



# Bitou Municipality Engineering Services Water Services Section An Overview - Water Losses

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**To infinity and beyond.....**

# Presentation Outline

- Introduction to Bitou Municipality Water Services
- Non Revenue Water and Water Losses
- Bitou Municipality – Water Losses
- Planned Interventions (to infinity and beyond)
- Closure



# OVERVIEW

## BITOU MUNICIPALITY WATER SERVICES



# BITOU MUNICIPALITY – AT A GLANCE

- Bitou Municipality Quick Stats:
- 992m<sup>2</sup>
- Estimated 50,000+ residents
- Coastal resorts of Natures Valley, Keurboomstrand
- Kurland, Wittedrif, Plettenberg Bay, Kranshoek, Harkerville





# OVERVIEW– WATER SERVICES

- Consistent high achiever – water quality standards
- WSA, WSP
- 20,600 households – billed for water





# OVERVIEW - WATER SERVICES

**Current Demands: 10ML/d (4Mm<sup>3</sup>/a)**

- **Groot River – Natures Valley (**
- **Wit River and Boreholes – Kurland ( 6Mℓ/d= 6053kℓ/d)**
- **Boreholes - Harkerville (1,9ML/month/ 0.1 ML/d)**
- **Keurbooms River (105ℓ/s or 9ML/d)**
- **Piesangs River off channel storage - Roodefontein Dam – capable of 290ℓ/s, allocation = 145ℓ/s= 12,5ML/d**
- **7 boreholes – 1Mℓ/d**
- **Desalination Plant 2Mℓ/d**





# OVERVIEW - WATER SERVICES continued

32 reservoirs (storage)

70 pump stations

Water quality laboratory

2 waste water treatment plants

3 water treatment plants

80+ staff including 14+ process controllers



# NON REVENUE WATER





## NON-REVENUE WATER

Represented as the % of total amount of water produced

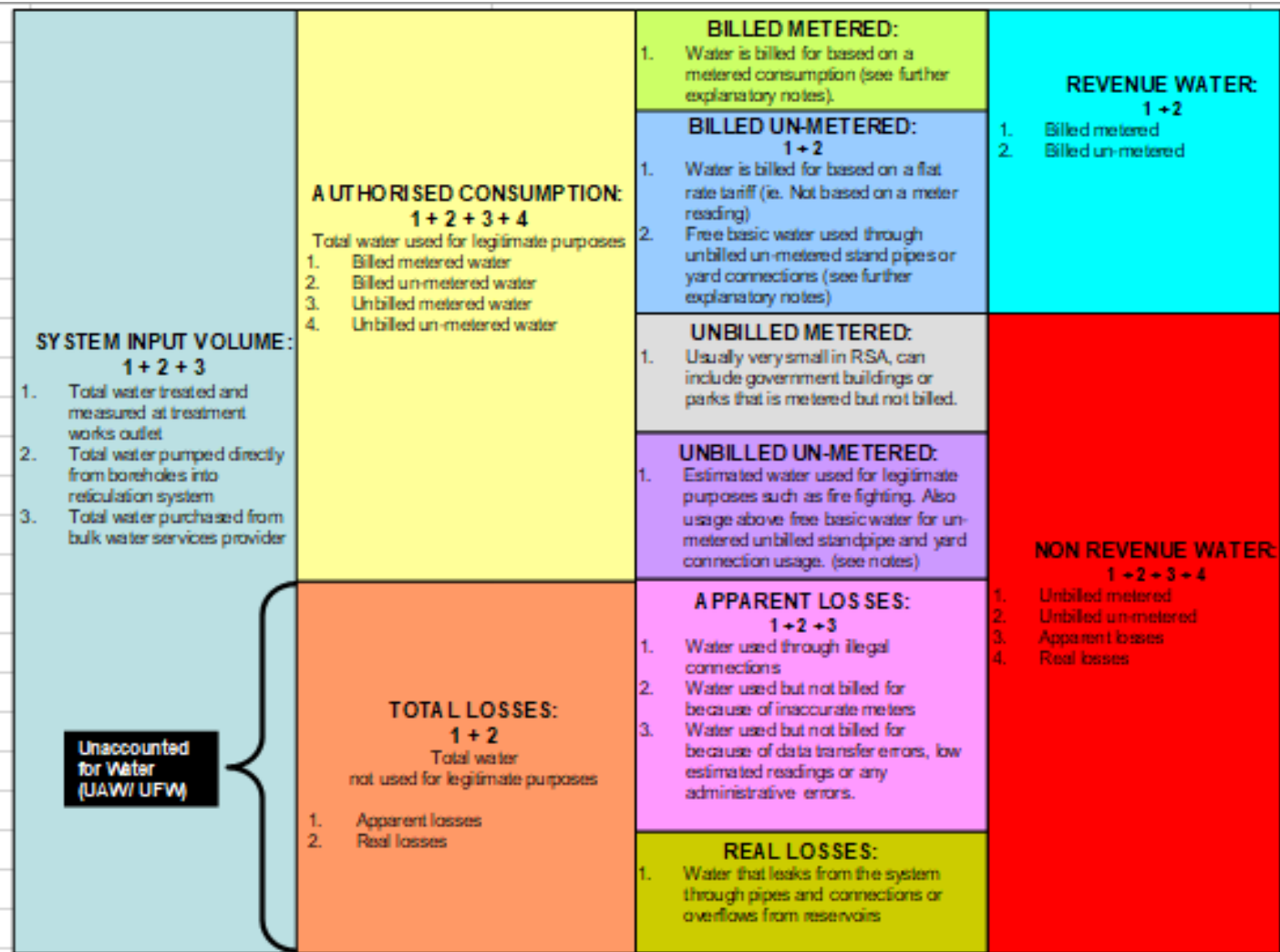
NRW = Unbilled Authorised Consumption + **Water Losses**

