THE WORLD COUNCIL ON CITY DATA

City data for low carbon development

Nico Tillie, Director European Office of the World Council on City Data & Urbanism, TU Delft
Rotterdam 21th of June 2018

http://www.dataforcities.org/
Twitter: @WCCityData
Facebook: WCCCityData
Cities and the Challenges of Data

ISO 37120

World Council on City Data
It is about improving. How do you perform, challenges, targets, actions? Knowing where to invest...

For this you need standardised globally comparable city data,

comparing apples to apples third part verified data feedback on our score...
The **first** ISO standard for cities.
ISO 37120 100 Indicators
17 themes

- Economy
- Education
- Energy
- Environment
- Finance
- Governance
- Health
- Recreation
- Safety
- Shelter
- Solid Waste
- Telecommunications
- Transportation
- Urban Planning
- Wastewater
- Water & Sanitation
- Fire & Emergency Response
**WORLD COUNCIL ON CITY DATA**

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

<table>
<thead>
<tr>
<th>Population Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 – 50,000</td>
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<tr>
<td>50,000 – 100,000</td>
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<tr>
<td>100,000 – 250,000</td>
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<td>250,000 – 500,000</td>
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<td>500,000 – 750,000</td>
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<td>750,000 – 1,000,000</td>
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<td>1,000,000 – 5,000,000</td>
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<tr>
<td>5,000,000 – 10,000,000</td>
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<tr>
<td>10,000,000 +</td>
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</table>
# WCCD Certification Levels

<table>
<thead>
<tr>
<th>Certification</th>
<th>2017</th>
</tr>
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<tbody>
<tr>
<td>ASPIRATIONAL</td>
<td>WCCD</td>
</tr>
<tr>
<td>BRONZE</td>
<td>WCCD</td>
</tr>
<tr>
<td>SILVER</td>
<td>WCCD</td>
</tr>
<tr>
<td>GOLD</td>
<td>WCCD</td>
</tr>
<tr>
<td>PLATINUM</td>
<td>WCCD</td>
</tr>
</tbody>
</table>

## Certification Criteria

<table>
<thead>
<tr>
<th>Certification</th>
<th>Core Indicators</th>
<th>Supporting Indicators</th>
</tr>
</thead>
<tbody>
<tr>
<td>ASPIRATIONAL</td>
<td>30-45 Core</td>
<td>0-13 Supporting</td>
</tr>
<tr>
<td>BRONZE</td>
<td>46-59 Core</td>
<td>14-29 Supporting</td>
</tr>
<tr>
<td>SILVER</td>
<td>60-75 Core</td>
<td>30-44 Supporting</td>
</tr>
<tr>
<td>GOLD</td>
<td>76-90 Core</td>
<td>45-54 Supporting</td>
</tr>
<tr>
<td>PLATINUM</td>
<td>91-100 Core</td>
<td></td>
</tr>
</tbody>
</table>
MEMBERS - 255 CITIES ACROSS 82 COUNTRIES

SINCE 2008

NEED FOR STANDARDS, INDICATORS 'FRAMEWORK'!
Creating a Family of Standards for City Data

ISO 37120

Indicators for Resilient Cities

ISO 37123

Indicators for Smart Cities

ISO 37122

WCCD | WORLD COUNCIL ON CITY DATA
How financially independent is my city?

High own-source revenue as a percentage of total revenues

83.2%

Tshwane
HOW CONNECTED IS MY CITY?

Number of non-stop commercial flights annually.

212,792

Amsterdam
HOW INCLUSIVE IS MY CITY’S WORKFORCE?

Percentage of women employed in the city government workforce

41.87%

Minna
HOW ‘TRANSIT-FRIENDLY’ IS MY CITY?

High percentage of commuters using a travel mode to work other than a personal vehicle

71.28%

Cape Town
DATA PLATFORM FOR ANALYTICS, EXPLORING RELATIONS WITH 100 DATA POINTS

Average (24.6 µg/m³)
EXPLORING WCCD ISO 37120 DATA IN AFRICAN CITIES
ISO 37120 Indicator 9.2: Capital spending as a percentage of total expenditures

- Surat: 50.0
- Minna: 40.0
- Johannesburg: 16.3
- Buenos Aires: 15.6
- Cape Town: 14.5
- Tshwane: 14.4
- Leon: 2.8
ISO 37120 Indicator 4.28: Persons per unit

