PREFACE

The risk management processes described in this book had their genesis well over 20 years ago when I accepted a position at the University of Southampton. There I met and worked with Dr Chris Chapman, already an acknowledged expert in project risk, with an established relationship with BP and an extensive client base in Canada. Chris involved me in his consulting activities in North America, primarily associated with quantitative risk analyses of large projects in the hydroelectric and the oil and gas industries. This was a time of innovation, as there were few protocols or models for the kinds of risk analyses that were required for these projects, and the quantitative calculations used a form of numerical integration called the Controlled Interval and Memory approach, developed by Chris, that was implemented in bespoke software. We had to develop different model structures and forms of analysis, and new software had to be written on some occasions to accommodate the new structures. It was highly stimulating, at times exhausting, and great fun, and I learned a huge amount from Chris and the clients with whom we worked.

Many of the projects on which we worked are described in published papers, and some of them are referred to in the case material in this volume. They are all described in our book (Cooper and Chapman, 1987).

After I left Southampton, I worked as a consultant in the finance sector, primarily with international companies in the UK, USA, Hong Kong and Australia. Many of my assignments involved risk in one form or another: risks associated with trading equities, bonds, commodities, currencies and other financial instruments; compliance risks; new business risks as the finance sector in the UK restructured and transformed itself at the time of the so-called Big Bang; and balance sheet and liquidity risks associated with the management of financial assets and liabilities having different bases and maturity structures. I then worked as a senior line manager in the sector, where I had to develop organizational strategy and manage its implementation, as well as run operational business areas.

One of the main lessons I learned from the finance sector, an industry that is often perceived as notoriously risky, is this: if something is too complex to understand and explain then it is probably too risky to undertake, as you won't be able to design and implement the right kinds of operational processes, controls and monitoring to manage the risks effectively. That insight, and the reinforcement I have received from many clients subsequently, has led me to simplify many of the processes and tools I use for risk management. When complexity is needed, then it is really needed and it must be done properly, but simple approaches are often sufficient for making sound decisions.

A large part of this book is based on simple qualitative approaches to project risk. The processes described here had a long gestation; they were first formalized by me in the New South Wales Government *Risk Management Guidelines* in 1993. The first version of the *Australian and New Zealand Standard on Risk Management* (AS/NZS 4360) (1995), extended

the same simple framework and became a best-seller, and subsequent revisions have refined it further.

While the emphasis is on simple qualitative methods, more complex quantitative approaches to project risk are not ignored. Quantitative analysis is discussed, largely using case material, to provide a flavour of the way it may be structured and implemented, and the level of sophistication that may be obtained. More detailed treatment would require its own volume – instead, interested readers are referred to the excellent book by my co-author Dr Stephen Grey (1995) and my former colleagues at Southampton, Professor Chris Chapman and Dr Stephen Ward (Chapman and Ward, 1997, 2002).

The material in this book is based on our activities with major projects in a wide variety of organizations, countries and industry sectors and different cultural environments. It reflects our varied consulting and line management experience, working with project sponsors, owners, users and project delivery organizations, and occasionally regulators, in both industry and Government and in a range of jurisdictions. While many of the examples have been generalized and sometimes adjusted, either to clarify their exposition or to remove confidential material, they are all based on real projects with which we have been involved.

We would like to thank all our clients for the insights we have gained while working with them. Many of our assignments have been truly collaborative, and the outcomes reflect the efforts of our clients' teams as much as our own.

The structure of the initial chapters of this book was developed some time ago when I was commissioned by Purchasing Australia, at that time the procurement arm of the Australian Government, to develop a handbook on managing risk in procurement. This was subsequently published as Cooper, 1997. This publication is now out of print. While much has been retained from the earlier work, there have been many additions. These are based on our current consulting practice, as well as recent developments in the way projects are conducted. In particular, outsourcing arrangements and new risk-sharing structures like public–private partnerships have transformed some aspects of project procurement for Governments and large organizations.

Dennis Goodwin, our colleague and a principal consultant at Broadleaf, made major contributions to Chapter 15 on market testing and outsourcing and Chapter 16 on public–private partnerships. Our colleague John Pacholski of Spectrum Corporation, with whom Broadleaf is partnered as Broadleaf Spectrum International for public–private partnership advice, also contributed to Chapter 16. Pauline Bosnich, our colleague and a principal consultant at Broadleaf, made valuable contributions to Chapter 17 on technical tools.

Chapter 18 deals with environmental risk management in a project context. It contains case study material relating to an analysis of mine waste management at the Ok Tedi mine in Papua New Guinea. It has benefited from discussions at the time and subsequently with Ken Voigt of Ok Tedi Mining Limited, who was the manager of the Mine Waste Management Project, and Malcolm Lane of Lane Associates and Dr Adrian Bowden of URS Greiner, who conducted the detailed risk assessment for the project. (I was the owner's auditor for the detailed project risk management process, and I worked closely with Ken, Malcolm and Adrian during the conduct of the risk assessment.) It also contains material we developed for the Australian Department of Defence on the integration of risk management processes into Environmental Management Systems that comply with the ISO 14000 series of environmental standards. Janet Gough of Environmental Risk Management New Zealand, Malcolm Lane and Ken Voigt all made valuable comments on an early draft of this chapter.

The first case study in Chapter 20 is based on work undertaken for a client of Acres International in Canada. Dave MacDonald, then the Head of Planning and Estimating in Acres, and Professor Chris Chapman, Professor of Management Science in the School of Management, University of Southampton, made significant contributions. Extended versions of the material that appears here have been published by Cooper, Macdonald and Chapman (1985), and as Chapter 9 of Cooper and Chapman (1987).

Chapter 21 concerns the pre-design evaluation of a timber development project. It was written jointly with Dr Alessandro Bignozzi, who was the Project Director for the development at the time. Sandro Bignozzi's contribution is gratefully acknowledged.

Chapter 23 draws briefly on case study material that has been described in more detail by Chapman, Cooper, Debelius and Pecora (1985), and in Chapter 5 of Cooper and Chapman (1987).

A version of Chapter 24 was presented by me as an invited paper, Implementing Risk Management in Large Projects, to the 2003 Conference of the Project Management Institute of New Zealand (PMINZ), held in Christchurch, New Zealand, over the period 5–7 November 2003. I was invited and sponsored by the Centre for Advanced Engineering, a not-for-profit organization established in 1987 to commemorate the centenary of the School of Engineering at the University of Canterbury and based at the university. Their support is gratefully acknowledged.

I continue to enjoy stimulating and often vigorous discussions with my colleagues on the Standards Australia and Standards New Zealand Joint Technical Committee OB-007, the committee that continues to develop the Standard AS/NZS 4360 and associated handbooks that enlarge on its application. While it is always risky to name names, as I have enjoyed my interactions with all the members of the committee and its secretariat, I would like to thank particularly our Chair, Professor Jean Cross from the University of New South Wales, Janet Gough from ERMA New Zealand, Kevin Knight from the Queensland Department of Education and Grant Purdy from BHP Billiton.

We would all like to thank our colleagues in Broadleaf Capital International, Dr Sam Beckett, Pauline Bosnich and Dennis Goodwin, for their constructive reviews of early drafts of this book. Their enthusiasm and support is gratefully acknowledged. However, any errors or omissions are entirely our own.

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