



Operation and Maintenance for WinS – Introducing a Costing Tool

Agenda

- WinS within the SDGs, Targets and Indicators – What does it take to reach them?
- O&M Concept for Wins: Use it! Clean it! Maintain it! – Introducing a tool to estimate cost for O&M
- SBM for WinS – Management Matters

SDG target for Wins

Drinking water

Advanced service

To be defined at national level

Basic service

Drinking water from an improved source is available at the school

Limited service

There is an improved source (piped water, protected well/spring, rainwater, bottled water), but water not available at time of survey

No service

No water source or unimproved source (unprotected well/spring, tanker-truck surface water source)

Sanitation

Advanced service

To be defined at national level

Basic service

Improved facilities, which are single-sex and usable at the school

Limited service

There are improved facilities (flush/pour flush, pit latrine with slab, composting toilet), but not sex-separated or not usable

No service

No toilets or latrines, or unimproved facilities (pit latrines without a slab or platform, hanging latrines, bucket latrines)

Hygiene

Advanced service

To be defined at national level

Basic service

Handwashing facilities, which have water and soap available

Limited service

Handwashing facilities with water, but no soap

No service

No handwashing facilities at the school or handwashing facilities with no water

SDG Target

All schools should reach Basic WASH Service by 2030

Basic drinking water

Drinking water from an **improved** source is **available** at the school

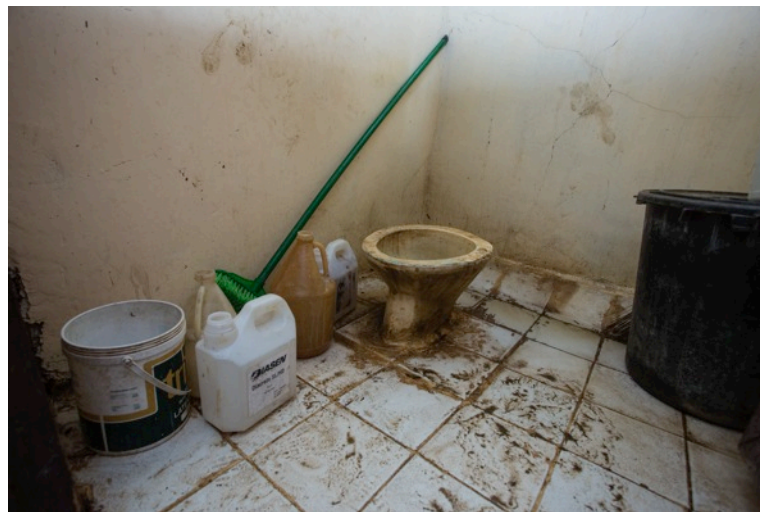
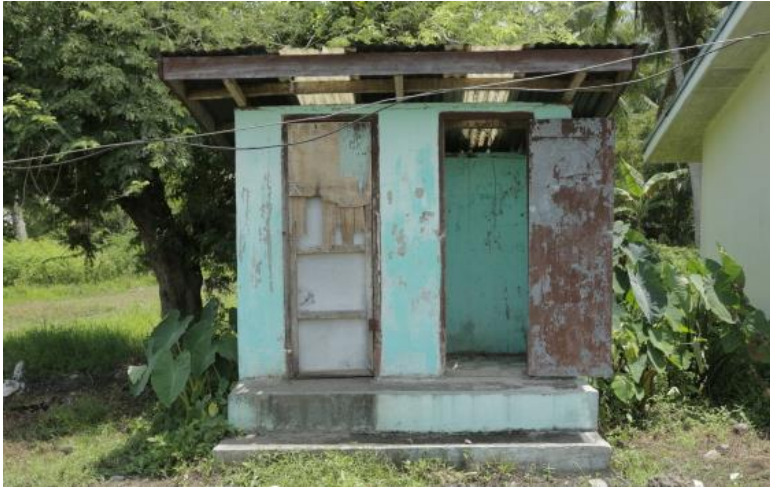
Basic sanitation

Improved facilities, which are single-sex and usable (**accessible, functional, private**) at the school

Basic handwashing

Handwashing facility with **water and soap** at the school

SDGs and Reality – O&M is a management task for the school



O&M – essential to sustain functionality



Cost for O&M depends on type of facility



Type of toilet impact on Cost for O&M



Photo Credit: Mohini Venkatesh

How do Infrastructure standards influence resources needed for O&M?

