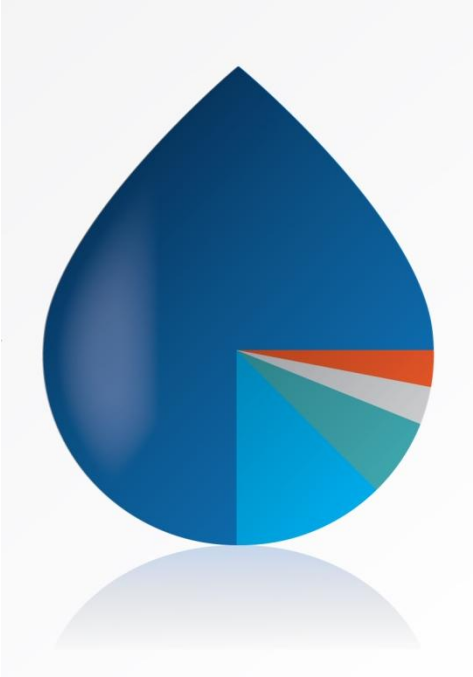
Nov 23, 2011 Dubai, UAE

Efficient Network Operations. Different Aspects of Leakage

Network operations function. Leakage implications. Real-life examples and learnings from Sofia. Simple conclusions.



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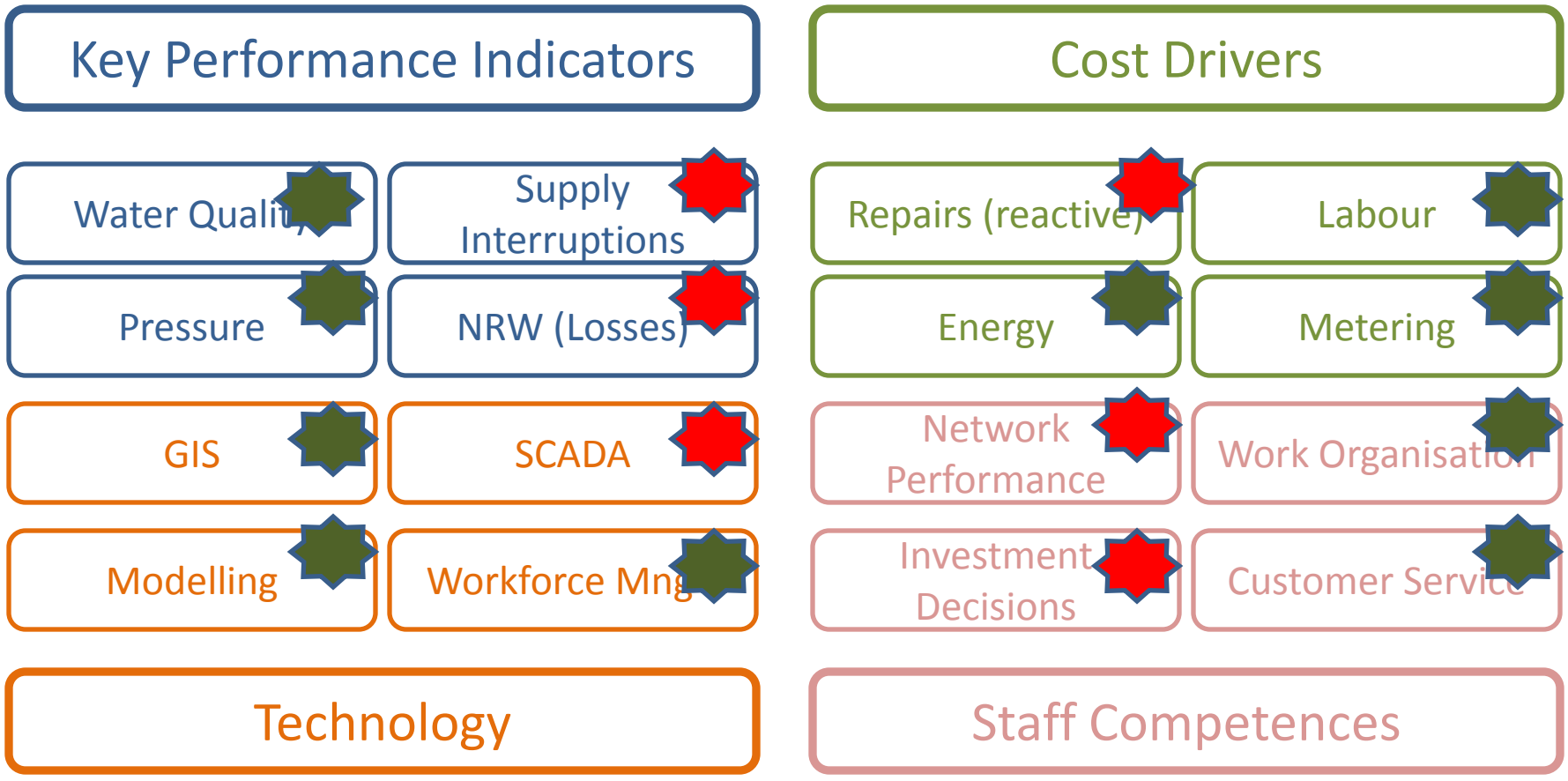
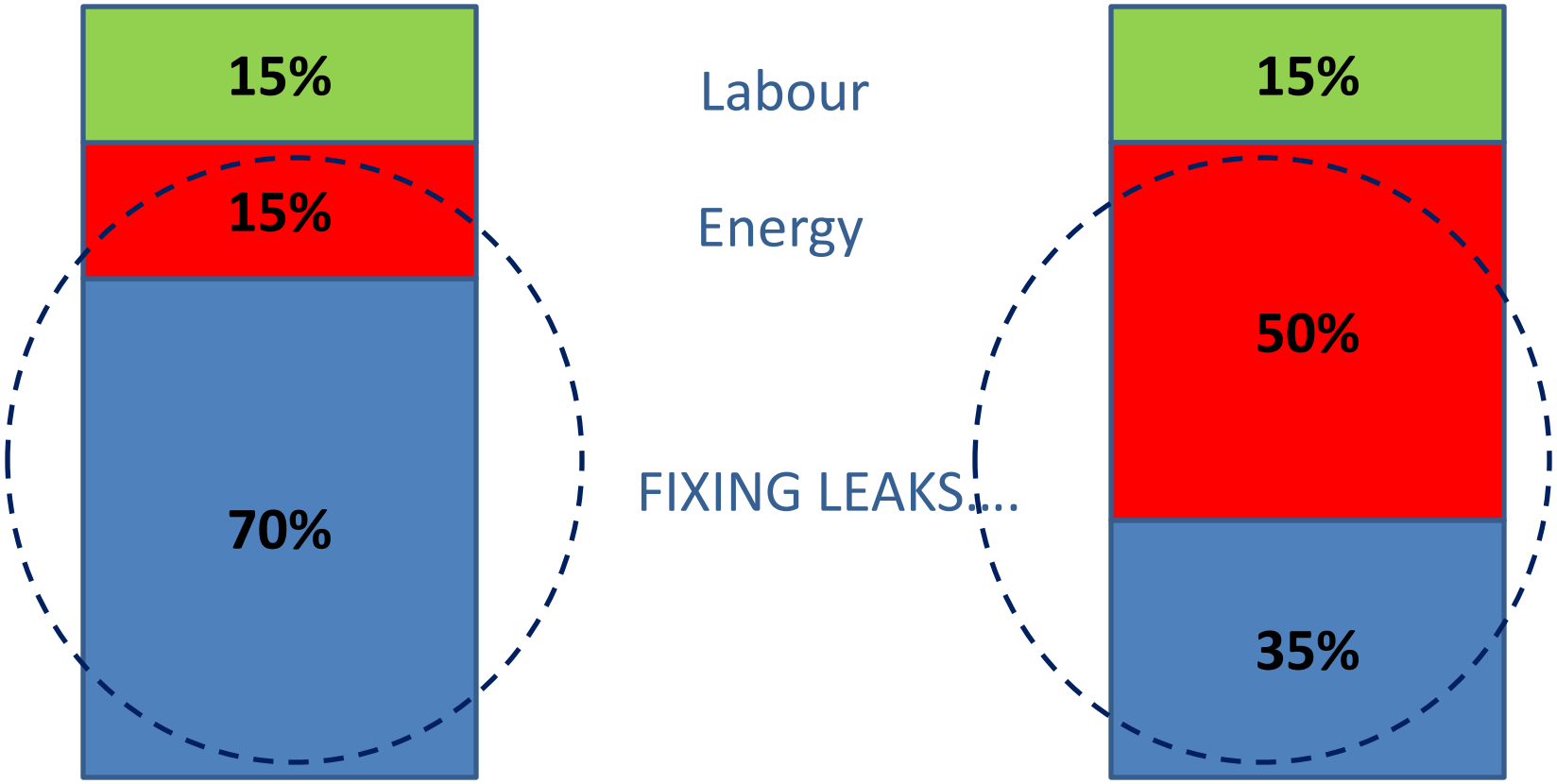
The Job of the Netwok Manager