- Authorised Consumption: metered and un-metered
- Authorised Metered : municipal properties, etc.
- Authorised Not metered: unplanned activities eg. fire fighting, maintenance activities (sewer lines, stormwater)



# NON-REVENUE WATER

## The International Water Association Standard





# NON-REVENUE WATER

Represented as the % of total amount of water produced



# WATER LOSSES

Difference between system input volume (treated water) and the authorised consumption

Comprised of :

- Real/Physical Losses – Bursts, Overflows, Leaks
- Apparent/Commercial Losses – unauthorised connections, poor/lack of metering data and admin errors, etc)
- Note: UARL – absolute minimum





# The High Cost of NON-REVENUE WATER

## Leaks



Leaks are the largest component of real losses, with 75% of drinking water investment needs being repair and replacement of leaky pipes.

## REAL LOSSES

Real losses are the physical losses of water from the distribution system.



A small component of NRW includes necessary but unbilled activities such as firefighting, hydrant flushing, municipal construction, and street sweeping.

## Water Loss in the U.S.

- We lose about seven billion gallons of water per day
- The amount of water lost in one year is enough to supply the ten largest cities in the U.S.
- Lost water accounts for billions of dollars in lost revenue
- The amount of NRW for utilities is 10-30%

## Main Breaks

There are 650-700 main breaks per day in the U.S., or roughly 240,000 per year.

## Tank Overflows

## What is NRW?

Non-revenue water (NRW) is clean, treated drinking water delivered to the distribution system but not billed to customers.

## Meter Errors

## Theft

## Billing Errors

## APPARENT LOSSES

Apparent losses are non-physical losses that consist of water successfully delivered but not measured or recorded accurately.

## Slow the Flow

AWWA's **Water Audits and Loss Control Programs M36** methodology helps utilities find and control water loss:

- Lowers operation and maintenance costs
- Increases water availability
- Reduces the need for new sources and treatment plants
- Diminishes impacts from drought and climate change



