

# Life cycle cost analysis for Splash school interventions in Addis Ababa, Ethiopia

Final Report - summary

28<sup>th</sup> October 2019

## Executive Summary

[Addis Ababa Education Bureau](#), supported by [Splash](#) have set themselves the task to supply all 483 government schools in Addis Ababa with safe water, good sanitation and good hygiene services, based on the model that Splash has developed worldwide.

Splash has partnered with IRC WASH to understand the life cycle costs of these interventions. The Life Cycle Cost Approach (LCCA) captures the costs/expenses that are needed to keep services running.

This report and findings are based on data and information collected in 2019 through interviews with stakeholders, Splash staff and a survey of 40 schools of sites where interventions have taken place.

The initial investment, or capital expenditure (CapEx) was found to be ETB 886 (USD 29.5) per student. Of this, 86% is regarded as hardware intervention (CapEx hardware) and 14% CapEx software such as mobilisation and awareness raising. The bulk of the capital investments go towards sanitation (60%), followed by drinking water (33%) and hygiene (6%).

In order to raise WASH in schools service provision to a basic level as per the Joint Monitoring Programme (JMP), it was found that additional storage tanks to supply water for both hygiene and sanitation are needed to solve the problem of intermittent piped water supply. This would require an additional 4% CapEx investment.

In response to intermittent water supply at many Addis schools, Splash recently increased their standard for water storage to require a minimum of three days of water storage volume. A single day's water storage requirement is defined as nine liters per person per day for a non-residential school. These changes did not apply to the schools surveyed by IRC during this analysis, but will be applied to all Splash schools in Addis as part of Project WISE (and retroactively applied to schools where Splash has worked in the past).

Once the services are in place, they need to be kept operational. The recurrent expenditure (those that take place each year) was currently found to be ETB 185 (USD 6.2) per student, or roughly one fifth of the capital expenditure (CapEx). Again, sanitation is the largest cost center, covering 63% of the recurrent expenditure, but hygiene has a higher maintenance cost than drinking water (at 23% as opposed to 14%).

The operational costs (OpEx) include the water bill (both drinking water and hygiene), soap costs, but also costs for the janitors (salary) and their protective gear (gloves, closed shoes, uniform) – which was relatively high, forming 29% of OpEx. Capital Maintenance Expenditure (CapManEx) is the single greatest expense - predominantly emptying the pits (24%). The expenditure on direct support is largely Splash staff costs (96%), and the

remainder 4% monitoring and support from staff at decentralised levels. See Table 1 below for details.

**Table 1 Recurrent cost per school summary table**

	Item	Median per school	Median per student	Percentage	Costs
<b>Water</b>	OpEx	9,450	9	5%	Water bill, filter, taps
	CapManEx	5,221	5	3%	Pipe, filter, tank repairs
	ExpDs	13,768	13	7%	Monitor visits, support
	<b>Sub-TOTAL</b>	<b>28,439</b>	<b>26</b>	<b>14%</b>	
<b>Sanitation</b>	OpEx	97,784	90	49%	Toilet paper, protective gear, janitor salary
	CapManEx	14,658	13	7%	Repairs, pit emptying
	ExpDs	13,768	13	7%	Monitor visits, support
	<b>Sub-TOTAL</b>	<b>126,210</b>	<b>116</b>	<b>63%</b>	
<b>Hygiene</b>	OpEx	31,606	29	16%	Part water bill, soap
	CapManEx	1,425	1	1%	Tap repair
	ExpDs	13,768	13	7%	Monitor visits, support
	<b>Sub-TOTAL</b>	<b>46,799</b>	<b>43</b>	<b>23%</b>	
<b>Total</b>	OpEx	138,840	128	69%	
	CapManEx	21,303	20	11%	
	ExpDs	41,305	38	21%	
	<b>TOTAL</b>	<b>201,448</b>	<b>185</b>		

Note: Cost is calculated based on day students. Students from evening classes are not included

Considerations for the Splash team include:

#### **On Water**

- Water quality is at the heart of the Splash intervention; therefore, it would be good to have results of the water quality from before the intervention/filter systematically shared with schools, AAEB, woreda and sub-city.
- Water tariffs are set to go up yearly. Monitoring usage can lead to considerable budget savings by keeping consumption levels under the higher tariff threshold.

#### **On sanitation:**

- Splash has achieved admirable experience in providing safe water and promotion of hand washing. However, relatively limited experience has been accumulated with sanitation. As consequence, innovation and possible cost reductions have not yet taken place. Sanitation represents 60-80% of expenditure and should therefore be the focus of innovation and standardisation as most (financial) savings can be achieved there<sup>1</sup>.
- Current sanitation intervention focusses mainly on improving facilities, but do not yet solve challenges such as intermitted water supply at toilets or looking at proper Faecal Sludge Management.

<sup>1</sup> Splash and Stantec (an international engineering consulting firm) are currently working to create an improved, standardized sanitation design that will be used for all new sanitation facilities that are completed as part of Project WISE. This design includes considerations for Addis' intermittent water supply and proper faecal sludge management

- Toilet paper is only made available for teachers. If it would be made available to students, and additional support would be given to ensure that emergency menstrual hygiene material would be made available, recurrent expenditure would go up to ETB 468 (USD 15.6) per student, nearly three times higher.

### **On Hygiene**

- The role of janitors must be given greater attention in the programme and planning. They are the ones cleaning the toilets, noticing poor hygiene behaviour and typically have many years of experience working at the same school. It is recommended to make them key players in the behaviour change campaign, including increasing their visibility, recognition and status<sup>1</sup>.
- Hand washing units and the sanitation units are dependent on an intermittent water supply. This is considered a big gap in providing good continuous WASH services, as flushing becomes impossible, cleaning is difficult, and handwashing is done less. Informal communication from AAWASA indicated that there may be a project initiated to support storage tanks at schools. Improvements recently made to Splash's water storage standards should help ensure that handwashing and sanitation units have more consistent access to water supply in the future.

### **On School support**

- Schools with evening classes have less functionality (62% versus 85% for handwashing). SPLASH should discuss with the school administration how these evening activities influence the WASH facilities and consider specific hygiene sensitisation. Evening/night classes are common (40%) with on average 590 students and attract significantly more female students (66% versus 52% for normal school).
- Together with helping partner sites set up maintenance funds Splash could consider discussions on tracking WASH-specific expenditure. The tools of the current study may provide a basis for this. The general budgeting format of schools in Addis is well developed and has clear and publicly available budget lines. However, the lack of WASH-specific budget and expenditure lines may pose a challenge if schools are to budget sufficiently for maintenance.
- Capacity supporting initiatives need to include Woreda and Sub-city staff in their planning and recognise that they are the key support to WASH in schools.
- Schools currently work on ad-hoc basis for repairs and maintenance. Using asset management principles could guide the budgeting and control expenses. It may be considered to trial this at a few schools.

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<sup>1</sup> Over the last year, Splash has conducted formative research in Addis to understand the work environment and motivations of school janitors. Splash is launching a pilot training program in 2019 for school janitors and plans to use the results to inform a janitor training program for all Project WISE schools.