



Managing Operation and Maintenance – what does it take to reach the SDGs for WASH in Schools?

Dr. Bella Monse & Ing. Ubo Pakes



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
- The development of the O&M Costing Tool App
- Q&A Session

SDG target for Wins

Drinking water

Sanitation

Hygiene

Advanced service

Additional criteria may include quality, quantity, continuity, and accessibility to all users

Advanced service

Additional criteria may include student per toilet ratios, menstrual hygiene facilities, cleanliness, accessibility to all users, and excreta management systems

Advanced service

Additional criteria may include hygiene education, group handwashing, menstrual hygiene materials, and accessibility to all users

SDG Target

Basic service

Drinking water from an improved source is available at the school

Basic service

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

Basic service

Handwashing facilities, which have water and soap available

Limited service

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

Limited service

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

Limited service

Handwashing facilities with water, but no soap

No service

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

No service

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

No service

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

All schools should reach Basic WASH Service by 2030

Basic drinking water

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

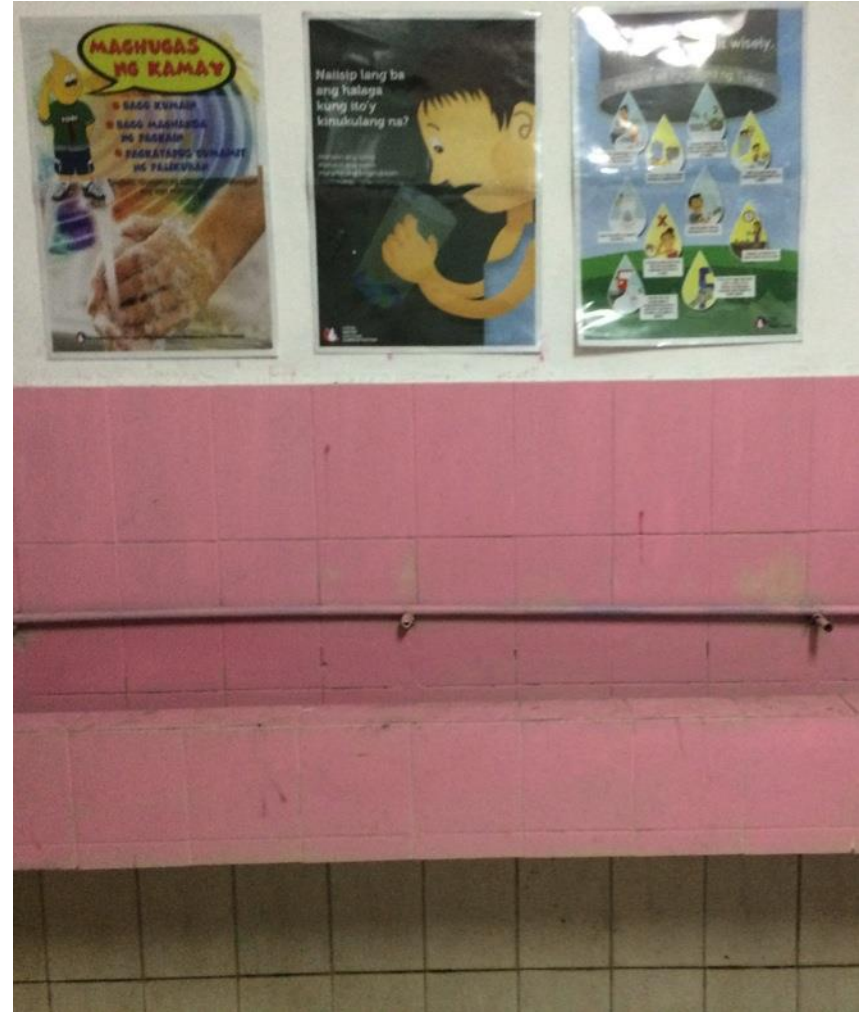
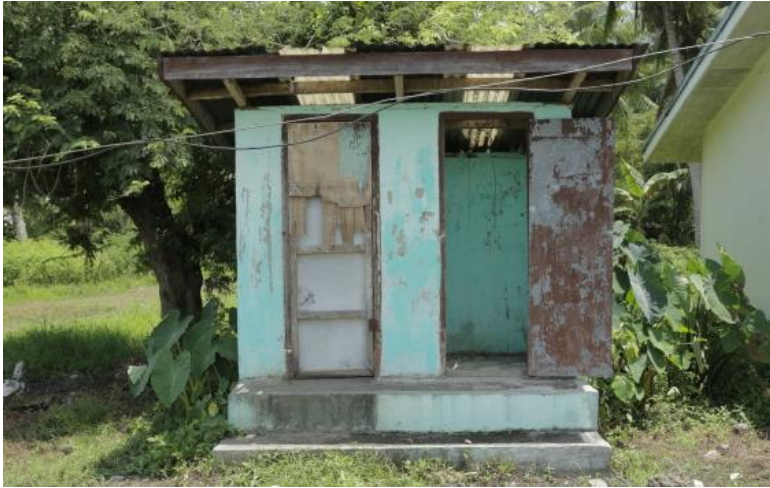
Basic sanitation

