

**Reconnaissance Survey for School WASH
Program in Kandy District**

Central province

Draft Report

Ravi Pieris, 2023

Report of the Reconnaissance Survey for School WASH Program in Kandy

Ravi Pieris,

Summery

Reconnaissance survey for School WASH Program in Kandy had covered four schools assigned; which included 3 government schools and one government approved education institute,

The objectives of the study as assigned by the TOR were; assess the potential and technical feasibility of RWH or Ground Water Recharge at each site; Identify requirements of installations at each site. And identify possible contributions from the schools for implementation of mentioned activities.

In addition to above given objectives, a brief situation review on Toilet sanitation and MHM which become integral components of the WASH also conducted where relevant.

All four schools assigned were having been visited during the month of August and details of the visit and contacts are attached at the end of this report.

This report includes observation organized under several topics and at the end priority given to schools and needs of installation at each site.

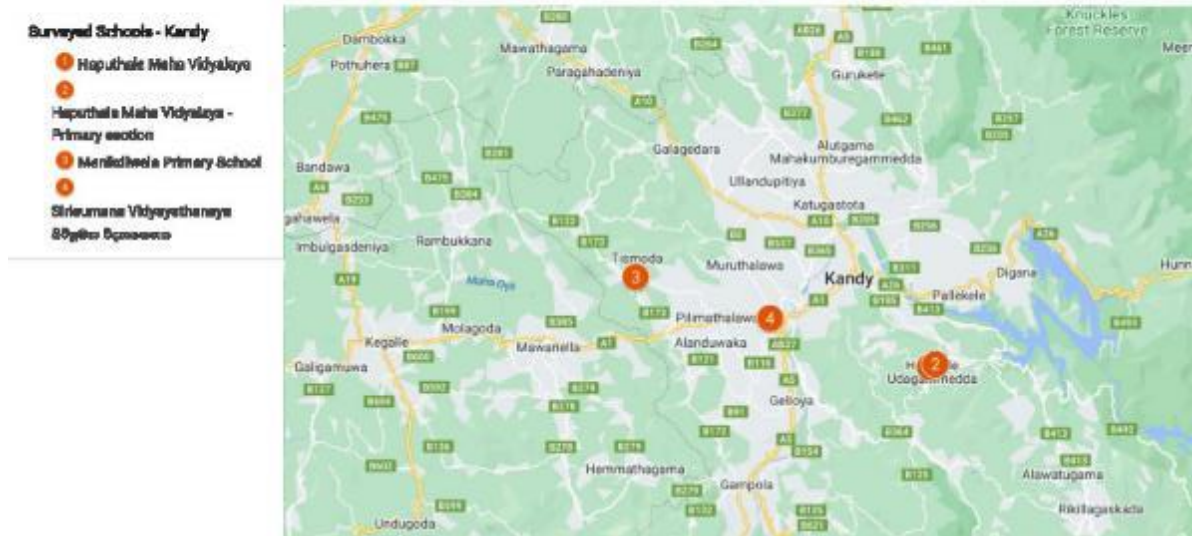
Recommendations:

Based on the reconnaissance survey of four above said schools, two schools selected as suitable for implementing RWH, Namely Manikdiwela Primary Schools, and Primary section of the Haputhale maha vidyalaya, at Siri Sumana Vidyayathanaaya, construction works at the proposed site building construction work still no completed, and not able to evaluate site until construction finished and soil establishment works finished.

Groundwater Recharge; no potential site had been identified, only one school is using well water (Haputhale Maha Vidyalaya), but they do not enthusiastic about the idea,

Map of the surveyed schools

Reconnaissance Survey for School WASH Programme-



1. Haputhale Maha Vidyalaya, Thalathuoya.

Location: Map,



Figure 1 SatMap of Haputhale Maha Vidyalaya

Table 1 School Statistics, Haputhle MV

School Name	Haputhale Maha Vidyalaya		
Language Medium	Sinhala		
Classes	6-13		
Education Zonal	Patha Hewaheta (Thalathuoya)		
Number of Students :	Male	Female	Total
Primary Section (1-5)	-	-	-
Secondary (6-11)	112	112	224
Advance Level (12-13)	3	12	15
Total Students	115	124	239
Number of Teachers	10	29	39

School is located in the Ethulgama road, Thalathuoya, some 4km away from the Thalathuoya town, and it is surrounded by paddy / vegetable lands.

