

WATER COSTING

MANUAL ON A COSTING MODEL FOR DRINKING WATER SUPPLY SYSTEMS

“Making knowlege work for us”



December 2013



ACKNOWLEDGEMENT

This document is compiled from the Water Research Commission Report: **TT 552/13: WATCOST: MANUAL ON A COSTING MODEL FOR DRINKING WATER SUPPLY SYSTEMS**, authored by **CD Swartz, P Thompson and P Maduray, G Offringa, and G Mwiinga**

To obtain the full report, contact:

Water Research Commission

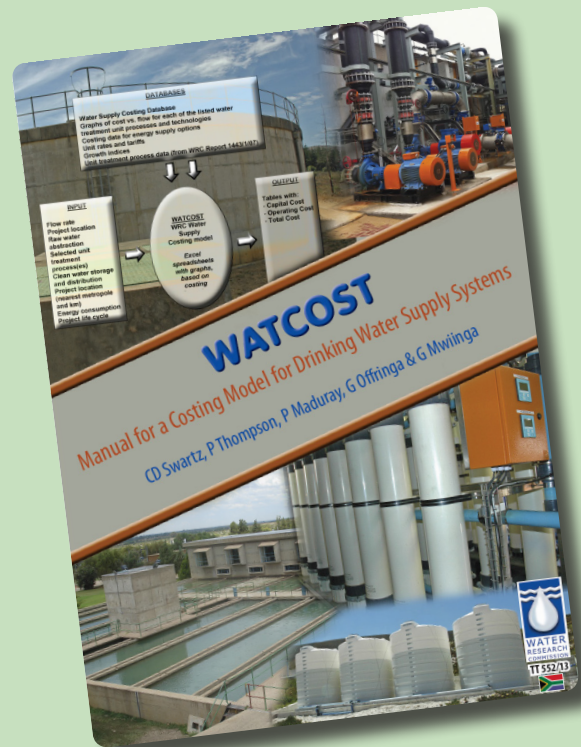
Private Bag X03

GEZINA 0031.

Tel: 012 3301340

Email: orders@wrc.org.za

or download from www.wrc.org.za



1. What is WATCOST?

WATCOST is a user-friendly costing model for estimating costs of drinking water supply systems. It allows economic comparison between different water treatment and supply options being considered for a water supply scheme). It also allows costing reports to be created for existing water treatment systems, which assists with budgeting and asset management.

The WRC manual is two-fold: firstly, it can be used as a reference document for information on costing data for water supply projects, with actual costing figures that can be obtained from the tables and graphs in the document. Secondly, it is also an aid to using the WATCOST Model to obtain costing data for water supply projects, either in total or for specific components in the drinking water supply cycle.

The WATCOST Costing Model is available electronically from the WRC website (www.wrc.org.za) Knowledge Hub, and it contains the following:

- User Instructions
- Input Component (where the user will enter required information)
- Software that will do the cost calculations – the Model Component
- Output Component (that will provide the tables and graphic costing results)
- Database of costing information (not accessible to the user, only for doing cost calculations)

The Costing Model can be used to:

- Estimate first-order capital and operating costs of water supply systems
- Estimate costs for upgrading existing systems
- Determine the approximate value of existing water treatment systems.

The manual is intended for use by decision-makers, consultants, engineers, planners, water supply authorities, and the Department of Water Affairs to estimate costs of new water supply systems, costs for upgrading or refurbishing existing systems, and also to determine approximate value of existing water supply and water treatment assets. The Manual only provides first order estimates that can be used for planning purposes, for budgeting and to compare alternatives on a financial basis. It should be expressly emphasised here that the manual or model is not sufficiently accurate to use the costing data for tender purposes or for detailed costing.

2. What you can do using WATCOST

Specific guidelines for the user on how the inputs should be made, acceptable inputs and limitations of the program, how more than one (up to five) treatment configurations may be compared, and how to interpret the output, is provided on a DVD, and is also contained in the manual.

For estimating the costs of new water supply systems, certain assumptions will need to be made with respect to the project life-cycle, operational criteria (dosages, number of hours per day that the plant will operate, personnel to be employed, etc).

