More than 10 million liters of monthly water savings

Explore how Salfeet Municipality reduces water losses through active leak detection

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Case Study
Sept 2023

KEY HIGHLIGHTS

Can water tech solutions help water utilities in achieving feasibility?

In this case study, we explore how Salfeet Municipality managed to decrease water losses in their water network, saving 10 million liters of fresh water on a monthly basis.

The secret lies in active utilization of emerging tech solutions. Salfeet used Flowless leak detection system to track leaks in the network and actively fix them as soon as they emerged.

But technology is not a magical solution! While water tech promises for great potential in improving water supply for the local communities, there are other important ingredients in the secret sauce used by Salfeet:

- Active decision making
- Agile implementation
- Smooth tech adoption

Ready to dive into this success story and meet the heroes behind it?

WATER SAVINGS IN SALFEET

A Brief Overview

Salfeet Municipality is on track to achieve the best water networks operational efficiency.

The annual water losses due to non-revenue water (NRW) in Salfeet were previously estimated at 109,310 cubic meters, accounting for more than 80,000 USD of annual financial losses.

Through active leak detection, operations monitoring, & data interpretation, Salfeet Municipality was able to save more than 10 million liters of water every month.

Salfeet utilized Flowless system to collect real-time data from the field, then used the analytics to track and detect leaks in the network, ultimately reducing losses and improving operational efficiency.

Reducing water losses can partially solve water stress, so Flowless actively works with water utilities to support their work in efficient water management. The goal is to contribute to communities' resilience by providing more reliable water supply.

Facing water scarcity and surging demand by using innovative solutions to replace conventional water management approaches

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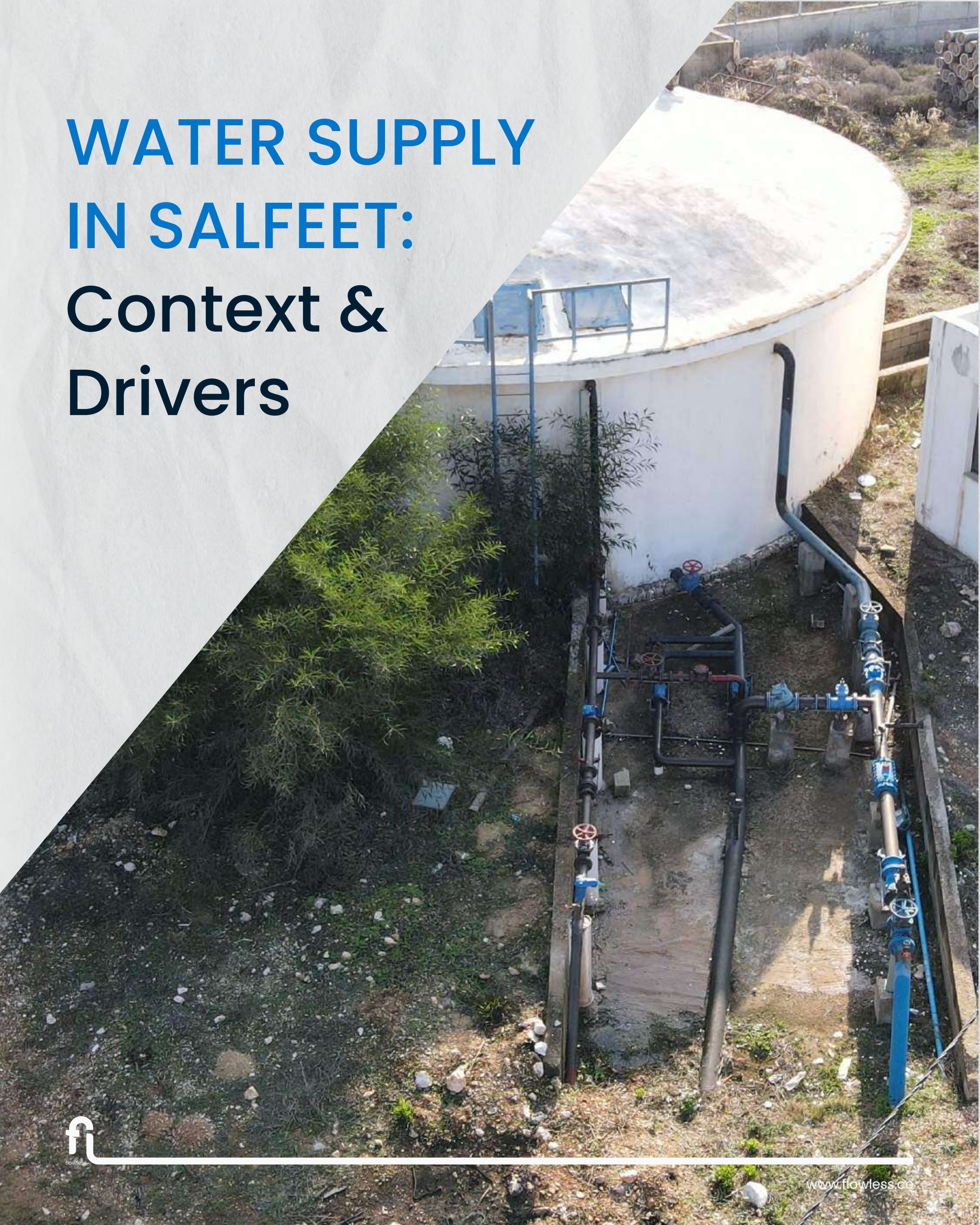
WATER SUPPLY IN SALFEET: Context & Drivers



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WATER SUPPLY IN SALFEET

Challenges & Opportunities

Salfeet, a small Palestinian town in the center of the West Bank, faces significant challenges in water supply management. With over 15,000 residents relying on the municipal water system, conventional water management methods are stretched thin due to limited resources. This is a daily challenge for both the town’s residents and the municipality.

