

THE MEDIATION OF GREEN SUPPLY CHAIN MANAGEMENT TOWARDS
SUSTAINABLE CONSTRUCTION IN ALGERIA

AHMED HAROUACHE

A thesis submitted in
fulfilment of the requirements for the award of the Doctor of
Philosophy in Technology Management

Faculty of Technology Management and Business
Universiti Tun Hussein Onn Malaysia

NOVEMBER 2022

DEDICATION

This thesis is especially dedicated to my parents for their support, prayers, encouragement, and unconditional love may Almighty ALLAH.

To my beloved family members, to my brothers Mohammed, Albaraa, Bakhti and Islam.



PTTA UTHM
PERPUSTAKAAN TUNKU TUN AMINAH

ACKNOWLEDGEMENT

All praises and salutations are due to almighty Allah, the nourisher, the sustainer, the evolver, the molder and the most capacitated master of the Day of Judgment. First of all, I would like to express my heartfelt gratitude to my supervisor, Assoc. Prof. Dr. Goh Kai Chen for his guidance, support, tolerance and understanding throughout this journey, his immense professional advice and critic would forever remain in my memory, sir you have played not only a role of supervisor but a role model, I am forever grateful for your support, may Allah provide for you and your household. I would also like to thank my co-supervisor Dr. Norliana Binti Sarpin, for her support and advice throughout my journey as a postgraduate.

Secondly, I would also like to extend my unwavering and unreserved gratitude to my parents, for their parental support and inspirations, you are always there for me when life seems hopeless, you always pray and encourage me right from my upbringing; without you, life would have been meaningless. May Allah (S.W.A) continue to help, sustain, and provide the best for you. A special and sincere acknowledgement to my family members for your patience, understanding and support, to my brothers Mohammed, Albaraa and Islam. I so much appreciate you; may Allah continue to bless you all. To all my UTHM colleagues and staff, I thank you all.

ABSTRACT

The construction industry is an important business sector providing physical equipment and infrastructure through supply and demand patterns that have a strong indirect impact on other industries. This study aims to improve sustainable construction in the construction industry sector in Algeria. Green supply chain management provides general guidelines for analyzing, redesigning, and coordinating the entire supply chain of the building and continuous improvement, solving basic problems, and controlling short-sighted supply chains. The objective of this study is to examine the mediating role of green supply chain management between traditional supply chain management and sustainable construction in the Algerian construction industry. Thirteen hypotheses tailored by the theoretical lenses of the social exchange theory (SET) were proposed to test the theorized relationship of traditional supply chain management (design, manufacturing, distribution, and purchasing), green supply chain management, and sustainable construction. Green Supply Chain Management as a mediator contained five dimensions namely, eco-design, green manufacturing, green distribution, green purchasing, and reverse logistics. A quantitative approach is used to obtain data from a survey (questionnaire) consisting of 61 items with a five-point Likert scale. A total of 237 executives and risk managers in the construction companies of Algeria participated in the study. The data analysis was conducted using Smart PLS. The findings of the path analysis of partial least squares (PLS) support variables in the hypothesized direct and indirect relationships with sustainable construction. The results showed that the relationship between traditional supply chain management and sustainable construction is positive. Mediation of GSCM results showed a positive and significant effect on the relationship between traditional supply chain management and sustainable construction. This study leads future employers, designers, manufacturers, contractors, and suppliers to improve the use of green supply chain management for sustainable construction in Algeria.

ABSTRAK

Industri pembinaan merupakan sektor penting yang dapat menyediakan infrastruktur melalui corak penawaran dan permintaan yang membawa impak terhadap industri lain. Kajian ini bertujuan meningkatkan pembinaan mampan dalam sektor industri pembinaan di Algeria. Pengurusan rantaian bekalan hijau menyediakan garis panduan untuk menganalisis, merekabentuk dan menyelaras keseluruhan rantaian bekalan bangunan dan penambahbaikan yang berterusan menyelesaikan masalah asas, dan mengawal rantaian bekalan. Objektif kajian ini adalah mengkaji peranan pengantara bekalan hijau pengurusan rantaian antara pengurusan rantaian bekalan tradisional dan pembinaan mampan dalam industri pembinaan di Algeria. Tiga belas hipotesis yang dibentuk mengikuti teori pertukaran sosial (SET) telah dicadangkan untuk menguji hubungan antara teori pengurusan rantaian bekalan tradisional (reka bentuk, pembuatan, pengedaran, dan pembelian), pengurusan rantaian bekalan hijau, dan pembinaan mampan. Pengurusan Rantaian Bekalan Hijau sebagai mediator mempunyai lima dimensi iaitu, reka bentuk eko, pembuatan hijau, pengedaran hijau, pembelian hijau, dan logistik terbalik. Pendekatan kuantitatif juga digunakan untuk mendapatkan data daripada tinjauan (soal selidik) yang terdiri daripada 61 faktor dengan lima -titik skala Likert. Sebanyak 237 pegawai eksekutif dan pengurus risiko di syarikat pembinaan Algeria telah mengambil bahagian dalam kajian ini. Analisis data telah dilakukan melalui Smart PLS. Hasil analisis PLS menyokong hubungan secara langsung dan tidak langsung yang dihipotesiskan dengan pembinaan mampan. Hasil analisis juga menunjukkan bahawa hubungan antara pengurusan rantaian bekalan tradisional dan pembinaan mampan adalah positif. Pengantaraan hasil GSCM menunjukkan kesan positif dan signifikan terhadap hubungan antara pengurusan rantaian bekalan tradisional dan pembinaan mampan. Kajian ini membolehkan majikan, pereka bentuk, pengilang, kontraktor, dan pembekal untuk menambahbaik penggunaan pengurusan rantaian bekalan hijau untuk pembinaan mampan di Algeria.

TABLE OF CONTENTS

TITLE	i
DECLARATION	ii
DEDICATION	iii
ACKNOWLEDGEMENT	iv
ABSTRACT	v
ABSTRAK	vi
TABLE OF CONTENTS	vii
LIST OF TABLES	xii
LIST OF FIGURES	xiv
LIST OF ABBREVIATIONS	xv
LIST OF APPENDICES	xvi
CHAPTER 1 INTRODUCTION	1
1.1 Introduction	1
1.2 Background of study	1
1.3 Problem statement	6
1.4 Research questions	10
1.5 Research objectives	10
1.6 Scope of Study	11
1.7 Significance of the research	11
1.8 Research methodology	12
1.9 Organization of the chapters	13
1.10 Summary	14
CHAPTER 2 LITERATURE REVIEW	15
2.1 Introduction	15
2.2 Sustainable construction	15
2.2.1 Principles of sustainable construction	16

2.3	Construction industry	17
2.3.1	Importance of construction industry in economic	18
2.3.2	Overview of Algerian construction industry	19
2.3.3	Construction sector growth GDP	23
2.3.4	Incomes of construction industry	25
2.3.5	Development of construction industry	27
2.4	Supply chain management	29
2.4.1	Traditional supply chain management	32
2.5	Green supply chain management	34
2.5.1	Green supply chain management in Algerian construction industry	39
2.5.2	Outcomes of sustainable supply chain management	40
2.5.3	Challenges facing GSCM in Algerian construction industry	40
2.6	Summary of previous studies on GSCM in construction industry	42
2.7	Importance of green supply chain management in construction industry	53
2.8	Relationship between the variables of the study	54
2.8.1	Relationship between traditional supply chain management and sustainable construction	54
2.8.2	Relationship between traditional supply chain management and green supply chain management	55
2.8.3	Relationship between green supply chain management and sustainable construction	56
2.8.4	The mediation role green supply chain management between traditional supply chain and sustainable construction	57
2.9	Research gap	58

2.10	Conceptual framework	59
2.11	Summary	60
CHAPTER 3 RESEARCH METHODOLOGY		61
3.1	Introduction	61
3.2	Research design	62
3.2.1	Research philosophy	63
3.2.2	Research approach	65
3.2.3	Research strategy	66
3.3	Quantitative research approach	68
3.3.1	Survey design	69
3.3.2	Questionnaire development	70
3.3.3	Selection of questionnaire respondents	71
3.3.4	Population and sampling	71
3.3.5	Reliability and Validity	74
3.3.6	Types of variables	76
3.4	Methodology process	77
3.4.1	Pilot study	77
3.4.2	Data collection	79
3.4.3	Data analysis	80
3.5	Summary	82
CHAPTER 4 DATA ANALYSIS		83
4.1	Introduction	83
4.2	Analysis of survey response	83
4.2.1	Response rate	84
4.2.2	Respondents' profile	84
4.3	Data screening and preliminary analysis	85
4.3.1	Treatment of missing data	85
4.3.2	Normality assumptions	86
4.3.3	Multicollinearity test	88
4.4	Descriptive analysis	89
4.5	Confirmatory Factor Analysis (CFA)	91
4.6	Structural equation modeling (SEM)	92

