



Design of Rain Water Harvesting System for Heycarb PLC, Madampe

Lanka Rain Water Harvesting
Forum

November 2025

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Location: Heycarb PLC, Kurunegala Narmawela Madampe Road, Madampe (7.496381942792748, 79.8649257152693)

Available roof area:

There is one large potential roofs within the premises that can be used to collect rainwater. Roof areas were calculated using google maps, therefore only estimates. Only the main roof areas were calculated.

Type of Catchment	Area (Sqm)
A Building	7483
B Building	2627
C Building	968
D Building	1,437
E Building	8,260
F Building	8,000
Total	28,775

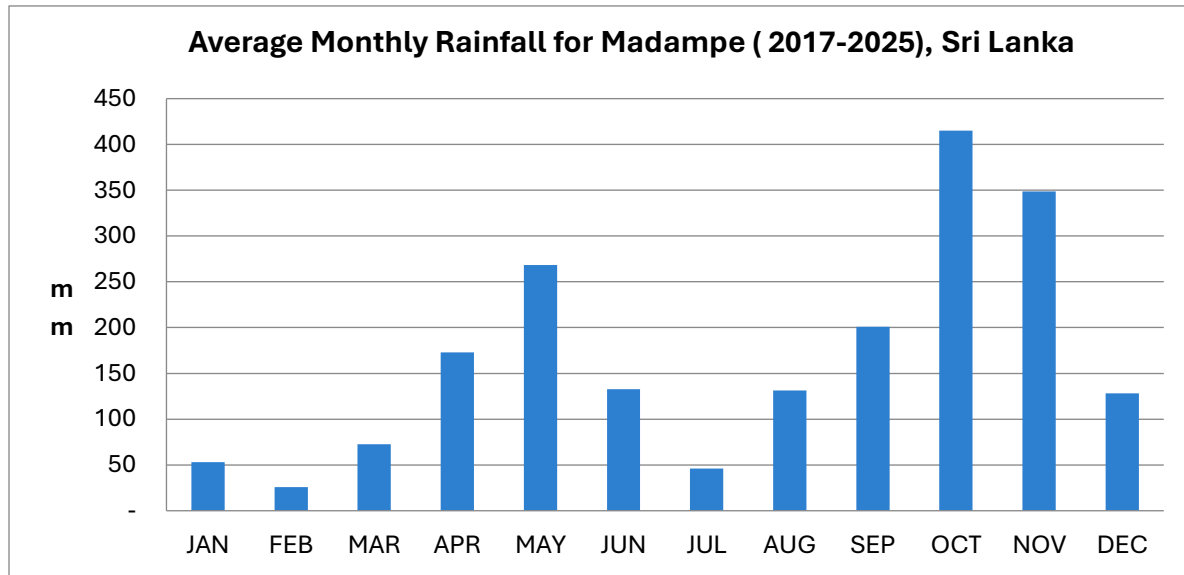


Water demand per Month Average = 6400 m³. (taken as water brought from outside)

Roof type: Asbestos and Zn/Al roofing sheets

The objective is to utilize the rainwater collected for production purposes as well as to reduce dependance and cost of bringing water from outside.

