SaniPlan

A Performance Improvement Planning Model

Approach Paper

Manual Part I

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1. Background

The Government of India launched the Swachh Bharat Mission (SBM) with a goal to promote cleanliness and eliminate open defecation in the country. Very recently the smart cities initiative and Atal Mission for Rejuvenation and Urban Transformation (AMRUT) have also been launched. All these missions aim at providing cities and towns with reliable and improved water supply, sanitation, SWM and storm water drainage services among others. Cities are required to prepare City Sanitation Plan (CSP) and Service Level Improvement Plan (SLIP) to avail funding under SBM and AMRUT respectively. Both the plans quantify improvement in terms of Service level benchmarks (SLB) defined by Ministry of Urban Development (MoUD) in 2009.

The Performance Assessment System (PAS) Project at CEPT University, a grantee of Bill and Melinda Gates Foundation, has been working since 2009 towards developing better information on water and sanitation performance in cities in the states of Gujarat and Maharashtra. As part of the performance improvement component, the project has developed tools and approaches for improvement in water supply, sanitation and SWM (WSS) services. SANIPLAN is one such tool developed to provide a structured approach focused on achieving outcomes in the sanitation sector. In our context, sanitation is linked to availability of water and solid waste management. With this perspective, SANIPLAN looks at the three sectors in an integrated manner and therefore is useful in preparing a SLIP. A finance module is built in for assessment of ULB finances and development of a feasible financing plan for both capital and operating expenditures for improvement proposals.

SaniPlan approach paper is the first part of the three part Manual for SaniPlan. SaniPlan Manual Part 2 is a step by step guide for users which gives an in-depth view of the functioning of the model. SaniPlan Manual Part 3 is an example of how the model works by taking the case of Wai city and wastewater management as the improvement area.

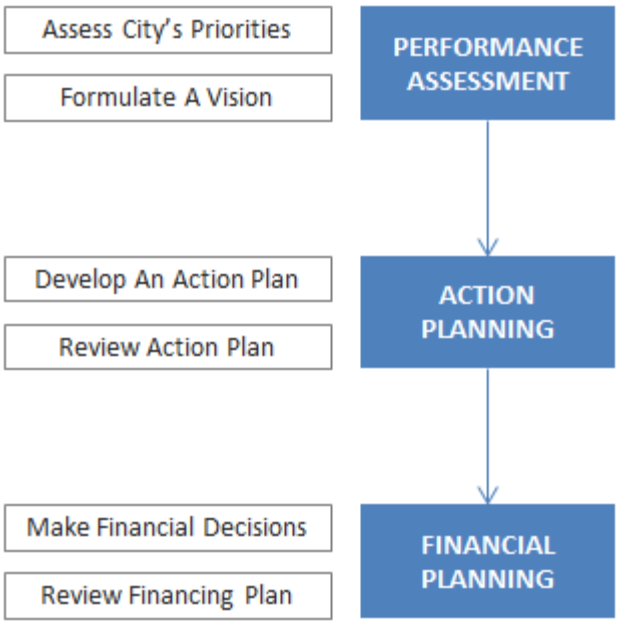
2. The SaniPlan Approach

SANIPLAN is a decision support tool that provides a structured approach to plan for urban sanitation. It focuses on integrated service performance with a detailed assessment of finances, and can support informed stakeholder participation. Based on local priorities users can identify key actions for service improvement, and prepare a financing plan that ensures funding for both capital and operating expenditure.

The SaniPlan model makes it easy for users to assess various options by quantifying the impact of each option on service delivery, revenues and costs and financing requirements. It provides a multi-year planning framework with a focus on improving performance across five service themes: access, equity, service levels and quality, efficiency and financial sustainability. The tool requires standardized baseline information for each sub-sector, and inputs on local finances. The model also provides a multi-year activity plan and a financing plan for both capital and O&M expenditure requirements. Such detailed analysis for different options provides a basis for an informed debate at stakeholders' consultation.