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



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 to 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 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	
User Kit	Materials
Cleaning kit	
HYGIENE	
Consumables	180 g Soap / Student / per year

Cleaning and Maintenance – what does it take?



Tools

**Communal
and Cubical**

**Cleaning
agent**

**Labor for
Cleaning**

User kit and Cleaning kit

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

- **User kit**: 1 trash bin, 1 toilet brush, 1 dipper/mug
– sufficient for the usage of 1 toilet cubicle for one year
- **Cleaning kit**: 1 floor brush, 2 brooms, 1 bucket, 10 sponges, 5 hand gloves and 50 face mask
– sufficient to regularly clean 3 toilet cubicles for one year

User Kit - 6 \$ per cubicle/ year



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



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



Maintenance Kit – 9 \$ / toilet / year



Base for calculation: User kit / Cleaning kit per year

Tools needed (replenishment recommended once a year)		
User kit per cubicle	1 Trash Bin 1 Toilet Brush 1 Dipper/ Mug	6 \$
1 Cleaning kit for 3 toilet cubicles	1 Floor Brush 2 Brooms 1 Bucket 10 Sponge	17 \$
	5 x Hand Gloves 50 Face Masks	13\$
For 1 Cubical		10 \$
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)	Average price per liter 1,80 \$ = 23 \$

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

Costs per year (Cleaning 1 Cubical)

Materials for user kit	6 \$
Tools for cleaning kit	10 \$
	16 \$
Cleaning agents	23 \$
Total Materials	39 \$

O&M cost per child per year

WATER			
For drinking	1 Liter drinking Water per day / Student (huge variation in cost)	0,12 \$	0,72 \$
For cleaning	5 Liter per day / Student	0,60 \$	
SANITATION			
Materials	User kit per cubicle / year	0,12 \$	0,79 \$
	Cleaning kit per cubicle / year	0,20 \$	
	Cleaning agent / bleach per cubicle / year	0,47 \$	
HYGIENE			
Consumables	180 g Soap / Student	0,50 \$	
Total		2,01 \$	

Resource Mapping within School community



Checklists support developing Routine



Transparent responsibility for supervision

Toilet Checklist

Supervising Teacher: Maria de Guzman

Week: 25

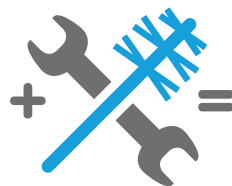
Toilet Cleaned			
	Time	Name and Signature	Remarks
Monday	3:13 pm	Edward Dy	Faucet cannot be fully closed and leaking
Tuesday	3:05 pm	Lovely Reyes	Some toilets were not flushed
Wednesday	3:34 pm	Ryan Dinlayan	OK
Thursday	3:10 pm	Lani Grace Chavez	No water. Faucet under repair. Need fetch.
Friday	3:19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







