



Piping Efficiency Into Climate Action

The Leakage Emissions Initiative (LEI) is a collaborative effort led by members of the IWA Water Loss Specialists Group and the AWWA Water Loss Control Committee. Its goal is to quantify the impact of unmanaged leakage on avoidable carbon emissions and, ultimately, to unlock new funding sources that will more aggressively incentivize leakage reduction projects. To achieve this, LEI has developed a methodology to calculate a utility's specific energy intensity and apply it to quantify carbon emissions across each component of the standard water balance—resulting in what's known as the standard carbon balance. When performed annually alongside leakage reduction initiatives, this approach enables utilities to track the metric tons of carbon emissions avoided due to real loss reductions. This case study highlights results from Kingston and Portmore, Jamaica. Kingston launched its program in 2017, followed by Portmore in 2020, showcasing the measurable benefits of aligning water loss reduction with climate mitigation.



REDUCE



REGENERATE



KINGSTON, JAMAICA



DRINKING WATER



CHALLENGES FACED

Data collection is often the most challenging aspect for utilities, especially when reliable systems for tracking and storing system input volumes are lacking. Establishing effective data infrastructure requires time and effort, but it pays off in the long run by enabling more informed, value-based decision-making.

TECHNOLOGIES & SOLUTIONS USED

The Kingston and Portmore teams conducted standard water balances and detailed component analyses to pinpoint and prioritize the areas within their systems with the highest leakage rates. Leveraging existing utility data before deploying conventional leakage control methods, project teams were able to optimize their efforts on the most impactful leaks. This helped maximize water recovery, while minimizing carbon emissions and resource expenditure.

IMPACT & INSIGHTS



Jamaica's targeted leakage intervention demonstrated that addressing water loss can simultaneously deliver environmental, economic, and social benefits.

Key Benefits:

- 98.854 million liters of water were saved, and over 12,500 metric tons of carbon emissions avoided.
- Improved reliability of drinking water services in Kingston and Portmore, strengthening public health.
- Lowered operational costs that contributed to stabilizing customer water rates.

LESSONS LEARNED



Utilities exploring similar initiatives are encouraged to estimate potential water and carbon savings in advance of project implementation. Quantifying these anticipated benefits can strengthen applications for grants and other funding opportunities that help offset improvement costs. Numerous funding programs prioritize projects demonstrating multi-benefit outcomes. By proactively aligning project goals with these sustainability targets, utilities can improve access to external funding while amplifying environmental and economic returns.

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The LEI seeks to create a program which allows utilities to generate carbon offsets in the marketplace to represent each ton of carbon emissions reduced from leakage improvements.

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