<table>
<thead>
<tr>
<th>City</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Taipei</td>
<td>2.6</td>
</tr>
<tr>
<td>Johannesburg</td>
<td>2.7</td>
</tr>
<tr>
<td>Tshwane</td>
<td>2.9</td>
</tr>
<tr>
<td>Cape Town</td>
<td>3.2</td>
</tr>
<tr>
<td>Guadalajara</td>
<td>4.0</td>
</tr>
<tr>
<td>Pune</td>
<td>4.2</td>
</tr>
</tbody>
</table>
ISO 37120 Indicator 7.2:
Percentage of city population with authorized electrical service

- Leon: 57.0%
- Cape Town: 68.9%
- Tshwane: 79.7%
- Johannesburg: 91.4%
- Buenos Aires: 91.9%
- Minna: 97.0%
- Haiphong: 100%
ISO 37120 Indicator 16.1:
Percentage of city population with regular solid waste collection (residential)

- Minna: 19.6%
- Buenos Aires: 87.7%
- Tshwane: 88.2%
- Haiphong: 88.4%
- Johannesburg: 96.0%
- Bogota: 99.9%
- Cape Town: 100.0%

WCCD | WORLD COUNCIL ON CITY DATA
ISO 37120 Indicator 21.4:
Total domestic water consumption per capita (litres/day)

- Johannesburg: 308.9
- Toronto: 202.2
- Taipei: 200.0
- Tshwane: 140.0
- Minna: 120.0
- Cape Town: 115.1
- Haiphong: 100.9
- Bogota: 72.7
HOW INCLUSIVE IS JOHANNESBURG?

38.5%
OF TOTAL ELECTED CITY-LEVEL OFFICIALS ARE WOMEN

ISO 37120

ASPIRATIONAL
WCCD
WORLD COUNCIL ON CITY DATA
38.5% of total elected city-level officials are women. How did Johannesburg achieve this?

The inclusion of women in city government

Johannesburg is a strong performer in the inclusion of women in city government, with one of the highest percentages of women elected to municipal government. The City of Johannesburg’s Women’s Development Strategy was first drawn up in 2005 as part of a renewed drive to promote the development and inclusion of women in the highest echelons of decision-making. Women’s participation in government has been fostered by policies that promote gender inclusion in a wide range of areas.

Inclusion across different areas

The City of Johannesburg approved a Gender Policy Framework in 2013. Its gender mainstreaming programme will be fully incorporated in the Growth and Development Strategy and Integrated Development Plan. The City of Johannesburg continues to work with marginalized women groups, while also establishing further partnerships to drive social inclusion across civil society and business. Policies seek to encourage women’s self-empowerment, improve the economic status of women through skills development and training, alleviate poverty and increase access to improved healthcare and safety. The City is also emphasizing the linkages between different sectors and gender inclusion. For instance, large-scale transport improvement programmes are considered an ideal opportunity for the empowerment of vulnerable women.

Gender empowerment for health

Developing a sense of personal empowerment amongst women – and networks of social support – will support a reduction of major communicable disease and health risks by 2040. HIV, in the short to medium term, will be addressed through dealing with the often-neglected social and psychological contexts that place vulnerable groups such as women at higher risk.

www.dataforcities.org
38.5% of total elected city-level officials are women. What does this mean for the people of Johannesburg?

Public Health  Gender Equality  Greater Inclusion  Poverty Reduction

WCCD indicators as a tool for benchmarking and monitoring

Indicators are one of the key elements of Johannesburg's 2040 Strategy Plan. As the measures through which the City plans to assess progress against its desired outcomes. A number of WCCD indicators have been selected and reorganized into the 2040 Strategy's four pillars (Economic Growth, Human and Social Development, Sustainable Services, and Governance). WCCD indicators will therefore be instrumental in reviewing the strategy and tracking its progress. Women as a percentage of total elected to city-level office is one of the WCCD indicators included in the Governance cluster.
“Africa urgently needs to industrialize”

...To make this happen, we need investments in infrastructure. At the African Development Bank, we are talking about using aid to massively leverage private capital to fund Africa’s development

Akinwumi Adesina, President, African Development Bank, May 7th 2018
WCCD ISO 37120 DATA CAN HELP
CITY DATA FOR INFRASTRUCTURE INVESTMENT

A. Pre-Investment Support: Building a Robust Baseline for Evidence Based Decision Making

B. Post-Investment Support: Measuring Infrastructure Investment Impact Across Ontario and Canada
TORONTO REGION
RESPONSE TO AMAZON HQ2 RFP
Investable Cities Index
City Data for City Leaders
To harness standardised, globally comparable, city data as essential to tackling global, national and local agendas.
WCCD LOCAL DATA HUBS
SUPPORTING DATA FOR AFRICAN CITIES
WCCD CEO and Governor of Niger State sign MOU to establish the Minna-WCCD Local Data Hub

On Friday, July 28th, the WCCD President and CEO, Dr. Patricia McCarney, was in New York to sign the initial MOU towards establishing the Minna-WCCD Local Data Hub with His Excellency Abubakar Sani Bello, the Governor of Niger State, Nigeria.