Water	Pond	Borehole with electric Pump	Piped
O&M Costs	\$	\$\$	\$\$\$
SANITATION	Pit latrine	Pour Flush	Cistern Flush
O&M Costs	\$	\$\$	\$\$\$
HYGIENE	Tippy tap	Washalot	Basin and faucet
O&M Costs	\$	\$\$	\$\$\$

Calculating Costs for O&M

What do count in?

- This costing framework calculates the cost for a **desired O&M status**.
- The tool helps to calculate and plan for cost
- Cost estimation is the base for **budget allocation and resource mobilization**.



What are the cost to keep WinS running?

- The presented costing tool is intended to define the need and calculate the cost for O&M.
- The calculations are based on the assumption that the infrastructure is functional, one toilet / 50 students and access to water is given. **Major, unpredictable repairs are not part of this planning tool.**
- Cost depend on local setting with huge variety even within countries
- Government funds for O&M are allocated per school based on number of children and vary between countries

WinS O&M Cost Calculation - in response to SDGs and National Guidelines

Categories	Needs / Input
WATER	
For drinking	1 Liter drinking Water per Day / Student
For Cleaning and hygiene	5 Liter per Day / Student
SANITATION	
Cleaning	Materials & Labor
Simple Maintenance	
HYGIENE	
Consumables	200g Soap / Student / per year

Cleaning and Maintenance – what does it take?



Tools

**Communal
and Cubical**

**Cleaning
agent**

**Labor for
Cleaning**

User's Kit, Cleaning and Maintenance kit

Interviews, observation and focus group discussion resulted to identification of these kits:

- **Toilet user's kit**: soap, toilet brush, dipper or bucket and trash bin
- **Cleaning kit**: floor brush, sponges with and w/out scrub, broomstick, hand gloves and face mask, cleaning agent
- **Simple maintenance kit**: toilet pump, pipe wrench, hammer, Teflon Tape $\frac{3}{4}$ ", sealing agent and hook locks

Toilet user's Kit - 6 \$ per cubicle/ year



Cleaning Kit – 30\$ per toilet block = 10\$ per toilet cubicle/ year



Cleaning kit: Cleaning agent – 15\$ - 25 \$ /
toilet / year



Maintenance Kit – 9 \$ / toilet / year



Base for calculation: cleaning cubicle / year

Tools needed		
Communal Area with 3 toilet cubicles	1 Floor Brush 2 Brooms 1 Bucket 10 Sponge	17 \$
	5 x Hand Gloves 50 Face Masks	13\$
Partial for 1 Cubical		10 \$
Additional per cubicle	1 Trash Bin 1 Toilet Brush 1 Dipper/ Mug	6 \$
TOTAL		16 \$

Base for calculation: cleaning per cubicle/ year

Cleaning agent/ bleach	<ul style="list-style-type: none"> • 30 ml for inside of toilet bowl • 35 ml diluted to water for cleaning other surfaces and fixtures for toilet block • (65 ml x 200 days = 13 l) 	<p>Average price per liter 1,80 \$ =</p> <p>23 \$</p>
LABOR		
Janitor	<ul style="list-style-type: none"> • Salary 2000 USD a year. • 50% of time on cleaning toilets • Responsible for 6 cubicles 	<p>2000USD/year x 50% / 6 cubicles =</p> <p>166 \$</p>

What is needed to **keep a toilet clean** and how much does it cost per cubicle /year

<i>Costs per Year (Cleaning 1 Cubical)</i>	
Tools	16 \$
Cleaning agents	23 \$
Total Materials	39 \$
Labor	166 \$
TOTAL	205 \$

What is needed for maintenance?