Network Mng't: Cost Structure



Prioritisation

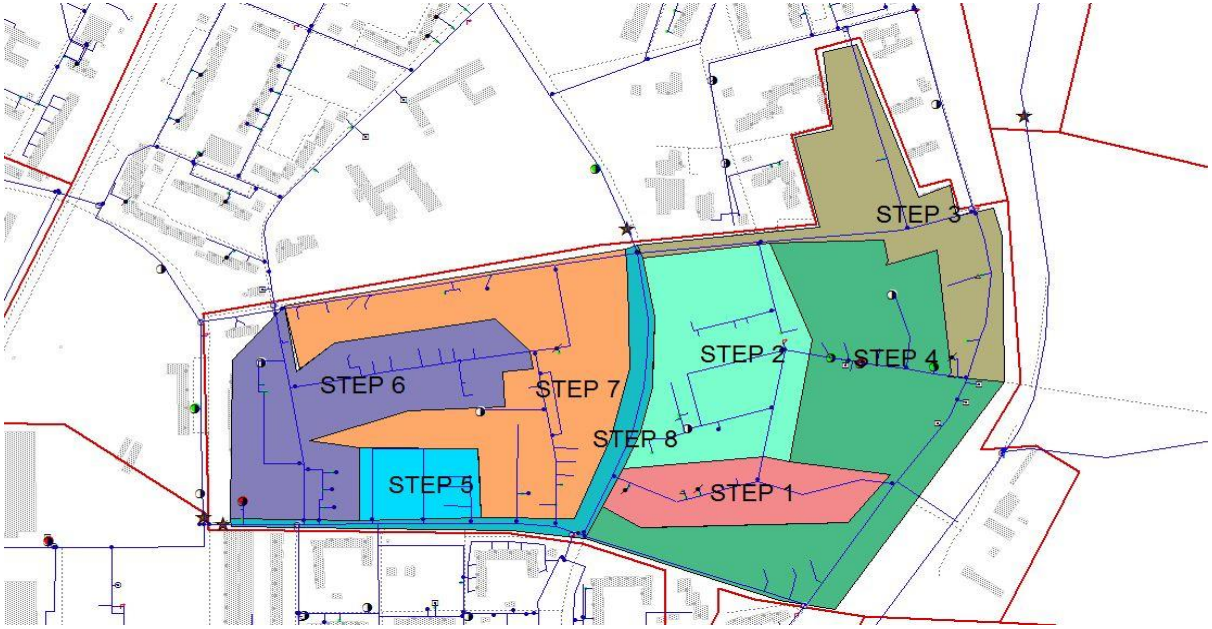
Priority	Number of zones in this group	Losses - % of Total	Length of network	Number of bursts (per year)
High	10	15%	< 200 km	> 2 000
Medium	20	15%	Approx. 500 km	> 2 000
Low	130	70%	> 3000 km	Approx. 5 000

Target: Handle Top 10 zones:
- 50% reduction of losses = 7.5% of total NRW reduction;
- 50% reduction of leaks = 10% of OPEX on repairs saved

