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Sanitation, Water and
Solid Waste for Development

Overview of Existing Planning & Programming Approaches and Tools

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This document provides a succinct overview of 20 existing planning and programming approaches and tools that have been developed to improve WASH and solid waste management for urban areas. Our interest is to assess how the selected tools and approaches accommodate integrated waste management for the three basic urban services in urban areas, i.e. water supply, solid waste management and wastewater/fecal sludge management.

In the past decade, many approaches have been developed to understand and address urban sanitation, from formal planning guidance to more community-led processes. Many of the tools presented here focus on non-sewered sanitation, such as decentralised systems and faecal sludge management (FSM). This review document is based on three main sources that have attempted previous reviews of existing tools and approaches, namely:

- **Comparison of tools & approaches for urban sanitation,** WaterAid, 2016
- **A Sanitation Journey** Principles, Approaches and Tools for Urban Sanitation, SuSanA 2021
- **A review of tools and frameworks for integrated waste mgmt. planning,** IRC, 2023

Three types of documents/tools are identified:

1. **Planning guidelines** - how to plan for implementation [CSP, CLUES]
2. **Diagnostic tools** used for understanding a given context or situation [SFD, CSDA, SSP]
3. **Decision-making tools** – technology choice or financial options [WASHCost, SaniChoice]

Key findings

1. There is no single tool or planning approach that covers all aspects of environmental sanitation (water supply, sanitation, solid waste and environmental sanitation).

2. Most tools have a clear distinction between water and sanitation focus. Only 3 of the 20 tools address these two services together.

3. Coordination with other services is widely spoken about in almost every tool, but clear guidance is not provided on how to actually achieve it.

4. Most tools mention stakeholder participation but the corresponding dedicated steps in them are available only for half of the planning tools and guidelines.

5. Sanitation seems to be the most advanced domain in terms of development of tools and guidelines, with 15 of the 21 tools focusing on sanitation. Stormwater on the other hand is the least developed domain with only one tool explicitly covering it. This may be due to the dominant of

technical needs in stormwater management and minimal complexity it brings in addressing the other enabling aspects.

6. 17 of the 21 tools were developed since 2010. This may be due to the increasing importance WASH and SWM planning gained among the funders of technical assistance programs and a focus on developing planning tools and guidelines. In addition, the need for inclusive planning for equitable outcomes was emphasized in the SDG era.

7. Most tools require training and expertise to implement in the planning process. While each of the tools have their own guidelines, training sessions are often created by the proponents and funders of those tools. This has led to the rise of need for consultants since the municipal officials have not been trained.

8. There are very few independently successful tools that have been taken up by practitioners organically and being used at scale. One of them is the SFD/excreta flow diagram. Tools supported by UN agencies (WHO, UN Habitat) have a higher reach, since they are designed to also support monitoring work of the SDGs (e.g. Waste Flow Diagram for monitoring SDG 11.6).

9. These tools are spread through the planning cycle of diagnostics, participatory planning, implementation and monitoring. However, there are more tools supporting the earlier steps of the cycle than the latter.

10. While there is no need to start from scratch the development of a new tool or guidelines to facilitate integrated planning of water, sanitation and solid waste, these existing guidelines only offer initial foundation. There is a clear need to develop a new and practical methodology for planning integrated services and integrated planning of services.

	Water Supply	Sanitation	Solid Waste Management	Stormwater
Guidelines for Town Sanitation Planning		x		
Community-Led Urban Environmental Sanitation (CLUES)		x	x	x
City Sanitation Plan (CSP)		x	x	
Integrated Sustainable Waste Management (ISWM)			x	
Water Resources Assessment (WRA)	x			
Water Flow Diagram	x			
Shit Flow Diagram (SFD)		x		
Rapid assessment tool		x		
Sanitation Safety Planning		x		
City Service Delivery Assessment (CSDA)		x		
Urban Sanitation Status Index (USSI)		x		
City MSW Rapid Assessment Data Collection Tool			x	
Waste flow diagram			x	
Waste Wise Cities Tool (WaCT)			x	
WASHCost	x	x		
Equiserve		x		
Life-Cycle Costing (LCC) for WASH	x	x		
CLARA Planning tool	x	x		
Sanitation Decision Support Tool (Akvopedia)		x		
SaniChoice		x		

Tool/Approach	Tool format	Year developed	Purpose	Developer	Waste stream	Description	Remarks
Guidelines for Town Sanitation Planning	Guidelines	2019	Planning	MWE, Uganda	Fecal waste	7-step participatory planning guidelines for small towns encompassing infrastructure devpt. and software interventions, including sanitation marketing. Tested by MWE/GIZ in 6 Ugandan towns.	Focus on small town sanitation planning, taking weak financial and HR into consideration. Integration only mentioned once (e.g. solid waste).
Community-Led Urban Environmental Sanitation (CLUES)	Guidelines	2011	Planning	Eawag, UN-Habitat	Stormwater, fecal waste & solid waste	A set of planning guidelines based on the lessons learned from piloting the HCES approach and highlights the importance of broad community involvement (beyond the household level) in the planning and decision-making processes.	Considers all waste streams in the planning process. Potentially time-consuming.
City Sanitation Plan (CSP)	Guidelines	2010	Planning	NUSP, India	Wastewater, solid waste, sewage	A holistic and planning framework guide for local govt. officials to make informed decisions about sanitation investments. It covers access to toilets, wastewater management (including septage and sewage management, stormwater management, water supply (including non-revenue water), and solid waste management.	Considers all waste streams in the planning process. Needs leader-ship and stakeholder commitm. for human and financial resources.
Integrated Sustainable Waste Management (ISWM)	Framework	2001	Planning (analytical framework for decision making)	WASTE Netherlands	Solid waste	Considers the entire MSW management chain and integrates processes to operationalise a complete waste management system approach.	It broadly touches the service and stake-holders around water and sanitation.
Water Resources Assessment (WRA)	Handbook	1997	Assessment	UNESCO/ WMO	Water	Water resources assessment (WRA) is a tool to evaluate water resources in relation to a reference frame, or to evaluate the dynamics	Conducting a water resources assessment requires considerable time and resources.