4.6.1	Assessment of measurement model (outer model)	94
4.7	Conclusion of the measurement model-outer model	100
4.8	Structural model results (inner model)	101
4.8.1	Coefficient of determination (R^2)	102
4.8.2	The effect size (f^2)	104
4.8.3	Predictive relevance of the model (Q^2)	105
4.8.4	Hypotheses testing (path coefficient)	106
4.8.5	Testing mediation relationship (indirect effects)	108
4.9	Summary	110
CHAPTER 5 FINDING DISCUSSIONS AND MODEL VALIDATION		111
5.1	Introduction	111
5.2	Summary of research	111
5.3	Recapitulation of research findings	112
5.4	Experts' verification on proposed framework	112
5.4.1	Expert identification	113
5.4.2	Verification proposed framework results	113
5.5	Discussion of the Findings	115
5.5.1	Objective One: to determine the relationship between traditional supply chain management and sustainable construction.	115
5.5.2	Objective Two: to determine the relationship between traditional supply chain management and green supply chain management.	117
5.5.3	Objective Three: to identify the green supply chain management in sustainable construction	119
5.5.4	Objective Four: to determine the mediating role of green supply chain management between traditional supply chain and sustainable construction.	120
5.5.5	Objective Five: to develop and validate the framework of mediating effect of green supply	

	chain management between traditional supply chain and sustainable construction	123
5.6	Contribution of the study	124
5.6.1	Methodological and managerial contribution	125
5.6.2	Theoretical and practical contribution	127
5.6.3	Academic contribution	129
5.7	Limitation and suggestions for future research	129
5.8	Recommendations	130
5.9	Conclusion	131
	REFERENCES	133
	APPENDIX	159



LIST OF TABLES

2.1	World Construction Development Forecasting (2017-2021) (Construction Intelligence Center, 2017)	24
2.2	Summary of Previous Studies on GSCM in Construction Industry	43
3.1	Determination of sample size for known population (Krejcie & Morgan 1970)	73
3.2	Questionnaire response rate	74
3.3	The Alpha Cronbach Value (Konting, 2009)	76
3.4	Cronbach's alpha from each research measurement based on the pilot test	79
3.5	Average Mean Index Scale	81
4.1	Questionnaire response rate	84
4.2	Demographic profile of the questionnaire respondents	84
4.3	Results of Skewness and Kurtosis for normality test	87
4.4	Multicollinearity test	88
4.5	Mean and standard deviation of Traditional Supply Chain Management	89
4.6	Mean and standard deviation of Sustainable Construction	90
4.7	Mean and Standard Deviation of GSCM	91
4.8	PLS-SEM model evaluation criteria	92
4.9	Internal Consistency and Convergent Validity of the Measurement Model	94
4.10	Factor Loadings of Items on Constructs	98
4.11	Fornel and Larcker result	99
4.12	Heterotrait-Monotrait Ratio (HTMT)	100
4.13	R-square of the Endogenous Latent Variables	103

4.14	Effect size of the exogenous constructs.	104
4.15	Predictive relevance of the endogenous latent variables	105
4.16	Results of Hypotheses Testing (Direct Relations Results)	107
4.17	Results of the Specific Indirect Effects (Mediation Test)	109
5.1	Expert's evaluation frequency	114



LIST OF FIGURES

1.1	Geographical location of the new sustainable cities of Algeria (Lamdjad & Khalfallah, 2022)	3
2.1	ISO 14001 Certification and consultation in Algeria	22
2.2	Construction sector growth and GDP in Malaysia (Raza <i>et al.</i> , 2014)	23
2.3	Gross Domestic Product of the economic sectors in Algeria (2008- 2018) (Trading Economics Algeria, 2018).	25
2.4	Asian Investment to Outpace the EU, UK and US (Nesshöver <i>et al.</i> , 2017)	27
2.5	Expectation of Construction Growth across the word until 2021 (Nesshöver <i>et al.</i> , 2017)	29
2.6	Supply chain operations model (Chin <i>et al.</i> , 2015)	30
2.7	Principle Green Supply Chain Management Activities (Researcher, 2022)	38
2.9	Proposed Framework (Researcher, 2021)	60
3.1	Philosophical Worldviews (Creswell, 2009)	64
3.2	Alternative Strategies of inquiry (Creswell, 2009)	67
3.3	Validity and Reliability measurement scales	75
3.4	Dependent and Independent Variable	77
4.1	Research Model	93
4.2	Measurement Model	101
4.3	Structural model.	102
5.1	Validated model	124

LIST OF ABBREVIATIONS

<i>AHP</i>	-	Analytic Hierarchy Process
<i>AVE</i>	-	Average Variance Extracted
<i>EMAS</i>	-	European Union Eco-Management and Audit Scheme
<i>EMS</i>	-	Environmental Management System
<i>CNTPP</i>	-	National Centre of Clean Production Technologies
<i>GSCM</i>	-	Green Supply Chain Management
<i>ISO</i>	-	International Organization for Standardization
<i>LSR</i>	-	logistics Social Responsibility
<i>MTE</i>	-	Ministry of Territory and Environment
<i>PLS</i>	-	Partial Least Squares
<i>PSM</i>	-	Project Sustainable Management
<i>SBCI</i>	-	Sustainable Buildings and Climate Initiative
<i>SC</i>	-	Sustainable Construction
<i>SEM</i>	-	Structural Equation Modeling
<i>SPSS</i>	-	Statistical Package for Social Sciences
<i>TSCM</i>	-	Traditional Supply Chain Management
<i>UNEP</i>	-	United Nations Environment Program
<i>TI</i>	-	Tolerance Index
<i>VIF</i>	-	Variance of Inflation Factor

LIST OF APPENDICES

APPENDIX	TITLE	PAGE
A	Questionnaire	162
B	Univariate Normality and Outlier	170
C	Experts Information	186
D	List of Publication	187
E	Vita	188



PTTA UTHM
PERPUSTAKAAN TUNKU TUN AMINAH

CHAPTER 1

INTRODUCTION

1.1 Introduction

This chapter clarifies the whole research purpose, and it considers as an overall research flow. It starts with a clear explanation of the gap of this research through the background and the problem statement. Followed by the research questions, aim and the objectives, and then expected findings and significant of research are clarified tally with the goal of this study. This chapter is ended by reviewing the methodology and the structure of this research.

1.2 Background of study

Algeria is a country located in Northern Africa bordering the Mediterranean Sea. It is considered the gateway between Africa and Europe. Neighboring countries include Libya, Mali, Mauritania, Morocco, Niger, Tunisia, and Western Sahara. Algeria is mostly desert with a few mountains and a narrow coastal plain. The government system is a republic, the chief of state and head of government is the president. Algeria has a mixed economic system which includes a variety of private freedom, combined with centralized economic planning, and government regulation. Algeria is a member of the League of Arab States (Arab League). The current population of Algeria is 45,416,503, based on World meter elaboration of the latest United Nations data on 2022.

The Gross Domestic Product (GDP) in Algeria was worth 145.16 billion US dollars in 2020, according to official data from the World Bank. The GDP value of

Algeria represents 0.13 percent of the world economy (World Bank, 2021). Algerian economy is highly dependent on petroleum and natural gas exports. It is estimated that hydrocarbons account for roughly 60% of budget revenues, 30% of GDP, and over 95% of export earnings. The Algerian construction industry's growth prospects by market, project type and construction activity. Critical insight into the impact of industry trends and issues, as well as an analysis of key risks and opportunities in the Algerian construction industry (Nikjow *et al.*, 2021)

Sustainable construction involves the creation of buildings using best practices cleansing and resources-saving technologies for; the extraction of raw materials to the removal and disposal of their components (Ojo *et al.*, 2014). Construction activities always involves some adverse environmental impacts, although sustainable construction should reduce it to a certain degree. Management scientists examined corporate environmental practices in the 1990s and advocated a more comprehensive and responsible supply chain approach (Mbohwa *et al.*, 2014). The commercial value of adopting sustainability policies is obvious. Building contractors can save on resource use minimization; improve corporate image. Promote companies to comply with laws and regulations to reduce risks and uncertainties (Ojo *et al.*, 2014). The term supply chain management (SCM) emerged in the 1980s to express the need to integrate key business processes between end users and original suppliers.

Overall, SCM terminology reflects the process of planning, implementing, and managing supply chain operations as efficiently as possible. Supply Chain Management, include raw materials, inventory and all movement and storage of finished products from the origin to the point of consumption (Mohd & Lee, 2016). Sustainable construction should include not only an assessment of the availability of the building over its life cycle, but also the reuse of resources to reduce waste streams associated with reuse (Vanalle *et al.*, 2017). However, construction often has significant and irreversible effects on the environment, such as the widespread use of natural resources, pollution, and high energy consumption from the building material to the entire end consumer supply chain (CIEC, 1992). As the need for environmental awareness continues to increase, the term sustainable building is becoming increasingly popular. This has become a popular and well-known concept for sustainable construction and environmental factors are largely well considered.

A green or sustainable building increases the efficiency of energy, water and materials uses. It is the result of a design which conserves resources and reduces negative impacts on human health and the environment throughout the building's life cycle from construction and operation to renovation and removal (Mehmood *et al.*, 2019). According to Wuni (2019) Green buildings operate much more efficiently than conventional buildings, they can save you money, increase productivity of your personnel, enhance your company's financial valuation and contribute to demonstrating your commitment to sustainability. The new set of Algerian cities integrating sustainability principles into the process of their design, implementation and management. Designed to accommodate a large number of housing projects as shown in Figure 1.1.