SaniPlan is built around three functional modules:

i. **Performance Assessment** module assesses the entire sanitation service chain: user interface - collection - conveyance - treatment - safe disposal. Service levels are measured through performance indicators developed under the PAS Programme, which align with the Service Level Benchmarks (SLB) used by the Government of India. The performance of the city is measured using information entered by the user. This can be compared with other entities/service providers to formulate a vision, decide priorities and identify possible improvement actions.



ii. **Action Planning** module helps identify actions needed to improve services. Specific actions for data improvement measures, improvement in existing system, building new infrastructure and policy interventions have been built-in. The user can tailor each selected action for phasing, quantum of improvement, capital and operational costs and recreational costs. Impact of selected actions on service levels and municipal finance are shown interactively, enabling users to identify a mix of actions to meet local targets. It becomes a basis for stakeholder review to assess targets and related requirements for implementation capacity and capital/operational financial feasibility. Different scenarios can be developed to target local priorities, e.g. comparing technical options such as onsite versus sewerage systems.

iii. **Finance Plan** module helps to develop a feasible Finance Plan for capital and operating expenditure. Users can choose from different options including grants, private sector or (PPP), household contributions, local government contributions, and borrowings from banks. The Financing Plan is developed through an iterative process with key decisions related to transfers from non-WSS account surplus, level of external loans, and tariff revisions including introduction of new taxes (e.g. a local sanitation tax).

3. Approach to Performance Assessment

Assessment of the existing service is the first step in planning improvement of services. SANIPLAN offers a robust framework of assessment which captures the entire service chain of the three sectors — water supply, sanitation and solid waste management. The framework uses a set of key performance indicators (KPI) that align with the service level benchmarks (SLBs) defined by the MoUD. The KPIs are grouped into the following 4 themes:-

- Access, coverage and equity
- Service levels and quality
- Efficiency in service operations
- Financial sustainability

Additionally, each KPI is broken down into local action indicators (LAIs) that either provide additional information of the KPI and/or suggest local improvement action. For example, the KPI Coverage of Toilets considers households having individual toilets giving an impression that the remaining households don't have access to toilets. However when drilled down into HHs having access to community toilets and those defecating in the open, the LAIs provide the exact magnitude of the problem (open defecation).

Besides benchmarks, it is important to compare a city's performance with its peers as it helps set realistic goals and also gives access to peers that have performed better. Lessons can be learnt from such success stories. This is possible when comparable datasets are available. The performance of each KPI is classified as RED (critical zone), AMBER (risk zone) and GREEN (high performance zone) based on cut-off values for each level. These are determined considering performance of peer cities and agreed benchmarks. SANIPLAN also allows customizing these values for extreme situations.

Table 1 Service level benchmarks of MoUD

Wastewater services	
Coverage of Toilets	100%
Coverage of sewerage network services	100%
Collection efficiency of sewerage network	100%
Adequacy of sewage treatment capacity	100%
Quality of sewage treatment	100%
Extent of reuse and recycling of sewage	100%
Efficiency in redressal of customer complaints	100%
Extent of cost recovery in sewage management	100%
Efficiency in collection of sewage charges	100%

Table 2: Key Performance Indicators (KPIs) in Sanitation Sector

	Sanitation and waste water	
Coverage	Universal coverage of household level services Open defecation free (ODF) city Slum-free city	
Equity		
Service levels and quality	Waste water management plan	Zero discharge city
Efficiency		
Financial sustainability	Financially sustainable service provision by covering O&M costs through local charges and taxes	

Traditionally, increasing access to services has been a major goal of cities. Recently along with access, quality of services, financial and environmental sustainability are increasingly gaining importance. The following table presents the emerging visions for the sanitation sector across various themes. Performance assessment provides a robust framework for evaluating status of services at the city level. This analysis along with field observations should be discussed with all the interested stakeholders. Stakeholders can then prioritize the areas for improvement as well as devise annual and/or five year targets to be achieved.

This model requires input of detailed information of the entire service chain (or the part of the chain for which improvement is being planned). For cities that have been part of the PAS programme, much of these can be imported from the PAS checklist.

4. Approach to Action Planning

Improvement planning is a process that aims to consolidate various dimensions of problem solving into a tangible action plan. SANIPLAN provides a bucket list of more than 110 improvement actions that cover the entire sanitation value chain. These actions include policy and process changes as these are sometimes crucial for the service to function and sustain; data improvement measures to provide reliable information for future interventions, improvement in existing infrastructure along with provision of new infrastructure.