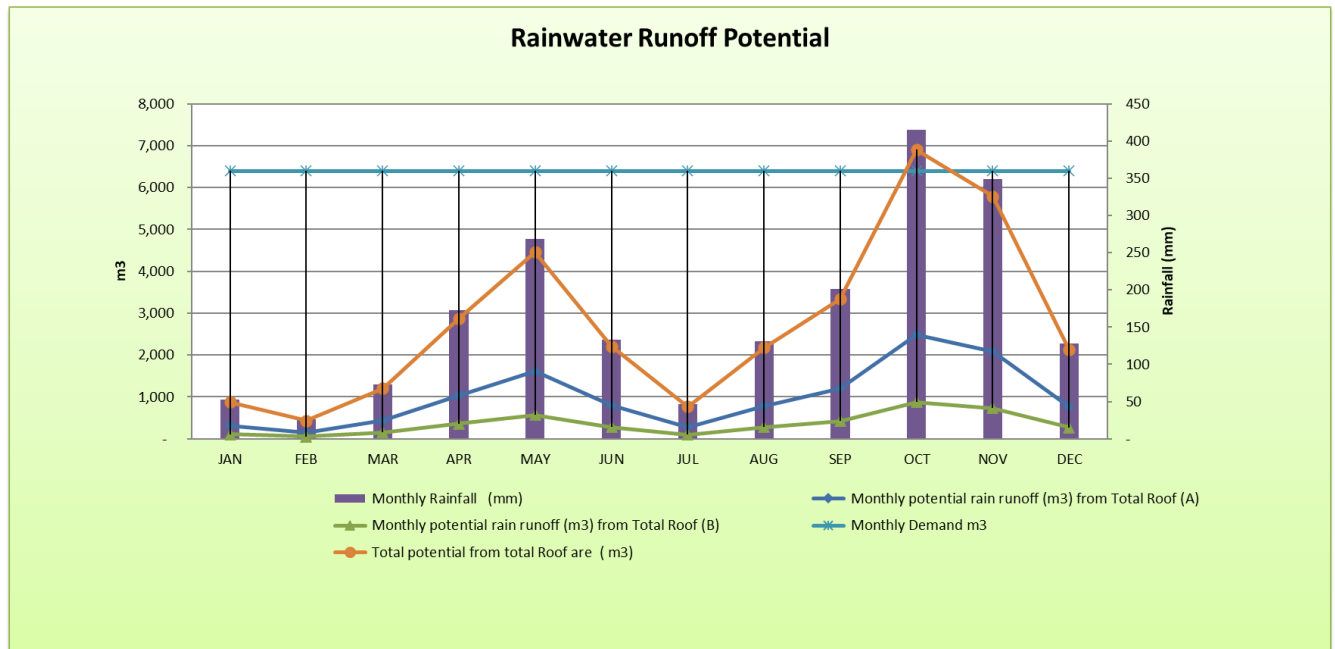
Average Monthly Rainfall



Source: Heycarb factory data

Potential Monthly Roof Run off from the Different Buildings

Months	Monthly Rainfall (mm)	Monthly potential rain runoff (m3) from Total Roof (A)	Monthly potential rain runoff (m3) from Total Roof (B)	Monthly potential rain runoff (m3) from Total Roof (C)	Monthly potential rain runoff (m3) from Total Roof (D)	Monthly potential rain runoff (m3) from Total Roof (E)	Monthly potential rain runoff (m3) from Total Roof (F)	Total potential from total Roof are (m3)	Monthly Demand m3
JAN	52.89	317	111	41	61	349	338	879	6,400
FEB	25.78	154	54	20	30	170	165	428	6,400
MAR	72.56	434	152	56	83	479	464	1,206	6,400
APR	173.00	1,036	364	134	199	1,143	1,107	2,875	6,400
MAY	268.44	1,607	564	208	309	1,774	1,718	4,462	6,400
JUN	132.74	795	279	103	153	877	850	2,206	6,400
JUL	46.21	277	97	36	53	305	296	768	6,400
AUG	131.22	786	276	102	151	867	840	2,181	6,400
SEP	200.78	1,202	422	155	231	1,327	1,285	3,337	6,400
OCT	415.22	2,486	873	322	477	2,744	2,657	6,901	6,400
NOV	348.63	2,087	733	270	401	2,304	2,231	5,794	6,400
DEC	128.00	766	269	99	147	846	819	2,127	6,400
Total	1,995	11,946	4,194	1,545	2,293.99	13,186.06	12,771.00	33,165	76,800



Observation

1. Rainwater runoff from total roof area will meet 43% of the monthly water demand
2. Rain run off from roofs and paved areas is discharges into the natural drain which runs through the factory premises.
3. There are gutters on either side of most buildings, however, some do not have gutters. Therefore, they have to be installed, recommended gutters are G.I, large width.
4. It was reported by technical staff that Tube wells have good yield throughout the year. Depth of the water table to be checked at the location as it is reported to be high.
5. Space for locating the storage tanks are limited.
6. Use of Rainwater for the premises can be conducted in several phases.

Recommendation

1. It is advisable to separate roof rainwater from the runoff rainwater from the paved/tared area as it will carry dust and particles. However, since roofs too seem to have dust deposit, adequate first flush system is advised. Generally, first 2mm of rainfall on the roof is discarded. For a total roof area of 28,775 m² , it would be around 58 m³
2. Identify the location where the down pipe discharges into the natural drain and connect through a pipe network place on the drain hung at high elevation.
3. Storage tanks/pond to be placed at the space available at the back of the building. However, the elevation has to be checked. If it is at a higher elevation, water collected will have to be collected at a lower elevation and pumped to storage tank/s.

4. Recommended storage volume for a demand of 3200 m^2 (50% of the total demand) is $3000 - 3500 \text{ m}^3$ (annex 1). This storage volume will give 90-100% satisfaction for 4 month of the year and 30- 40 % satisfaction rest of the year.
5. Sedimentation/ first flush tank of 58 m^3 should be installed to reduce dust and particles been carried into the storage tanks
6. Storage volume is to be divided into 2 open/closed tanks. The dimension of each ponds $18\text{m} \times 30\text{m} \times 3 \text{ m} = 1620\text{m}^2$
7. The ponds can be lined with pond lining , depending on the ground water table. If the ground water table is lower than the 3 m, it is not advisable to install the pond lining. In that instance concrete or ferrocements tanks are recommended.
8. If the ponds or tanks are open, precautions to be taken to avoid people/animals falling into the ponds by fencing or raising the bunds of the ponds. Also, to prevent mosquito breeding in the ponds, fish to be introduced into the ponds. To reduce evaporation losses shade trees/ plants should be grown around the ponds.

Schematic Drawing of the Layout of the Treatment and Storage System of The Rainwater Harvesting System