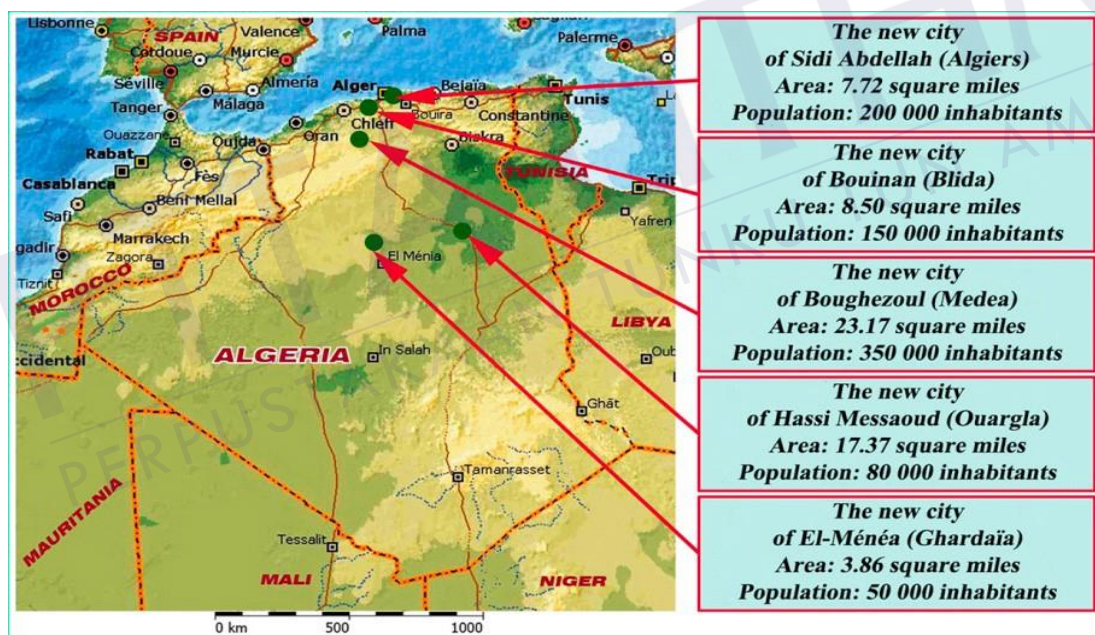


Figure 1.1: Geographical location of the new sustainable cities of Algeria (Lamdjad & Khalfallah, 2022)

The issue of sustainability and environmental quality of buildings in Algeria remains central for the development of green buildings. A study by Mezerdi (2022) found out that the recent achievements in the construction sector are inadequate with the requirements imposed by the rapid scientific development and technological knowledge as well as modern information and communication occurred in different

areas such as sustainable building. With the major concern to mop up the increased insufficiency registered since independence in terms of infrastructure (Razzaq, A et al , 2021), Algeria has resorted to the use of all kind of prefabricated construction systems, to abusive use of new materials issued from technology and industry of buildings, up to the almost universal standardization of equipment projects prototyped to adapt to different sites, neglecting both the geographical, bioclimatic characteristics of climatic zones and socio-cultural practices of the local population (Lamdjad, I., & Khalfallah, B. 2022). It is important to note that some materials harmful to health of customers were widely used by domestic and foreign construction companies in the construction of some buildings during the eighties in Algeria

The main role of sustainability and environmental quality of buildings is the minimization of the negative impacts of buildings on the natural environment and improving the comfort and quality of life (Zadeh, 2018). The term green supply chain refers to the idea of integrating sustainable environmental processes into the traditional supply chain. This can include processes such as supplier selection and purchasing material, product design, product manufacturing and assembling, distribution and end-of-life management (Khan, 2018). Instead of mitigating harmful impact of business and supply chain operations, green supply chain involves value addition and/or value creation through the operations of whole chain (Khan, 2018). Green Supply Chain Management (GSCM) integrates environmental thinking into supply chain management. It covers everything from product development to purchasing and material selection to manufacturing processes, product delivery and product terminal management.

Stivastasta (2007) defined green supply chain management (GSCM), which integrates environmental thinking into supply chain management, including product design, sourcing and material selection, and delivery of production processes after the final product life cycle. Another definition by Ojo *et al.* (2015) GSCM's scope extends from procurement to reverse logistics throughout the so-called closed-loop supply chain. Dou, Zhu, and Sarkis (2017) describe GSCM as procuring entity's plans and actions, incorporating environmental considerations into supply chain management to improve environmental performance of supplier and customer. Some developed countries have developed GSCM practices, but GSCM is still a relatively new topic

for most developing countries. In recent years, the number of environmental studies in national and international journals has increased significantly. Relevant GSCM literature has been reviewed and published. The literature on all functional areas of GSCM was discussed. (Sunil *et al.*, 2014). Record the frequency of major GSCM issues in the literature. The two main themes of developing green products and designing environmentally friendly processes are less common than other key GSCM topics. Compared to other GSCM modeling and optimization techniques, genetic algorithms, coarse-grained theory, structural equation modeling, balanced scorecards, and interpretation ranking techniques rarely provide any pointers. (Luthra *et al.*, 2014).

Supply chain management can reduce the proliferation of construction projects, improve project quality, and shorten project duration, reducing overall project costs while creating satisfied customers. GSCM has become an effective management tool and concept for active and leading construction companies (Ojo *et al.*, 2014). Similar of the concept of the supply chain management concept, the GSCM limit depends on the auditor's goal. Supply chain management has the potential to reduce the fragmentation of construction projects, improve the quality of projects, shorten project time, and consequently reduce overall project costs while creating more satisfied customers (Bertram *et al.*, 2019). Others like Mbohwa *et al.*, (2014) Identify Green or Sustainable Supply Chain Management as the organization's strategic, transparent, integrated, and realized social, environmental, and economic goals, and systematically coordinate key cross-organizational business processes to improve the business and its operations Long-term performance of supply chain partners.

According to Ruoqi *et al.* (2017), Companies should share stories about the benefits of using GSCM practices with other companies in order to spread and inspire interest in the GSCM concept. It is important to note that the introduction of GSCM can create commercial success for manufacturing companies and a moral obligation to protect the planet. Luthra *et al.* (2014) in their research in the automotive industry in India, it was found that the introduction of GSCM practice has improved environmental, economic, social and operational performance. Diab *et al.* (2015) examined the impact of the practice of the green supply chain and its elements on the company's performance, such as: environmental performance, financial performance, and business performance. It helps to increase sales and industry benefits. A strong

and important relationship between environmental design and the environment, operation and economic performance. Therefore, companies need to be aware of the importance of eco-design in order to benefit from GSCM practices towards sustainable construction (Ruoqi *et al.*, 2017).

1.3 Problem statement

Since the 1980s, the Algerian government has become increasingly interested in protecting the environment. By establishing institutions and legislation, companies can be promoted to consider environmental factors through the application of ecological actions (Trirat *et al.*, 2017). In addition, the Algerian government is increasingly interested in protecting the environment by the installation agencies and legislation and pushing the companies to take the environmental in considerations.

The basis of the concept of supply chain management is the optimal distribution of roles, activities, responsibilities and authority among supply chain participants in order to secure and optimize the entire supply chain process (Tian, 2017). Priority must be given to common identification of the most effective and efficient methods for the entire supply chain to provide the end product according to the final customer's demands, and make the chain operate smoothly.

Traditional SCM focuses only on production, provision and aspect of distribution. Traditional supply chain is defined as an integrated manufacturing process, wherein the Supplier supplies raw materials or semi-finished goods to the manufacturer and are manufactured or assembled into final products (Ellram & Murfield, 2019). According to Cousins *et al.* (2019), there is a lack of analyzing the different components during design in the management process. Traditional supply chain also includes a supplier, manufacturer, wholesaler, retailer and customer. The main objective of extending the traditional supply chain is to consider the in between and eventual environmental effects of all products (Shee *et al.*, 2018). After the life cycle of the product gets over, the product is finally collected from customer and after the collection, if some components are found to be good enough to use, it is directly sent to the retailer and those are not further forwarded for dismantling. In final dismantling of the product, if some parts are found to be used are forwarded directly

in manufacturing process and finally those, which are not of any use are disposed of or recycled such that it is used as raw material (Singh & Ordoñez, 2016). Poor quality, negative impact on the economy of the country, loss of productivity wastage and underutilization of human and material resources are under traditional supply chain management that have negative effect on the construction industry (Salhi, 2021). The current supply chain management shows that there is a poor culture use of the 3R principles (reduce, reuse, recycle) in the Algerian construction industry (Kouloughli, & Kanfoud, 2017).

Green Supply Chain Management (GSCM) remains an important research program for researchers. However, research on the practice of GSCM and its implementation is limited (Younis & Vel, 2016). Since environmental problems are new in developing countries, information on the needs to be understood and updated. Companies in developing countries such as Algeria are still learning how to incorporate green supply chain management into their daily activities (Sedkaoui & Benaichouba, 2021). GSCM is becoming an increasingly common practice for companies seeking to improve their sustainability (Testa & Iraldo, 2010). Increasing pressures and problems related to improving economic and environmental performance have led developing countries, and especially businesses, to think about and begin implementing green supply chain management (Tabet *et al.*, 2017). This has become an important method that not only reduces environmental problems but also brings economic benefits to manufactures (Tabet *et al.*, 2017).