SANIPLAN recognizes that a KPI can be improved through a range of actions and an action is likely to make an impact on more than one KPI, and such links are established in the model.

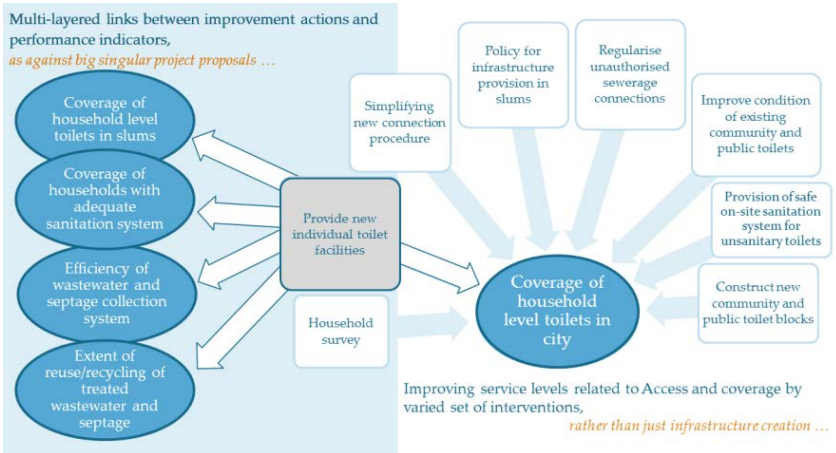


Figure 1: Action - KPI relation

As illustrated in Figure 1, The KPI Coverage of Household level Toilets can be improved through provision of new toilets and 7 other actions. Similarly, Provision of toilets makes an impact on 4 other KPIs including coverage with adequate sanitation, collection

efficiency of wastewater, etc. Table 2 presents the action KPI matrix of access, coverage and equity themed indicators of sanitation.

An action plan is basically a choice of a combination of actions that can lead to the desired improvement in services in the most affordable and sustainable way. This basket of actions evolves through an iterative process and requires consultation with the officials, elected representatives and other stake holders in the city. It is important to understand various alternatives available, preliminary costs and time required to execute to facilitate this consultation.

Each action so selected is designed for a timeline of implementation, capital cost, operating expenses as well as likely revenue generated. The selected actions need to be phased considering that a ULB will not be able to begin execution of all actions at once and some actions need to be completed before others can begin. Local stakeholders may also want to prioritize certain actions over others. The phasing will be a function of logical precedence, priority, cost and affordability as well as its impact.

There are two fundamental impacts of each action; cost and benefit. The cost includes the life cycle cost of the asset created along with the capital cost. The benefit is improvement in service and is measured in terms of improvements in KPIs. SANIPLAN allows going back and modifying actions if the desired impact is not seen.

5. Approach to Finance Planning

To prepare a feasible financing plan, it is important to assess the financial health of the ULB as it should be able to not only contribute its share for capital works but also optimally maintain the new assets. SANIPLAN simulates the impact of improvement actions on municipal finance and helps arrive at a feasible finance plan.

SANIPLAN provides a template for robust analysis of municipal finance. It requires financial information for 5 years (actual for 4years, revised and budgeted estimates for 1 year each). This can be used to identify expenses that need increment and those that can be reduced and subsidization from other sources of revenue. Various financial indicators like operating ratio, capital utilization ratio, dependency ratio, per capita receipts and expenses, etc. help analyze and compare with other cities.

Based on a sound understanding of existing financial health of a ULB, finances for the next ten years can be projected using the historical data. These projections should represent the revenues and expenses the ULB will continue to have without any improvement in service or increase in tariff. SANIPLAN simulates the impact of each improvement action on both capital and operating accounts over these years and presents an integrated picture. One can then choose from various sources to meet the capital and O&M expenses.

A range of sources for funding capital works include central and state government schemes, debt from commercial banks or government agencies like MUINFRA, HUDCO, etc; PPP and ULBs own surplus. Most of the Central and State schemes require ULBs to contribute a share of the capital cost while loans come with repayment obligations. These conditions need to be thoroughly researched to prepare a good financing plan. Public Private Partnerships (PPP) is widely being encouraged and actions where private sector can be invited for investment should be identified. Corporate social responsibility (CSR) is a new source of funding as big corporates are statutorily required to spend a part of their profits for a social cause. Local industries and other benefactors who have stake in city's development can be tapped to meet some costs of improvement.

