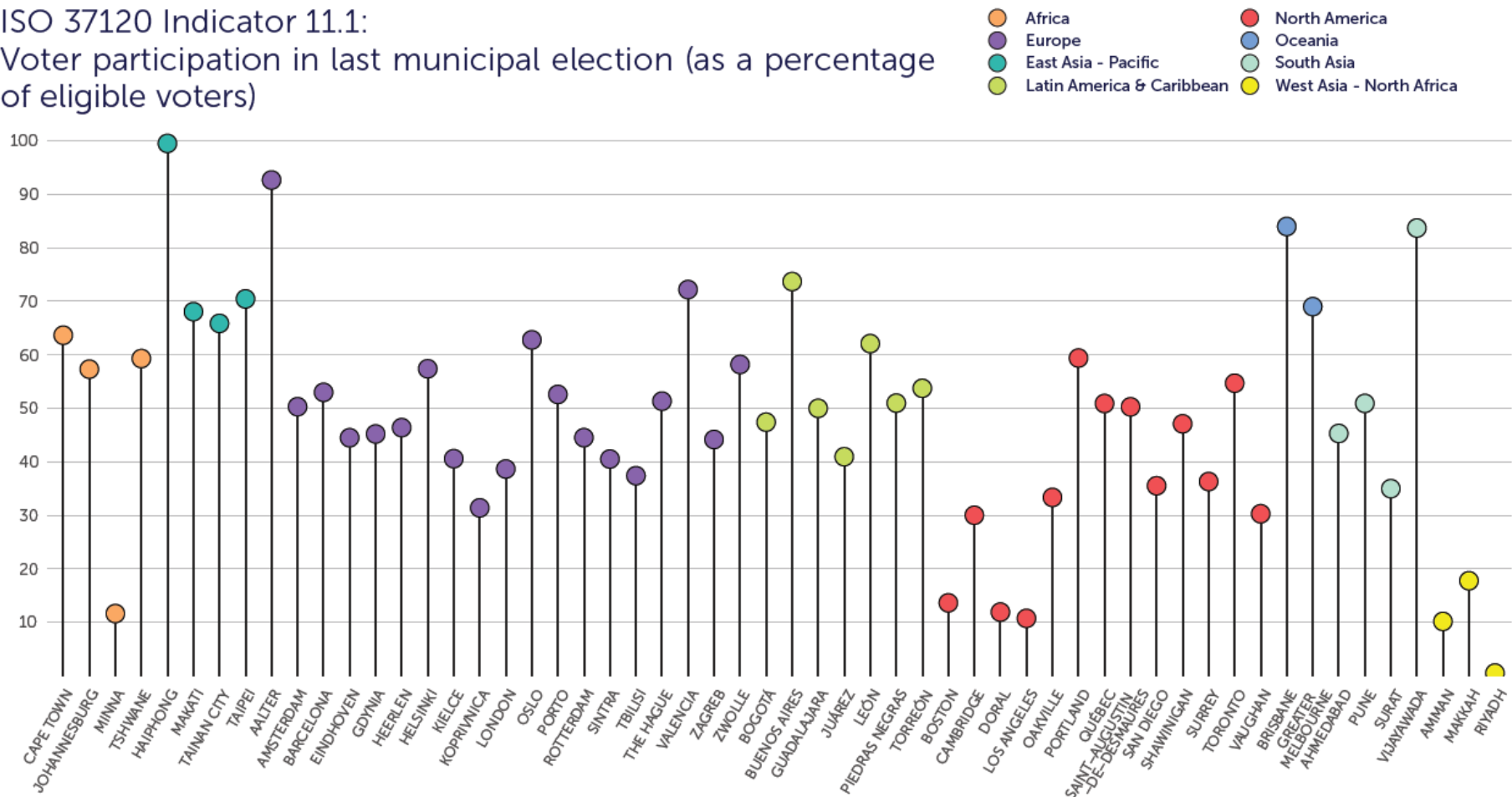


WCCD SUPPORTS THE SDGS

## ENSURE REPRESENTATIVE DECISION-MAKING AT ALL LEVELS

ISO 37120 Indicator 11.1:

Voter participation in last municipal election (as a percentage of eligible voters)