So far, theoretical and empirical research has examined the implementation and impact of environmental design, clean production, environmental procurement and environmental / reverse logistics, as well as individual performance outcomes through financial, operational, and environmental measures. (Mbohwa *et al.*, 2014). According to Nejati *et al.* (2017), Green practices include green marketing, green packaging, green transportation, and green waste management and inbound logistics phase is critical as companies are normally held responsible for environmental problems caused by them as well as their suppliers (Lai & Wong, 2012). Recycling and remanufacturing of materials practices led to a fundamental shift from the traditional linear supply chain operations towards a closed-loop environmental control system (Genovese *et al.*, 2017). GSCM practices represent an internal-based inverse flow activity that is tied to

the GSCM practices at other phases of the firms.

The main activities of GSCM are green design, green procurement, green production, green transportation, and reverse logistics (Sharma *et al.*, 2017). Green design is one way to develop products with improved organic quality by reducing the adverse effects on the environment throughout its life cycle. This means considering the environment during the product design phase (Sharma *et al.*, 2017).

Eliminates and minimizes the environmental practices and practices of the supply chain for essential enterprise operations related to four stages (procurement and inbound logistics, production and internal operations, distribution and outbound logistics and reverse logistics) Green purchasing, Eco-design and life cycle assessment are the ways for leading manufacturers to put pressure on suppliers to achieve better environmental performance, and buyer-supplier relationships influence the implementation of GSCM (Gabriela & Mayara, 2017).

From the related literature, there are a few combined studies on green supply chain management in construction industry in Algeria. Similarly, based on the knowledge of the researcher no study that investigated the mediation role of green supply chain management between traditional supply chain and sustainable construction in Algeria. So, most of the previous studies has been in the developed countries, with lack of focusing on GSCM in construction industry in developing countries like Algeria. While studies of GSCM in developing countries in construction sector are quiet very few as most of the studies concentrate on the economic, medical production and automotive sectors.

In Algeria, construction industry is still lacking the knowledge, experience (Rachid *et al.*, 2019). Tools to improve their environmental performance effectively and efficiently by adopting GSCM principles. The firms have to understand the importance of GSCM immediately and fulfil the requirements of GSCM applications (Laari *et al.*, 2017). The firms operating in Algeria are not adequate for adopting GSCM applications and they have not enough information about the benefits of applying GSCM yet. A study by Salhi (2018) found that there is a problem in the construction industry that green supply chain management of buildings aim the impact of building activities on the sustainability of supply chain management in Algeria. According to Sedkaoui and Benaichouba (2021), based on previous research on green

supply chain management, this research needs to further investigation aimed at the construction industry, as the GSCM concept has been integrated into other industries but it's still new in the Algerian construction industry. Significant barriers to the implementation of GSCM practices in the construction industry have been identified in some studies, as the high costs that this concept can cause for the company can be funded by the government to reduce costs or taxes and help companies to include these practices into their supply chain.

In Algeria, this atmospheric waste is regulated by the executive decree which specifies the maximum tolerated values of these emissions (Salhi, 2018). Meanwhile, in order to line up with the new ones to control the amount of dust waste, Waste from construction and demolition are generally disposed in uncontrolled landfills .Sixty two (62) % of waste collected annually in Algeria are organic materials. The remains are of paper and cardboard (9%), plastics (12%), glass (1%), metals (2%) and others (14%). Waste from construction and demolition are generally disposed in uncontrolled landfills .Consequently, during the time granted to the old construction works, they have to develop an environmental policy, which makes them comply with the regulation in force. This is why there is a need to improve the implementation of GSCM that would allow to be advanced in the environmental integration.

The outcome from this study create an enabling environment for both the public and private sector drivers in the Algerian construction industry to launch into the real construction business where the individual stakeholders within the GSCM will align themselves in providing innovative ideas that will help create value in support of achieving competitiveness in the construction industry.

Moreover, it is crucial for the stakeholders of the construction industry. In particular, the results will create an enabling environment for the public and private sectors of the Algerian construction industry to build real construction business, where the individual stakeholders within the GSCM will align themselves in providing innovative ideas that will help to create value in support of achieving competitiveness in the construction industry. The outcome from this research also will provide a plethora of opportunities all of which will provide ample opportunities for research into GSCM in Algeria. The organizations who tend to improve design, manufacturing, disturbing and purchasing indicators which they work should not only adopt GSCM

REFERENCES

- Abdullah, R., Mohamad, M. N., & Thurasamy, R. (2017). Supply chain integration: Level of existence in green supply chain management practices among Malaysian ISO 14001 manufacturing firms. *International Journal of Supply Chain Management*, 6(2), 243-249.
- Achillas, C., Bochtis, D. D., Aidonis, D., & Folinias, D. (2019). *Green supply chain management*. Routledge.
- Adeitan, D. A., Aigbavboa, C. O., Emem-Obong Agbenyeku, E., & Bamisaye, O. S. (2019). Industry 4.0 and construction supply chain management. In *Creative Construction Conference 2019* (pp. 368-375). Budapest University of Technology and Economics.
- Ahmed, M., Thaheem, M. J., & Maqsoom, A. (2019). Barriers and opportunities to greening the construction supply chain management. *Benchmarking: An International Journal*.
- Alaloul, W. S., Liew, M. S., Zawawi, N. A. W. A., & Kennedy, I. B. (2020). Industrial Revolution 4.0 in the construction industry: Challenges and opportunities for stakeholders. *Ain shams engineering journal*, 11(1), 225-230.
- Alfayyadh, S. A. (2017). Development of the framework for a lean, energy efficient, and environmentally friendly port: umm qasr port as a Case Study.
- Alfredo, E. Di Noia, Nicoletti, G.M. "interested parties according to iso 14001:2015. The italian case of protected natural areas with emas registration". 2017, p55-62
- Al-Ghwayeen, W. S., & Abdallah, A. B. (2018). Green supply chain management and export performance. *Journal of Manufacturing Technology Management*.
- Allek, T. (2019). *School architecture in Algeria, what climate management?* (Doctoral dissertation, Mouloud Mammeri University).
- AlSanad, S. (2015). Awareness, drivers, actions, and barriers of sustainable

- construction in Kuwait. *Procedia engineering*, 118, 969-983.
- AL-Shboul, M. D. A., Garza-Reyes, J. A., & Kumar, V. (2018). Best supply chain management practices and high-performance firms: the case of Gulf manufacturing firms.
- Alwan, Z., Jones, P., & Holgate, P. (2017). Strategic sustainable development in the UK construction industry, through the framework for strategic sustainable development, using Building Information Modelling. *Journal of Cleaner Production*, 140, 349-358.
- Alwisy, A., BuHamdan, S., & Gül, M. (2019). Evidence-based ranking of green building design factors according to leading energy modelling tools. *Sustainable Cities and Society*, 47, 101491.
- Amemba, C. S., Nyaboke, P. G., Osoro, A., & Mburu, N. (2013). Elements of green supply chain management. *European Journal of Business and Management*, 5(12), 51-61.
- Ametepey, O., Aigbavboa, C., & Ansah, K. (2015). Barriers to successful implementation of sustainable construction in the Ghanaian construction industry. *Procedia Manufacturing*, 3, 1682-1689.
- Arshad, M. I., Iqbal, M. A., & Shahbaz, M. (2018). Pakistan tourism industry and challenges: a review. *Asia Pacific Journal of Tourism Research*, 23(2), 121-132.
- Badi, S., & Murtagh, N. (2019). Green supply chain management in construction: A systematic literature review and future research agenda. *Journal of cleaner production*, 223, 312-322.
- Balasubramanian, S. (2012). A hierarchical framework of barriers to green supply chain management in the construction sector. *Journal of Sustainable Development*, 5(10), 15-27
- Balasubramanian, S., & Shukla, V. (2017). Green supply chain management: the case of the construction sector in the United Arab Emirates (UAE). *Production Planning & Control*, 28(14), 1116-1138.
- Barber, K. D., Garza-Reyes, J. A., Kumar, V., & Abdi, M. R. (2017). The effect of supply chain management practices on supply chain and manufacturing firms' performance. *Journal of Manufacturing Technology Management*.

- Bashir, A. M., Suresh, S., Proverbs, D. G., & Gameson, R. (2010, September). Barriers towards the sustainable implementation of lean construction in the United Kingdom construction organisations. In *ARCOM doctoral workshop* (p. 1).
- Behera, P., Mohanty, R. P., & Prakash, A. (2015). Understanding construction supply chain management. *Production Planning & Control*, 26(16), 1332-1350.
- Beldek, T., Camgöz-Akdağ, H., & Hoşkara, E. (2016). Green supply chain management for construction waste: Case study for Turkey. *International Journal of Sustainable Development and Planning*, 11(5), 771-780.
- Benton, W. C., & McHenry, L. F. (2010). *Construction purchasing & supply chain management*. New York: McGraw-Hill.
- Benzerra, A., Cherrared, M., Chocat, B., Cherqui, F., & Zekiouk, T. (2012). Decision support for sustainable urban drainage system management: A case study of Jijel, Algeria. *Journal of environmental management*, 101, 46-53.
- Berardi, U. (2013). Sustainable construction: green building design and delivery.
- Bertram, N., Fuchs, S., Mischke, J., Palter, R., Strube, G., & Woetzel, J. (2019). Modular construction: From projects to products. McKinsey & Company: Capital Projects & Infrastructure, 1-34.
- Berument, M. H., Ceylan, N. B., & Dogan, N. (2010). The impact of oil price shocks on the economic growth of selected MENA1 countries. *The Energy Journal*, 31(1).
- Bin, D. A. N., & Fei, L. (2000). Study on green supply chain and its architecture. *China Mechanical Engineering*, 11(11), 1233-1236.
- Björklund, M. (2011). Influence from the business environment on environmental purchasing—Drivers and hinders of purchasing green transportation services. *Journal of Purchasing and Supply Management*, 17(1), 11-22.
- Bouadjel, C., Bounames, I., Habchi, R., & Rouidi, TE (2017). *Towards a new typology of sustainable habitat in Algeria* (Doctoral dissertation, University of Jijel).
- Bouchair, A., Tebbouche, H., Hammouni, A., Lehtihet, M. C., & Blibli, M. (2013). Compact cities as a response to the challenging local environmental constraints in hot arid lands of Algeria. *Energy Procedia*, 42, 493-502.
- Boukli Hacene M. A, Chabane Sari N. E, S Amara 2011, « Conception of a Passive and Durable House in Tlemcen (North Africa)», *Journal of Sustainable and*

