

Table of Contents

Resumen	i
Resum	ii
Abstract.....	iii
Chapter I. Introduction	
Presentation	I-1
Part 1. State of art	
Chapter II. Sustainable Inventory Management in Supply Chains: Trends and Further Research	
1. Introduction	II-2
2. Review methodology	II-4
3. Overview of SIM in SC.....	II-6
3.1. SC structure	II-9
3.2. Environmental approach	II-10
3.3. Problem type	II-11
3.4. Model approach.....	II-12
3.5. Solution approach.....	II-13
4. Discussion	II-14
5. Conclusions	II-17
References	II-20
Chapter III. Green supply chain quantitative models for sustainable inventory management: a review	
1. Introduction	III-2
2. Literature review methodology	III-5
3. Classification criteria	III-9
3.1. Purpose	III-10
3.2. Application context	III-13

3.3.	SC structure	III-14
3.4.	Decision level.....	III-15
3.5.	Shared information.....	III-17
3.6.	Inventory policies.....	III-20
3.7.	Inventory modelling	III-22
3.8.	Sustainability, CE and green modelling approaches.....	III-24
3.9.	Modelling approach	III-27
3.10.	Solution approach.....	III-31
4.	Discussion	III-34
5.	Conclusion.....	III-38
	References	III-42

Part 2. Conceptualization of the 3S-LIT optimization model

Chapter IV. Mathematical programming models for sustainable inventory management in a supply chain

1.	Introduction	IV-2
2.	Reference models	IV-3
2.1.	Model of Zhalechian et al. (2016).....	IV-3
2.2.	Model of Moslemi et al. (2017)	IV-9
2.3.	Model of Asadi et al. (2018)	IV-17
2.4.	Model of Tavana et al. (2021).....	IV-22
3.	Comparative analysis	IV-27
4.	Conclusions	IV-29
	References	IV-32

Chapter V. A conceptual framework for quantitative models of sustainable location, inventory and transportation problems in a supply chain context

1.	Introduction	V-2
2.	Conceptualization methodology.....	V-3
3.	Literature review	V-4
4.	Conceptual framework.....	V-6
5.	Framework validation	V-12
6.	Conclusions	V-16
	References	V-18

Part 3. Approach to the 3S-LIT optimization model

Chapter VI. Optimising location, inventory and transportation in a sustainable closed-loop supply chain

1.	Introduction	VI-2
2.	Literature review	VI-5
2.1.	Modelling approach	VI-5
2.2.	Sustainability aspects	VI-6
2.3.	Inventory approach.....	VI-8
2.4.	Research gaps.....	VI-10
3.	Problem statement.....	VI-11
3.1.	Assumptions.....	VI-15
3.2.	Mathematical model.....	VI-19
3.3.	Linearisation of constraints	VI-31
3.4.	Multi-objective solution technique	VI-31
4.	Results	VI-32
4.1.	Computational results.....	VI-33
4.2.	Comparing model.....	VI-40
5.	Discussion	VI-42
5.1.	Managerial insights and practical implications	VI-42
6.	Conclusions and future research	VI-43
	References	VI-46

Chapter VII. Simulation optimisation of a sustainable copper mining closed-loop supply chain

1.	Introduction	VII-2
2.	Literature review	VII-3
3.	Problem description	VII-6
4.	MP model application	VII-6
4.1.	Comparison of the current procedure to the proposal	VII-7
5.	SD model formulation.....	VII-11
5.1.	Applying the SD model.....	VII-25
5.2.	Validation.....	VII-26
5.3.	Sensitive analysis	VII-28
5.4.	Simulating scenarios	VII-30
5.4.1.	Disruption due to supply risk	VII-31
5.4.2.	Disruption due to the market risk	VII-33

6. Conclusions and future research	VII-34
References	VII-37

Part 4. Conclusions and further research

Chapter VIII. Conclusions and further research

Conclusions	VIII-1
Further research guidelines.....	VIII-4
References	VIII-6

A. Appendices.....	A-1
Appendix II-1. Distribution of reviewed publications per journal.	A-2
Appendix II-2. Sustainability aspects, research methodology, objectives and proposed further research per article.	A-3
Appendix III-1. Main contributions of the reviewed articles	A-11
Appendix III-2. Application context of the reviewed articles.....	A-20
Appendix III-3. Main simulation model outcomes	A-31
Appendix III-4. Inventory policies	A-34
Appendix III-5. Solution approaches and software tools	A-35
Appendix III-6. Sustainability research areas.....	A-38
Appendix VI-1. Random distribution of model parameters.....	A-43
Appendix VI-2. Linearisation of constraints	A-47