As the population grows, so does the thirst for fresh, clean water. Salfeet's network operators are feeling the pressure from the growing demand for water, and raising concerns about the system's efficiency.

To make matters more challenging, Salfeet utility relies on conventional water management methods These traditional approaches have served the city well in the past, but they are now stretched to their limits. The need for fresh ideas and innovative solutions is pressing.

CONVENTIONAL MANAGEMENT

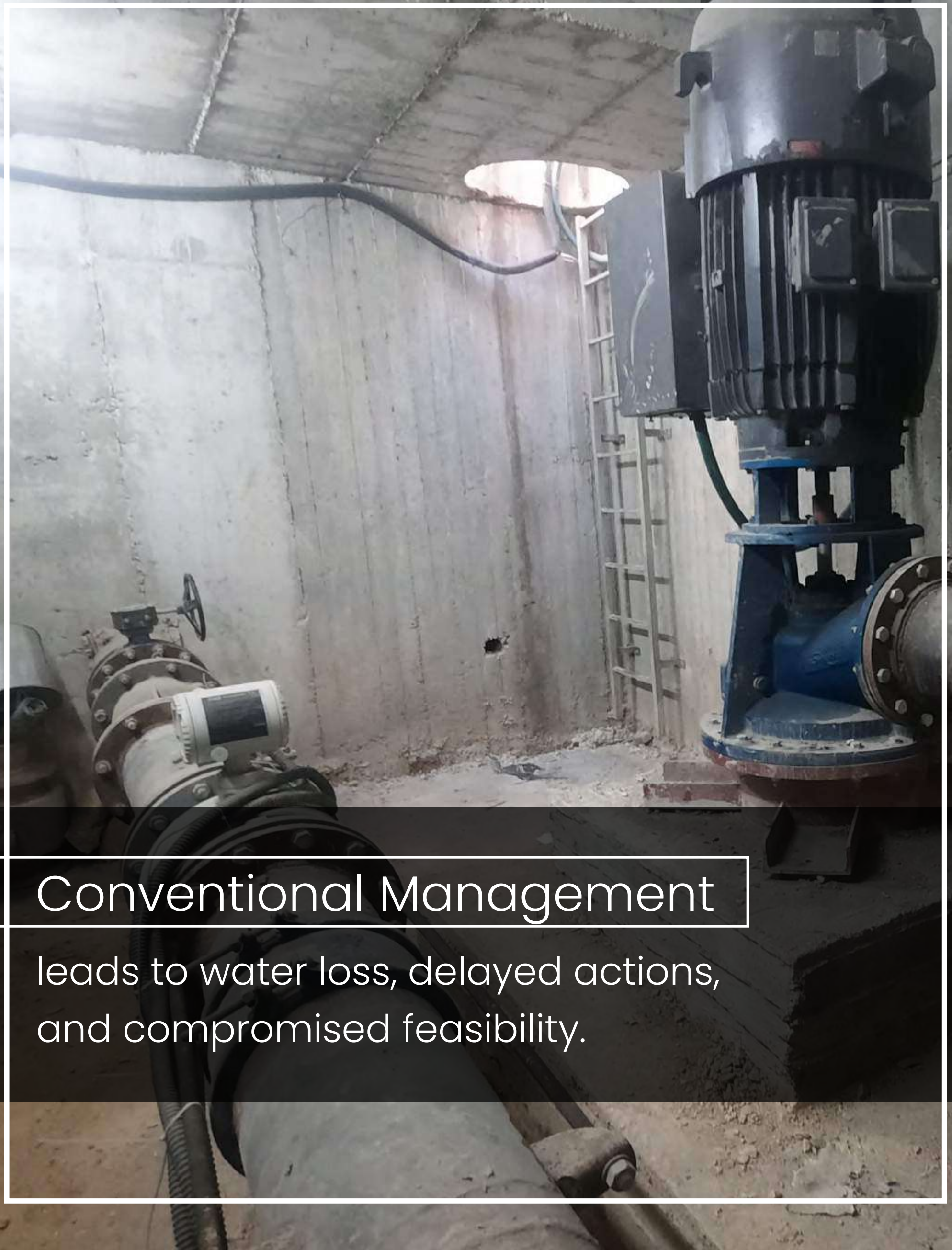
The Shortcomings of the Status Quo

The conventional water networks' management approach is one of the main causes of water loss problems.

Such approaches depend highly on human intervention & site inspection for water quality monitoring & consumption tracking, resulting in inefficient operation & delayed actions.

The lack of precise & continuous field data hinders the consumption tracking process. To address these challenges, they need to collect data at the right frequency for accurate insights and quicker fault detection.

To make matters worse, the manual handling & analysis of the collected data add to the problem .It's time to empower daily operational management for a more efficient & responsive water system.