- Renewable Energy, AIP Journals (Americain Institute of Physic)*, Issue 3, Vol3, Boukli Hacene M. A, Chabane Sari N. E (2009), Le Concept Maison Ecologique, Revue D'héliotechnique Energie-Environnement Comple, Volume 40, 24-27.
- Bouraiou, A., Necaibia, A., Boutasseta, N., Mekhilef, S., Dabou, R., Ziane, A.. & Touaba, O. (2020). Status of renewable energy potential and utilization in Algeria. *Journal of Cleaner Production*, 246, 119011.
- Broft, R. D., & Koskela, L. (2018, July). Supply chain management in construction from a production theory perspective. In *26th Annual Conference of the International Group for Lean Construction: Evolving Lean Construction-Towards Mature Production Across Cultures and Frontiers* (pp. 271-281). The International Group for Lean Construction.
- Bvuma, K. (2013). *The implementation of green supply chain management: minimising environmental risk in the South African manganese and phosphate mining industry* (Doctoral dissertation).
- Benramdane, A. (2017). Oil price volatility and economic growth in Algeria. *Energy Sources, Part B: Economics, Planning, and Policy*, 12(4), 338-343.
- Banerjee, A. (2018). Blockchain technology: supply chain insights from ERP. In *Advances in computers* (Vol. 111, pp. 69-98). Elsevier.
- Braccini, A. M., & Margherita, E. G. (2018). Exploring organizational sustainability of industry 4.0 under the triple bottom line: The case of a manufacturing company. *Sustainability*, 11(1), 36
- Boz, Z., Korhonen, V., & Koelsch Sand, C. (2020). Consumer considerations for the implementation of sustainable packaging: A review. *Sustainability*, 12(6), 2192.
- Caniëls, M. C., Cleophas, E., & Semeijn, J. (2016). Implementing green supply chain practices: An empirical investigation in the shipbuilding industry. *Maritime Policy & Management*, 43(8), 1005-1020.
- Çetin, O., & Knouch, M. (2018). Sustainable Competitive Advantage in Green Supply Chain Management. In *Sustainability and Social Responsibility of Accountability Reporting Systems* (pp. 347-367). Springer, Singapore.
- Chaguetmi, F., & Derradji, M. (2019). Assessment of the environmental quality of neighbourhoods in the context of sustainable development: case of the Plain

- West in Annaba, Algeria. *Environment, Development and Sustainability*, 1- 26.
- Chang, Y.-H., Huang, P.-H., Chuang, T.-F., & Chang, S.-W. (2016). A pilot study of the color performance of recycling green building materials. *Journal of Building Engineering*, 7, 114-120. <https://doi.org/10.1016/j.jobbe.2016.06.001>
- Chen, C. C., Tseng, M. L., Lin, Y. H., & Lin, Z. S. (2010, December). Implementation of green supply chain management in uncertainty. In *2010 IEEE International Conference on Industrial Engineering and Engineering Management* (pp. 260-264). IEEE.
- Chen, D., Huang, L., Tang, E., Wu, W., & Shen, Q. (2018, September). Green Construction Technology of Algeria North-South Expressway. In *2018 7th International Conference on Energy and Environmental Protection (ICEEP 2018)* (pp. 256-261). Atlantis Press.
- Chin, T. A., Tat, H. H., & Sulaiman, Z. (2015). Green supply chain management, environmental collaboration and sustainability performance. *Procedia Cirp*, 26, 695-699.
- Chiou, T.Y., Chan, H.K., Lettice, F., & Chung, S.H., (2011) “The Influence of Greening the Suppliers and Green Innovation on Environmental Performance and Competitive Advantage in Taiwan”, *Transportation Research Part E*, 47, pp 822-836
- Choi, T. M., Lo, C. K., Wong, C. W., Yee, R. W., & Ho, H. P. Y. (2012). A Five-R analysis for sustainable fashion supply chain management in Hong Kong: a case analysis. *Journal of Fashion Marketing and Management: An International Journal*.
- Chowdhury, M., Upadhyay, A., Briggs, A., & Belal, M. (2016, June). An empirical analysis of green supply chain management practices in Bangladesh construction industry. In *EurOMA Conference 2016* (pp. 1-10).
- Chu, S. H., Yang, H., Lee, M., & Park, S. (2017). The impact of institutional pressures on green supply chain management and firm performance: Top management roles and social capital. *Sustainability*, 9(5), 764.
- Chun, S. H., Hwang, H. J., & Byun, Y. H. (2015). Green supply chain management in the construction industry: Case of Korean construction companies. *Procedia-Social and Behavioral Sciences*, 186, 507-512.

- Cankaya, S. Y., & Sezen, B. (2018). Effects of green supply chain management practices on sustainability performance. *Journal of Manufacturing Technology Management*.
- Cooper, R. (2017). *Supply chain development for the lean enterprise: interorganizational cost management*. Routledge.
- Daddy, Z. T. W. (2015). *Barriers to Adoption of ISO 14001 Environmental Management System by the Nigerian Construction Industry* (Doctoral dissertation, Universiti Teknologi Malaysia).
- Dadhich, P., Genovese, A., Kumar, N., & Acquaye, A. (2015). Developing sustainable supply chains in the UK construction industry: a case study. *International Journal of Production Economics*, 164, 271-284. <https://doi.org/10.1016/j.ijpe.2014.12.012>
- Darnall, N., Jolley, G. J., & Handfield, R. (2008). Environmental management systems and green supply chain management: complements for sustainability? *Business strategy and the environment*, 17(1), 30-45.
- Danilina, N., Tsurenkova, K., & Berkovich, V. (2021). Evaluating Urban Green Public Spaces: The Case Study of Krasnodar Region Cities, Russia. *Sustainability*, 13(24), 14059.
- Dangelico, R. M., Pujari, D., & Pontrandolfo, P. (2017). Green product innovation in manufacturing firms: A sustainability-oriented dynamic capability perspective. *Business strategy and the Environment*, 26(4), 490-506.
- Darko, A., & Chan, A. P. (2017). Review of barriers to green building adoption. *Sustainable Development*, 25(3), 167-179.
- Dashore, K. & Sohani, N. (2013). Green supply chain management- barriers and drivers: a review. *International Journal of Engineering Research and Technology*, 2(4), 2021-2030
- Das, D. (2018). The impact of sustainable supply chain management practices on firm performance: Lessons from Indian organizations. *Journal of cleaner production*, 203, 179-196.
- David B, G., Trautrim, A., & Wong, C. Y. (2021). Sustainable logistics and supply chain management.
- De Sousa Jabbour, A. B. L., Jabbour, C. J. C., Latan, H., Teixeira, A. A., & de Oliveira,

- J. H. C. (2014). Quality management, environmental management maturity, green supply chain practices and green performance of Brazilian companies with ISO 14001 certification: Direct and indirect effects. *Transportation Research Part E: Logistics and Transportation Review*, 67, 39-51.
- Deepak, M., Haq, A.N. & Mathiyazhagan, K. (2014, December). Identification of pressures, barriers and drivers for the implementation of green supply chain management, Paper presented at the 5th International & 26th All India Manufacturing Technology, Design and Research Conference (AIMTDR 2014), Assam, India.
- Deshpande, A.R. (2012). Supply chain management dimensions, supply chain performance and organizational performance: an integrated framework. *International Journal of Business and Management*, 7 (8), 2-19.
- Devi, L.P., & Palaniappan, S. (2017). A study on energy use for excavation and transport of soil during building construction. *Journal of cleaner production*, 164, 543-556. <https://doi.org/10.1016/j.jclepro.2017.06.208>
- Diabat, A., & Govindan, K. (2011). An analysis of the drivers affecting the implementation of green supply chain management. *Resources, conservation and recycling*, 55(6), 659-667.
- Diabata, K.Govindan, 2011. An analysis of the drivers affecting the implementation of green supply chain management, *Resources, Conservation and Recycling* 55, 659-667.
- Dixit, S., Mandal, S. N., Sawhney, A., & Singh, S. (2017). Area of linkage between lean construction and sustainability in Indian construction industry. *International Journal of Civil Engineering and Technology*, 8(8).
- Djokoto, S. D., Dadzie, J., & Ohemeng-Ababio, E. (2014). Barriers to sustainable construction in the Ghanaian construction industry: consultants' perspectives. *Journal of Sustainable Development*, 7(1), 134.
- Doan, D. T., Ghaffarianhoseini, A., Naismith, N., Zhang, T., Ghaffarianhoseini, A., & Tookey, J. (2017). A critical comparison of green building ratings systems. *Building and Environment*, 123, 243-260.
- Douglas, A. C., Mills, J. E., Niang, M., Stepchenkova, S., Byun, S., Ruffini, C., ... & Blanton, M. (2008). Internet addiction: Meta-synthesis of qualitative research

