



Design of Rain Water Harvesting System Amazon Trading (Pvt) Ltd,

Lanka Rain Water
Harvesting Forum

May 2026

Design of Rain Water Harvesting System for Amazon Trading (Pvt) Ltd, Kotikawatta, Sri Lanka

Lanka Rain Water Harvesting Forum

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Location: Amazon Trading (Pvt) Ltd, Kotikawatta 6.939719469678727, 79.9156017198969

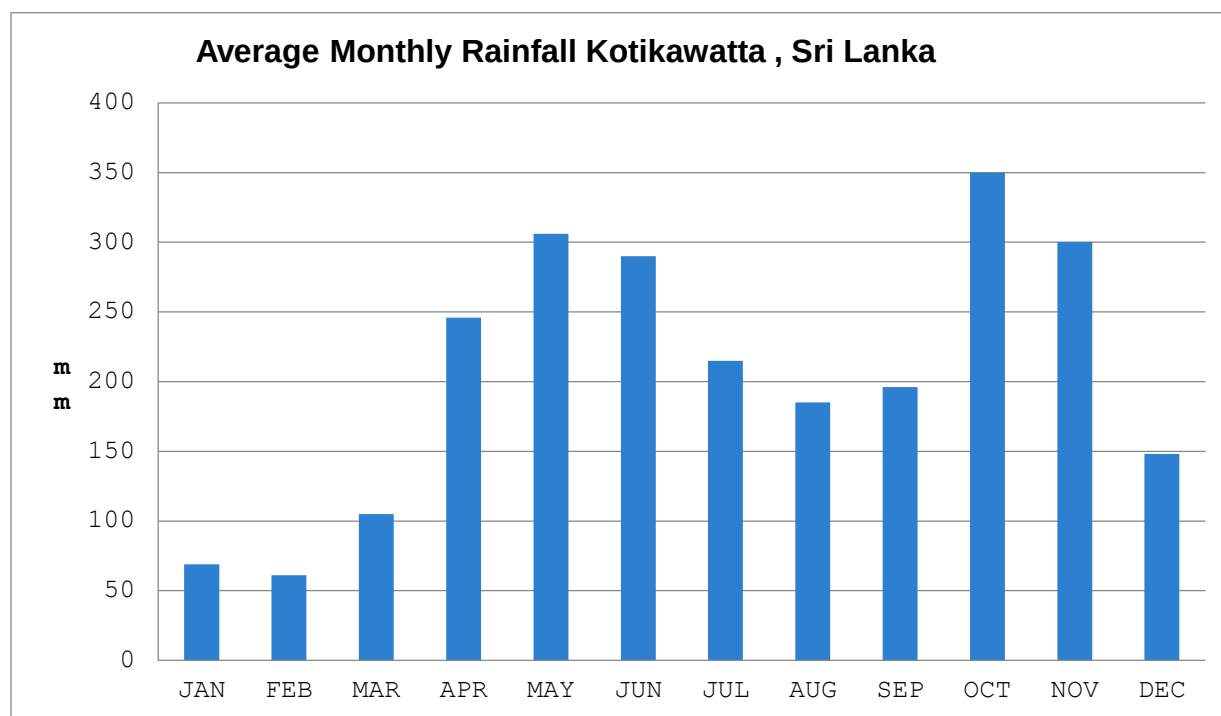
The objective is to utilize the rainwater collected toilet flushing and gardening

Available roof area: 6038 m³

Water demand per Month Average = 171 m³.

