



PLUGGING THE LEAKS: REAL WATER LOSS MANAGEMENT SOLUTIONS FOR ST. KITTS AND NEVIS

TECHNOLOGY DESCRIPTION

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Real water loss refers to physical water leakage from the distribution system, including leaks in pipes, joints, valves, and service connections. It can occur in both main transmission lines and distribution networks, leading to significant wastage of treated water before it reaches the consumer. Technologies for managing real water loss include advanced leak detection equipment (such as acoustic loggers, ground-penetrating radar, and digital leak noise correlators), pressure management systems, and Supervisory Control and Data Acquisition (SCADA) systems for remote monitoring and real-time data analysis. The implementation of these technologies aims to detect, localize, and repair leaks efficiently, reducing water loss and improving operational efficiency.

CLIMATE RATIONALE OF THE TECHNOLOGY

St. Kitts and Nevis faces increasing challenges due to climate change, particularly in the form of more frequent droughts, rising temperatures, and shifting rainfall patterns. Reducing real water losses is crucial to improving the resilience of the water supply system, as it helps conserve water resources and ensures that more water reaches end users, especially during dry periods. By reducing leakage in the distribution system, the water sector can mitigate the need for costly new infrastructure investments and reduce the energy required for pumping and treating additional water, contributing to both climate adaptation and mitigation efforts.

AMBITION OF THE TECHNOLOGY

SCALE FOR IMPLEMENTATION AND TIMELINE

The ambition is to achieve a **25% reduction in real water losses** over a 5-year period at a cost of **USD 4.5 million**.

| Actions | Target | Timeline (Years) | Costs (USD) |
|--|--|------------------|-------------|
| Action 1: Conduct feasibility studies and establish a program for real water loss management including leakage detection and pressure management including training for technicians Action 2: Procure and implement advanced leakage detection technologies Action 3: Establish district metered areas and enhanced pressure management Action 4: Install or upgrade remote monitoring systems (SCADA) Action 5: Monitor and evaluate real water loss management program and design long-term infrastructure upgrading plan | 25% reduction in real losses over 5 years. | 5 | 4,500,000 |



EXPECTED IMPACTS OF THE TECHNOLOGY

- **Water savings:** A reduction in real water losses will lead to significant water conservation, helping to address chronic water shortages in both islands, especially during periods of drought.
- **Energy savings and emission reductions:** Reduced water loss will decrease the volume of water that needs to be pumped and treated, leading to lower energy consumption and a reduction in the associated greenhouse gas emissions.
- **Operational cost savings:** By reducing the volume of water lost to leaks, water utilities lower their operational costs, freeing up resources for other investments in infrastructure and service improvements.
- **Improved climate resilience:** Reducing real water losses will enhance the overall reliability and resilience of the water supply system, ensuring that more treated water is available for distribution, even under adverse climate conditions.

POLICY ACTIONS FOR TECHNOLOGY IMPLEMENTATION

EXISTING POLICIES IN RELATION TO THE TECHNOLOGY

The Government of St. Kitts and Nevis has set the framework for water use efficiency through policies like the **National Climate Change Adaptation Strategy** (2018), which highlights the need for better water management in the face of climate risks. Additionally, the **St. Kitts Water Conservation Plan** (2013) provides a framework for addressing water losses, though there is room for improvement and expansion to cover new technologies and strategies. More recently, the **SKN Water Utility Adaptation Plan** (2021) paves the way for future actions needed for this sector. The Plan is structured under six thematic programmes including water policy, legislation and capacity building, watershed management, climate resilient water supplies, water demand management, energy efficiency and renewable energy and disaster risk management.

PROPOSED POLICIES TO ENHANCE TECHNOLOGY IMPLEMENTATION

To enable the successful implementation of real water loss management, the following policy actions are proposed:

- **Adoption of a Federal Water Policy and Plan including climate resilience.**
- **Upgrade of the legislation which governs water to allow for modernization, strengthening of legal frameworks and institutional reform.**

COSTS RELATED TO THE IMPLEMENTATION OF POLICIES

The estimated cost for full implementation upgrading and modernizing the legal enabling framework and policies for the water sector was estimated at **USD 2 million** over three years in the **SKN Water Utility Adaptation Plan** (2021).



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USEFUL INFORMATION

CONTACT DETAILS

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LINKS TO TNA REPORTS

More information on the Technology Needs Assessment for St. Kitts and Nevis can be found at <https://tech-action.unepccc.org/country/st-kitts-and-nevis/>.