

Book review

WHOLE LIFE COSTS AND PROJECT PROCUREMENT IN PORT, COASTAL AND FLUVIAL ENGINEERING— HOW TO ESCAPE THE COST BOXES.

J. Simm and N. Masters. Thomas Telford, 2003. ISBN 0 7227 3232 3,
£40, 172 pp.

Whole-life costing is not a new technique, but is one that is not often practised or used effectively in the port, coastal and fluvial engineering sections of the construction industry. This book attempts to encourage those within the industry to think again about whole-life costs, with a particular emphasis on considering all costs holistically, rather than placing them in the individual boxes of capital, maintenance, operational, disruption and disposal costs. A better understanding of whole-life costs should lead to more informed decisions about project options and improve the cost-effectiveness of investment in infrastructure.

The main text is prefaced at length with information on what whole-life costing is about, why it should be used and what inhibits its application. Readers that neglect the Preface and start their studies at Chapter 1 will pass over a valuable introduction to the subject in hand. Chapter 1 is also, understandably, of an introductory nature, identifying the need for infrastructure designers, constructors and owners to understand and employ whole-life costing techniques. This is linked to the UK Government's Construction Task Force, the 1998 *Rethinking Construction* report and the desire to improve cost-efficiency in the construction industry. Although it is not stated in the title of the book, the authors refer to it as a 'guide' to whole-life costing and it is only by reading the acknowledgements that the book's origins as the concluding report to a Department for Trade and Industry research contract becomes apparent.

The structure of the book is divided into three constituent parts

- (a) guidance text on whole-life cost methodologies and influences
- (b) detailed background information given in the form of appendices
- (c) detailed case studies.

The guidance text is provided in Chapters 2 to 6. Chapter 2 starts with an 'Introduction to whole-life costing' and the reader could be forgiven for wondering if this is repetitive. However, the text quickly delves into the detail of various accounting techniques used to evaluate whole-life costs. This is supported by a useful, although relatively brief, appendix that covers the theory behind each technique. The chapter focuses on the 'present value'

technique, probably as this is most commonly used within the port, coastal and fluvial sectors of the construction industry, and basic examples are used to illustrate the influence of discount rate on whole-life costs. The chapter concludes with a useful discussion of data requirements for whole-life costing and potential sources. Unfortunately, this chapter is marred by errors in the text, which make reading the discount rate examples an exercise in proofreading and correction.

Chapter 3 looks at where whole-life costing fits into the whole project process from the needs identification stage, through to decommissioning and disposal. This chapter seems to lack depth: there is some good information on the project process and the considerations and techniques that can be used, but often this is not sufficiently general, being too specific, say, to the coastal engineering sector in England and Wales. Readers who are involved in the ports and fluvial sectors of the industry may be left feeling ignored. A flow diagram is used to illustrate the project process, but the font used is so tiny as to make the diagram useless. There is a thoughtful reference to the costs associated with using recycled materials, but the inclusion of a detailed example of the use of recycled timber in a specific coastal engineering scheme detracts from the main subject of the book without providing significant additional information on costs.

Chapter 4 deals with procurement strategies and their influence on whole-life costs. The chapter sets out the types of project owners in the UK before providing a description of various forms of project procurement. Of particular interest is the section on private finance initiative/public-private partnership (PFI/PPP) procurement strategy, which to date has had limited use in port, coastal and fluvial engineering in the UK. A comparison of the influence of procurement strategy on whole-life costs of a project is then made, although this could have been better communicated through the use of a matrix to ensure consistency of considerations across each form of procurement. The chapter ends with a detailed and interesting discussion on the influence of public sector funding policies on whole-life costs of fluvial and coastal projects in the UK, and provides a damning indictment of those policies.

Chapter 5 purports to deal with 'Influences and tools' for whole-life costing. There is a brief discussion of risk, with useful references to other publications, but the crucial topic of managing risk to reduce whole-life costs is dealt with in one short paragraph. It would have been most useful if some examples could have been provided to illustrate the advice offered in the text. The authors move on to discuss value

management/engineering and the use of whole-life costing in assessing project options, but again offer little detail and no examples. Following a brief section on life-cycle management, there is a useful summary of 'best value' in the public sector.

It was in the final chapter that I expected to gain some real insight into whole-life costing techniques, but was again disappointed. There was a useful summary of issues that the port, coastal and fluvial sectors of the construction industry must address in order to achieve genuine improvements in whole-life cost-effectiveness. This was followed by a list of steps to be taken in conducting a whole-life cost analysis. This, understandably, mirrors the project processes discussed in Chapter 3, but would have benefited from greater detail. For example, the reader is advised to conduct a sensitivity analysis on the 'present value' calculations of various options by varying the discount rate and the phasing of the capital investment, but there is no mention of the influence of varying other key parameters, such as the cost and service life of key maintenance components. Consequently, the reader is left with a feeling of anticlimax.

The appendices achieve their aim of supporting the main text and there is an interesting insight into approaches to whole-life costing in other sectors of the construction industry. Appendix 4 provides details of an internet-based cost database that was set up as part of the research contract. This appears to be a very useful tool, but alas, the appendix fails to tell the reader how to gain access to the database! For this, the reader must return to the Preface, where the web address is provided.

Seven case studies are presented and these are certainly of interest. They are presented using an appropriate level of detail

and illustrate the benefits of using whole-life cost techniques to inform project choices.

In summary, this book provides a basic introduction to the subject of whole-life costing set in the context of port, coastal and fluvial engineering within the UK. It is appropriately introduced by the authors as a 'guide' rather than a 'text book', but although it lacks depth in places, there is a useful list of references for the reader who wishes to study the subject further. The text is let down by a number of typographical errors and poor formatting. There is also confusion in the references to the government department responsible for grant-aiding coastal and fluvial infrastructure in England—that is, the Department for Environment, Food and Rural Affairs (Defra), formerly Ministry of Agriculture, Fisheries and Food (MAFF). However, the book provides a detailed commentary on the various influences on whole-life costing, and is justifiably critical of the way that coastal and fluvial infrastructure is funded by the UK Government, exposing the Government's funding policies as providing a restraint on achieving greater cost-efficiency within the industry. If this sparks a debate about more appropriate funding policies within the industry then this book will have achieved its aim of promoting the use of whole-life costing as a means of improving the cost-effectiveness of investment in infrastructure.

The book should prove most useful for practising engineers, notably consultants and clients, when planning port, coastal or fluvial projects. It also provides a useful introduction to the subject for young engineers and students.

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