

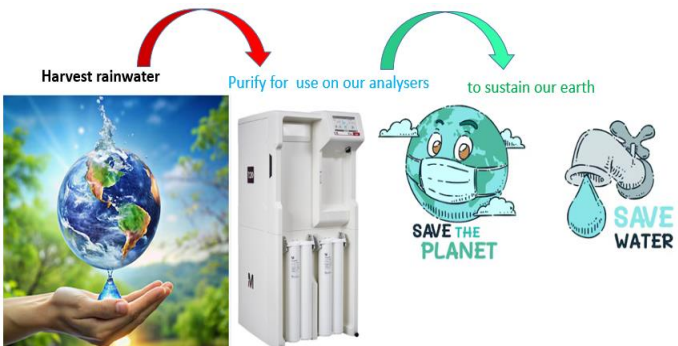
# Rainwater harvesting in NWLP: An innovative concept to implement sustainable water use on blood analysers.

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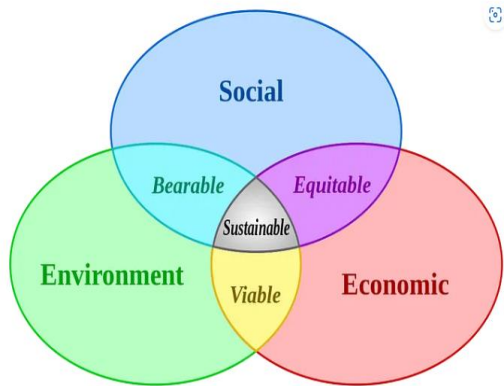
## Introduction

**Keywords:** Rainwater harvesting, sustain.

- Rainwater harvesting (RWH) is the process of collecting and storing rainwater for later use, typically from rooftops or other impervious surfaces. It involves diverting the rainwater into a collection system, often through gutters and downspouts, and storing it in tanks.
- The harvested water can then be used for various purposes including potable water with proper treatment.
- RWH is currently not in use in NWLP, however with appropriate treatment purification processes already place in Blood Sciences, rainwater can be used on existing analyser platforms instead of using Water Mains supplied by Thameswater.

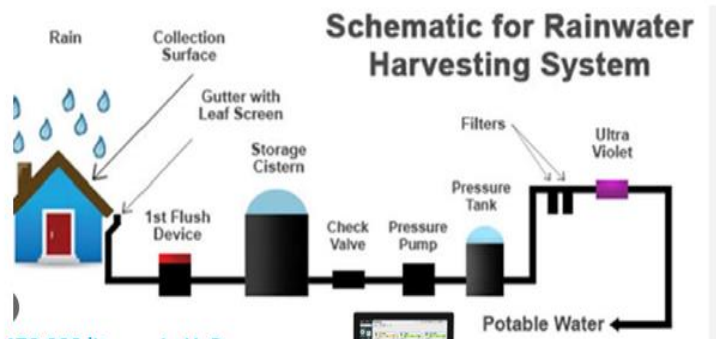


This is an innovative solution applying a sustainable use of resources within our organisation while promoting effective socio-economic principles to protect the environment 'to sustain our tomorrow'



## Method

- Minor enabling works would be required to alter the existing guttering to connect downpipes into the existing filtration/ water purifying systems in the laboratory.
- Rain water would then be collected, purified and ready for use on the analytical platforms.



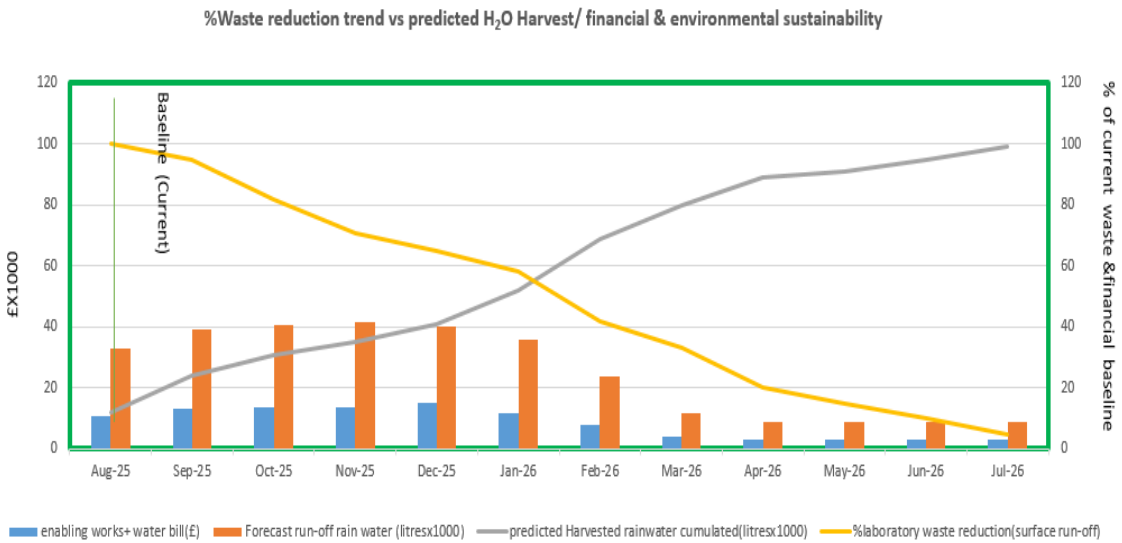
- Analysers Require 236520 litres of rain H<sub>2</sub>O which can be used instead of Thameswater supply**
- TAKE HOME MESSAGE**
  - No requirement for water mains needed to run a blood science service.
  - £1000s saved,
  - planet sustained,
  - no more floods

