

Online Pre-Conference

WATER, MEGACITIES AND GLOBAL CHANGE

7 – 11 December 2020

Innovative Initiatives

10 December 2020

Water and Sanitation Sector Integrity Risk Index

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Summary

1. Goals
2. Conceptual framework: Pillars of Integrity
3. Methodology & data
4. Results
5. Next steps

1. Why do we need a Water Integrity Risk Index?

- Policy reform effectiveness and adequate policy targeting are difficult to gauge without valid and reliable measurement of corruption.
- The Water Integrity Risk Index (WIRI) aims to provide an objective measure of integrity risks in the urban water and sanitation (W&S) sector.
- We apply Big Data methods to administrative data and survey (self-reported experience) datasets in order to develop a comprehensive and actionable integrity risk indicator.
- The WIRI is a replicable, transparent and scalable index, which enables us to compare risk levels in the sector across time and between cities.

2. Pillars of Integrity

Our framework focuses on 3 main pillars of integrity in the W&S sector:

1. Public investment projects (e.g. building new pipelines or drainage),
2. Recurrent spending supporting ongoing operations (e.g. paying salaries, purchasing computers), and
3. Client-utility interactions (e.g. paying utility bills).

3. Methodology

We generate the composite Water Integrity Risk Index (WIRI) with the following steps:

1. We standardize each component indicator of WIRI so that they can be directly compared (higher values imply higher integrity).
2. Calculate the weight of each component indicator (5 in total, categorized into 3 pillars) by the amount of data points available for the timeseries (2012-2019). Fewer available data points in a component decreases its pillar weight on the index.
3. We calculate the weighted mean of each indicator to derive the composite WIRI score based on the data available.

4. Data Sources

Data types used:

1. Surveys of corruption experiences,
2. Public procurement data, and
3. National Statistical Office data.

Settlements assessed:

1. Asunción/Gran Asunción - Paraguay -
2. Batumi - Georgia
3. Bucharest – Romania
4. Budapest – Hungary
5. Cluj - Romania
6. Győr - Hungary
7. Iasi - Romania
8. Kampala - Uganda
9. Montevideo - Uruguay
10. Nairobi - Kenya
11. Nyíregyháza - Hungary
12. Tibilili - Georgia