Conventional Management

leads to water loss, delayed actions, and compromised feasibility.

EFFICIENCY UNLEASHED: Transforming networks operations

WATER TECH IN SALFEET

The “What” & The “Why”

Flowless team worked with Salfeet Municipality on deploying Flowless smart system to monitor water supply and control operations.

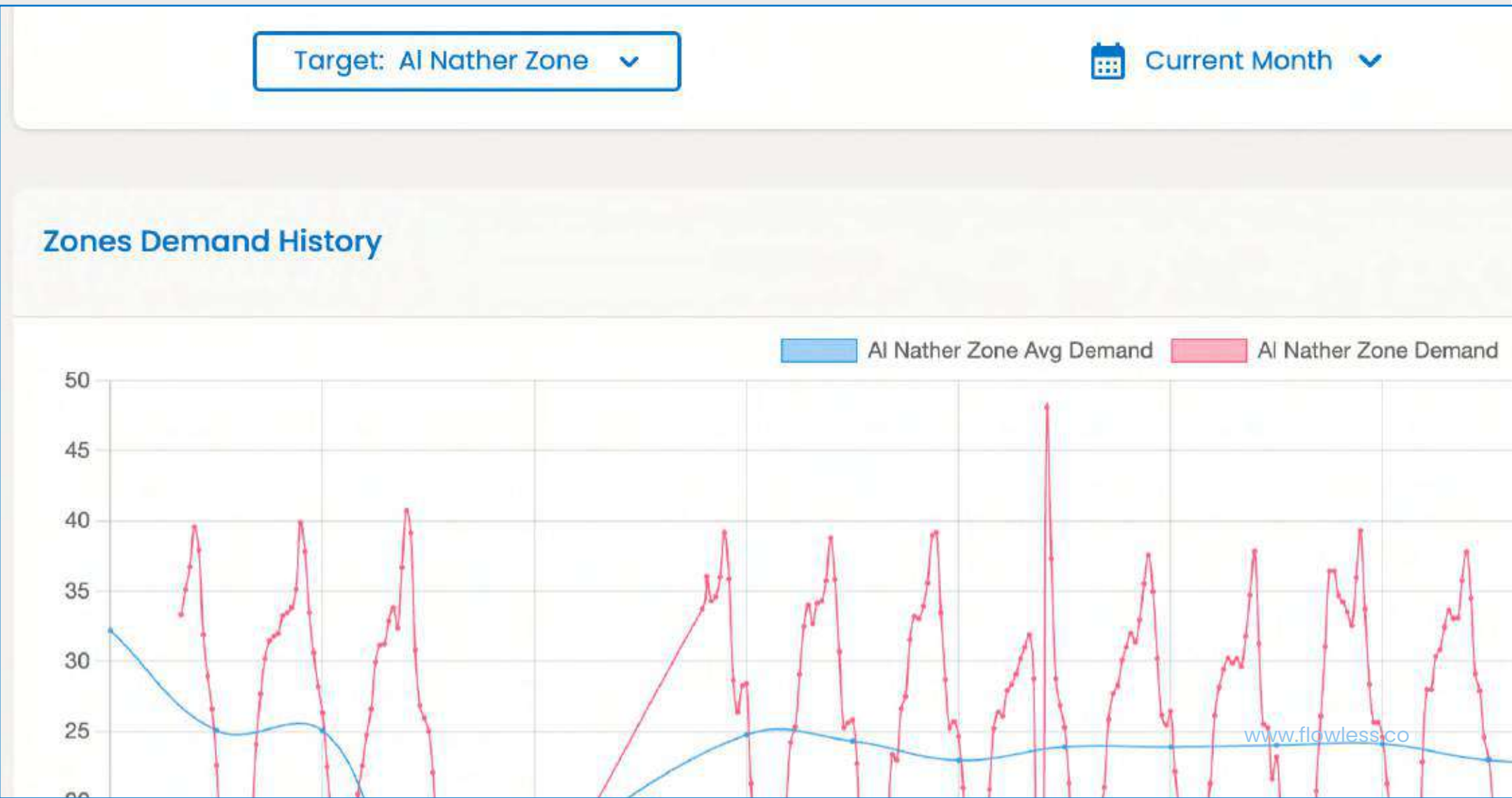
Flowless interventions included network assessment, data transmitters installation, and providing Flowless web platform for the Salfeet Municipality to monitor water flow and pressure in real-time. The aim was to:

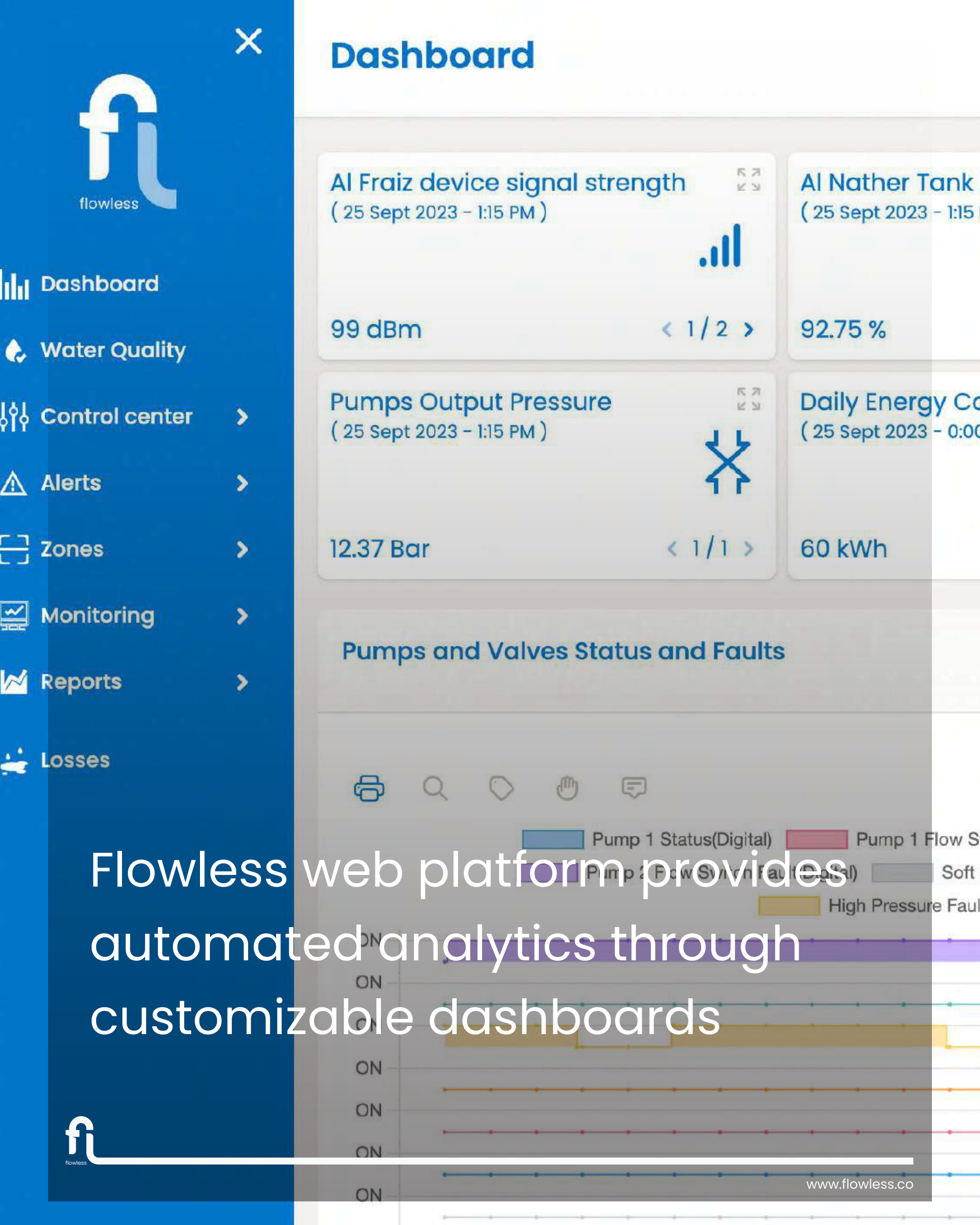
1. Collect real-time data on water supply and water quality

2. Monitor water flows for active leak detection

3. Monitor and control pumps operations and reservoirs

Water network operators in Salfeet utilize Flowless’ web platform to track network operations, detect issues as they emerge, and control water pumps for effective water supply.

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Dashboard
Water Quality
Control center
Alerts
Zones
Monitoring
Reports
Losses
Dashboard
Al Fraiz device signal strength
(25 Sept 2023 - 1:15 PM)
99 dBm
1 / 2
Al Nather Tank
(25 Sept 2023 - 1:15
92.75 %
Pumps Output Pressure
(25 Sept 2023 - 1:15 PM)
12.37 Bar
1 / 1
Daily Energy Co
(25 Sept 2023 - 0:00
60 kWh
Pumps and Valves Status and Faults
Pump 1 Status(Digital)
Pump 1 Flow S
Soft
High Pressure Faul
ON
ON
ON
ON
ON
Flowless web platform provides automated analytics through customizable dashboards
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Collecting real-time data for active

leak detection

and water losses reduction

FLOWLESS IN ACTION:

Water saving in Salfeet

ENHANCING SUPPLY EFFICIENCY

One leak at a time

So, how does water networks operators in Salfeet utilize Flowless' platform to manage their daily operations?

• Night flow analysis: Analyzing flow data during low-demand periods helps detect leaks that aren't easily noticeable during the day. Flowless platform automatically performs minimum night flow analysis and report leaks in the network as soon as they emerge

• Alarms & alerts: Setting up automated alarms or alerts to notify operators when certain thresholds are exceeded, helping them respond promptly to potential issues. E.g., if the pressure in a DMA drops below a predefined threshold, an alarm can be triggered, indicating a possible leak or pipe burst.

• Anomalies detection: Flowless algorithms identifies consumption patterns based on historical data. AI-aided analytics utilize flow predictions to spot anomalies in pressure and flow data to detect leaks in each zone of the network.