BREAKDOWN OF COSTS	Amount
10,000 Litre holding reservoir tank	£1750
connector down pipes and rain collecting guttering	£1530
Electric pump & pre filter unit	£820
Installation& delivery costs/ enabling works/ contractor fees	£2500
Estimated Total assembly costs	£6600

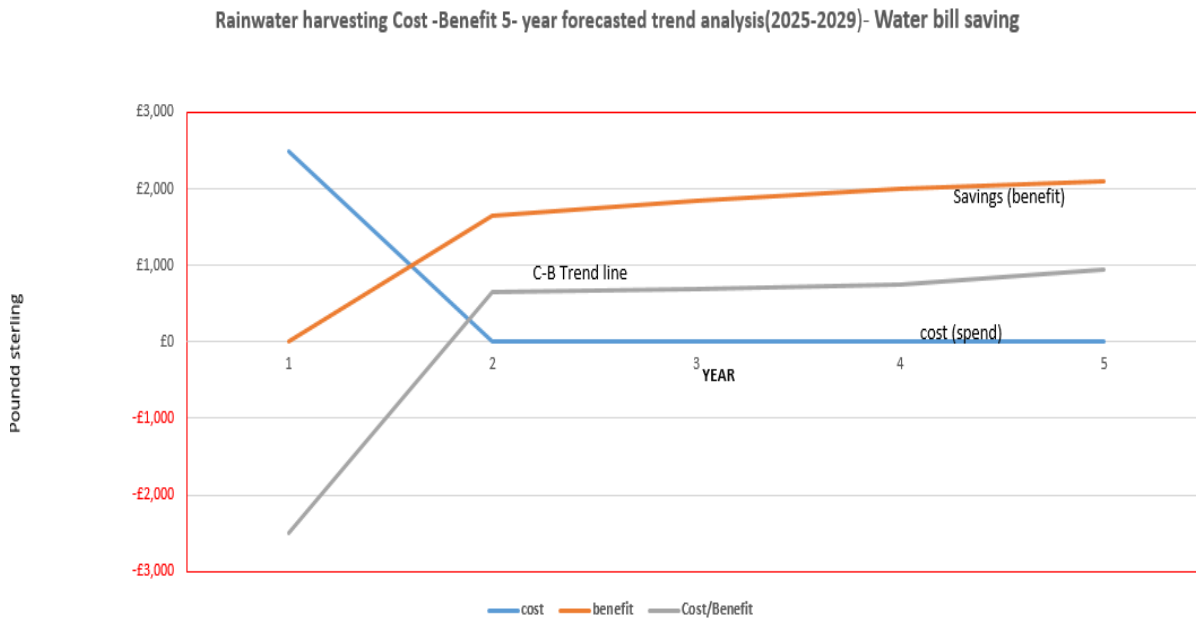
As an NHS organisation, NWLP can qualify Application for funding can be from the Water Restoration Fund to offset the costs involved in assembling the RWH equipment.

## Results

- Based on London's average annual rainfall of roughly 600mm per year, the roof covering the Blood Sciences which has a surface area of Approximately 598 sq. metres would potentially collect around 470000 litres of rainwater per year.
- The Alinity Ci Chemistry Analyser platform for example typically consumes around 27 litres of water per hour on average equivalent to approx. 236520 litres per year(27litres x 24hrs x365 days).



- Based on these calculations RWH from the laboratory roof surface can fully support a Chemistry Blood Science Pathology Service for the whole year.
- Expenditure on the water bill currently at £2.45 per m<sup>3</sup> of Water Mains supplied by Thameswater provider would also be reduced significantly.



## Discussion/ Conclusion

- This concept project is in keeping with the NWLP Green plan objective of adopting a sustainable model for Diagnostic investigations.
- It is also aligned with the green plan objective of future proofing our service against adverse impact of climate change and work with our partner Trusts to identify shorter term opportunities to reduce the environmental impacts of our estate through reduced water use.
- RWH can be up -scaled to include all other NWLP laboratories and other areas of the hospital to enable more savings on water costs and further ease of pressure on the supply from the Thameswater mains.
- This in turn can result in substantial cost savings and contribute to alleviating water run-off which frequently causes floods and undoubtedly unsustainable waste.
- The implementation of this sustainable solution would also serve as an effective backup supply system of business continuity in the event of a water mains supply issue.
- Funding from successful a grant application would enable NWLP to benefit financially while enhancing our brand and reputation as a sustainable organisation.

**In conclusion, innovating RWH in NWLP today sustains our water supply for tomorrow.**

## References

- [www.metoffice.gov.uk](http://www.metoffice.gov.uk) weather forecast; monthly seasonal and annual summaries-2025.
- [Alinity ci-series | Core Laboratory at Abbott](#) water consumption requirements
- [Rainharvesting Systems Ltd - Rainwater harvesting specialists](#) Quotes for materials required
- [NWLP-Green-Plan-2024-2028.pdf](#)
- [Water Restoration Fund: guidance for applicants - GOV.UK](#)
- [www.thameswater.co.uk](http://www.thameswater.co.uk) Account and billing charges

## Acknowledgement

I am grateful to the entire Blood Science Team for the encouragement and support given on sustainability ideas and the engagement with associated discussions.