NON REVENUE WATER REDUCTION STRATEGY
Draft

March 2019
1. Introduction
2. Vision and Objectives
3. NRW Reduction Strategy
4. NRW Reduction Organization
5. NRW Action Plan Year 1
THE NEED FOR NRW REDUCTION

- Expenditure is concentrated on meeting increasing customer demands
- Operational budgets are reduced especially in areas of network maintenance
- NRW Increases
- Revenues decrease and operational costs increase

- Expenditure is increased to include operational improvements
- Investments are made in further NRW reduction programmes
- NRW Decreases
- Revenues increase and operational costs decrease
# WATER BALANCE

<table>
<thead>
<tr>
<th>System Input Volume</th>
<th>Authorized Consumption</th>
<th>Revenue Water</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>Billed Authorized Use</td>
<td></td>
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<tr>
<td></td>
<td>Billed Unmetered Use</td>
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<tr>
<td></td>
<td>Unbilled Authorized Use</td>
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<tr>
<td></td>
<td>Unbilled Unmetered Use</td>
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<tr>
<td>Water Losses</td>
<td>Apparent Losses</td>
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<tr>
<td></td>
<td>Unauthorized Use</td>
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<tr>
<td></td>
<td>Metering Inaccuracies</td>
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<tr>
<td>Water Losses</td>
<td>Real Losses</td>
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<tr>
<td></td>
<td>Leaks on Transmission and/or Distribution Mains</td>
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<tr>
<td></td>
<td>Leaks on Service Connections up to Customer Meter</td>
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<td></td>
<td>Storage Tank Leaks and Overflows</td>
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Source: International Water Association
**Vision (Why)**
Enable WASCO to efficiently operate a water supply system that provides high levels of service to customers and makes efficient use of scarce national water resources

**Mission (Where)**
WASCO has reduced and is able to sustain NRW at economically sustainable levels

**Objective (What and when)**
Within 5 years WASCO has reduced NRW to less than 20% and implements a sustained NRW reduction program
NRW REDUCTION STRATEGY
YEAR 1

2019
Prepare the WASCO Organization for the sustained implementation of a NRW Program (2019) with the support of CATS/GIZ

2020 - 2024
NRW Reduction Program - Implementation
✓ Sustained implementation of the NRW program
✓ Regular monitoring and reporting
✓ Communication to customers and the regular public
ACTIVITIES YEAR 1

1. Finalize NRW Reduction Strategy (TF)
   ✓ Finalize NRW Reduction Strategy
   ✓ Obtain approval from GM and Board and ensure funding
   ✓ Formalize Organization Structure, appoint Project Manager & Staff
   ✓ Formal Kick Off and communicate NRWR Strategy to staff

2. Establish and implement key processes and procedures (TF)
   ✓ Repairs and communication (WS)
   ✓ Preventive Maintenance (WS)
   ✓ Customer Services Processes (integrate GIS)
   ✓ Prepare for and implement Water Audits

3. Implement GIS Action Plan(TF)
   ✓ Data entry in GIS (starting with PIZ)
   ✓ Speed up using GIS by CS and WS (apps?)
   ✓ Implement SOPs including feedback data into GIS

4. Design and implement metering program (PT)
   ✓ Design bulk metering program
   ✓ Install bulk meters in all selected locations
   ✓ Clean up all inactive account in customer database

TF = NRW Task Force      PT = NRW Project Team
5. Develop and test approaches and training of staff (PT)
   ✓ Establish DMA’s in PIZ
   ✓ Prepare for Water Audits
   ✓ Carry out two water audits
   ✓ Follow up on repairs

6. Assess Northern Distribution Line (TF/WS)
   ✓ Carry out hydraulic analysis and recommend measures
   ✓ Implement immediate repairs and replacements as needed
   ✓ Prepare long term development plan for Northern Line

7. Prepare M&E System (TF)
   ✓ Establish KPI’s and M&E Tool
   ✓ Start Monitoring

8. Prepare annual plan for year 2 (TF)
   ✓ Decide on (partial) outsourcing
   ✓ Decide on technical approach
   ✓ Decide on technical choices (pipes, materials, etc.)
NRW PROJECT ORGANIZATION

**Organization**

- Monthly reporting of NRW Task Force to GM/MT
- Appoint strong NRW Project Manager
- Appoint dedicated staff for NRW Project Team?
- Provide materials, equipment and transport
- Adopt a “CAN DO” Attitude and make project visible in WASCO
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