

Contents

1. Introduction

- 1.1 Characterisation of the circular economy 1
- 1.2 The outline of the book 4

I

The circular economy – Concept and facts

2. The circular economy – Understanding the concept

- 2.1 The academic concept of a circular economy 12
- 2.2 Practice-oriented concepts of a circular economy 14
- 2.3 Remarks on societal path dependencies 16
- 2.4 The circular economy—Understanding the concept 17
- References 18

3. The circular economy in literature and practice

- 3.1 The perception of the circular economy in the literature 20
- 3.2 Economy and circular economy in the literature 25
- 3.3 The perception of the circular economy in a practical context 27
- 3.4 Conclusions from the literature review 31
- References 31

4. Circular economy – A hierarchy of leaders and followers

- 4.1 Circular economy hierarchy: Leaders 34
- 4.2 Circular economy hierarchy: Followers 39
- 4.3 A country in between: The United States of America 43
- 4.4 Determinants of the circular economy hierarchy 44
- References 45

5. Environmental regulations with a view on the circular economy

- 5.1 Exemplary regulations for a circular economy 49
- 5.2 Conclusions from current policies 60
- References 61

II

Integrating the economy and the environment

6. Economic foundation of a circular economy

- 6.1 Environmental commodities and scarcity 65
- 6.2 Feasible allocations 69
- 6.3 Allocation mechanisms 71
- 6.4 Summary on the economic foundation of a circular economy 75
- References 75

7. Allocating environmental commodities

- 7.1 External effects and missing markets 77
- 7.2 Environmental policies as allocation mechanism 82
- 7.3 Case study: The German refillable quota issue 83
- References 85

8. Behavioural environmental economics

- 8.1 An introduction to behavioural economics 88
- 8.2 Behavioural environmental economics 89
- 8.3 Environmental awareness and perceived feedback 93
- 8.4 Case study: Sustainable use of the earth's biodiversity 93
- 8.5 Behavioural economics and implementing a circular economy 95
- References 96

9. The economics of implementing a circular economy

- 9.1 The allocation problems for a circular economy 100
- 9.2 The concept of a sustainable development 100
- 9.3 Waste management 102
- 9.4 Conclusions for implementing a circular economy 107
- References 108

III

The circular economy in a technological context

10. The technological environment of a circular economy

- 10.1 Industrial ecology 113
- 10.2 Markets for environmental technologies 116
- References 123

11. Technology and information

- 11.1 Economic reasonableness of environmental technologies and standards 126
- 11.2 Information asymmetries 130
- 11.3 Case study: Promotion of renewable energy sources in Germany 133
- References 138

12. The rebound effect and path dependencies

- 12.1 The economic rebound effect 141
- 12.2 Path dependencies 146
- References 150

13. The digital transformation – An ongoing process

- 13.1 Circular economy and digital economy – A close relationship 154
- 13.2 Circular economy and digital economy – Various challenges 157
- 13.3 Case study: E-commerce and circular economy 158
- References 160

IV

Features of environmental policies

14. Environmental policies for implementing a circular economy

- 14.1 How to allocate environmental commodities? 165
- 14.2 Structural requirements for environmental policies 169
- References 171

15. Environmental standards

- 15.1 Economic background 173
- 15.2 Environmental standards in an international context 174
- 15.3 Adjusting environmental standards 176
- 15.4 Case study: Emission standards for vehicles 179
- References 181

16. Market-oriented policy tools

- 16.1 The pollution tax 184
- 16.2 Tradable emission certificates 187
- 16.3 The Coase theorem 189
- 16.4 Voluntary contributions 190
- 16.5 Flexible, information-based environmental policies 191
- References 192

17. Holistic policy approaches

- 17.1 Integrated waste management 196
- 17.2 The EPR principle 197
- 17.3 Constitutive elements of an IEP 200
- 17.4 Implementation of the EPR principle 202
- References 209

18. The economics of the waste hierarchy

- 18.1 The waste hierarchy – Revisited 213
- 18.2 Prevention of waste – The forgotten child 215
- 18.3 Reuse of commodities 219
- 18.4 Recycling of waste commodities 221
- References 224

V

Implementing a circular economy

19. Where are we on the road to a circular economy?

- 19.1 Roots of the circular economy 229
- 19.2 How to deal with information issues? 230
- 19.3 Holistic environmental policies 232
- 19.4 Case study: Germany on the road to a circular economy 233
- References 238

20. Packaging waste in a circular economy

- 20.1 Setting the targets of the policy 242
- 20.2 Auxiliary environmental regulations 243
- 20.3 Collection and separation of packaging waste 245
- 20.4 Applications of the EPR principle 246
- 20.5 An IEP for packaging waste 250
- 20.6 Putting everything together 251
- References 253

21. WEEE and ELV in a circular economy

- 21.1 An integrated environmental policy for WEEE 256
- 21.2 An integrated environmental policy for old cars and ELV 261
- 21.3 Some final remarks regarding these policies 264
- References 265

22. Climate change mitigation in a circular economy

- 22.1 Global attempts to mitigate climate change 268
- 22.2 Renewable energy sources and emissions trading 270

- 22.3 Implementing the EPR principle 272
- 22.4 An integrated environmental policy for combatting climate change? 274
- References 276

23. Plastics in a circular economy

- 23.1 One type of plastic is not like another 278
- 23.2 A look at the global situation 280
- 23.3 Cornerstones of an IEP for plastics and plastic waste 285
- 23.4 Where are we with the IEP for plastics and plastic waste? 289
- References 289

24. Textiles in a circular economy

- 24.1 Objectives of an IEP for textiles 293
- 24.2 Collection of waste textiles 295
- 24.3 Implementing the EPR principle for textiles 296
- 24.4 The waste hierarchy regarding textiles 298
- References 301

VI

Concluding remarks

25. Circular economy – A summary in times of corona

- 25.1 Sustainability and the implementation of a circular economy 305
- 25.2 Sustainability and the waste hierarchy 306
- 25.3 IEPs for the implementation of a circular economy 307
- 25.4 Circular economy in times of Corona 309
- 25.5 Concluding remarks 310
- References 311

Index 313

This section briefly characterises the circular economy, the concept and its origins. The questions raised above will be covered in the following subsections.

One of the reasons for this optimally outcome is the personal responsibility of producers in combination with exclusivity. Sustainability such as reductions of all kinds of air, soil, water and atmospheric pollutants, are certainly beneficial for all people. However, if someone reduces air pollution, for example, then all other economic agents will also benefit from such an environmentally friendly action, exclusivity is no longer available, and people will wait for others to take the first step towards protecting the environment.