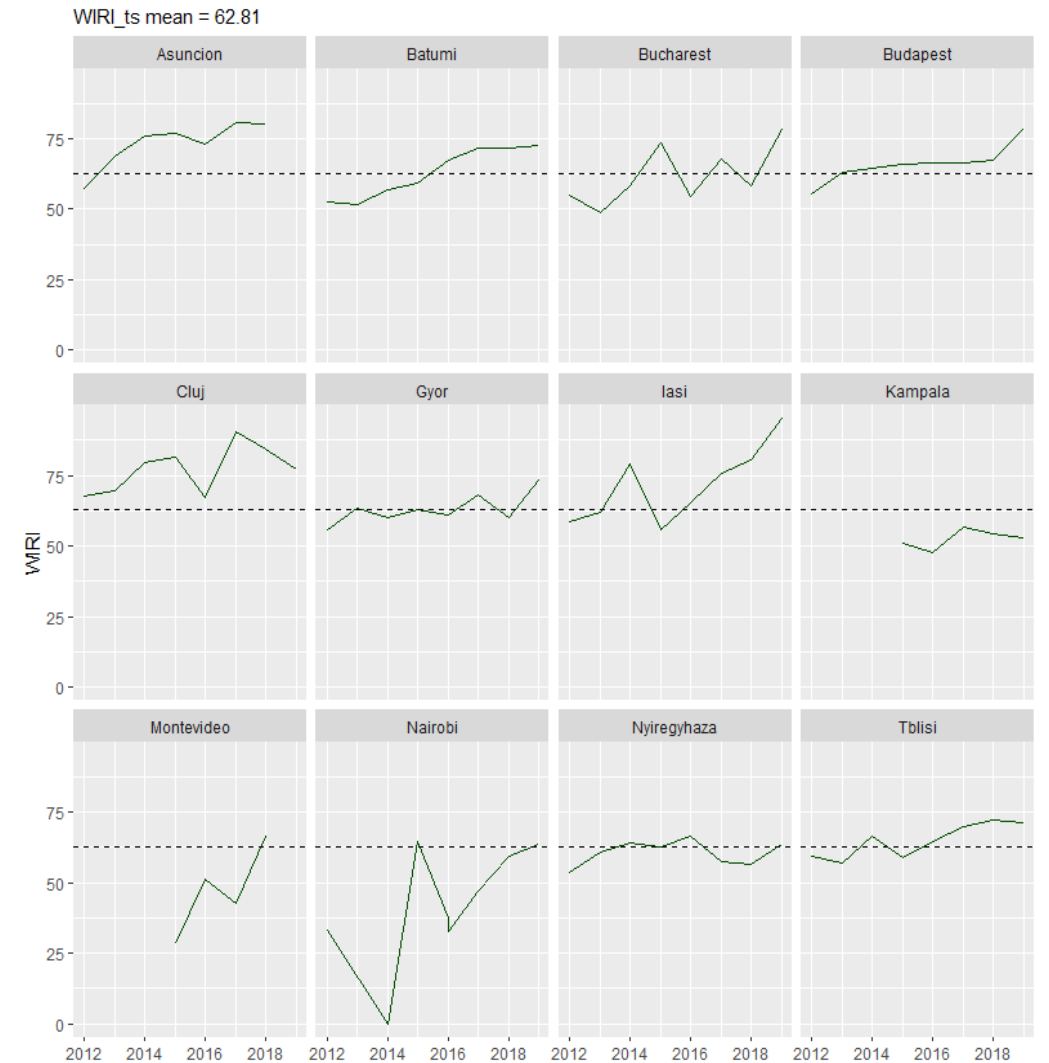
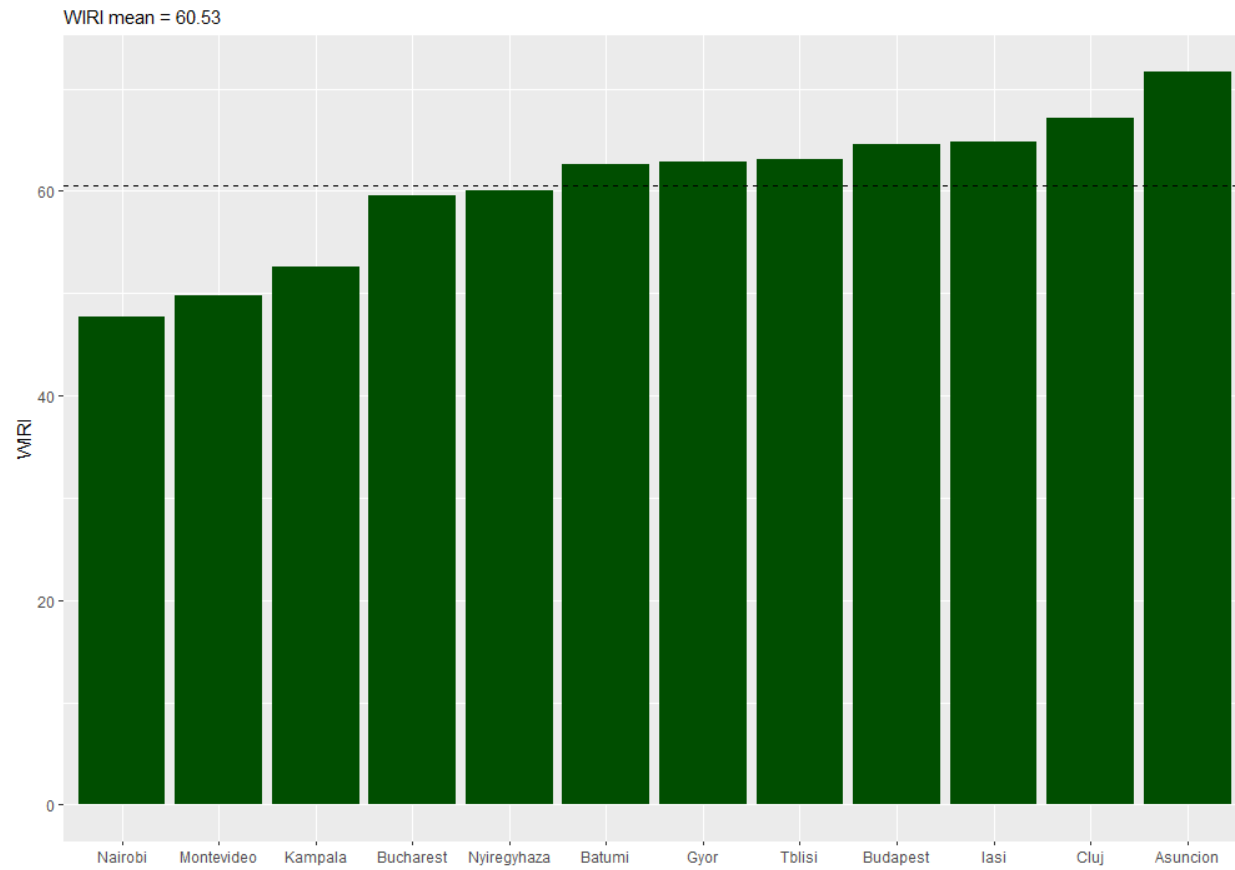
4. Data sparsity per integrity indicator (2012-2019)

