

# DETERMINING THE COST OF SERVICE

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# Outline

- Introduction and Background
- Defining Cost of Service
- Goals for cost of Service
- Evaluating the Cost of Service
- Introducing the NWASCO Cost of Service Model – NCoSM
- Challenges
- Discussion

# Introduction and Background

Optimal cost of Service or Reasonable cost of Service???

Optimal – ultimate goal by implementing best practice

Reasonable – **requires reason**

Our route!

# Unclear definitions of O & M/full costs

O&M cost

All apart from  
Depreciation and  
Finance costs

Full Cost

O&M plus depreciation  
and finance costs

Not very clear how to deal with:

- Receivables and payables
- Exchange losses
- Other provisions
- Capital costs/investments

# O&M or Capital?

- Extending a water line to a new growth area
- Installing a customer meter
- Adding a high service pump
- Replacing the motor of a high service pump
- Repairing a broken pipe
- Replacing 6m of piping that is broken in several places

# Capital Project Classifications

- Expansion – Extension of service.
- Upgrade – Improving the level of service
- Renewals and Replacements – Replace or extend the life of existing assets.

# What costs!!!

## Business Need:

### *Inside the Fenceline:*

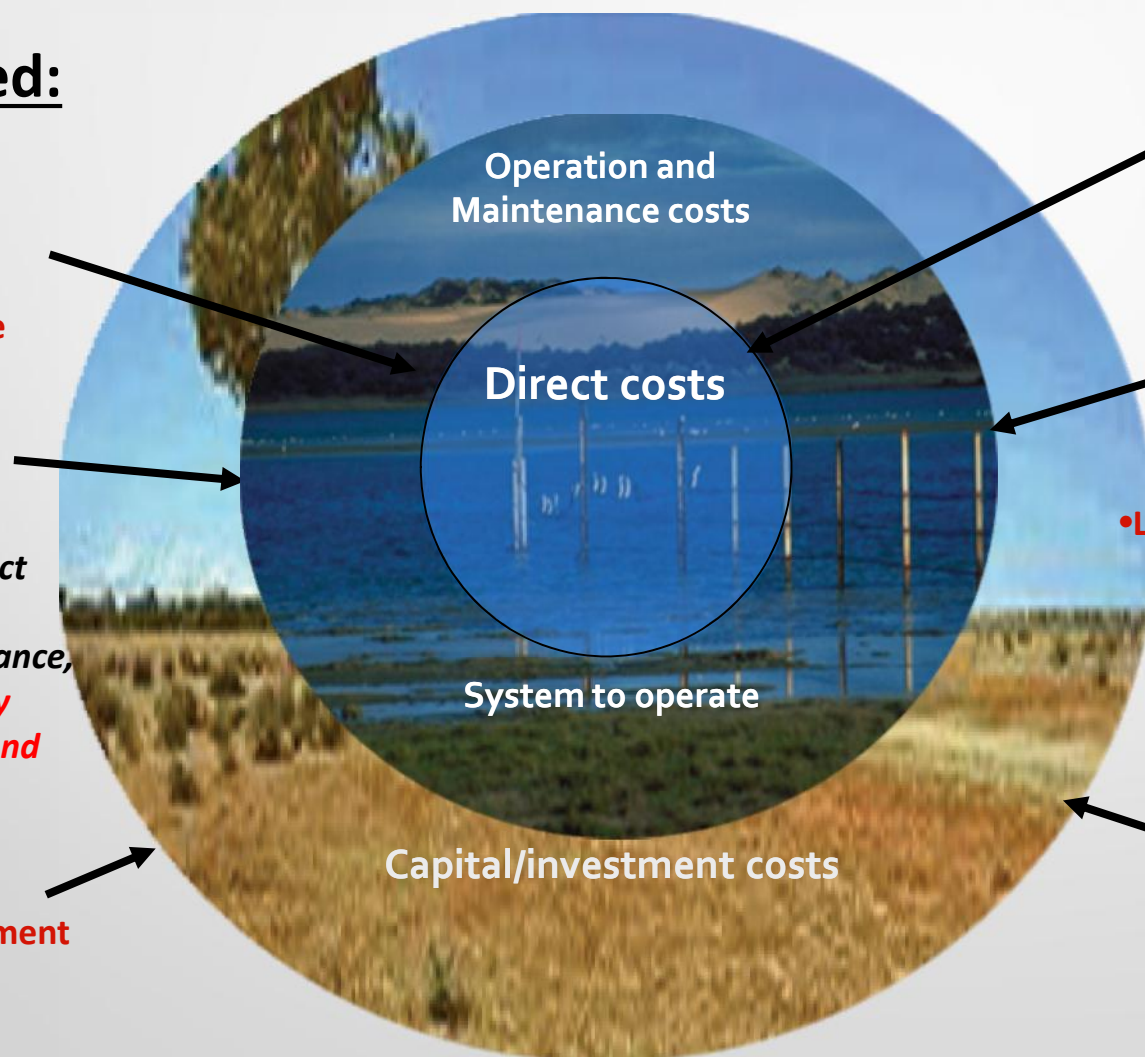
- Direct to produce (Marginal costing applicable) Must be covered by tariff