Focus on 5% of network & target 50% reduction

Case Study: Selected Zone

Zone 454	
Length of mains	8 900 m
Population	10 497
Connections	300
Large customers	19
Special clients	1 hospital
MNF	168 m3/h



A zone worth trying: network length relatively small, number of connection as well, MNF per km quite high…

Basic Strategy for Handling the Zone

Analyse Zone balance (profile of water into supply)

Step testing in exhaustive detail

Focus on house connections

Check all stop, wash-out valves and hydrants

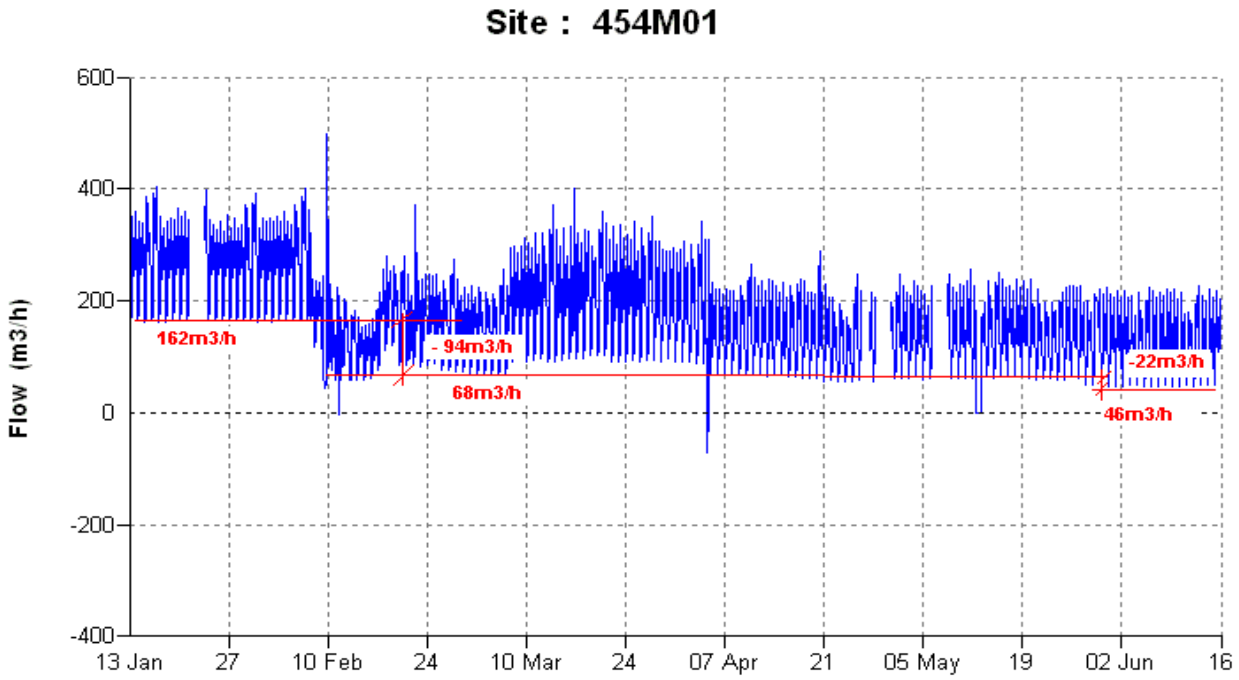
Proactive: correlation after step testing

Finding and repairing a golden leak is a desired but highly unlikely scenario. A combination of measures will probably direct us to a number of silver ones…

Reality: Network Condition

- Steel network in bad condition
- Pressurised house connections
- 30% of valves not found…
- Wash-out valves leaking
- Sectoring resulted in quality issues…

Two months later…



SUMMARY OF MEASURES
20 Large-diameter valves repladed (up to 400mm)
42 house connections replaced
1 wash-out valve found open
2 hidden leaks repaired
Whole area step tested and correlated twice