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Dashboard

Water Quality

Control center

Alerts

Zones

Monitoring

Reports

Losses

Energy Monitoring

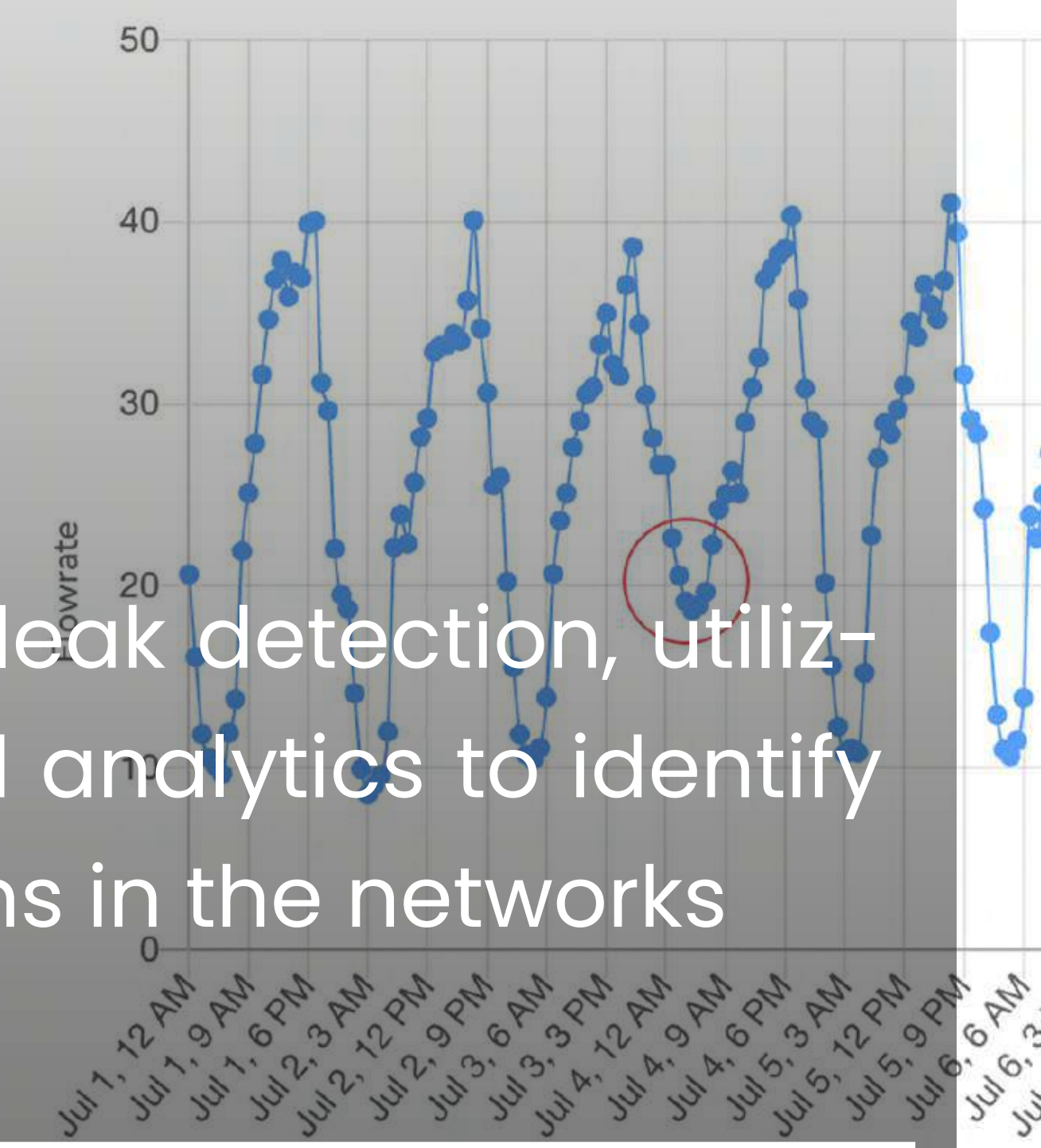
Pumps Monitoring

Tanks Monitoring

Losses

Normalization | Leak Calculations

Minimum Night Flow Analysis



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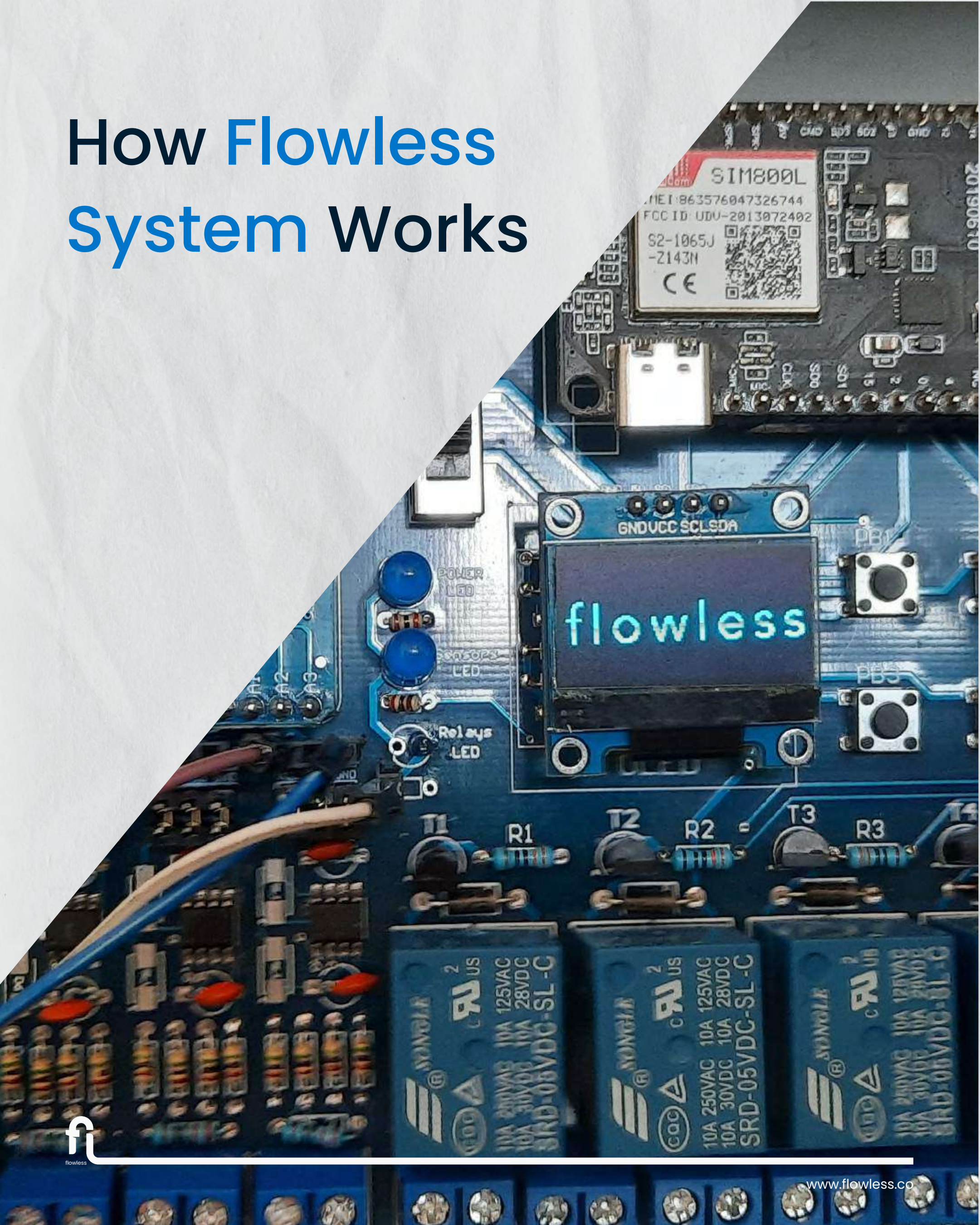
Automated leak detection, utilizing AI-aided analytics to identify leak locations in the networks

Salfeet Municipality saves

10,000,000 liters of water

through leak detection using Flowless technology

How Flowless System Works



FLOWLESS APPROACH

And System Design

Flowless integrates emerging technology, innovative financing, and social responsibility to support water utilities in enhancing water efficiency.

Flowless helps water utilities in improving daily operations and resource efficiency with a comprehensive system that utilizes emerging technology to monitor and control daily operations.