Students from several villages in the neighborhood, who could not enroll in reputed schools in the area attending here, livelihood of parents include both agriculture and salaried employees.

Water sources and the issues:

- The school is located within the IM3c agro climate zone and experiences prolonged dry months from February to April and then Mid May up to the end of September.
- Most of the local people have own dug wells in addition to the pipe supply by the Pradeshiya Sabhawa
- Dug wells in hill slopes dries during the prolonged dry spell,
- and those wells dig in lowling paddy/ vegetable fields not suitable for consumption due to contaminants which gives brownish color,
- Pradeshiya sabha water supply scheme unable to supply to the demand during dry spells and schedule supply to just few hours every 2-3 days and
- Hence majority with heavy water scarcity used to buy bulk water supplies from water tankers, which cost about 7000 rupees per tanker.

Schools Water need:

1. Drinking Water; only a fraction of students bringing drinking water from home, and school always trying to provide clean and adequate drinking water, and hence maintaining an inline water filtering system too, currently they consume about 1000 lt/ day.
2. Water for sanitation, toilet cleaning, currently they pump about 2000 lt/day
3. Water for watering garden, flowers

Currently there are two water sources to the school:

1. Piped water supply by the Pradeshiya Sabhawa; school has a large capacity tank (10, 000 lt), that used to stock water from this supply for drinking purpose only.
2. Water for sanitation and gardening; Recently school has dug a well some 100m away from the school in a private paddy land with the assistance from the Sri Dalada Maligawa, water pumped form that well is brownish in color and only suitable for gardening, but during dry spells when Pradeshiya Sabha Water supply going down, well water switching to toilet supply tanks
3. In addition to above functioning water sources, there is a abandoned dug well, which dried out some ears back and now keep covered with concrete slabs, It become dry since paddy cultivation in the adjoining land discontinued,

Water Issues:

1. Drinking water supply (Pradeshiya Sabha Water Supply); uncertain not adequate supply during dry months (February - March, Mid may- September)
2. Water for Sanitation and Gardening (Pumping from a dug well); Muddy (Brown) color, scaling in toilets when used for prolonged time.

Actions taken to mitigate water issues:

1. Storing enough drinking water for several days in a large tank
2. Digging two wells; one in the school yard now dried out and abandoned, Water in the one built later in a private paddy land is muddy color.
3. Filtering of muddy water; not feasible, filters clogging within a few days.
4. Planning to get a deep tube as well as no other viable solutions available, a request made to the Governor’s office and they promise to find a way to construct a deep tube well

Potential for RWH

- The Principal was not very enthusiastic about RWH as their daily water consumption is high and they face a very prolonged dry period with no any rain spells between..
- Reference data for the IM3c agro climate zone where the school is located confirms the principal's thoughts. And average rainfall distribution at the nearest RF station located in the NLDB farm is given in the below (Graph & Picture).

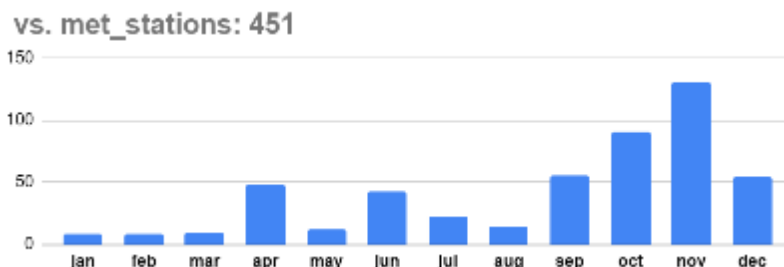


Figure 2 RF Data at nearest RF Station in IM3c agro climatic zone (NLDB Farm, Haragama).

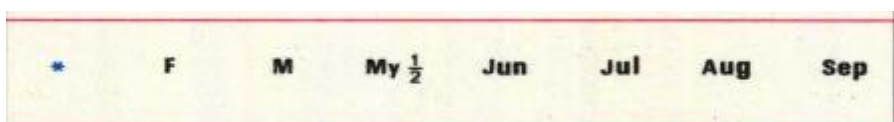


Figure 3 - Length of dry spells in IM3 agro climate zone.

