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 Presenter - Cobus Compion


Available tools to prioritise WC/WDM initiatives








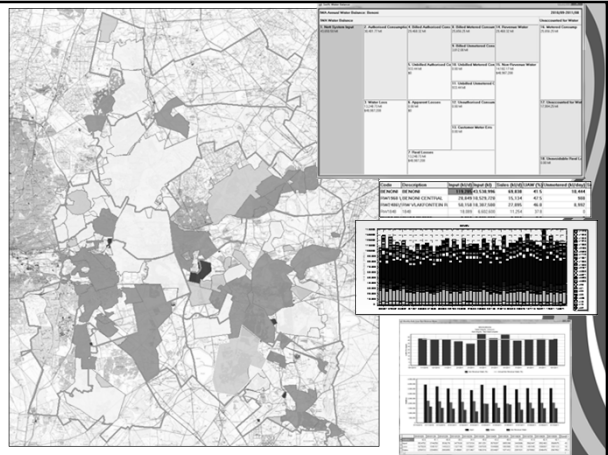
Available tools to prioritise WC/WDM initiatives

- Hydraulic models valuable tool for WC/WDM
- Geospatial Billing System Analysis - SWIFT
- Pipe Replacement Prioritisation – PRP Module




Hydraulic models valuable tool for WC/WDM 


- ILI
 - number of connections
 - Pipe length
 - Pressure
- Optimal Sectorisation
- Optimal Pressure Management
- Redundancy evaluation when doing replacements
- Accurate basis for calculating benchmarks
- Models not currently a legislative requirement
- 6 of 8 Metros have models

The screenshot shows a complex software interface. On the left is a map of a city with a network of pipes. On the right, there is a data table with columns for 'Area', 'Connections', 'Length', and 'Pressure'. Below the table is a bar chart showing data for different areas. The interface appears to be a GIS or data analysis tool.

Geospatial Billing System Analysis through SWIFT treasury data analysis 

- Demands for Hydraulic Modelling
- Improves accuracy of water balance
- Tool to address Apparent Losses
 - Helps to identify unauthorised consumption
 - Identify unmetered areas
 - Identify problem meters
 - Identify stands with zero consumption



Maps of stands with water consumption 



The image shows an aerial photograph of a residential area. Overlaid on the map are various colored shapes and lines, likely representing individual stands or buildings and their associated water consumption data. The map is used to visualize the spatial distribution of water usage.



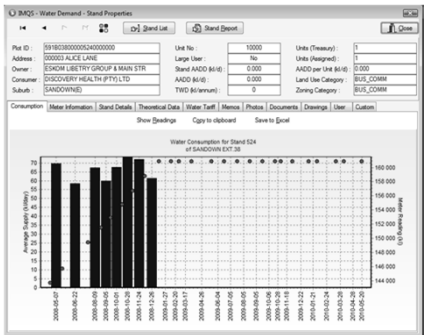
Formal and informal areas



Formal area, No Treasury



Stands with Constant Consumption



Stands occupied with zero consumption



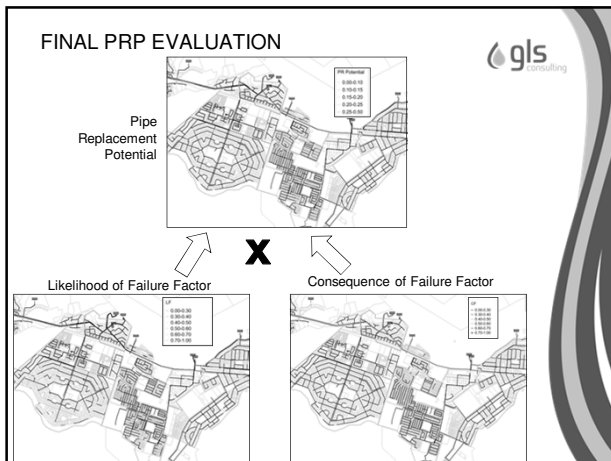
Pipe Replacement Prioritisation Software



GENERAL PRINCIPLES



- Pipe replacement prioritisation (PRP)
- Probability of Failure (PoF)
- Consequence (C)
- PoF x C = RISK (in monetary terms)
- Intervention
 - Replacement reduces risk
- Target: Optimize Return on Investment (ROI)
- Why not possible?
 - Statistical information not readily available



- ### LIKELIHOOD OF FAILURE
- Contributing Factors
- Nominal diameter
 - **Reserve water pressure ratio**
 - **Catalogue remaining useful life**
 - **Master plan item (required upgrade)**
 - Bulk zone leakage volume
 - Pipe material in combination with geology
 - High corrosion potential for steel pipes
 - Undesired pipe material (e.g. AC)
 - High static-dynamic pressure range
 - **High failure frequency**
 - Assessed Condition (where available)

LIKELIHOOD OF FAILURE

• Typical Weighting Factors

Likelihood of Failure Property	Weight
Nominal diameter	5
Reserve water pressure ratio	10
Remaining useful life	20
Master Plan item	10
Leakage volume	5
Material and geology	5
Corrosion potential	2
Undesired material	10
High static-dynamic range	2
Failure Frequency	46
Condition Assessment (typically N/A)	0