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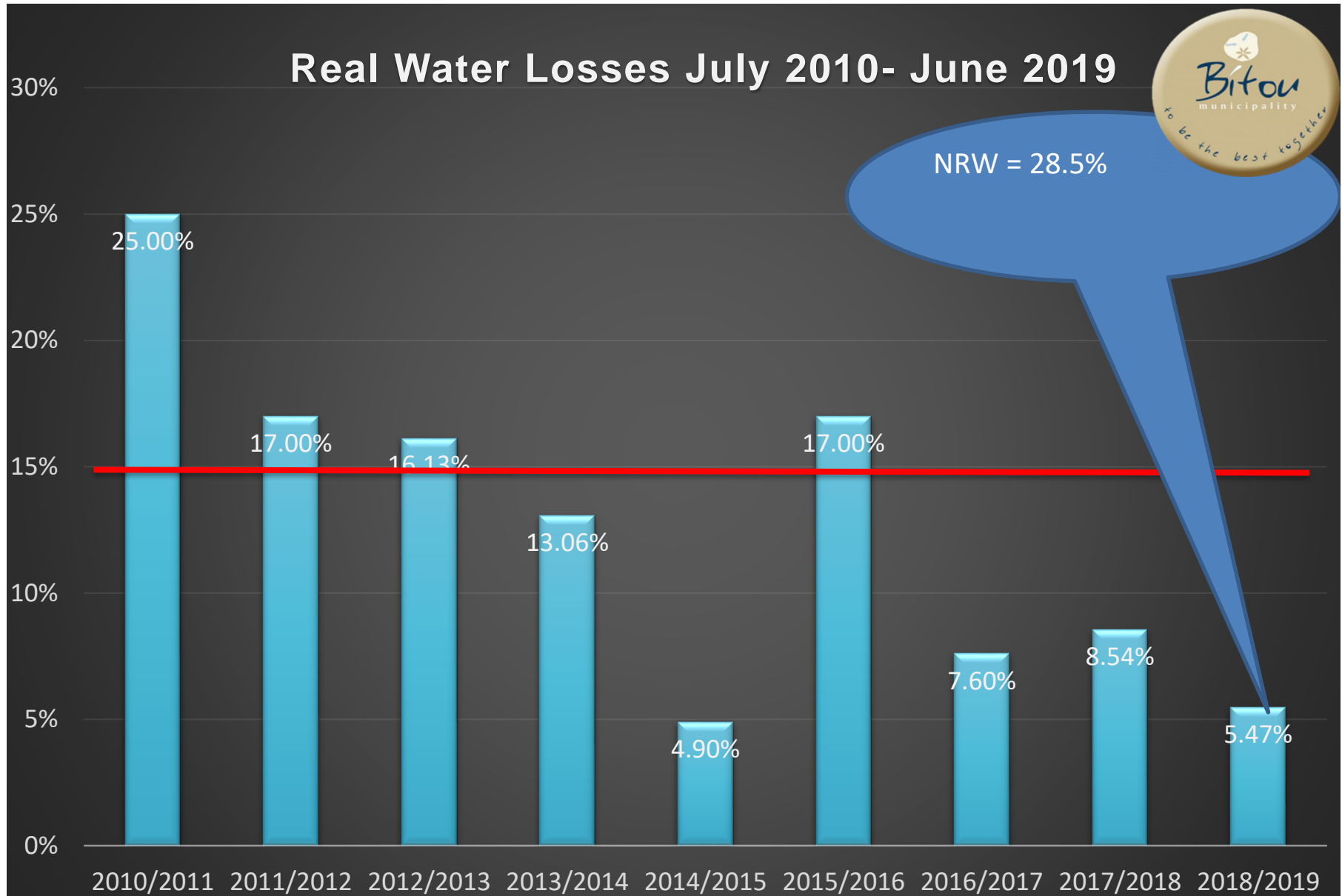
# NON REVENUE WATER

## Water Losses





# HISTORICAL REAL LOSSES



# WATER – A SCARCE RESOURCE

Report -1971

- Referenced Pumps – 1956
- Population 2900
- Water restrictions
- Need for augmented supply
- Tariffs and availability costs – generate income



# WATER – A SCARCE RESOURCE

Today:

Aging infrastructure

Population – 50,000+

Need to generate revenue

Need to meet growing demand





# WATER – A SCARCE RESOURCE- MILESTONES

## 1970s – 2000s

Periods of inadequate water continued  
further studies, schemes implemented as funding allowed

## 2009

Severe Drought; Southern Cape - declared a disaster area  
Bitou Municipality - Funding – Alternative water resources  
*(Boreholes and Desalination Plant)*

## 2009-present

Policy and Planning(WC/WDM)  
Losses and NRW – performance measurement (2012)  
Water Loss focussed – Water Loss Officer appointed  
War on Leaks Programme  
2017 – Stage 1 Restrictions due to low rainfall (lifted Sep 18)  
Further studies commissioned – Water resilience and less  
dependence on surface water – Storage dam- Wadrikt



# PRESENT INTERVENTIONS

## OPERATIONAL FOCUS --REDUCTION OF REAL WATER LOSSES

Pipeline replacement project

Retrofitting of aged bulk meters with smart meters – systematically.

Planned Focus on Telemetry upgrades, repairs reinstatement of defective equipment

Ensuring proper collaborative effort to maintain installed equipment – ICT, Revenue, Engineering, Customer Care

## STRATEGIC FOCUS

Continue to review of Policy and Planning(WC/WDM) to ensure remains relevant

Alternative Water Supply – Resilience studies continue



# PRESENT INTERVENTIONS

## POSSIBLE FURTHER INTERVENTIONS - REDUCTION OF APPARENT WATER LOSSES

Metering all fire connections (consolidation where possible)

Metering all informal areas

Metering all housing project areas

Checking databases for properties with existing buildings or electrical connections without water connections

Checking properties where connections were previously removed (illegal connections)





Baie Dankie  
Thank you  
Ndiyabulela