Roof type: Zn/AL

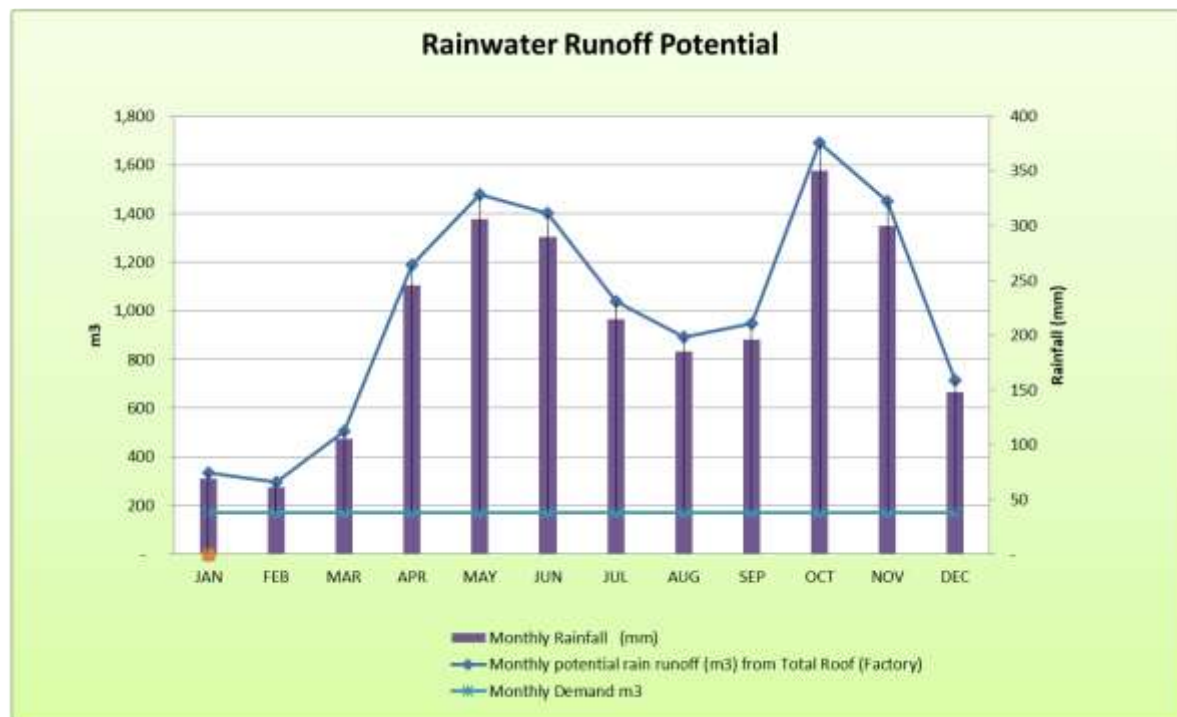
Average Monthly Rainfall



Source: Sources: Climate-data.org (1991–2021), weather-and-climate.com (1990–2020), Department of Meteorology Sri Lanka long-term normal

Table 1: Potential Monthly Roof Run off from the Main Building

Months	Monthly Rainfall (mm)	Monthly potential rain runoff (m ³) from Total Roof	Monthly Demand m ³
JAN	69	333	171
FEB	61	295	171
MAR	105	507	171
APR	246	1,188	171
MAY	306	1,478	171
JUN	290	1,401	171
JUL	215	1,039	171
AUG	185	894	171
SEP	196	947	171
OCT	350	1,691	171
NOV	300	1,449	171
DEC	148	715	171
Total	2,471	11,936	2,052
Monthly Average m ³		995	



Observation

1. Rainwater collection system is already in place in 2 places. Underground tank of 35 m³ capacity and 4 x 10 m³ PE tanks placed at one side of the collecting rain run off from half of the rear roof area. These tanks are used as fire safety.
2. Roof run off from other half of the rear roof is connected the storm water drains, often this is pumped out during heavy rains when the premises get flooded.
3. Roof run off from the front side of the building goes to a drain which is connected the storm water drains running on the left side of the building.
4. As per run off calculation (Table1) the annual run off is 11,936 m³ . The annual supply exceed the demand of 2052 m³ by 5 folds. The average monthly run off is 995 m³. Out of this only 75 m³ is presently stored.