- *Picture:*
- Based on high daily water requirement for the sanitation (of about 2000 Lt/ day) and rainfall pattern in the area, a RWH is not a viable option for this school
- Furthermore, school community's preference for deep tube well over a RWH system would make it maintenance of such it not sustainable.

Potential for Groundwater Recharge:

- They were neither enthusiastic about the groundwater recharge idea too,
- There is an abandoned well in the school yard right behind buildings (photo), it has some water when paddy was in the adjoining field, but now owner gave p paddy farming in it sometimes back hence there are no ground water to recharge the well.
- Runoff from three school buildings easily directs to a recharge pit next to it.
- But, it is speculated that groundwater may not retain there as the school is in a relatively higher ground compared to the surrounding area.
- No enthusiasm of the school community would make further investigation of the site by a geologist impractical.

MHM (Menstruation Hygiene Management) level:

- There are over 130 girls (> 6th year) and 29 female teachers in the school
- No girls friendly toilets
- No visible reduction in attendance due to MHM related issues
- Recently both Fems and Eva sanitary pads brand promotion teams had conducted separate awareness programs for students, and they had donated some pad to students.
- Teachers who are responsible for admin, health room, counselling and Saukyadhana Sangamaya keep some stocks of sanitary pads to give out when somebody needs, and teachers regularly advise them to properly use them.
- Few years back improper disposal of the sanitary pads was a big trouble, and when MHM awareness began, teachers began to pay attention to toilet issues, maintenance and creating awareness, the trouble was sorted out.
- There is no disposal system in school, nor any waste paper, polythene are permitted to be disposed of in the school and students have strongly advised to take all such used items home and dispose of them at home.

Photos: Hapthale Maha Vidyalaya



Figure 4 Large Tank to Store Pradeshiya Sabh pipe Water



Figure 5 Water Filters for Pipe water



Figure 6 Abandoned dug well in school yard, Can it be recharged?

2. Haputhale Maha Vidyalaya - Primary Section, Thalathuoya.

Location: Map,



Figure 7 Sat map of Haputhale Primary Section

Table 2 School Statistics, Haputhale Primary Section

School Name	Haputhale MV - Primary Section		
Language Medium	Sinhala		
Classes	1-5		
Education Zonal	Patha Hewaheta (Thalathuoya)		
Number of Students :	Male	Female	Total
Primary Section (1-5)	127	136	263
Secondary (6-11)	-	-	-
Advance Level (12-13)	-	-	-
Total Students	127	136	263
Number of Teachers		12	12

This is the primary section of the Haputhale maha vidyalaya and although located in a separate location this is also administered by the same principal,

It is located on the Ethulgama road, Thalathuoya, some 3.5m away from the Thalathuoya town, on a slope of an isolated small hill.

Students from several villages in the neighborhood, who could not enroll in reputed schools in the area attending here, livelihood of parents include both agriculture and salaried employees.

Water sources and the issues:

- Only one water source, Pradeshiya sabha pipeline, as the school is located in a higher ground than surrounding area, most of the time water doesn't reach the school end.
- Water delivered by tankers, bowsers, when severe water difficulty school used to request local government or parents help to transport water to the school
- This is a primary school students cannot clean toilets and so parents are assigned to daily clean toilets in a rotation, which makes wastage of water high'
- All the students brought drinking water and they were advised to bring the largest possible bottles.
- There were certain occasions of water theft from the school tanks, by neighbors facing severe water shortages and hence the school keeps a drinking water tank inside a classroom for safety reasons.
- Students used to walk around carrying their own water bottles with them for safety (photo).
- Some parents are used to delivering additional water bottles during breaks.

Schools Water need:

1. Drinking water requirement which is not provided by the school,
2. However, breakfast are providing by the school, water is required for cooking, washing and plates has to wash twice using clean safe water
3. Water for toilet cleaning
4. Water for gardening; no gardening, but students are guided to wash their hands by irritating flower pots that are kept in the corridor (photo).
5. Current water consumption for cooking, washing and toilet cleaning kept below 1000 lt/ day

Actions taken to mitigate water issues:

1. Manage water very strictly,
2. Keep the storage tanks inside a classroom
3. Ask parents to bring water for toilet cleaning
4. Requested to install deep water well in school ground

Potential for RWH

- Although prolonged no rain period span widely, with max water saving currently employed at school, a RWH system would help immensely, if the large capacity RW

storage tank be refilled time to time with either pradeshiya sabha supply or water deliveries by tankers to manage when no rain spells.