- for the decade 1996–2006. *Computers in human behavior*, 24(6), 3027-3044.
- Dube, A. S. & Gawande, R. R. (2011). Green supply chain management – a literature review. *International Journal of Computer Applications* (0975-8887).
- Du Plessis, C. (2007). A strategic framework for sustainable construction in developing countries. *Construction management and economics*, 25(1), 67- 76.
- Eddine, B. T., & Salah, M. M. (2012). Solid waste as renewable source of energy: current and future possibility in Algeria. *International Journal of Energy and Environmental Engineering*, 3(1), 1-12.
- Elbarkouky, M. M. G. & Abdelazeem, G. (2013). A green supply chain assessment for construction projects in developing countries. *WIT Transactions on Ecology and the Environment*, 2 (8), 1331-1341.
- Ellram, L. M., & Murfield, M. L. U. (2019). Supply chain management in industrial marketing–Relationships matter. *Industrial Marketing Management*, 79, 36-45.
- Eltayeb, T., & Zailani, S. (2014). Going green through green supply chain initiatives toward environmental sustainability. *Operations and Supply Chain Management: an International Journal*, 2(2), 93-110.
- Eriksson, D., & Svensson, G. (2015). Elements affecting social responsibility in supply chains. *Supply Chain Management: An International Journal*, 20(5), 561- 566.
- Esfahbodi, A., Zhang, Y., & Watson, G. (2016). Sustainable supply chain management in emerging economies: Trade-offs between environmental and cost performance. *International Journal of Production Economics*, 181, 350-366.
- Eskandarpour, M.; Pierre, D.; Joe, M.; Olivier, P 2015. Sustainable supply chain network design: An optimization-oriented review. 2015, 54, 11–32
- Evangelista, P., Hüge-Brodin, M., Isaksson, K., & Sweeney, E. (2012). Purchasing green transport and logistics services. *Implications for small business*.
- Epstein, M. J., Elkington, J., & Herman, B. (2018). Making sustainability work: Best practices in managing and measuring corporate social, environmental and economic impacts. *Routledge*.
- Fidell, S., Tabachnick, B., Mestre, V., & Fidell, L. (2013). Aircraft noise-induced awakenings are more reasonably predicted from relative than from absolute sound exposure levels. *The Journal of the Acoustical Society of America*,

134(5), 3645-3653.

- Gan, X., Zuo, J., Ye, K., Skitmore, M., & Xiong, B. (2015). Why sustainable construction? Why not? Owner's perspective. *Habitat International*, 47, 61-68.
- Genovese, A., Acquaye, A. A., Figueroa, A., & Koh, S. L. (2017). Sustainable supply chain management and the transition towards a circular economy: Evidence and some applications. *Omega*, 66, 344-357.
- Ghobakhloo, M., Tang, S. H., Zulkifli, N., & Ariffin, M. K. A. (2013). An integrated framework of green supply chain management implementation. *International Journal of Innovation, Management and Technology*, 4(1), 86.
- Gold, S., Seuring, S., & Beske, P. (2010). Sustainable supply chain management and inter-organizational resources: a literature review. *Corporate social responsibility and environmental management*, 17(4), 230-245.
- Golicic, S. L., & Smith, C. D. (2013). A meta-analysis of environmentally sustainable supply chain management practices and firm performance. *Journal of supply chain management*, 49(2), 78-95
- Green Jr, K. W., Zelbst, P. J., Bhadauria, V. S., & Meacham, J. (2012). Do environmental collaboration and monitoring enhance organizational performance? *Industrial Management & Data Systems*, 112(2), 186-205.
- Green, K. W., Zelbst, P. J., Meacham, J., & Bhadauria, V. S. (2012). Green supply chain management practices: impact on performance. *Supply Chain Management: An International Journal*.
- Guang-Shi, V., Lenny-Koh, S., Baldwin, J., & Cucchiella, F. (2012). Natural resource based green supply chain management. *Supply Chain Management: An International Journal*, 17(1), 54-67.
- Gunzler, D., Chen, T., Wu, P., & Zhang, H. (2013). Introduction to mediation analysis with structural equation modeling. *Shanghai archives of psychiatry*, 25(6), 390.
- Greenhalgh, B., Squires, G., & Mahamadu, A. M. (2021). *Construction Procurement: Complex Property Development*. Routledge.
- Granovetter, M. (2018). The impact of social structure on economic outcomes. In *The Sociology of Economic Life* (pp. 46-61). Routledge.
- Gruchmann, T., Schmidt, I., Lubjuhn, S., Seuring, S., & Bouman, M. (2018). Informing logistics social responsibility from a consumer-choice-centered

- perspective. *The International Journal of Logistics Management*, 30(1), 96-116.
- Hacene, M. E. A. B., & Sari, N. E. C. (2013). Algerian Strategy in the Context of Sustainable Development: The Case of Green Building. *Int. J. of Thermal & Environmental Engineering*, 6(1), 1-6.
- Hafezalkotob, A. (2017). Competition, cooperation, and coopetition of green supply chains under regulations on energy saving levels. *Transportation Research Part E: Logistics and Transportation Review*, 97, 228-250. <https://doi.org/10.1016/j.tre.2016.11.004>
- Hajikhani, M., Wahat, N. W. B. A., & Idris, K. B. (2012). Considering on green supply chain management drivers, as a strategic organizational development approach, Malaysian perspective. *Australian Journal of Basic and Applied Sciences*, 6(8), 146-165.
- Hamdy, O. M. M., Elsayed, K. K., & Elahmady, B. (2018). Impact of sustainable supply chain management practices on Egyptian companies' performance. *European Journal of Sustainable Development*, 7(4), 119-130.
- Hammervoll, T., Jensen, L. M., & Beske, P. (2012). Dynamic capabilities and sustainable supply chain management. *International journal of physical distribution & logistics management*.
- Hariz, S., & Bahmed, L. (2013). Assessment of environmental management system performance in the Algerian companies certified ISO 14001. *Management of Environmental Quality: An International Journal*.
- Harrison, C., Eckman, B., Hamilton, R., Hartswick, P., Kalagnanam, J., Paraszczak, J., & Williams, P. (2010). Foundations for smarter cities. *IBM Journal of research and development*, 54(4), 1-16.
- Hasan, M. Sustainable Supply Chain Management Practices and Operational Performance. *Am. J. Ind. Bus. Manage.* 2013, 3, 42-48
- Ho, J. C., Shalishali, M. K., Tseng, T., & Ang, D. S. (2009). Opportunities in green supply chain management. *The Coastal Business Journal*, 8(1), 18-31.
- Hong, T., Koo, C., Kim, J., Lee, M., & Jeong, K. (2015). A review on sustainable construction management strategies for monitoring, diagnosing, and retrofitting the building's dynamic energy performance: Focused on the

operation and maintenance phase. *Applied Energy*, 155, 671-707.
<https://doi.org/10.1016/j.apenergy.2015.06.043>

Hussin, J. M., Rahman, I. A., & Memon, A. H. (2013). The way forward in sustainable construction: issues and challenges. *International Journal of Advances in Applied Sciences*, 2(1), 15-24.

Hulley, S. B., Cummings, S. R., Newman, T. B., Browner, W. S., & Grady, D. G. (2013). Designing cross-sectional and cohort studies. *Designing clinical research*, 4, 85-96.

Islam, F., Hye, Q. M. A., & Shahbaz, M. (2012). Import-economic growth nexus: ARDL approach to cointegration. *Journal of Chinese Economic and Foreign Trade Studies*.

Iso 14001 (2015), “Systèmes de management environnemental — Exigences et lignes directrices ”

Jemai, J., Do Chung, B., & Sarkar, B. (2020). Environmental effect for a complex green supply-chain management to control waste: A sustainable approach. *Journal of Cleaner Production*, 277, 122919.

Jinadu, O.; Agbeyangi, B.A.; Mamidu, I.A. Impact of Environmental Management Accounting on Current Practices and Future Sustainability in South-West Nigerian Polytechnics. *Int. J. Econ. Commerce Manag.* 2015, 3, 586–603

Jovan Mitrovic & al. (2013) «Energetic and Ecological Benefits of Heat Pump Application in Energy Transformation Systems», *Int. J. of Thermal & Environmental Engineering, International Association for Sharing Knowledge and Sustainability* Volume 5, No. 1 (2013) 1-11. DOI: 10.5383/ijtee.05.01.001

J. H. C. (2014). Quality management, environmental management maturity, green supply chain practices and green performance of Brazilian companies with ISO 14001 certification: Direct and indirect effects. *Transportation Research Part E: Logistics and Transportation Review*, 67, 39-51.

Kain, R., & Verma, A. (2018). Logistics management in supply chain—an overview. *Materials today: proceedings*, 5(2), 3811-3816.