						of the water resource in relation to human impacts or demand.	
Water Flow Diagram	Sankey diagram based	2021	Assessment and Planning	Eawag	Water supply	Gives an overview of the local urban water situation in a snapshot by visualising the mayor water flows from source to discharge together with a judgement for every flow, whether the management practices are appropriate or problematic.	Tool is under development. Currently, there is no standardised data collection procedure.
Shit Flow Diagram (SFD)	Web-based, excel	2014	Assessment and Planning	World Bank	Fecal waste	Shows where faecal waste goes, the amount contained, and the uncontained portion across the entire sanitation service chain	No analysis of volumes of faeces therefore hard to quantify the problem. Considers groundwater contami-nation risk issues.
Rapid assessment tool	Excel-based	2015	Assessment	IRC Netherlands	Fecal waste	A city-wide rapid assessment tool for FSM and blends both quantitative and qualitative data. Provides greater detail than SFDs.	The methodology requires a high level of effort when compared with SFD. It calculates the volume of feces not just the percentages.
Sanitation Safety Planning	Guidelines	2014	Assessment, health risks	WHO	Fecal waste	Brings health and sanitation sectors to map contamination pathways and highlight risks and priority interventions areas (geographical and/or sectoral). Uses WHO guidelines for wastewater and excreta management as a starting point.	Risk-based approach targeting health authorities and regulators, local authorities, utility managers, sanitation enterprises, farmers and community-based organizations.
City Service Delivery	Excel-based	2014/2020	Assessment tool	World Bank	Fecal waste	A complementary tool to SFD because it provides a situation analysis of the enabling environment. The tool identifies the main obstacles to service delivery based on	Identifies areas of action, thus can also contribute to solid

Assessment (CSDA)						objective measures or indicators. It has been modified to include onsite and offsite SSCs for citywide sanitation analysis.	waste and water service planning.
Urban Sanitation Status Index (USSI)	Scorecard	2018	Assessment mapping tool	World Bank	Fecal waste	A tool based on the sanitation service chain that visualises the sanitation status of a city by ward or neighbourhood. The USSI is based on 20 qualitative indicators assessed via household surveys and key informant interviews.	Tested in a WB project in Maputo, but time consuming assessment tool.
City MSW Rapid Assessment Data Collection Tool	Excel-based	2013	Rapid assessment	US EPA	Solid waste	The purpose of this tool is to collect municipal solid waste data in order to have a rapid assessment of the main aspects of the solid waste management in any city.	Strong focus on waste to energy (e.g. biogas)
Waste flow diagram	Excel-based	2020	Situation assessment	GIZ	Solid waste	Provides a rapid assessment methodology for mapping the flows of macro waste in a municipal solid waste management system at the city or municipality level, including quantifying the sources and fate of any plastic pollution.	Main focus on plastic waste at municipal level
Waste Wise Cities Tool (WaCT)	Excel-based	2021	Situation assessment	UN-Habitat/ Eawag	Solid waste	Assesses and monitors the proportion of municipal solid waste collected and managed in controlled facilities out of total municipal solid waste generated, by the city. Special emphasis on food and plastic wastes	WaCT generates a diagram following the service chain thus compatible with water and sanitation service chain which can be an added advantage for integrated waste management planning.
WASHCost	Web-based	2008	Planning/decision support	IRC Netherlands	Water & fecal waste	Used to assess and compare the financial sustainability of different water & sanitation services and share the findings with different stakeholders.	Quality of the results are based on accuracy and detail of the data entered by the user.

Equiserve	Web-based	2023	Planning/decision support	BMGF	Fecal waste	A novel analytical costing tool that analyses and illustrates how different sanitation investments can affect equity and financial sustainability. The on-line tool was designed in collaboration with regulators and service providers to allow a realistic comparison of sewered and non-sewered service options.	Users enter basic data such as current city-level sanitation coverage, costs, revenues, etc. It allows users to model up to 3 scenarios and compare how these will affect city level outcomes.
Life-Cycle Costing (LCC) for WASH	Web-based	2011	Planning/decision support	IRC Netherlands	Water & fecal waste	Developed for water services to support the comparison of costs at the district level consistent with common accounting and finance to be used by governments, donors, and implementing organizations to assess and compare the financial sustainability of different water and sanitation services and share those findings with different stake-holders.	An impact assessment tool not really a planning tool. It only helps in decision changing or validating the plan.
CLARA Planning tool	Excel-based	2011	Planning/decision support	BOKU, Vienna	Water & fecal waste	A simplified sanitation and water supply planning tool that enables the comparison of different water and sanitation systems at a very early planning stage.	Based on assumptions of the cost functions resulting in uncertain-ties of costs. Only allows a limited range of technologies.
Sanitation Decision Support Tool (Akvopedia)	Web-based	2007	Technology choice	Akvo Foundation	Fecal waste	Organises information on different sanitation technologies according to the part of the sanitation value chain they come under.	Only gives information on individual tech-nologies and not on how these technolo-gies can be combined to form a system.

SaniChoice	Web-based	2023	Technology choice	Eawag-OST	Fecal waste	Enables systematic and evidence-based sanitation technology and system selection comparing them to local conditions and different sustainability criteria. Also considers a large range of established and novel technologies.	Comprehensive technology choice tool; considers fecal waste and flush water only. Not yet field-tested.