Variable	Pillar	Missing Data	Available Data Rate
<i>PP Investment Integrity Risk</i>	Investment Risk	10	90%
<i>Infrastructure Investment Risk</i>	Investment Risk	63	34%
<i>PP Operations Integrity Risk</i>	Operations Risk	11	88%
<i>PP Client Utility Interaction Risk</i>	Client-Utility Interaction Risk	58	40%
<i>Survey Data Integrity</i>	Client-Utility Interaction Risk	92	4%

5. Composite Water Integrity Risk (2012-2019)

Pillar	Investment Risk		Operations Risk	Client-Utility Interactions Risk		Composite Index			
	Weights	.35	.13	.35	.15	.02	48%	35%	17%
Settlement	<i>PP Investment Integrity Risk</i>	<i>Infrastructure Investment Risk</i>	<i>PP Operations Integrity Risk</i>	<i>PP Client Utility Interaction Risk</i>	<i>Survey Data Integrity</i>	WIRI INV	WIRI OP	WIRI CUI	WIRI
Asuncion	74.96	NA	71.70	NA	1.97	74.96	71.70	61.97	71.62
Batumi	65.69	NA	59.81	59.50	NA	65.69	59.81	59.50	62.60
Bucharest	67.85	31.57	81.51	43.33	NA	49.71	81.51	43.33	59.61
Budapest	75.17	25.72	77.95	77.31	NA	50.45	77.95	77.31	64.54
Cluj	72.35	34.96	86.09	NA	NA	53.66	86.09	NA	67.17
Gyor	71.40	25.97	76.69	75.00	NA	48.68	76.69	75.00	62.85
Iasi	73.43	31.25	82.25	NA	NA	52.34	82.25	NA	64.80
Kampala	52.82	NA	53.06	51.16	NA	52.82	53.06	51.16	52.62
Montevideo	41.33	NA	42.18	NA	9.02	41.33	42.18	89.02	49.76
Nairobi	44.98	NA	38.16	NA	4.81	44.98	38.16	74.81	47.72
Nyiregyhaza	68.80	27.81	69.42	74.09	NA	48.30	69.42	74.09	60.00
Tblisi	66.30	NA	65.08	50.00	NA	66.30	65.08	50.00	63.09

5. WIRI patterns



Conclusions & next steps

- We have shown that it is possible to measure W&S integrity risks on
 - Micro-level
 - Over time
 - Objective-administrative data
- **Further piloting** and data collection should strengthen the WIRI methodology
- **Partnering** with W&S actors is expected to demonstrate the actionability and practical usefulness of such an index

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Thank you for your attention !

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