### *Middle line:*

Other costs e.g. Indirect labor, security, administration, insurance, etc (can be covered by tariff, cost reduction and efficiency measures)

### *Beyond the Horizon:*

- Growth from investment



## Areas of Risk:

### *Inside the Fenceline:*

- Idle assets
- Rising Costs

### *Middle line:*

- Rising costs
- Poor cost mgt
- Lack of efficiency gains
- Lack of economies of scale

### *Beyond the Horizon:*

- Access to funds

# Arriving at the Revenue Requirement in ZAMBIA

- Rate of Return – Cost plus methodology
- $RR = O\&M + \text{Depreciation} + \text{taxes} + \dots$
- Justifiable costs are key – in RoR system there is no incentive for cost reduction.

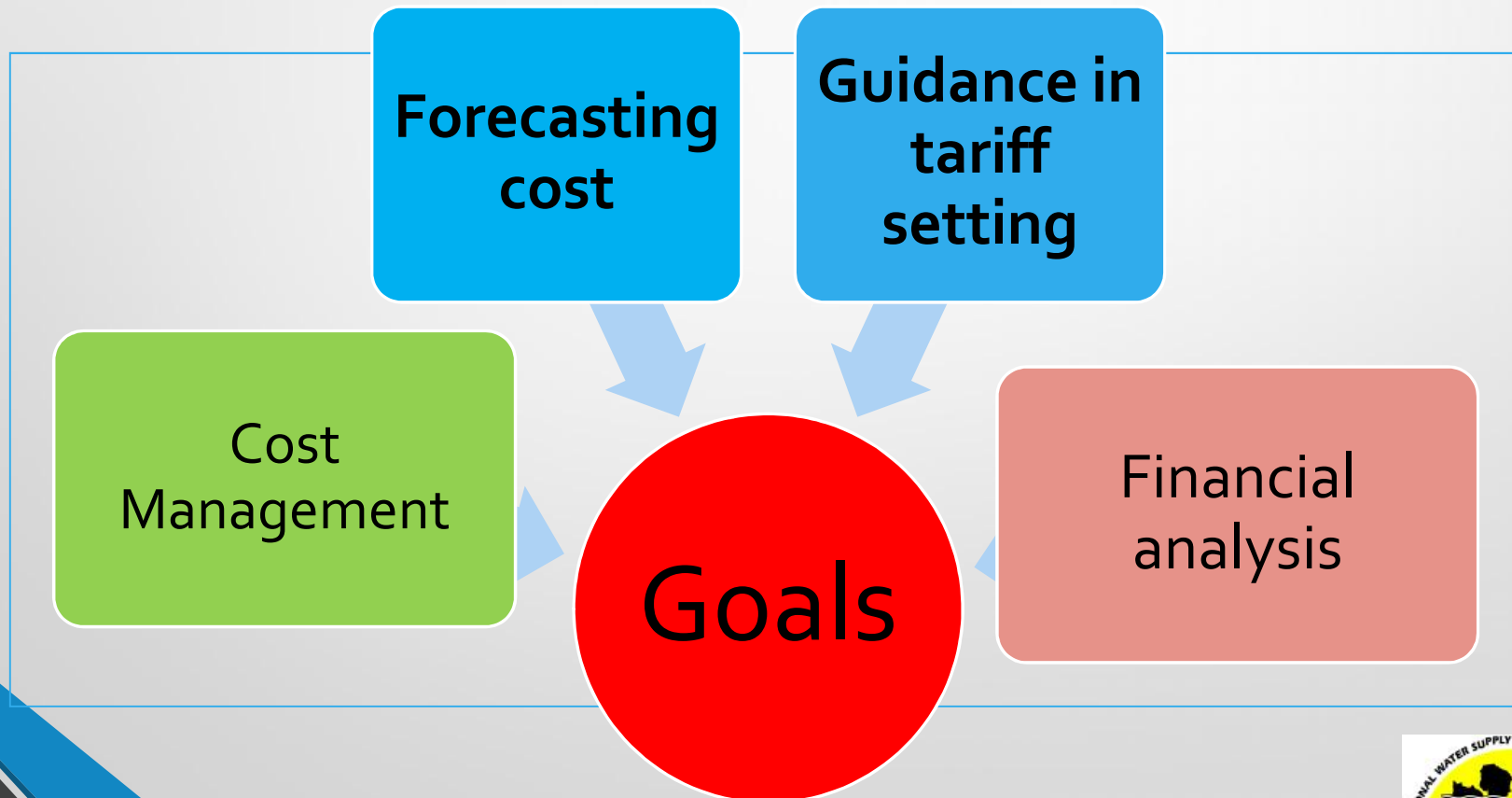
*One of the Drivers for undertaking the consultancy to develop cost of service model!*