The system uses smart devices to collect real-time data from the water network and facilities, and then Flowless web platform, equipped with artificial intelligence, provides interpretations and analytics that influence active decision making.

Water networks operators use Flowless platform to automate operations and optimize processes , reducing waste and improving efficiency. The benefits are improving feasibility and maximizing productivity.

Supporting Salfeet Municipality to improve productivity, reduce costs, and maximize returns

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SMOOTH TECH TRANSITION

Agile Deployment for Smooth Tech Adoption

Meet Yousef Alqam, head of water department at Salfeet Municipality. Yousef is in charge of water supply management. His key responsibility is maximizing quality of service for the local community.

We've been supporting Yousef on solving the municipality's biggest water challenges like water losses and operations efficiency.

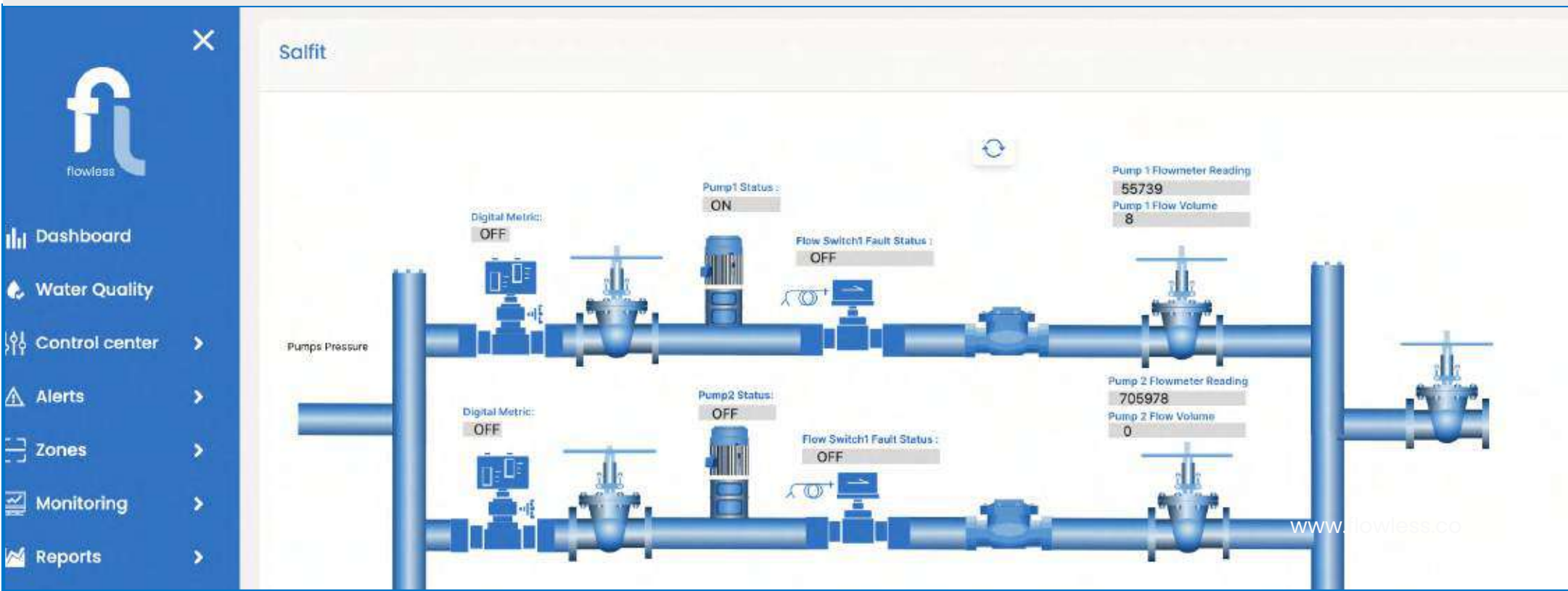
Smooth tech adoption is the KEY. The journey starts with setting clear and practical implementation plans. Here is how we did it in Salfeet:

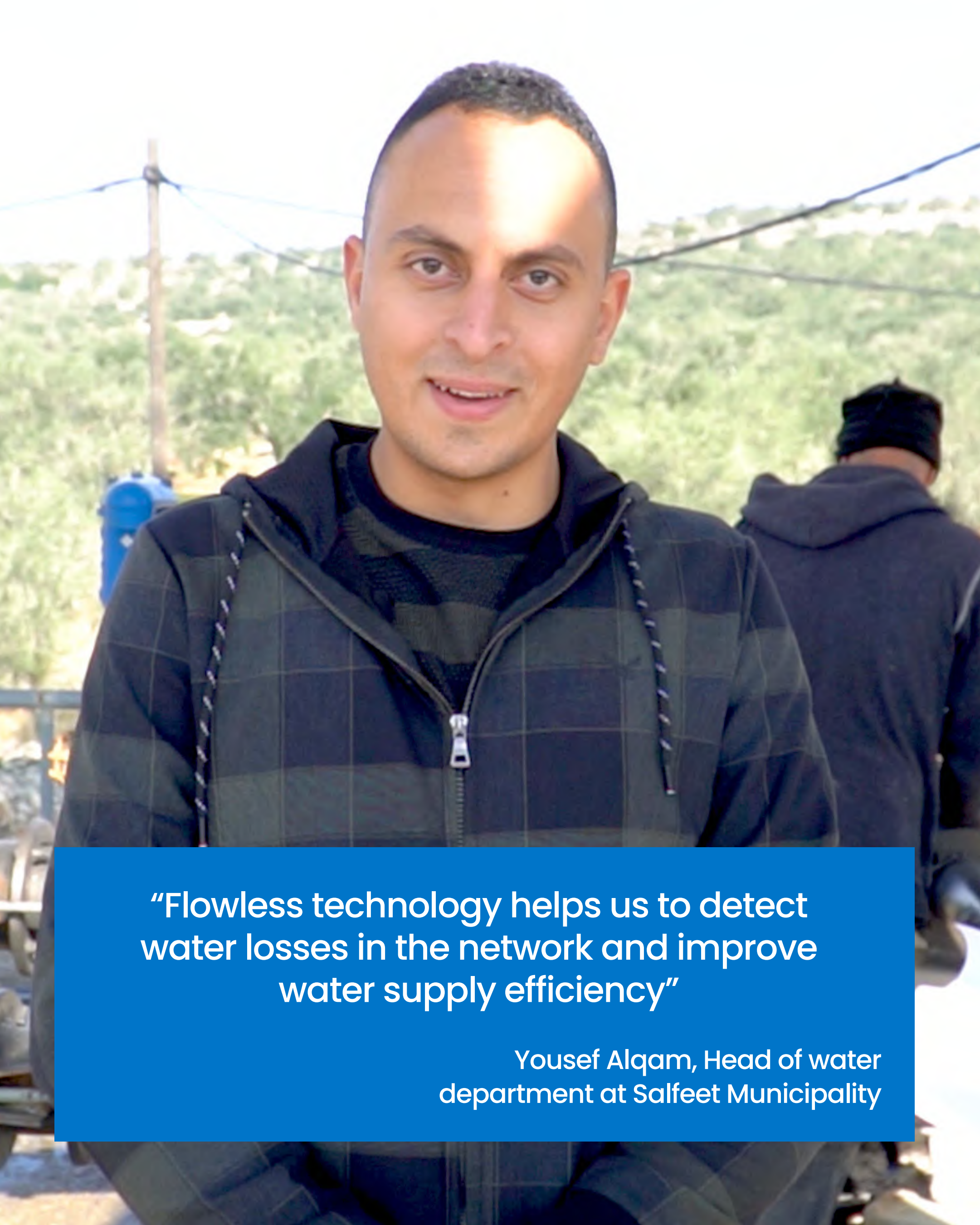
1. Define the municipality's targets: to enhance water network efficiency, reduce workload, and provide reliable water supply for Salfeet.