Case Study Conclusions

Prioritisation at zone (DMA) level is a must

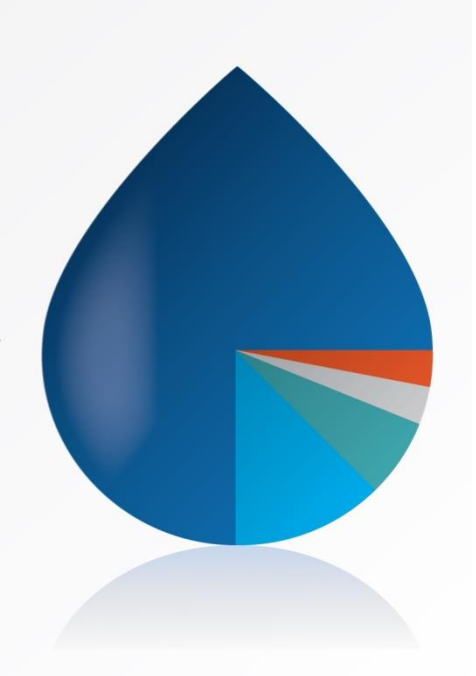
MNF useful and practical as an approach: keep it low

Assets: pipe are important but valves even more

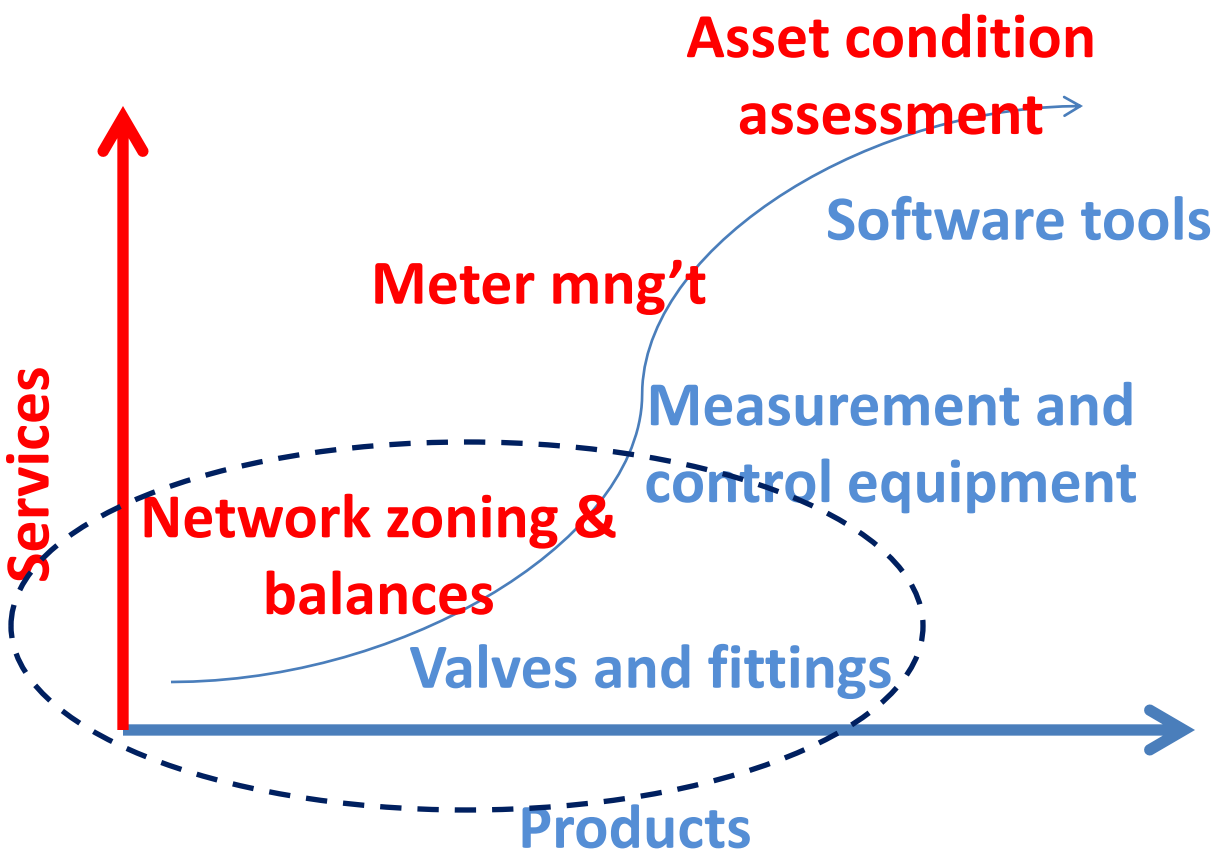
Integrity of infrastructure, tools and services: driven by operations requirements and management principles