- This also will help to reduce the water bill during the rainy season, which is about 3-4 months year.
- There is only one building in the school, and the roofs (asbestos sheet) is suitable (> 120 ft in length) (photo)
- No guttering, down pipes available,
- Toilets are located at higher ground, hence storage tank location required additional ground preparation, to cut and level about 5fts height, and additional strengthening / support for delivery pipe from roof to the tank across about 15 m. (photo)
- The parents in students' have strong support to the school for soil works involved.

Potential for Groundwater Recharge:

- No potential, no suitable location
-

MHM (Menstruation Hygiene Management) level:

- Only a few girls attained puberty, parents used to keep them home during menstruation days as they have no experience in managing themselves.

Photo at Haputhale Primary Section:



Figure 8 Water Saving Max



Figure 9 Carring Valuble Water Everywhere



Figure 10 Catchment Roof



Figure 11 Location for Storage Tank

3. Manikdiwela Primary School, Manikdiwela

Location: Map,



Table 3 School Statistics, Meikdiwela Primary

School Name	<u>Manikdiwela Primary School</u>		
Language Medium	Sinhala		
Classes	1-5		
Education Zonal	Denuwara		
Number of Students :	Male	Female	Total
Primary Section (1-5)	199	205	404
Secondary (6-11)	-	-	-
Advance Level (12-13)	-	-	-
Total Students	199	205	404
Number of Teachers			

The Manikdiwela primary School is located on the Yatigamma- Tismada road, Some 2 km away from the Poththepitaya town, and some 8 km from the Pilimathalawa town. School is located in a sloppy land,

Located in the WM2 Agro Ecological zone, where dry spells are limited to just 2 months from mid-January to mid-March.

Students from several villages in the neighborhood, who could not enroll in reputed schools in the area attending here, livelihood of parents include both agriculture and salaried employees. Most parents living in the command area prepare to send children to this school which is over 90% of the school going.

Most parents are very supportive and usually provide free labor in school work.

Water sources and the issues:

- Only one water source; Water board supply from the Dambagoda pump station, it is an old implementation, has no capacity to meet the current demand in this highly populated area, during dry spells it is almost impossible to get water at daytimes.
- Most households in the area have dug wells as a supplementary source, but there are no dug wells in the hill slope where the school is located.
- Almost all students bringing drinking water,
- Up to the last months, there was no charge for the school supply, but this month the school got an accumulated bill for the last three months which is about 60,000.00, which is unable to meet with school funds. .

Schools Water need:

1. Drinking Water; Although almost all students bring water bottles , they used to use more water than that for washing and cleaning after and before meals (up to 2 meals),so they fill up their empty bottles from school water tanks, and some even fill while leaving school” to use while attending evening classes out (photo)
2. Cleaning toilets depends on the availability of water, in tanks, during dry spells water supply to the toilet finishes on the half ways of the day.
3. Usually schools need about 2000 lt/ day for all the uses, and in these drought days receive only about 1500 lt/ day, and there are days not receiving at all. .

Actions taken to mitigate water issues:

1. Isolate the drinking water tank from the hand wash /toilet line, leaving sanitation in jeopardy.

Potential for RWH

- With prevailing rain patterns in the area RWH is a fully viable option both to provide water for sanitation during dry spells, and in overall reduce high cost for the water bill.
- There is a two story building which is a good catchment for a RWH system,(photo). Which is located some 50m away from the location of the toilet cluster?
- That sheet roof is new, gutters and down pipes fixed, need to trim some shading trees to prevent clogging of RWH system
-

Potential for Groundwater Recharge:

- No suitable location within the school yard for construction of a well and groundwater recharge pits,
- There is a marshy land at the bottom of the school land, privately owned property, with possible location for constructing a well, could be another alternative to be investigated.

Toilets:

- There are only two toilet units that have a covered door entrance to be used by girls, inadequate at all. It makes long waiting time during breaks.
- Similarly boys urinals have no covering wall behind

MHM (Menstruation Hygiene Management) level:

- Only a few girls attained puberty, parents used to keep them home during menstruation days as they have no experience in managing themselves.

