# Contents

Preface ......................................................................................................................... v

**Part I  Managing Social, Economic, and Environmental Risks** ......................... 1

Chapter 1  The International Council on Mining and Metals: Sustainable Development Framework .......................................................... 13

Chapter 2  The Global Reporting Initiative: Sustainability Reporting for the Mining and Metals Sector .................................................. 39

Chapter 3  Managing Business Sustainability in the Australian Mining Industry .................................................................................. 63

Chapter 4  The Mining Association of Canada's Towards Sustainable Mining Program ............................................................................. 85

**Part II  Stakeholder Engagement and Participation** ....................................... 111

Chapter 5  Indigenous Engagement in a Vocational Educational Training Program in Australia .......................................................... 115

Chapter 6  Building Trust ......................................................................................... 151

Chapter 7  Evaluating the Science of Environmental Assessments with Aboriginal Groups .............................................................. 231

**Part III  Biodiversity and Conservation Management** .................................. 259

Chapter 8  Joint Land Management Project in the Northern Yilgarn, Western Australia .................................................................. 263

Chapter 9  Spider Conservation and Mining .............................................................. 277

Chapter 10  Biodiversity Management and Mining in the San Bernardino Mountains ........................................................................ 289

**Part IV  Climate Changes, Energy, and Greenhouse Gas Management** .... 317

Chapter 11  Climate Change for Mine Planning ......................................................... 321

Chapter 12  Molycorp's Project Phoenix—Water and Reagent Recycling with Clean Power ................................................................. 347
Chapter 13  Geothermal Energy Recovery from Closed Underground Mines .......................... 371

Chapter 14  Optimal Mine Site Energy Supply .......................................................... 389

Part V  Mine Water Management .............................................................................. 431

Chapter 15  Responsible Mine Water Management: Water and Mass Balance Modeling, and Creative Mine Water Management Solutions .............................. 433

Chapter 16  Mine Water Treatment Techniques and the Application of Vacuum Membrane Distillation .............................................................. 461

Chapter 17  Integrating Pit Lakes into Water Basin Planning: The Meirama Brown Coal Mine ......................................................... 489

Part VI  Tailings and Waste Rock ............................................................................. 519

Chapter 18  Responsible Tailings Disposal at Minnesota Taconite Mines ................. 521

Chapter 19  Responsible Management of Acid Mine Wastes: Geochemical and Microbiological Resources ................................................. 553

Part VII  Reclamation, Closure, and Land-Use Planning ........................................ 577

Chapter 20  Global Implications and Challenges of Evolving Mine Closure Requirements in Western Australia ............................................ 583

Chapter 21  Identifying Natural and Novel Ecosystem Goals for Rehabilitation of Postmining Landscapes .............................................. 609

Chapter 22  After the Gold Rush: Developing Closure Criteria for a Mined Landscape ................................................. 639

Chapter 23  Best Practices for Forest Restoration When Reclaiming Surface Coal Mines ................................................................. 663

Chapter 24  Responsible Land and Resource Management in Northeastern Minnesota ............................................................. 705


Part VIII  Crisis Management ................................................................................... 753

Chapter 26  Mine Disaster Crisis Management from the Operational and Legal Perspectives .......................................................... 755

Index ......................................................................................................................... 779