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Methodology Note on the Development of the
CWIS
Indicators

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This note details the evolution of the CWIS indicators and the sources and methods used to develop the final set of indicators.

Table 1: Overview of indicator development phases

	Phase I: Urban fecal sludge management (UFSM)	Phase II: Initial CWIS Principles	Phase III: CWIS Framework
Guiding Framework	Benchmark the performance of cities focused on UFSM service delivery outcomes	6 CWIS Principles	7 updated CWIS Principles and the CWIS Service Framework
Indicators	17 outcome indicators developed from reviewing existing monitoring frameworks (quantitative only)	17 indicators mapped onto the 6 CWIS principles	A set of qualitative and quantitative indicators added to 17 existing quantitative indicators, and consolidated into 34 indicator areas covering a set of 89 sub-indicators

Phase 1 – Developing the initial list of 17 indicators

The goal of the MLE (Monitoring, Learning, and Evidence) program when it was kickstarted was to benchmark the performance of cities on urban fecal sludge management (UFSM). In line with this goal, the initial list of indicators were exclusively quantitative, focusing on UFSM service delivery outcomes.

These outcome indicators were developed following a review of frameworks which identified a long list (220+) of relevant indicators. The key frameworks were:

- Global frameworks such as the Joint Monitoring Programme (UN Water, 2017), Shit Flow Diagram (SFD, 2018), City Service Delivery Assessment (Blackett and Hawkins, 2016), FSM Toolbox (2018) and the Global Analysis and Assessment of Sanitation and Drinking-Water (GLAAS) framework (UN Water and WHO, 2017).
- Sanitation monitoring frameworks such as Technology Options for the Sanitation Value Chain (CSTEP, 2016), Fecal Sludge Management Tools (Blackett and Hawkins, 2016), Water and Sanitation Indicators Measurement Guide (USAID, 1999) and SAN Benchmarks (CEPT University, 2015).

The indicators were identified and classified under three categories – context indicators (defines the characteristics of operating environments in which interventions take place in), intervention indicators (consisting of input and output indicators) and outcome indicators (focused on sectoral outcomes and impact).

Two layers of filters were applied to the full (220+) indicators to arrive at the final shortlist.

- First, indicators that could not be benchmarked were removed from the list. This includes categories of indicators such as sanitation budget allocation and expenditure, number of desludging vehicles used in the city, practices and equipment used in desludging, etc.

- This shortlist was then taken to cities and discussed with partners on perceived criticality and by the end of 2018, for each of the indicator, a decision was made to either retain, alter, or exclude from the shortlist based on consultations with relevant city stakeholders and the CWIS grantees. This resulted in the initial list of the 17 quantitative indicators.

See Table 2 below for a mapping of the convergence between CWIS indicators and selected global frameworks.

Table 2: Alignment of CWIS indicators with selected global frameworks

	JMP	SFD
No. of indicators with CWIS convergence	12/12	16/21
Framework indicators covered	Primary and secondary sanitation indicators (JMP Methodology 2017 Update & SDG Baselines): S1. improved sanitation facilities S2. improved sanitation facilities connected to sewers S3. improved sanitation facilities connected to septic tanks S4. improved pit latrines or other on-site improved facilities S5. unimproved sanitation facilities S6. no sanitation facility (open defecation) S7. improved sanitation facilities which are shared (limited sanitation services) S8. improved sanitation facilities which are not shared (basic sanitation services) S9. sewer connections where wastes reach treatment plants and are treated S10. on-site sanitation facilities where wastes reach treatment plants and are treated S11. on-site sanitation facilities where wastes are disposed of in situ S12. safely managed sanitation services	SFD Master Graphic and quantitative performance indicators (SFD manual): - Fecal sludge contained; - Fecal sludge not contained; - Open defecation; - FS contained – not emptied; - FS contained – emptied; - FS not contained – emptied; - FS not contained – not emptied; - FS delivered to treatment; - FS not delivered to treatment; - FS treated; - FS not treated; - Customer base; - Volume (or %) of on-site sanitation technologies emptied each time; - Quantities of wastewater or fecal sludge received for treatment at each location (pump readings/ flow meters/ volume gauge); - Capacity (design and operating), type and condition of facilities used to treat wastewater and fecal sludge (pump readings/ flow meters); - Quantities of fecal sludge or sewage sludge that get reused.