The Backbone of WATO

- Understanding operations
- Practically proven
- Academically sound
- Business oriented
- Reliably and responsibly produced



The Concept of WATO. Simplified



Our mission: to develop sustainable water systems

Our vision: to be preferred provider based on innovation and cost-effectiveness

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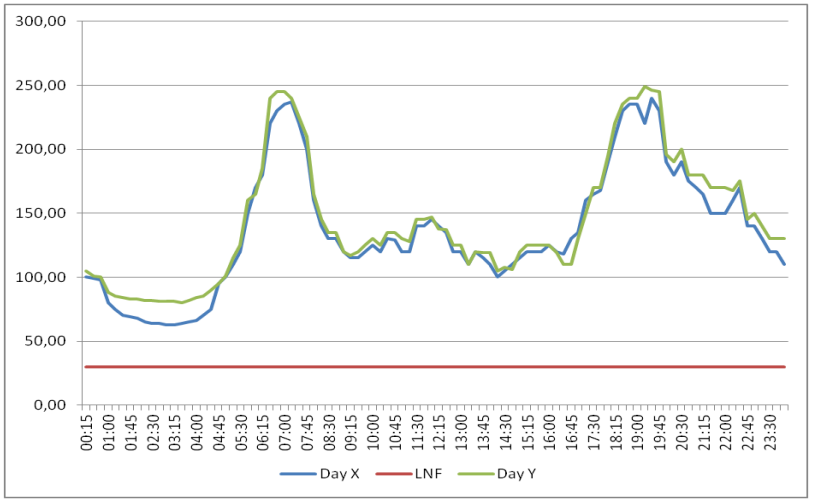
Next Step: Collecting the Expertise



Understanding zone balances

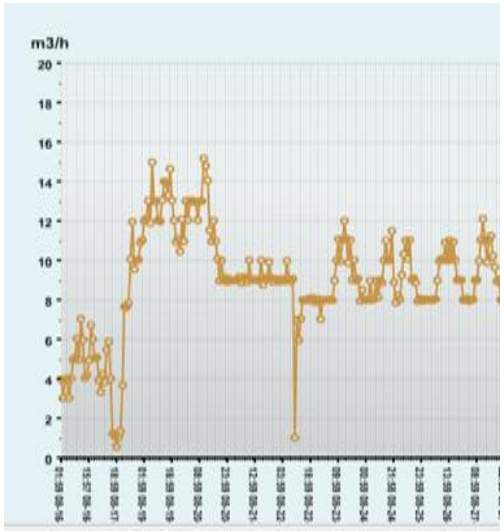
Key prioritisation approach

Practicality of night flow comparisons

Commercial losses focus

Meter under-registration

Geo-positioning of meters



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Sustainable Infrastructure: WATO Control Valve

Solution areas

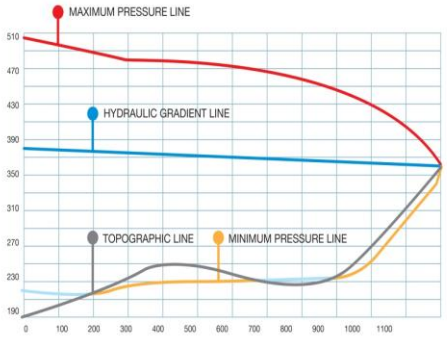
- Water hammer
- Pressure management
- High-rise buildings

Key characteristics

- High-flow capacity
- No cavitation
- Low-flow stability

Sustainable Infrastructure: Delivered by WATO

Preliminary hydraulic analysis



Product delivery

Project implementation

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