Maintenance Costs per Cubical

Toolbox & Materials	9 \$
Labor	16 \$
Desludging service	7\$
TOTAL	30 \$



Base for calculating maintenance

.....		
Repair tool box for School* / communal toilet	Toilet Pump Pipe Wrench Hammer Screw Driver	21 \$
	Hook locks Sealing agent Teflon tape Pipes Paint Taps	6 \$
Total		27 \$
Partial for 1 Cubical ($27\$: 3 \text{ cubicles} = 9\$$)		9 \$
Labor per cubicle	5% of time on maintaining toilets, responsible for 6 cubicles	16 \$
TOTAL		25 \$

Example to calculate cost for **O&M Sanitation** per Year / per cubicle / per student

TOTAL COST: Sanitation		Ratio	Cost/ Student
Cleaning materials	39 \$	/ 50 Students	Materials: 1.10 USD Labor: 3.60 USD TOTAL: 4.70 USD
Maintenance materials	9\$		
Disludging services	7\$		
Total Materials & Supply	55 \$		
Labor for cleaning	166 \$		
Labor for simple maintenance	16 \$		
Total labor	182 \$		
TOTAL	237 \$		

O&M cost per child per year

WATER			
For drinking	1 Liter drinking Water per Day / Student (huge variation in cost)	0,12 \$	0,70 \$
For Cleaning and hygiene	5 Liter per Day / Student	0,60 \$	
SANITATION			
Materials	Materials & Labor	1.10 \$	4,70 \$
Desludging services			
Labor		3,60 \$	
HYGIENE			
Consumables	200g Soap / Student	0,60 \$	
Total		6 \$ 2.40 \$ (excl. labor)	

Resource Mapping within School community



Possible Resource Mapping

WATER		Resource Mapping	
For drinking	huge variation	0,70 \$	Depending context
For Cleaning and hygiene	0,60 \$		Water bill is paid by local Government
SANITATION			
Materials	1.10 \$	4,70 \$	Community supports with cleaning materials
Labor	3,60 \$		Parents clean free of charge. Local plumber supports schools
HYGIENE			
Consumables		0,60 \$	Students bring supplies from home
Total		6 \$ 2.30 \$ (excl. labor)	Per Student/Year

Checklists support developing Routine



Transparent responsibility for supervision

Toilet Checklist

Supervising Teacher: Maria de Guzman

Week: 25

Toilet Cleaned			
	Time	Name and Signature	Remarks
Monday	3:13 pm	Edward Dy	Faucet cannot be fully closed and leaking
Tuesday	3:05 pm	Lovely Reyes	Some toilets were not flushed
Wednesday	3:34 pm	Ryan Dinlayan	OK
Thursday	3:10 pm	Lani Grace Chavez	No water. Faucet under repair. Need fetch.
Friday	3:19 pm	Edwin Crusio	OK

Hygiene Patrol (yes/ no)								
		Water available	Soap available	Trash bin available	Toilet brush available	Dipper / bucket available	Name and Signature	Remarks
Monday	AM	Yes	No	Yes	Yes	Yes	Mac Escudero	New soap made available
	PM	Yes	Yes	Yes	Yes	no Dipper	Mac Escudero	Dipper missing.
Tuesday	AM	Yes	Yes	Yes	Yes	Yes	Ellen Nobi	Water leaking

- Regular visual inspection by school head and teachers
- Assignment of supervision areas
- Routine checklist and SOP for Cleaning and Maintenance

Cleaning following Standard Procedure



Budget for O&M – take home message

- Type of infrastructure determines O&M cost
- Keeping a toilet usable (clean and functional) takes 30\$ - 50\$ / year
- For immediate 'problem solving', resource mapping within school community (not sustainable)
- Strong advocacy needed for long term solution: Allocation of sufficient budget for O&M within government systems

Management of O&M – take home message

- O&M is essential but totally under-rated!
- Cleaning and Maintenance is at least of same importance as innovation and new construction
- Transparent assignment or areas of supervision / responsibility is of utmost importance



Thank you



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