O&M
CALCULATE
THE COST





O&M
CALCULATE
THE COST

ENTRY

RESULTS

SETTINGS

WELCOME // PLEASE ENTER YOUR DATA

YOUR SCHOOL

- Name of country
- Name of school
- Location of school

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RESULTS

SETTINGS

SCHOOL CHARACTERISTICS // BASIC

- | | |
|------------------------------------|-----------------------------------|
| • Number of students | <input type="text" value="1600"/> |
| • Days of school per year | <input type="text" value="200"/> |
| • Number of toilets cubicles/units | <input type="text" value="25"/> |

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O&M
CALCULATE
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SETTINGS

SCHOOL CHARACTERISTICS // DRINKING WATER SUPPLY

- Piped water supply ☐
- Protected well/spring ☐
- Rainwater ☐
- Unprotected well/spring ☐
- Packaged bottled water ☐
- Tank-truck or cart ☐
- Refill drinking water station ☐
- No water source ☐
- Other

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O&M
CALCULATE
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COSTS // WATER SUPPLY

- 1 cubic meter of drinking water ⓘ
- 1 cubic meter of cleaning water ⓘ

0,60 \$ ▼

0,60 \$ ▼

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O&M
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SETTINGS

COSTS // WATER SUPPLY

- 1 cubic meter of drinking water 

0,60 \$ ▼

ADDITIONAL INFORMATION

Drinking water per student per day (in liters). 1 liter per child per day x 200 school days = 200 liter per child per school year

Source: Guidelines for Drinking-water Quality. Vol 1: 3rd ed. (WHO, 2004)

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0,60 \$ ▼

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0,60 \$ ▼

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O&M
CALCULATE
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SETTINGS

COSTS // SANITATION SUPPLY

- | | |
|--|------------|
| • Toilet user kit  | 6,00 \$ ▾ |
| • Cleaning kit per toilet block  | 30,00 \$ ▾ |
| • 1 liter of cleaning agent/bleach  | 1,80 \$ ▾ |

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COSTS // SANITATION SUPPLY

- Toilet user kit 
- Cleaning kit per toilet block 
- 1 liter of cleaning agent/bleach 

ADDITIONAL INFORMATION

Cleaning agent/bleach to clean one toilet cubicle/unit per year (in liters). 30 ml for inside of toilet bowl + 35 ml diluted to water for cleaning other surfaces and fixtures for toilet block = 65 ml
* 200 school days = 13 liters



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COSTS // HYGIENE SUPPLY

• 1 roll of toilet paper (400 sheets) 

\$ ▾

• 1 soap bar (100 g) 

0,25 \$ ▾

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O&M CALCULATE THE COST

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RESULTS // COSTS FOR O&M

	Per unit	Total per school year	Per student per school year
WATER SUPPLY			
• Drinking Water (in liters)	0,0006 \$	192,00 \$	0,12 \$
• Cleaning Water (in liters)	0,0006 \$	960,00 \$	0,60 \$
SANITATION SUPPLY			
• Toilet user kit	6,00 \$	192,00 \$	0,12 \$
• Cleaning kit	30,00 \$	320,00 \$	0,20 \$
• Cleaning agent/bleach (in liters)	1,80 \$	748,80 \$	0,47 \$
HYGIENE SUPPLY			
• Toilet paper (per roll)	– \$	– \$	– \$
• Soap bar (100 g)	0,25 \$	800,00 \$	0,50 \$
TOTAL		3.212,80 \$ ▼	2,01s \$ ▼

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Management of O&M – take home message

- O&M is essential but totally underrated!
- 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
- Type of infrastructure determines O&M cost
- Keeping a toilet usable (clean and functional) takes 30\$ - 50\$ / year
- Strong advocacy needed for long term solution: Allocation of sufficient budget for O&M within government systems



More ressources



WASH IN SCHOOLS OPERATION AND MAINTENANCE MANUAL
2017.PDF (2.05 MB)



This manual supports schools with practical approaches on how to improve usability of school toilets.

Download:

<http://www.fitforschool.international/resource/wash-in-schools-operation-maintenance-manual/>

Thank you



www.fitforschool.international

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