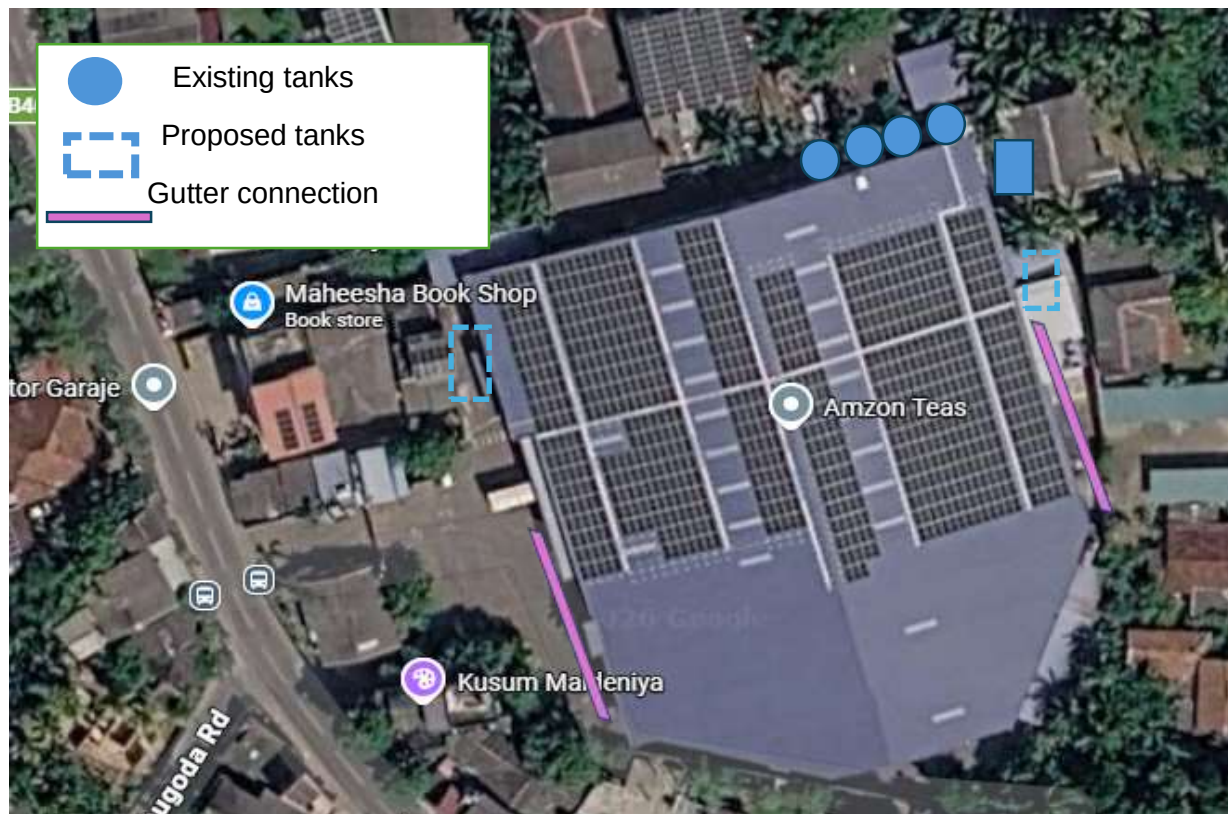
Recommendation

1. Recommended storage to meet the demand by 93.6% satisfaction is 170 m³ , However, if the present the storage volume is increased by 80% to 135 m³ , around 78 % satisfaction can be met (annex 1)
2. Place underground tanks (2 x 10 m³) near the female workers toilets, to collect roof run off from the 2-3 gutter which is not tapped already. Pump used to drain out flood water can be used to pump water from the storage tank to overhead tank
3. Out of the 4 , 10 m³ , allocate one tank as the first flush tank, water from this tank can be used for gardening. Water from other tanks can be pumped to the over head tank to be used in toilets.
4. Link the gutters in the front side of the building by laying a 8 inch pipe in the drain, to collect into a under ground tank placed in front of the building (see figure for the location). Capacity of the tank/s can be 20-40 m³

