

---

# Contents

---

<i>List of contributors</i>	vii
<i>Preface and acknowledgements</i>	xi

## PART I MODELLING FOR SUSTAINABLE DEVELOPMENT

1 Modelling and decision support in sustainable development planning: a review and analysis	3
<i>M.A. Quaddus and M.A.B. Siddique</i>	
2 Hierarchical, dynamic modelling and sustainable development	13
<i>Ian Moffatt</i>	
3 Modelling long-term sustainability	29
<i>Kaoru Yamaguchi</i>	
4 Sustainability: can it be achieved? Is economics the bottom line?	60
<i>Clem Tisdell</i>	

## PART II CASE STUDIES

### **Environmental Management**

5 Decision support for environmental disaster planning	79
<i>Aybüke Aurum, Meliha Handzic and Christine Van Toorn</i>	
6 Using data envelopment analysis for ecoefficiency evaluation	97
<i>Joseph Sarkis and Srinivas Talluri</i>	

### **Mining**

7 Hierarchical framework for evaluating mine projects for sustainability: a case study from India	115
<i>M.A. Quaddus and Kampan Mukherjee</i>	

### **Energy Management**

8 Resources, pollution and sustainable energy policies: the case of Pakistan	135
<i>Hassan Qudrat-Ullah</i>	

## Land and Water Management

- 9 On the edge of policy failure: an evaluation of New York City's watershed protection plan from a system dynamics perspective 169  
*April M. Roggio (with the assistance of Radhika Nath, Patricia Quinn and Elise Axelrad Weaver)*
- 10 Modelling sustainable water prices 191  
*Pawel Bartoszczuk and Yoshiteru Nakamori*

## Agriculture

- 11 Assessing the sustainability of Mediterranean intensive agricultural systems through the combined use of dynamic system models, environmental modelling and geographical information systems 215  
*Julia Martínez Fernández and Miguel Angel Esteve Selma*

## Aquaculture

- 12 Aquaculture, environmental spillovers and sustainable development: links and policy choices 249  
*Clem Tisdell*

## Infrastructure

- 13 Decision support systems for ecosystems management: a Singerian approach to urban infrastructure decision-making 271  
*James F. Courtney, Sandra Richardson and David Paradise*
- 14 Infrastructure development as a policy lever for sustainable development 289  
*Khalid Saeed and Honggang Xu*

## PART III FUTURE DIRECTIONS

- 15 Future directions on sustainable development planning using DSS tools 325  
*M.A.B. Siddique and M.A. Quaddus*

- Index* 343