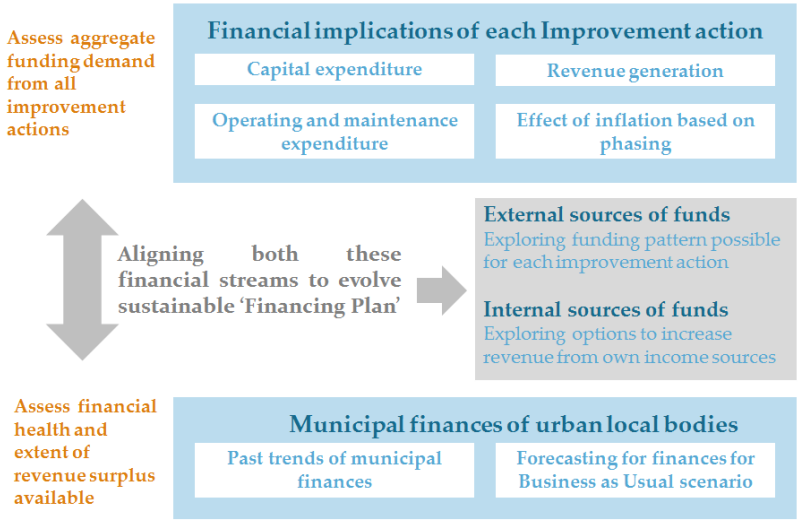


Figure 2: Financial Planning

That ULBs become financially sustainable and levy taxes and/or user charges so as to recover O&M costs has been an important reform of recent urban development programmes. It is therefore imperative that any proposed investment plan includes ways to recover O&M costs. Besides meeting operating expenses, the ULB is required to keep sufficient surplus to meet repayment obligations in addition to its committed capital expenses.

SANIPLAN provides alternatives to levy and/or increase user charges for sanitation services. It allows the ULB to choose the base and rate for each new tax that they can levy. It also allows revisions in property tax. SANIPLAN highlights when the operating expenses (incl. debt servicing) are not met so that users can proceed to make arrangements.

It is important to understand that financial planning is an iterative process and the capital and revenue accounts are interlinked. For example, revenue surplus can be used for capital expenses or mobilization for capital expenditure through borrowings requires planning for debt servicing and therefore reflected in revenue account of following years, so on and so forth.

6. Comparing Options

SANIPLAN dashboards enable easy selection and comparison of a set of options during a stakeholder consultation. Each scenario so developed will vary according to priority, technical alternative, financing mechanism, etc. and corresponding outcomes in terms of improvement in service, capital expenditure, impact on tariffs, etc. In the dashboard seen below, users can choose across: a) toilet coverage, b) conveyance regime c) treatment technology and d) financing mechanism. The dashboards compare their impacts on a) expenditure requirements, b) service performance, and c) financial implications.

The graphic illustrates such a comparison for on-site systems - between Sludge Drying Bed (SDB) and Sintex Package Treatment Plant - for a small town; though similar levels of service can be achieved in both options, the SDB option comes out as expensive, with high life cycle costs, and needing high tariffs.

Sanitation options for comparison

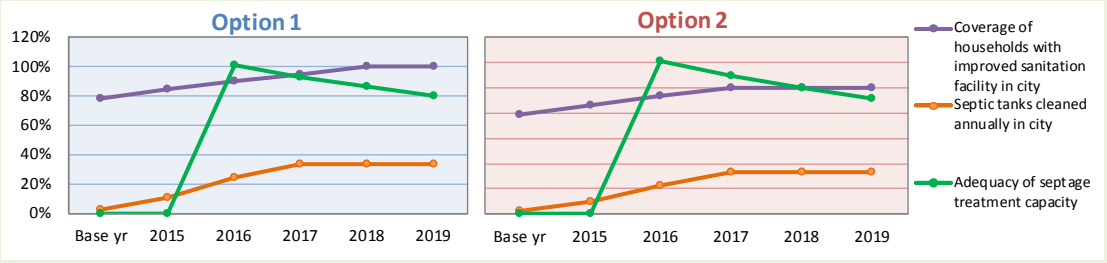
Create your options by selecting appropriate mode to improve coverage of toilets, wastewater management and financing mechanism