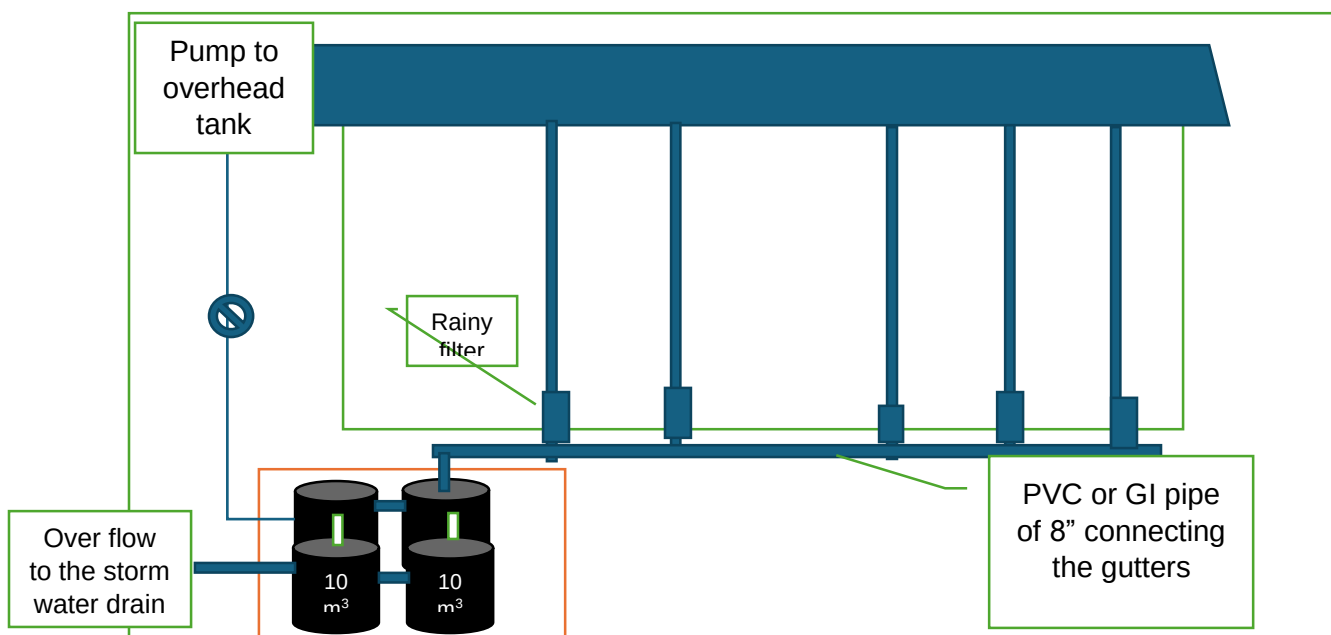
Expected benefits

1. Reduce water bills
2. Reduce flooding in the premises
3. Reduce water foot print
4. Promote water conservation
5. Support Sustainable Development Goals and sustainable practise

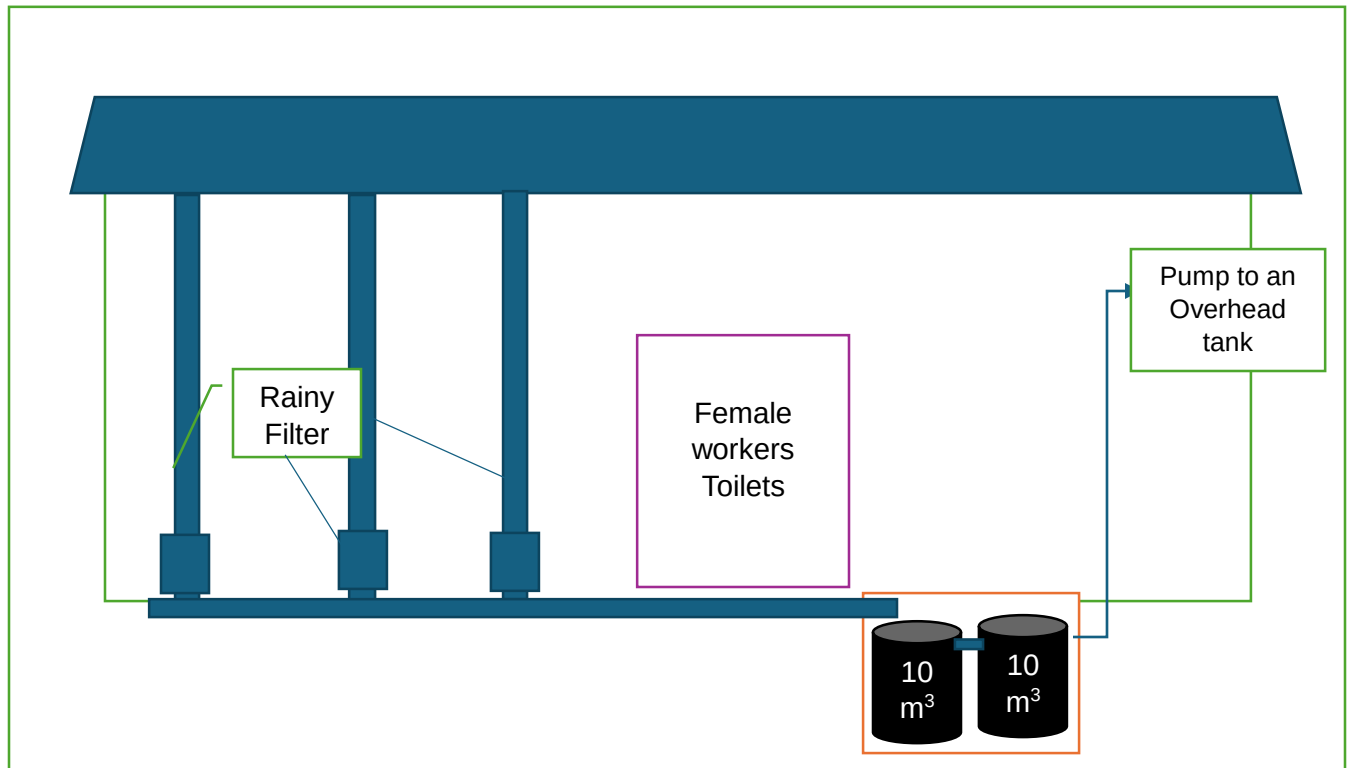
Location of Existing Rainwater Tank and Proposed Rainwater tank