Patricia McCarney (front row, left) signs the MOU towards the establishment of the WCCD-Minna Local Data Hub with Professor Abdul Husaini (front row right), alongside His Excellency Abubakar Sani Bello, the Governor of Niger State, Nigeria (second row, second from left), the Nigerian Consul General (second row, third from left) and members of his Cabinet at the Nigerian Mission to the United Nations in New York.
The United Nations Sustainable Development Goals - 17 Goals for 2030
WCCD CITY DATA SUPPORTING SDG 4 – QUALITY EDUCATION

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 9 – INDUSTRY, INNOVATION AND INFRASTRUCTURE SUPPORT ECONOMIC DEVELOPMENT

ISO 37120 Indicator 9.2: Capital spending as a percentage of total expenditures
WCCD CITY DATA SUPPORTING SDG 11 – SUSTAINABLE CITIES AND COMMUNITIES
ACCESS TO BASIC SERVICES

ISO 37120 Indicator 21.4:
Total domestic water consumption per capita (litres/day)
USING THE DATA: EXAMPLE OF LOCAL USE IN CITIES
A MAP IS EASIER TO READ THAN MANY EXCELL SHEETS

ISO37120 indicator

Urban Planning, Shelter and Environment - Population density per Km2
Themes and indicators (orange is threshold)

Helps with focusing, behind each indicator is a GIS map
Sustainability and Quality of life performance for whole city and for all 90 neighborhoods
Facilitate the transition use data and gis mapping

Inhabitants, stakeholders

Government as a stakeholder

PROJECT

challenges opportunities Coalitions Goals

actions

Smart City Planner & Profile

Put open, objective data on the table
DATA KNOWLEDGE THAT LEADS TO INFORMED INVESTMENT DECISIONS

Water problems, recreation shortage, poor public space

Possible solution: water garden, water square (resilience!)

This leads back to the basic indicators in the standard.
the value of municipal data 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
Thank you for your attention!
nico.tillie@globalcities.ca
n.m.j.d.tillie@tudelft.nl
Twitter: @nicotillie72
## ISO 37120 Indicators

<table>
<thead>
<tr>
<th>Theme</th>
<th>Core Indicator</th>
<th>Supporting Indicator</th>
</tr>
</thead>
</table>
| **ECONOMY** | • City’s unemployment rate  
• Assessed value of commercial and industrial properties as a % of total assessed value of all properties  
• % of city population living in poverty | • % of persons in full-time employment  
• Youth unemployment rate  
• Number of businesses per 100,000 population  
• Number of new patents per 100,000 population per year |
| **EDUCATION** | • % of female school-aged population enrolled in schools  
• % of students completing primary education: survival rate  
• % of students completing secondary education: survival rate  
• Primary education student/teacher ratio | • % of male school-aged population enrolled in schools  
• % of school-aged population enrolled in schools  
• Number of higher education degrees per 100,000 population |
| **ENERGY** | • Total residential electrical energy use per capita (kWh/year)  
• % of city population with authorized electrical service  
• Energy consumption of public buildings per year (kWh/m²)  
• % of total energy derived from renewable sources, as a share of the city’s total energy consumption | • Total electrical energy use per capita (kWh/year)  
• Average number of electrical interruptions per customer per year  
• Average length of electrical interruptions |
| **ENVIRONMENT** | • Fine particulate matter (PM2.5) concentration  
• Particulate matter (PM10) concentration  
• Greenhouse gas emissions measured in tonnes per capita | • Nitrogen dioxide (NO₂) concentration  
• Sulphur dioxide (SO₂) concentration  
• Ozone (O₃) concentration  
• Noise pollution  
• % change in number of native species |
<table>
<thead>
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</tr>
</thead>
<tbody>
<tr>
<td><strong>FINANCE</strong></td>
<td>• Debt Service ratio (debt service expenditure as a % of a municipality's own-source revenue)</td>
<td>• Capital spending as a percentage of total expenditures</td>
</tr>
<tr>
<td></td>
<td>• Own-source revenue as a percentage of total revenues</td>
<td>• Tax collected as a percentage of tax billed</td>
</tr>
<tr>
<td></td>
<td>• Capital spending as a percentage of total expenditures</td>
<td></td>
</tr>
<tr>
<td><strong>FIRE AND EMERGENCY RESPONSE</strong></td>
<td>• Number of firefighters per 100 000 population</td>
<td>• Number of volunteer and part-time firefighter per 100 000 population</td>
</tr>
<tr>
<td></td>
<td>• Numbers of fire related deaths per 100 000 population</td>
<td>• Response time for emergency response services from initial call</td>
</tr>
<tr>
<td></td>
<td>• Number of disaster related deaths per 100 000 population</td>
<td>• Response time for fire department from initial calls</td>
</tr>
<tr>
<td><strong>GOVERNANCE</strong></td>
<td>• Voter participation in last municipal election (as % of eligible voters)</td>
<td>• % of women employed in the city government workforce</td>
</tr>
<tr>
<td></td>
<td>• Women as a % of total elected to city-level office</td>
<td>• Number of convictions for corruption and/or bribery by city officials per 100 000 population</td>
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<tr>
<td></td>
<td></td>
<td>• Citizen’s representation: number of local officials elected to office per 100 000 population</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Number of registered voters as a % of the voting age population</td>
</tr>
<tr>
<td><strong>HEALTH</strong></td>
<td>• Average life expectancy</td>
<td>• Number of nursing and midwifery personnel per 100 000 population</td>
</tr>
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<td></td>
<td>• Number of in-patient hospital beds per 100 000 population</td>
<td>• Number of mental health practitioners per 100 000 population</td>
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<tr>
<td></td>
<td>• Number of physicians per 100 000 population</td>
<td>• Suicide rate per 100 000 population</td>
</tr>
<tr>
<td></td>
<td>• Under age five mortality per 1 000 live births</td>
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</tbody>
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## ISO 37120 INDICATORS