**WCCD**

WORLD COUNCIL  
ON CITY DATA



**WCCD**

# **INTRODUCING THE ISO FAMILY OF STANDARDS**

**ISO 37122 -  
INDICATORS FOR  
SMART CITIES  
AND**

**ISO 37123 –  
INDICATORS FOR  
RESILIENT CITIES**

# ISO 37122 - INDICATORS FOR SMART CITIES AND ISO 37123 – INDICATORS FOR RESILIENT CITIES

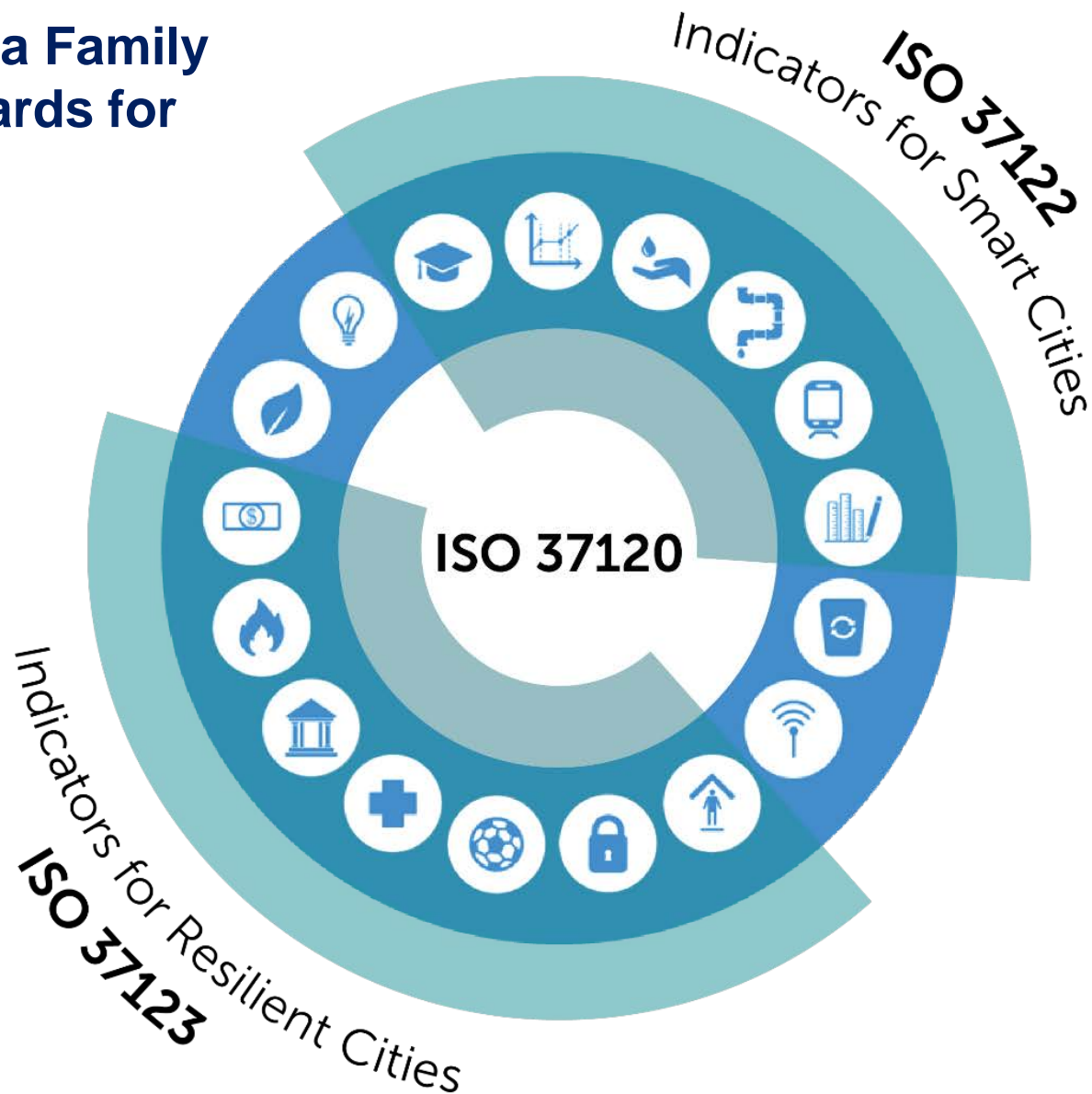
ISO 37120 is just the  
**beginning.**

ISO 37122  
Indicators for  
Smart Cities

Leading the  
development of new  
standards

ISO 37123  
Indicators for  
Resilient Cities

# Creating a Family of Standards for City Data



**WCCD**

WORLD COUNCIL  
ON CITY DATA





**WCCD**

**NETWORKS &  
PARTNERSHIPS**

# WCCD'S NETWORK OF GLOBAL PARTNERSHIPS



# THE VALUE OF MUNICIPAL DATA AS GENERATED BY THE WORLD COUNCIL ON CITY DATA

---

## DATA THAT IS:

- Globally Standardized (ISO 37120)
- Regularly Reported (Annual Reporting)
- Independent and Third Party Verified (WCCD + Externally Audited)
- Open (Housed on the WCCD Global Open Data Portal)
- Drives informed infrastructure investment
- Pre-requisite for sound investment and smart city development



**WCCD**

WORLD COUNCIL  
ON CITY DATA



# DATA IS THE UNIVERSAL LANGUAGE



**WCCD**

WORLD COUNCIL  
ON CITY DATA





**WCCD**

# THE WORLD COUNCIL ON CITY DATA

---

Toronto, ON M5S 2H9

Phone +1 416 966 2368

Email [info@dataforcities.org](mailto:info@dataforcities.org)

Web [www.dataforcities.org](http://www.dataforcities.org)

# Question and Answers





# Panel Discussion







## Next steps

- Feedback form
- Feedback will be used to inform the measurement work of Wellbeing Waterloo Region.



