

**Liverpool Living Lab  
Project Brief**

Project Name	Rainwater Harvesting at Ness Gardens
Project theme(s)	Circular Economy
Associated sustainability target	Net zero by 2035

Project overview (challenge, inputs, desired outputs)

**Context**

Ness Botanical Gardens, on the Wirral, offers 64 acres of gardens used for research, learning and commercial purposes. The botanical garden is home to a vast array of plant species that require regular watering for their upkeep.

Existing infrastructure includes:

- Borehole and associated infrastructure including network of irrigation points around the garden (installed 1993).
- Mains water supplies to main buildings and plant sales area.

Ness Gardens use water for:

- Plant irrigation (garden borders, plant research experiments, garden team nursery area, plant sales)
- Cleaning internally and externally (vehicles, pathways, etc)
- Catering offer and welfare spaces
- Supplying ornamental water features in the garden
- Toilets

Things to consider include:

- Collection policy and high value of certain components
- Ness Gardens is open to the public: opportunities for engagement, reputation

**Key Stakeholders**

Ness Botanic Gardens  
Properties and Campus Services  
Energy and Utilities Team  
Capital Projects

**Challenge**

Ness gardens currently have little, to zero infrastructure to facilitate rainwater harvesting despite the opportunities to do so and utilise harvested water in grounds irrigation.

The borehole and associated infrastructure are aging and planning is required for replacement. This presents an opportunity to adopt a replacement that allows for sustainable water usage.

#### **Available Data and Information**

Images and further context around current infrastructure and requirements for the area and use of harvested rainwater.

Dependencies around maintenance and building regulations

Building plans

Water friendly business- checklist

Building regulations- considerations for the legal requirements and current drainage system, condition that is existing, impact of solar panels

Vine court example as a lesson learned

#### **Outputs**

Recommendations for a rainwater harvesting solution.

The activity/project could be as simple as conducting a SWOT analysis or feasibility study for rainwater harvesting at Ness, or the students could focus on specific areas, such as -

- Water consumption on site, including annual and seasonal trends.
- Benefits of introducing rainwater harvesting to site, including cost saving and water saving
- Climate data for the area and typical rainfall to understand required capacity and size of rainwater harvesting and storage infrastructure.
- Legal and environmental implications of rainwater harvesting and its use on site (e.g. if legal or env science students)
- Risks of drought and flooding associated with climate change in relation to Ness Gardens
- Water conservation best practice for activities, procedures and/or infrastructure on site
- Risks and insights into water hygiene
- Data on rainwater harvesting for league tables- need metering system, how we would monitor it and identify issues in the system
- Savings it could bring- data usage
- Insights into maintenance requirements and costs- consider it in relation to the technology they require – **this could also consider or take account of what maintenance arrangements and contracts are in place for rainwater harvesting on the main campus, how well these are executed, any performance data, and whether there are opportunities to scale.**
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