<table>
<thead>
<tr>
<th>Theme</th>
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</tr>
</thead>
</table>
| RECREATION                |                                                                               | • Square meters of public indoor recreation space per capita  
|                           |                                                                               | • Square meters of public outdoor recreation space per capita                          |
| SAFETY                     | • Number of police officers per 100,000 population  
|                           | • Number of homicides per 100,000 population                                  | • Crimes against property per 100,000  
|                           |                                                                               | • Response time for police department from initial call  
|                           |                                                                               | • Violent crime rate per 100,000 population                                       |
| SHELTER                   | • % of city population living in slums                                        | • Number of homeless per 100,000 population                                            |
|                           |                                                                               | • Percentage of households that exist without registered legal titles                |
| SOLID WASTE                | • % of city population with regular waste collection (residential)  
|                           | • Total collected municipal solid waste per capita per year                    | • % of the city’s solid waste that is disposed of in a sanitary landfill  
|                           | • % of the city’s solid waste that is recycled                               | • % of the city’s solid waste that is disposed of in an incinerator                  |
|                           |                                                                               | • % of the city’s solid waste that is burned openly                                |
|                           |                                                                               | • % of the city’s solid waste that is disposed of in an open dump                  |
|                           |                                                                               | • % of the city’s solid waste that is disposed of by other means                  |
|                           |                                                                               | • Hazardous Waste Generation per capita (tonnes)                                   |
|                           |                                                                               | • % of the city’s hazardous waste that is recycled                                |
| TELECOMMUNICATIONS AND INNOVATION | • Number of internet connections per 100,000 population  
|                           | • Number of cell phone connections                                            | • Number of landline phone connections per 100,000 population                         |
## ISO 37120 INDICATORS

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| TRANSPORTATION         | • Kilometres of high capacity public transport system per 100 000 population  
• Kilometres of light passenger public transport system per 100 000 population  
• Annual number of public transport trips per capita  
• Number of personal automobiles per capita                                                                                                                   | • Percentage of commuters using a travel mode other than a personal vehicle  
• Number of two-wheel motorized vehicles per capita  
• Kilometres of bicycle paths and lanes per 100 000 population  
• Transportation fatalities per 100 000 population  
• Commercial air connectivity (number of non-stop commercial air destinations)                                                                             |
| URBAN PLANNING         | • Green area (hectares) per 100 000 population                                                                                                                                                               | • Annual number of trees planted  
• Areal size of informal settlements as a percentage of city area  
• Jobs/housing ratio                                                                                                                                 |
| WASTEWATER             | • % of city population served by wastewater collection  
• % of the city’s wastewater that has received no treatment  
• % of the city’s wastewater receiving primary treatment  
• % of the city’s wastewater receiving secondary treatment  
• % of the city’s wastewater receiving tertiary treatment                                                                                               |                                                                                                                                                                                                                     |
| WATER AND SANITATION   | • % of city population with potable water supply service  
• % of city population with sustainable access to an improved water source  
• % of population with access to improved sanitation  
• Total domestic water consumption per capita (litres/day)                                                                                                 | • Total water consumption per capita (litres/day)  
• Average annual hours of water service interruption per household  
• % of water loss (unaccounted for water)                                                                                                             |