Kannan, D., de Sousa Jabbour, A. B. L., & Jabbour, C. J. C. (2014). Selecting green suppliers based on GSCM practices: Using fuzzy TOPSIS applied to a Brazilian electronics company. *European Journal of Operational Research*, 233(2), 432-

447

- Kenai, S., Menadi, B., & Khatib, J. M. (2014, April). Sustainable construction and low-carbon dioxide concrete: Algeria case. In *Proceedings of the Institution of Civil Engineers-Engineering Sustainability* (Vol. 167, No. 2, pp. 45-52). Thomas Telford Ltd.
- Khalfan, M. M., Kashyap, M., Li, X., & Abbott, C. (2010). Knowledge management in construction supply chain integration. *International Journal of Networking and Virtual Organisations*, 7(2-3), 207-221.
- Khalfan, M. M., Kashyap, M., Li, X., & Abbott, C. (2010). Knowledge management in construction supply chain integration. *International Journal of Networking and Virtual Organisations*, 7(2-3), 207-221.
- Khan, S. A. R., & Qianli, D. (2017). Impact of green supply chain management practices on firms' performance: an empirical study from the perspective of Pakistan. *Environmental Science and Pollution Research*, 24(20), 16829-16844.
- Kibert, C. J. (2016). *Sustainable construction: green building design and delivery*. John Wiley & Sons.
- Kim, S. W. (2006). Effects of supply chain management practices, integration and competition capability on performance. *Supply Chain Management: An International Journal*.
- Kouloughli, S., & Kanfoud, S. (2017). Municipal solid waste management in constantine, Algeria. *Journal of Geoscience and Environment Protection*, 5(1), 85-93.
- Kozlovská, M., & Spišáková, M. (2013). Construction waste generation across construction project life-cycle. *Organization, Technology & Management in Construction: An International Journal*, 5(1), 687-695. <https://doi.org/10.5592/otmcj.2013.1.5>
- Kumar, R., & Chandrakar, R. (2012). Overview of green supply chain management: operation and environmental impact at different stages of the supply chain. *International Journal of Engineering and Advanced Technology*, 1(3),1-6.
- Kumar, S., Luthra, S., & Haleem, A. (2013). Customer involvement in greening the supply chain: an interpretive structural modeling methodology. *Journal of*

Industrial Engineering International, 9 (1), 1-13

- Koberg, E., & Longoni, A. (2019). A systematic review of sustainable supply chain management in global supply chains. *Journal of cleaner production*, 207, 1084-1098.
- Lamdjad, I., & Khalfallah, B. (2022). The Inclusion of the Environmental Dimension of Sustainability in Studying Informal Settlements Using the INDI System: The Case Study of Bousaada City, Algeria. *Engineering, Technology & Applied Science Research*, 12(3), 8694-8700.
- Lim, S. F. W., Jin, X., & Srai, J. S. (2018). Consumer-driven e-commerce: A literature review, design framework, and research agenda on last-mile logistics models. *International Journal of Physical Distribution & Logistics Management*.
- Lacheheb, M., Rahim, A. S. A., & Sirag, A. (2015). Economic growth and CO2 emissions: Investigating the environmental Kuznets curve hypothesis in Algeria. *International Journal of Energy Economics and Policy*, 5(4).
- Lagha, H., & Bachi, A. (2018). Sustainable development in Algeria. *Algerian Journal of Environmental Science and Technology*, 4(2).
- Leviäkangas, P., Paik, S. M., & Moon, S. (2017). Keeping up with the pace of digitization: The case of the Australian construction industry. *Technology in Society*, 50, 33-43.
- Lai, K. H., & Wong, C. W. (2012). Green logistics management and performance: Some empirical evidence from Chinese manufacturing exporters. *Omega*, 40(3), 267-282.
- Lam, P. T., Chan, E. H., Poon, C. S., Chau, C. K., & Chun, K. P. (2010). Factors affecting the implementation of green specifications in construction. *Journal of environmental management*, 91(3), 654-661.
- Laosirihongthong, T., Adebajo, D., & Tan, K. C. (2013). Green supply chain management practices and performance. *Industrial Management & Data Systems*.
- Large, R.O. & Thomsen, C.G., (2011) "Drivers of Green Supply Chain Management Performance: Evidence from Germany", *Journal of Purchasing and Supply Management*, Vol. 17, pp 176-184.
- LAZREG, M. (2020). Elements of reflection for harmonious economic development

- and institutional efficiency in Algeria. *دراسات وأبحاث*, 12 (4), 1176-1200.
- Le, T. T., Nguyen, T. M. A., & Phan, T. T. H. (2019). Environmental management accounting and performance efficiency in the Vietnamese construction material industry—A managerial implication for sustainable development. *Sustainability*, 11(19), 5152.
- Lee, S. Y. (2015). The effects of green supply chain management on the supplier's performance through social capital accumulation. *Supply Chain Management: An International Journal*.
- Leung, M. Y., Chan, I. Y. S., & Cooper, C. (2014). Stress management in the construction industry.
- Liao, Y., Hong, P., & Rao, S. S. (2010). Supply management, supply flexibility and performance outcomes: an empirical investigation of manufacturing firms. *Journal of Supply Chain Management*, 46(3), 6-22.
- Liu, J., Feng, Y., Zhu, Q., & Sarkis, J. (2018). Green supply chain management and the circular economy. *International Journal of Physical Distribution & Logistics Management*.
- Luthra, S., Garg, D., & Haleem, A. (2014). Green supply chain management. *Journal of Advances in Management Research*.
- Ma, R. M., Yao, L. F., & Huang, R. (2012). The green supply chain management risk analysis. In *Advanced materials research* (Vol. 573, pp. 734-739). Trans Tech Publications Ltd.
- Madjoudj, N., & Dahmane, M. (2017). Alliance of renewable energy resources for sustainable building-algerian case. *Revue des Energies Renouvelables*, 20(3), 483-496.
- Majdalani, Z., Ajam, M., & Mezher, T. (2006). Sustainability in the construction industry: a Lebanese case study. *Construction innovation*.
- Mani, V., Gunasekaran, A., Papadopoulos, T., Hazen, B., & Dubey, R. (2016a). Supply chain social sustainability for developing nations: Evidence from India. *Resources, Conservation and Recycling*, 111, 42-52
- Marra, M., Ho, W., & Edwards, J. S. (2012). Supply chain knowledge management: A literature review. *Expert systems with applications*, 39(5), 6103-6110.
- Masudin, I. (2019). A literature review on green supply chain management adoption

- drivers. *Jurnal Ilmiah Teknik Industri*, 18(2), 103-115.
- Mehat, N., Mimeche, L., Naili, S., & Bouraoui, RE (2018). *High energy performance (HPE) in the eco-design of housing in Algeria* (Doctoral dissertation, University of Jijel).
- Meng, X. (2019). Lean management in the context of construction supply chains. *International Journal of Production Research*, 57(11), 3784-3798.
- Missoum, M., Hamidat, A., Loukarfi, L., & Abdeladim, K. (2014). Impact of rural housing energy performance improvement on the energy balance in the North-West of Algeria. *Energy and Buildings*, 85, 374-388.
- Moh'd Anwer, A. S., Garza-Reyes, J. A., & Kumar, V. (2018). Best supply chain management practices and high-performance firms. *International Journal of Productivity and Performance Management*.
- Mojumder, A., & Singh, A. (2021). An exploratory study of the adaptation of green supply chain management in construction industry: The case of Indian Construction Companies. *Journal of Cleaner Production*, 295, 126400.
- Mokal, A. B., Shaikh, A. I., Raundal, S. S., Prajapati, S. J., & Phatak, U. J. (2015). Green Building Materials—A Way towards Sustainable Construction. *International Journal of Application or Innovation in Engineering and Management*, 4(4), 244-249.
- Muduli, K., Govindan, K., Barve, A., Kannan, D., & Geng, Y. (2013). Role of behavioural factors in green supply chain management implementation in Indian mining industries. *Resources, conservation and recycling*, 76, 50-60. <https://doi.org/10.1016/j.resconrec.2013.03.006>
- Mehmood, M. U., Chun, D., Han, H., Jeon, G., & Chen, K. (2019). A review of the applications of artificial intelligence and big data to buildings for energy-efficiency and a comfortable indoor living environment. *Energy and Buildings*, 202, 109383.
- Mezerdi, T., Belakehal, A., & Sfaksi, I. (2022). Impact of the socio-environmental quality of the courtyard house on occupant satisfaction: The case of M'chouneche oasis, Algeria. *International Review for Spatial Planning and Sustainable Development*, 10(1), 74-98.
- Menhas, R., Mahmood, S., Tanchangya, P., Safdar, M. N., & Hussain, S. (2019).

Sustainable development under belt and road initiative: A case study of China-Pakistan economic corridor's socio-economic impact on Pakistan. *Sustainability*, 11(21), 6143.