Phase 2 – CWIS Principles

At the Manila Convening in December 2018 of CWIS grantees and city stakeholders, the concept of Citywide Inclusive sanitation (CWIS) was introduced by the Bill & Melinda Gates Foundation with an initial set of six principles. Responding to stakeholders' feedback and inputs at the Manila Convening, the 17 quantitative indicators were mapped to these initial CWIS principles. To reflect the evolution on

the program vision since Manila, the MLE program also evolved from "MLE for Urban Fecal Sludge Management" to "MLE for Citywide Inclusive Sanitation".

The six CWIS Principles released at the Manila Convening are as follows:

1. Equitable sanitation services benefit everyone
2. Human waste is safely managed along the entire sanitation service chain
3. Systems enable resource recovery and re-use
4. Diverse and innovative technologies—sewered and/or non-sewered—are deployed
5. Comprehensive long-term planning fosters innovation, pro-poor financing, improved performance
6. Demonstration of political will, accountability and technical and managerial leadership

Phase 3 – CWIS Service Framework and expanded set of indicators

The CWIS framework continued to evolve and in April 2019, the Foundation released an updated version of the CWIS framework, where the number of principles were expanded from six to seven, and the CWIS service framework (a 2X3 matrix) was introduced (Figure 1 below). While the CWIS principles remain important, the framework has been effective in communicating the intent and in representing the core CWIS values, as the language of the principles continue to evolve.

Figure 1: CWIS Service Framework by Schrecongost et al. (2020)

Following the development of the CWIS service framework, the indicators were reorganized by this service framework. Post this classification, it was observed that the initial list of 17 quantitative indicators were focused on capturing outcomes but not functions, i.e. responsibility, accountability and resources planning and management for effective service delivery. To capture all strands of the CWIS framework, an additional list of 24 qualitative indicators and 3 quantitative indicators were added to the initial list of 17 indicators.

Under the three outcome areas (Equity, Safety, Sustainability), expert consultations, discussions with BMGF and literature review led us to primarily add indicators on three key topics – sanitation workers, gender and sanitation access/coverage to include institutional (educational/health care) facilities.

- **Sanitation workers**: The main documents consulted are the Decent Work Framework (ILO, 2008) and the Guidelines on Sanitation and Health by World Health Organization (2018). Also, CS Sharada Prasad, an ethnographer who has been working closely on sanitation worker issues has been instrumental in developing the sanitation worker related indicators.
- **Gender**: For selecting the gender related indicators, we have reviewed a few documents that summarize gender sanitation literature, including the conceptual model of women and girls' empowerment (BMGF, 2017), the Female-friendly Public and Community Toilets guide (UNICEF, WaterAid and WSUP, 2018), BMGF's evidence review of Gender and the Sanitation Value Chain (BMGF, 2018), and a draft literature review that Emory University had developed for their ongoing project on Measuring Women's Sanitation Related Empowerment. Bethany Caruso and Sheela Sinharoy from Emory University had also provided expert opinions on the draft gender indicators.
- **Institutional facilities:** In addition, a few more indicators similar to existing ones on household sanitation were created for educational institutions and healthcare facilities, to reflect the expanded scope of inclusive sanitation.

The indicators for the core CWIS functions (Responsibility, Accountability, Resource Management), were identified based on several rounds of discussions with BMGF to best reflect the intent behind each of the areas. Wherever applicable, relevant literature was also referenced.

After a few rounds of iterations with the Foundation, the draft indicator list mapped to the CWIS service framework was first presented to CWIS partners at the MEDS Convening in October 2019. Since then, Athena's country teams have reached out to CWIS partners individually to discuss the indicator list and obtain feedback. All feedback received has been compiled and shared with the CWIS cohort and was used to update the indicator list in May 2020. After a round of data collection from the CWIS cities on this full list of outcomes and functions indicators, a few more changes have been made to further clarify the level (national/ state vs. local service area) at which the functions are measured. The indicators were finalized in March 2021.

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