# Defining cost of service

- The sum of all costs required to provide water and/or sewerage services to customers.
  - Operations and Maintenance (O&M)
  - Other costs directly related to providing service
  - Capital costs ( what is reasonable)

# Goals for Cost of Service



# **EVALUATING COST OF SERVICE**



**Calculated costs – Zero based costs**



**Historical Costs – could be adjusted**



**Peer utility costs –  
Benchmarking ( External)**

# Evaluating Cost of Service - Historical

- Data is generally easy to obtain – Previous financial records ( Financial statements – Audited better)
- Easy to analyze seasonal variations and long term trends
- Detailed cost accounts provide detailed data.
- Historical data may include inaccuracies and inefficiencies



# Evaluating Cost of Service - Zero Based Estimate

Does not have the inherent shortcomings of the historical cost approach.

Identifying data to use requires extensive research.

Developing cost of service from data independent of historical costs –need accurate unit costs, operation and Maintenance Costs

Quality of the data effects the usefulness of the analysis

# Evaluating Cost of Service - Benchmarking

- How does a utility's cost of service compare to its peers
- Requires a sufficiently large group of peers.
- Peers must be similar in crucial areas to provide a valid comparison
  - Size
  - Service Provided
  - Type of Treatment
  - Service area configuration



Lusaka WSC, Chunga Wastewater Treatment Facility





Mulonga WSC, Kafue Water Treatment Facility



# Introducing the NWASCO cost of service model

Includes historical costs