Photos:



Figure 12 Refilling before leaving school



Figure 13 Catchment roof, and location for the tank



Figure 14 Just two toilet units with cover wall, other units with no wall not suitable for girls



Figure 15 Boys urinals also have no privacy wall

4. Sri Sumana Vidyayathanaya, Uda Eriyagama.

Location: Map,



Table 4 School Statistics, Sri Sumana Vidyayathanaya

School Name	<u>Sri Sumana Vidyayathanaya</u>		
Language Medium	Sinhala		
Classes	6-13		
Education Zonal	A government approved education institute		
Number of Students :	Male	Female	Total
Primary Section (1-5)	-	-	-
Secondary (6-11)	216-	6	230
Advance Level (12-13)	14	-	14
Total Students	230	6	236
Number of Teachers	24	2	26

Sri Sumana Vidyayathanaya is a government approved education institute which is located at the Polgahamula junction on the Aladeniya - Eriyagama road, This charity funded education institute is designated for the students who well of in the grade 5 sissathvaya, but unable to get enroll in reputed schools. The vidyayayathanaya is headed by a Budhdhist monk. There were only 6 girls enrolled in an early batch, but then the education department informed them not to enroll girls any more.

Water sources and the issues:

- This institute has a water board supply with no supply constraints, but their concern is high water bill and environmental concern.
-

Schools Water need:

1. Drinking Water; for students and teaching staff
2. Water for sanitation; the institutes have provided commode style toilets and baths/ washing facilities adequate for all students and teaching staff. .

Potential for RWH

- There is a large catchment roof (asbestos) in the three story building which is unfinished yet,
- It is observed that ground/ soil around new building sandy and unstable. Hill banks not established, very high danger in bank fall, soil erosion.
- So It is recommending to not go ahead before completing construction works and completing and stabilising soil.

Potential for Groundwater Recharge:

- Not a suitable slope, sandy soil.
-

MHM (Menstruation Hygiene Management) level:

Not relevant

Photos:



Figure 16 Unfinished building, Soil not established, no drainage, danger in erosion

Recommendation:

School	Priority for RWH	Priority for GWR	Required components	Details/ measurements	Contribution from School
Haputhale Maha Vidyalaya	-	-			
Haputhale Primary School	2	-	Storage Tank (5,000/ 10,000) Gutters (length to match tank volume) Leafs screen/ deflector Down pipe with first flushing Delivery pipe (20m) & support for delivery pipe (galvanize) rapid sand filter distribution pipes (50m) Concrete Basement for the tank Gate valves and pipe fittings	Catchment roof asbestos, second floor of main hall Storage tank location in the edge of school playground, (soil cut and fill work	Labor, soil cut and fill work for concrete basement digging for pipe laying, and support work
Manikdiwela Primary school	1	-	Storage Tank (5,000) Leafs screen/ deflector Down pipe with first flushing Delivery pipe (20m) & support for delivery pipe (galvanize) rapid sand filter distribution pipes (50m) Concrete Basement for the tank Gate valves and pipe fittings	Catchment roof asbestos, second floor of main hall Storage tank location in the edge of school playground, (soil cut and fill work	Labor, soil cut and fill work for concrete basement digging for pipe laying, and support work
SriSumana Vidyayathanaya	-	-			

Contacts of the schools:

School	Name and designate	telephone
Haputhale Maha Vidyalaya	Mrs. H P Fernando, Principal	071 98 77 720
	Ms. Achala Disssanayake, Act Principal	078 89 49 979
	Principal's office	081 20 63 544
Haputhale Primary School	Mrs. H P Fernando, Principal	071 98 77 720
Manikdiwela Primary school	Mr. Werasuriya, Principal	071 37 24 987
SriSumana Vidyayathanaya	Rev. Siri Sumana, Principal	071 81 11132
	Mr. Manjula Fonseka, Vice principal	071 57 31 287

Details of School Visits:

School	Date of visit	From - to	Millage, km
Haputhale Maha Vidyalaya	14 th August 2023	Hanguranketha – Haputhale, Thalathuoya	24
Haputhale Primary School	Do	Haputhale, Thalathuoya – Manikdiwela	33
Manikdiwela Primary school	Do	Manikdiweela – Polgahamula Junc.	12
SriSumana Vidyayathanaya	Do	Polgahamula junc- Hanguranketha	45
		total	114

do