Risk Assessment
Theory, Methods, and Applications

MARVIN RAUSAND

STATISTICS IN PRACTICE

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RISK ASSESSMENT
Theory, Methods, and Applications

MARVIN RAUSAND
Norwegian University of Science and Technology
To Hella, Guro, and Idunn
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Preface

This book gives a comprehensive introduction to risk analysis and risk assessment, and the main methods for such analyses. It deals with accidents that may occur in technical or sociotechnical systems with focus on sudden, major accidents. Day-to-day occupational accidents and negative health effects due to long-term exposure are therefore outside the scope of the book.

In 1991, the Norwegian standard NS 5814, Requirements to Risk Analysis, was issued and I wrote a small book in Norwegian called Risk Analysis: Guidance to NS 5814 (Rausand, 1991). The book was very basic but filled a purpose and was used extensively. I began to write the current book in 1995 after the first edition of the book System Reliability Theory was published. After awhile I realized that writing a book on risk assessment was much more difficult than writing a book on system reliability. This was due mainly to the confusing terminology, the multidisciplinary character of the topics, and the overwhelming number of reports and guidelines that had been written.

In 2008, the second edition of NS 5814 was issued and the guideline had to be updated and extended. This resulted in the book Risk Analysis: Theory and Methods (Rausand and Utne, 2009b), which is written in Norwegian and coauthored by Ingrid Bouwer Utne. The book was strongly influenced by the manuscript of the current book, has a similar structure, but is more basic and straightforward.