	Option 1	Option 2	
Select Toilet option	Individual toilets	Individual toilets	Select Toilet option
Select Conveyance regime	Regulated- 3 yrs	Regulated- 3 yrs	Select Conveyance regime
Select Treatment technology	SDB	Sintex Package treatment Plant	Select Treatment technology
Select financing mechanism	Innovative finance	Innovative finance	Select financing mechanism

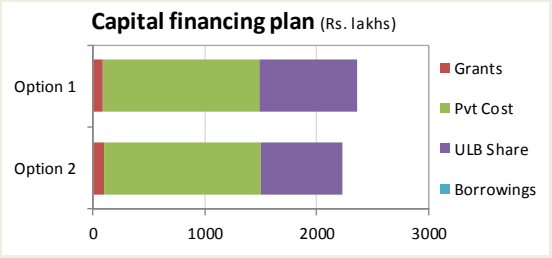
	Option 1	Option 2
Toilet	Individual toilets	Individual toilets
Conveyance	Regulated- 3 yrs	Regulated- 3 yrs
Treatment	SDB	Sintex Package treatment Plant
CapEx	2161.59	2177.36
O&M	19.91	29.15

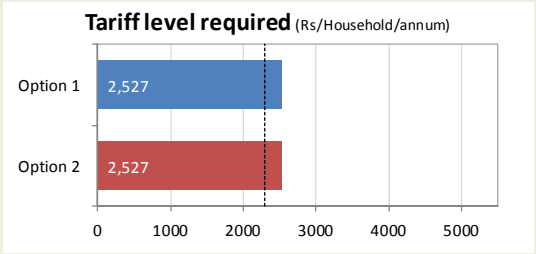
All figures are in Rs. Lakhs

Impact on service levels



Financial implications





Summary of Action plan

Select mode: CAPITAL EXPENDITURE

Option 1	2015	2016	2017	2018	2019
Improve existing individual toilets	168.5	180.3	-	-	-
New individual toilets	292.8	313.2	335.2	358.6	383.7
Increase septage collection with	0.7	0.7	0.8	-	-
New suction emptier trucks	10.0	10.7	11.4	-	-
Fecal sludge treatment plant	95.0	-	-	-	-

Option 2	2015	2016	2017	2018	2019
Improve existing individual toilets	170.3	182.2	-	-	-
New individual toilets	292.8	313.2	335.2	358.6	383.7
Increase septage collection with	0.7	0.7	0.8	-	-
New suction emptier trucks	10.0	10.7	11.4	-	-
Fecal sludge treatment plant	107.0	-	-	-	-

7. Examples of Usage of SaniPlan

SaniPlan is an integrated and comprehensive model that can assist in achieving broader objectives like preparing a City Sanitation Plan for a city and in guiding specific purposes like the financial planning for a project. A focussed approach can also be taken by concentrating on definite themes like making a city ODF. Additionally, inter-sectoral links like impact of augmentation of water on waste water generated are also established in the model. Hence it is a flexible model which gives one the opportunity to assess performance, assess implications of action plans and arrive at a financially feasible plan for implementation of action plans.

This approach and tool has been used to support improvement planning in more than 20 cities in Maharashtra, India by the CEPT team as well as other consultants. Test applications of this approach and the **SaniPlan model** in selected cities in Gujarat and Maharashtra have provided valuable feedback for constant improvisation. In Gujarat, this model has been tested on field in 2 cities. In 15 cities in Maharashtra, Performance Improvement Plan reports were prepared with the help of SaniPlan. City Sanitation Plans were also prepared for Wai and Sinnar, cities in Maharashtra with the use of SaniPlan Model.

The model also assisted other organizations for field testing. For example, IDECK (Infrastructure Development Corporation Karnataka) used the model for field testing in 4 cities of Karnataka.

SaniPlan model has found its use outside India as well. It has been included in the Fecal Sludge Management (FSM) Toolbox developed by Asian Institute of Technology (AIT). The model in the AIT toolbox assists in assessing the current FSM situation in a city and in understanding the technology options available to a city.