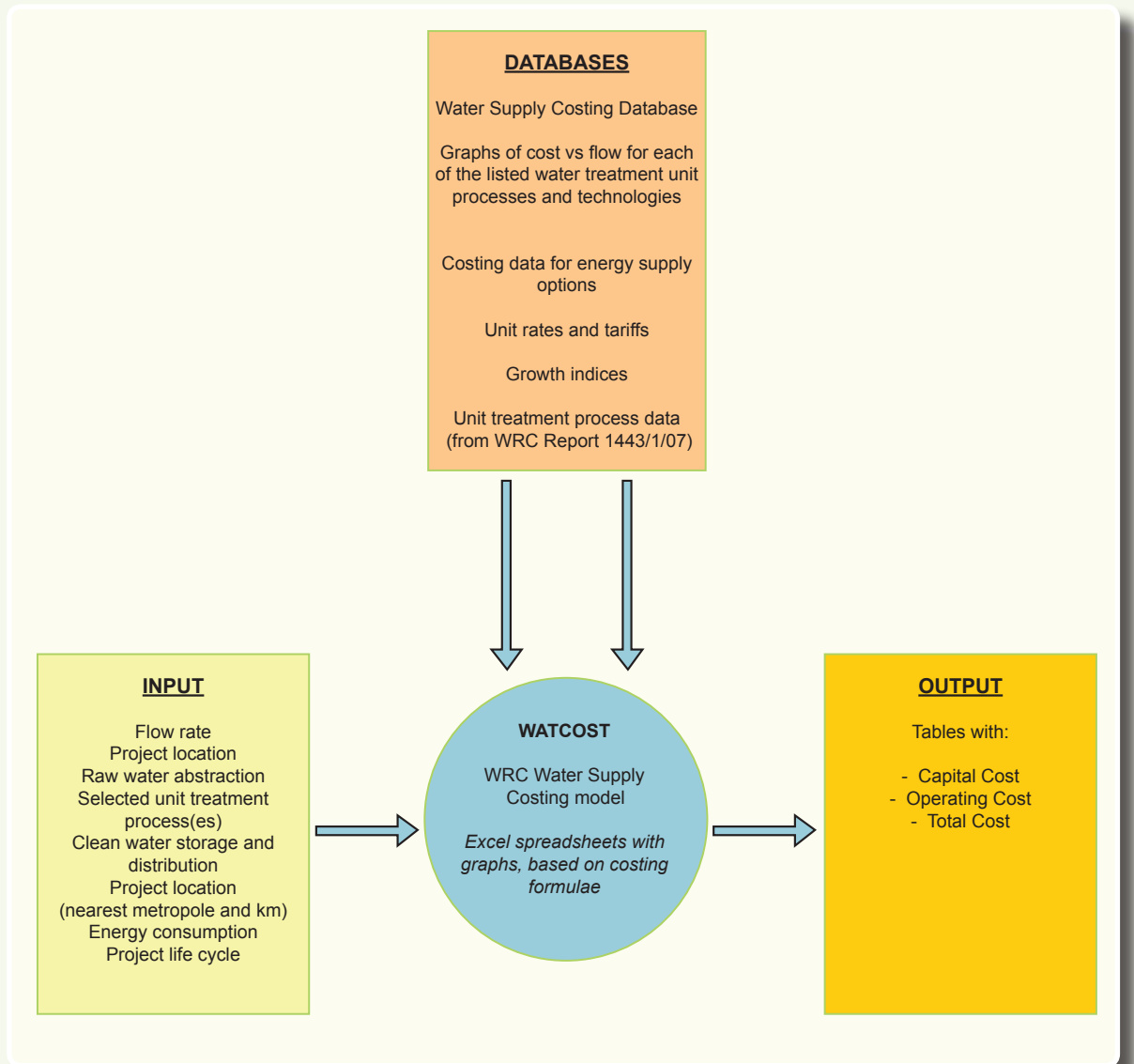
The input page will require project specific information, such as the required plant inflow rate to produce sufficient quantities of clean water to meet the peak demands of the users. The user will also have to decide beforehand which process(es) they would like the cost estimates to be done for, and information on the topography, distance from the nearest metropole, etc.

When the required information has been entered, the model program will perform calculations to estimate both the capital and operating costs for the specific intended water supply configuration selected, and provide the output to the user in a one to two page output table. The output will also contain an amortization of the capital costs over the specified project life, and calculate the amortised and operating costs as a unit cost (Rand per kiloliter of water supplied to the consumer).