Proposed Location of the tank in front the building



Proposed location of the tank on the back of the building



Estimated cost for the proposed rain water harvesting system

Description	Unit cost LKR	No. of units	Total cost in LKR
1. 10.5 m ³ underground sump ¹	620,000	6	3,720,000
2. Rainy filters (optional) ²	100,000	8	800,000
3. Excavation cost			
4. Installation cost			
5. PVC connections			
6. Pumps and installation			

Note: 1.under ground sump at 10.5 m³ capacity is available with Arpico, if the soil is stable they can be installed directly on a excavated ground, with a concrete base. If the soil is not stable install a brick chamber underground and place the tank, in that case you can also install normal PE tank of 10 m³ at half the cost (LKR 350,000 each)

Note 2: Rainy filters to be installed in the down pipes, available In India (see below details)

.Annex 1 a. Feasibility of Proposed Tanks 170m³ capacity



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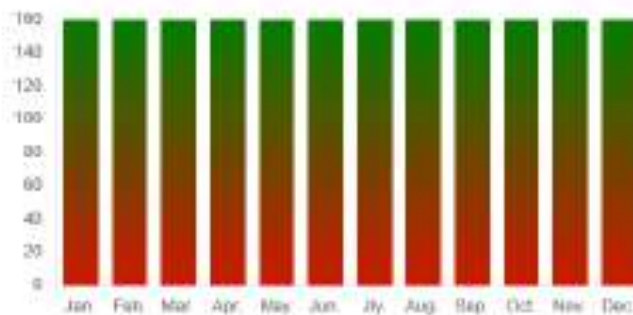
Email : [\[email protected\]](#) | Phone: +94-11-5524612

Feasibility of Proposed Tank

Date & Time : 26-06-04 10:12:35

Monthly Water Requirement/Per Person : 171000 (L)
Number of Family Members : 1
Proposed Tank Capacity : 180000 (L)
District : Colombo
Type of Roof : Aluminium Sheets
Roof Area : Length in meters : 8038m² Width in meters : 1m²

Remaining Water Volume at the End of Month (L)



Demand Satisfaction Percentage (%)



Calculator Developed by EXELORACLE Team (Team Leader: Ruwan Ruhunuge)

b. Feasibility of Proposed tank capacity 135 m³



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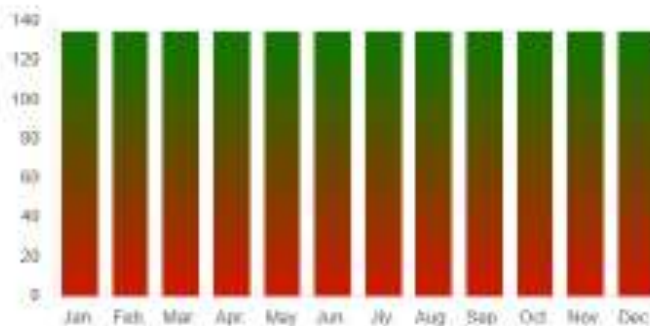
Email : [\[email protected\]](#) | Phone: +94-11-5524612

Feasibility of Proposed Tank

Date & Time : 26-06-04 10:21:39

Monthly Water Requirement/Per Person : 171000 (L)
Number of Family Members : 1
Proposed Tank Capacity : 135000 (L)
District : Colombo
Type of Roof : Aluminium Sheets
Roof Area : Length in meters : 6038m² Width in meters : 1m²

Remaining Water Volume at the End of Month (L)



Demand Satisfaction Percentage (%)



Calculator Developed by EzeiORACLE Team (Team Leader: Ruwan Ruhanuge)



Salient Features	Technical Specifications
Self Cleaning Auto Flush Out Works on Gravity	Suitable for Area Upto 500 SQMTRS
Dual Intensity Withstands High Intensity Rainfall	Intensity of Rainfall 5 mm/Hour to 75 mm/Hour
Easy to Install 360° Rotatable	Filter Type Open ended, Non-clog
Low Maintenance High Efficiency Cost Effective	Working Principle Cohesive Force & Centrifugal Force
HDPE Material SS-304 Food Grade Material	Operating Pressure 1 foot of Gravity Head (0.060kg/cm ²)
	Max Discharge at (CWO) 480 Liters per minute
	Filter Element SS-304 Multi-Surface Screen - Food Grade
	Mesh Size 250 Microns
	Inlet Size 110 MM
	Clean Water Outlet size (CWO) 110 MM
	Drain Outlet size 110 MM
	Filter Housing UV Stabilized - HDPE
	Filter Efficiency Above 90%*
	Source of Power Gravity