2. Revisit the water network & facilities: to evaluate the daily fieldwork, assessing daily tasks, time allocation, and responsibilities.

3. Look for ways to improve: after setting the priorities and identifying pain points, we start looking for way to tackle each of these pain points

4. Implementation: then time comes for the easy part: implementation!





“Flowless technology helps us to detect water losses in the network and improve water supply efficiency”

Yousef Alqam, Head of water department at Salfeet Municipality

“Flowless technology offers a practical solution to minimize water loss & paving the way for a more sustainable future”

Loay Al-Atrash, Project Manager at World Waternet

THE OUTCOMES

How Water Utilities like Salfeet Benefit from Flowless Technology?

• Operations Monitoring: Enabling remote operations for pumps and valves control.

• Process optimization: Automatic optimization of water distribution based on flow and consumption data.

• Detecting operational abnormalities: Immediate detection of any fault or anomaly that arises in the water networks.

• Automated & accurate leak detection: Automated leak detection and accurate leak localization through AI-aided analysis

•Powerful analytics & reporting: Highly customizable reports are generated automatically with a minimum human invention to meet the user's needs.

Reports include daily and monthly flow tracking, leakage reports, and water balance

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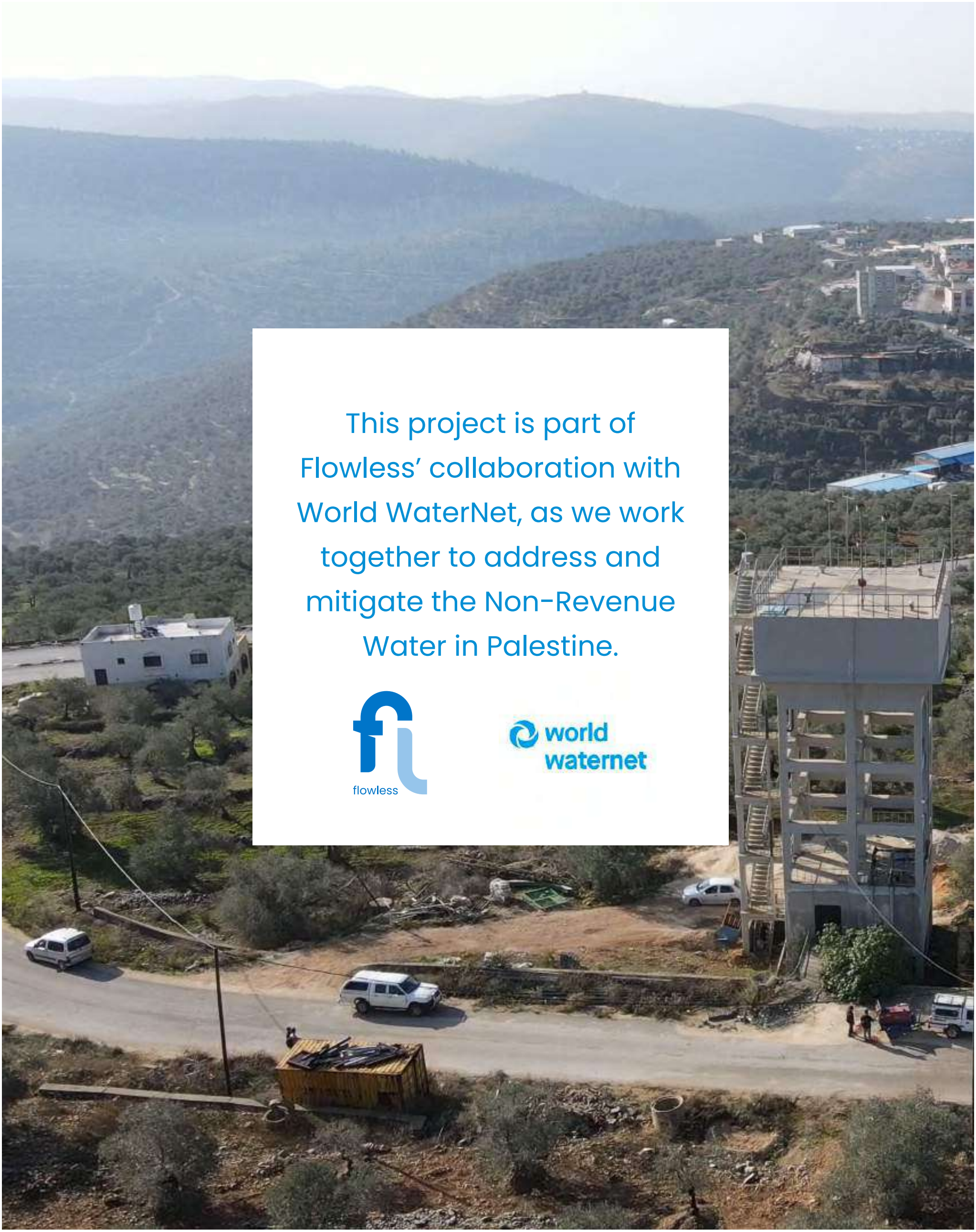

This project is part of Flowless' collaboration with World WaterNet, as we work together to address and mitigate the Non-Revenue Water in Palestine.

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Technology, Sustainability, Resilience.

Join forces to generate positive impact for sustainable resources and resilient communities. Let’s work together!

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