Includes independently developed costs

Evaluates Benchmarking

Allows for forecasting due to a variety of factors

Inflation

Changes in NRW

Changes in labor and materials prices

Relatively easy to use

Transparent

Flexible

# Cost Categories in the NCoSM

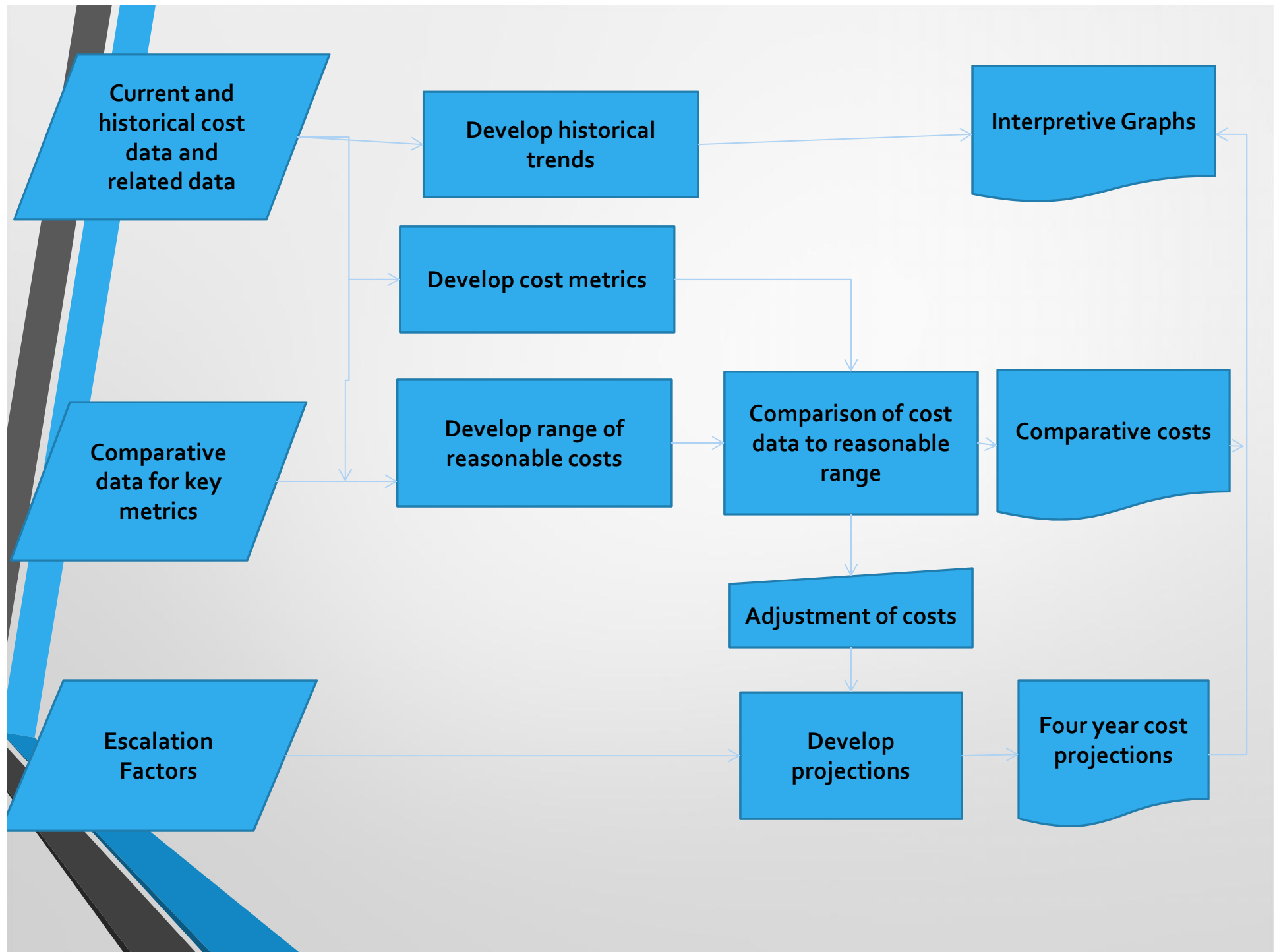
Category		Evaluated Parameter
Power	Both water and sewerage	kW-hr/1,000 m <sup>3</sup> and UfW
Chemicals	Water Only	kg/1,000 m <sup>3</sup> and UfW
Maintenance	Both water and sewerage	ZMW/km of piping
Personnel	Utility wide	Staff/1,000 connections
Administration	Utility wide	% of total O&M costs

# Cost of Service Model- attributes

- Spreadsheet Based - MS Excel
- Flexible – multiple points for the user to adjust cost data and related parameters.
- Transparent – All source data and calculations are presented.

# NCoSM - Analytical Functions

- Reviewing historical changes in costs.
- Projecting future changes in costs.
- Evaluating current costs with comparative parameters.



# Challenges in the development of Cost of Service Models for CUs

- Inability/difficulty to separate wastewater costs of service
- Lack of infrastructure investment – If no Government or CP funds, then no investment.
- Lack of equipment and materials to maintain the utility's asset base.
- Ambiguities over cost category definitions
  - What is operations and maintenance
  - What is capital or infrastructure
- Unavailability and poor electric supply
- Lack of planning for growth

Thank you - let us Discuss!!!



Northwestern WSC, Kundundu Water Treatment Facility