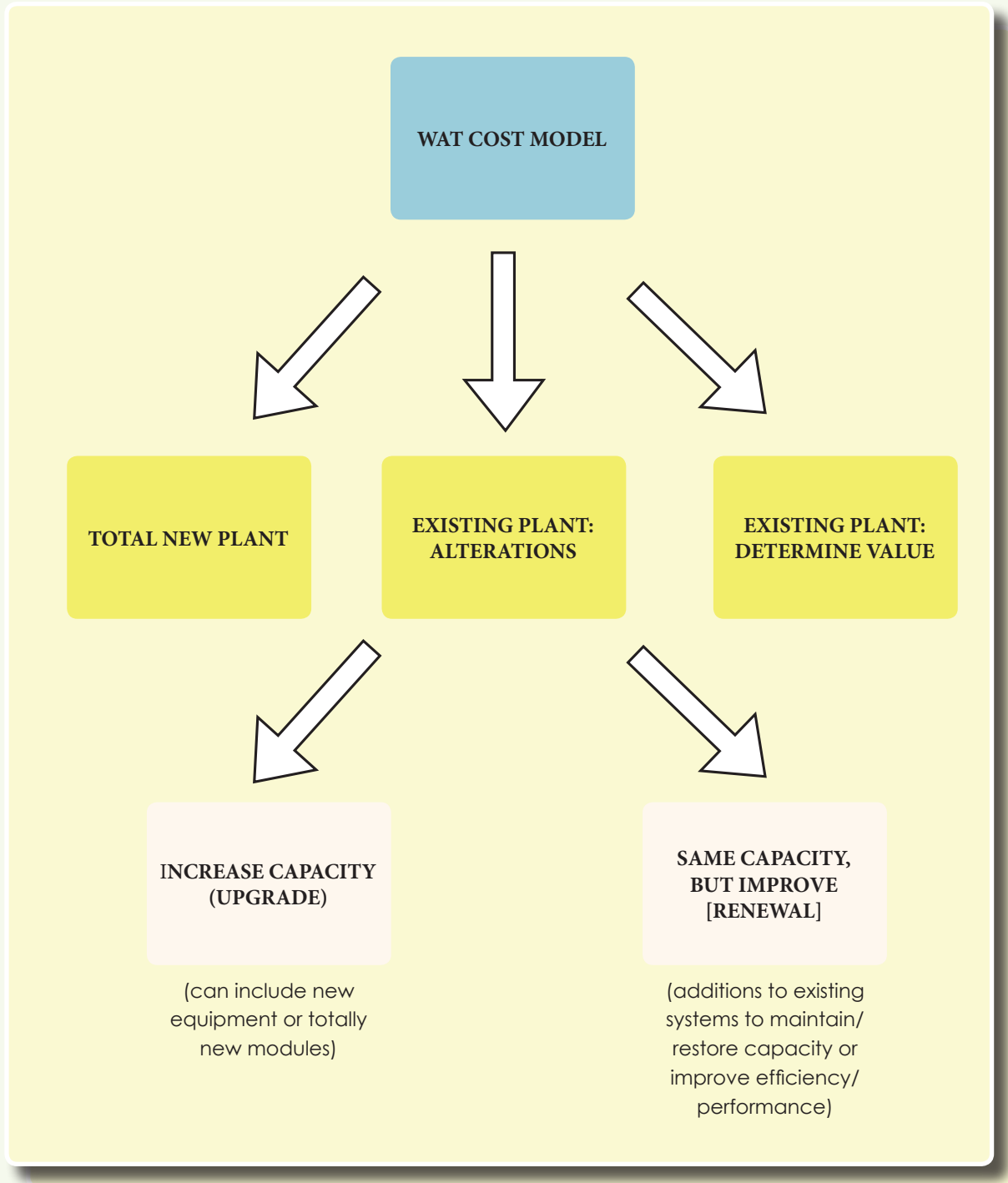
The WATCOST Model may also be used to get an order of magnitude of the value of existing water supply system components, for instance water treatment unit processes, reservoirs and pipelines. This is in particular valuable to water supply authorities for populating and regular updating of their asset registers, which then assists with determining devaluation and remaining lifetime of the assets.

The procedure for using the model for this purpose is the same as for estimating the costs of new processes and systems, where in this instance all the input data are already known (or may be readily determined), and the model then enabled to calculate the net present value of the assets.

The Lay-out of the WATCOST Costing Model is as follows:



The model can be applied for the following purposes:



The WATCOST model is intended for use by decision-makers, consultants, engineers, planners, water supply authorities and the Department of Water Affairs to estimate costs of new water supply systems, costs for upgrading or refurbishing existing systems, and also to determine approximate value of existing water supply and water treatment assets. It only provides estimates for planning purposes, for budgeting and to compare alternatives on a financial basis. The manual or model is not sufficiently accurate to use the costing data for tender purposes or for detailed costing.



The WIN-SA lesson series aims to capture the innovative work of people tackling real service delivery challenges. It also aims to stimulate learning and sharing around these challenges to support creative solutions. To achieve this, the lessons series is supported by ancillary learning opportunities facilitated by WIN-SA to strengthen people-to-people learning.

To find out more about these and other WIN-SA services go to the WIN-SA portal at www.win-sa.org.za or contact the Network directly.

This document hopes to encourage ongoing discussion, debate and lesson sharing.

To comment, make additions or give further input, please visit www.win-sa.org.za or send an email to info@win-sa.org.za.

Our mission is to ensure the body of knowledge in the sector is well managed, readily accessible and applied, leading to improved decision-making and performance, especially of local government.

Address: 491 18th Avenue, Rietfontein, Pretoria

Postal Address: Private Bag X03, Gezina, 0031

Tel: (012) 330 0340 Fax: (012) 331 2565

E-mail: info@win-sa.org.za

Website: www.win-sa.org.za