- Mattioli, G., Roberts, C., Steinberger, J. K., & Brown, A. (2020). The political economy of car dependence: A systems of provision approach. *Energy Research & Social Science*, 66, 101486.
- Mokiy, A., Ilyash, O., Pynda, Y., Pikh, M., & Tyurin, V. (2020). Dynamic characteristics of the interconnections urging the construction enterprises development and regions economic growth. *TEM Journal*, 9(4), 1550.
- Nagurney, A., & Nagurney, L. S. (2010). Sustainable supply chain network design: a multicriteria perspective. *International Journal of Sustainable Engineering*, 3(3), 189-197.
- Nasir, M. H. A., Genovese, A., Acquaye, A. A., Koh, S. C. L., & Yamoah, F. (2017). Comparing linear and circular supply chains: A case study from the construction industry. *International Journal of Production Economics*, 183, 443-457.
- Nejati, M., Rabiei, S., & Jabbour, C. J. C. (2017). Envisioning the invisible: Understanding the synergy between green human resource management and green supply chain management in manufacturing firms in Iran in light of the moderating effect of employees' resistance to change. *Journal of Cleaner Production*, 168, 163-172.
- Neumüller, C., Lasch, R., & Kellner, F. (2016). Integrating sustainability into strategic supplier portfolio selection. *Management Decision*, 54(1), 194-221
- Ng, S.T., Wong, J.M., Skitmore, S., & Alin, V. (2012). Carbon dioxide reduction in the building life cycle: a critical review. Paper presented at the Proceedings of the Institution of Civil Engineers-Engineering Sustainability. <https://doi.org/10.1680/ensu.11.00005>
- Nguyen, P. T., Nguyen, V. N., Pham, L. H., Nguyen, T. A., Nguyen, Q. L. H. T. T., & Huynh, V. D. B. (2018). Application of supply chain management in construction industry. *Advances in Science and Technology Research Journal*, 12.
- Niemann, W., Kotze, T., & Adamo, F. (2016). Drivers and barriers of green supply

- chain management implementation in the Mozambican manufacturing industry. *Journal of Contemporary Management*, 13(1), 977-1013.
- Ninlawan, C., Seksan, P., Tossapol, K., & Pilada, W. (2010, March). The implementation of green supply chain management practices in electronics industry. In *World Congress on Engineering 2012. July 4-6, 2012. London, UK*. (Vol. 2182, pp. 1563-1568). *International Association of Engineers*.
- Nikjow, M. A., Liang, L., Qi, X., & Sepasgozar, S. (2021). Engineering procurement construction in the context of belt and road infrastructure projects in west Asia: a SWOT analysis. *Journal of Risk and Financial Management*, 14(3), 92.
- Onat, N. C., & Kucukvar, M. (2020). Carbon footprint of construction industry: A global review and supply chain analysis. *Renewable and Sustainable Energy Reviews*, 124, 109783.
- Obianyo, I. I., Anosike-Francis, E. N., Ihekweme, G. O., Geng, Y., Jin, R., Onwualu, A. P., & Soboyejo, A. B. (2020). Multivariate regression models for predicting the compressive strength of bone ash stabilized lateritic soil for sustainable building. *Construction and Building Materials*, 263, 120677.
- Ogunbiyi, O., Goulding, J. S., & Oladapo, A. (2014). An empirical study of the impact of lean construction techniques on sustainable construction in the UK. *Construction innovation*.
- Ojo, E., Mbohwa, C., & Akinlabi, E.T. (2014). Green supply chain management in construction industries in South Africa and Nigeria. *International Journal of Chemical, Environmental & Biological Sciences (IJCEBS)*, 2(2).
- Oke, A., Aghimien, D., Aigbavboa, C., & Musenga, C. (2019). Drivers of sustainable construction practices in the Zambian construction industry. *Energy Procedia*, 158, 3246-3252.
- Olhager, J., & Selldin, E. (2004). Supply chain management survey of Swedish manufacturing firms. *International Journal of Production Economics*, 89(3), 353-361.
- Oliveira, U. R., Espindola, L. S., da Silva, I. R., da Silva, I. N., & Rocha, H. M. (2018). A systematic literature review on green supply chain management: Research implications and future perspectives. *Journal of cleaner production*, 187, 537-561.

- Oppenheim, A. N. (2000). Questionnaire design, interviewing and attitude measurement. *Bloomsbury Publishing*.
- Osmani, M., Glass, J., & Price, A.D.F. (2008). Architects' perspectives on construction waste reduction by design. *Waste management*, 28(7), 1147-1158. <https://doi.org/10.1016/j.wasman.2007.05.011>
- Papadopoulos, G. A., Zamer, N., Gayialis, S. P., & Tatsiopoulou, I. P. (2016). Supply chain improvement in construction industry. *Universal Journal of Management*, 4(10), 528-534.
- Parmar, N. K. (2016). Analysis of Barriers for implementing green supply chain management in small and medium sized enterprises of India. *International Journal of Humanities and Management Sciences*, 4(3)
- Paul, W.L., & Taylor, P.A. (2008). A comparison of occupant comfort and satisfaction between a green building and a conventional building. *Building and Environment*, 43(11), 1858-1870. <https://doi.org/10.1016/j.buildenv.2007.11.006>
- Perotti, S., Zorzini, M., Cagno, E., & Micheli, G.J. (2012). Green supply chain practices and company performance: the case of 3PLs in Italy. *International Journal of Physical Distribution & Logistics Management*, 42(7), 640-672. <https://doi.org/10.1108/09600031211258138>
- Peter, N. J., Okagbue, H. I., Iroham, C. O., Opoko, A. P., & Akinola, A. O. (2020). Literature Review of Areas of Application of Supply Chain Management in Construction Industry. *Int. J Sup. Chain. Mgt Vol*, 9(3), 273.
- Phawitpiriyakliti, C., Keawkunti, B., Saisama, C., & Sangma, W. (2020). TOWARDS ENVIRONMENTAL SUSTAINABILITY: A CASE STUDY OF GREEN SUPPLY CHAIN MANAGEMENT PRACTICE. *Journal of Security & Sustainability Issues*, 9(3).
- Plambeck, E. L. (2012). Reducing greenhouse gas emissions through operations and supply chain management. *Energy Economics*, 34, S64-S74.
- Paolini, A., Kollmannsberger, S., & Rank, E. (2019). Additive manufacturing in construction: A review on processes, applications, and digital planning methods. *Additive manufacturing*, 30, 100894.
- Perera, S., Nanayakkara, S., Rodrigo, M. N. N., Senaratne, S., & Weinand, R. (2020).

- Blockchain technology: Is it hype or real in the construction industry?. *Journal of Industrial Information Integration*, 17, 100125.
- Pinto, L. (2020). Green supply chain practices and company performance in Portuguese manufacturing sector. *Business Strategy and the Environment*, 29(5), 1832-1849.
- Rachid, Z., Toufik, B., & Mohammed, B. (2019). Causes of schedule delays in construction projects in Algeria. *International Journal of Construction Management*, 19(5), 371-381.
- Rahim, F. A. M., Yusoff, N. S. M., Chen, W., Zainon, N., Yusoff, S., & Deraman, R. (2016). The challenge of labour shortage for sustainable construction. *Planning Malaysia*, 14(5).
- Ramli, A.; Ismail, M.S. Environmental management accounting practices: A Survey of ISO 14001 certified Malaysian organizations. *J. Energy Technol. Policy* 2013, 3, 415–432
- Ramos, T.R.P.; Gomes, M.I.; Barbosa-Póvoa, A.P 2014. Planning a sustainable reverse logistics system: Balancing costs with environmental and social concerns., 48, 60–74
- Robichaud, L. B., & Anantatmula, V. S. (2011). Greening project management practices for sustainable construction. *Journal of management in engineering*, 27(1), 48-57.
- Ruparathna, R., & Hewage, K. (2015). Sustainable procurement in the Canadian construction industry: current practices, drivers and opportunities. *Journal of Cleaner Production*, 109, 305-314.
- Razzaq, A., Ajaz, T., Li, J. C., Irfan, M., & Suksatan, W. (2021). Investigating the asymmetric linkages between infrastructure development, green innovation, and consumption-based material footprint: Novel empirical estimations from highly resource-consuming economies. *Resources Policy*, 74, 102302.
- Razzaq, A., Nawaz, A., Noman, S. M., & Khan, S. A. R. (2021). Nexus between green logistic operations and triple bottom line: evidence from infrastructure-led Chinese outward foreign direct investment in Belt and Road host countries. *Environmental Science and Pollution Research*, 28(37), 51022-51045.
- Sahraoui, H., Mamine, F., & Madani, T. (2017). *Goat value chain in Algeria*,

sustainable development proposals to cope with changes [Filière chèvre en Algérie, propositions de développement durable pour faire face aux changements] (No. hal-02734972).

- Saleh, M. S., & Alalouch, C. (2015). Towards sustainable construction in Oman: Challenges & opportunities. *Procedia Engineering*, 118, 177-184.
- Samad, A. (2011). Exploring exports and economic growth causality in Algeria. *Journal of Economics and Behavioral Studies*, 2(3), 92-96.
- Schrijnen, P. M. (2000). Infrastructure networks and red–green patterns in city regions. *Landscape and Urban Planning*, 48(3-4), 191-204.
- Segerstedt, A., & Olofsson, T. (2010). Supply chains in the construction industry. *Supply chain management: an international journal*.
- Sellama, C., Messibah, H., Boukaraa, I., & Boutellis, TE (2019). *energy renovation in collective housing in Algeria: towards an efficiency strategy* (Doctoral dissertation, University of Jijel).
- Seman, N. A. A., Govindan, K., Mardani, A., Zakuan, N., Saman, M. Z. M., Hooker, R. E., & Ozkul, S. (2019). The mediating effect of green innovation on the relationship between green supply chain management and environmental performance. *Journal of Cleaner Production*, 229, 115-127.
- Seuring, S. (2011). Supply chain management for sustainable products—insights from research applying mixed methodologies. *Business Strategy and the environment*, 20(7), 471-484.
- Shee, H., Miah, S. J., Fairfield, L., & Pujawan, N. (2018). The impact of cloud-enabled process integration on supply chain performance and firm sustainability: the moderating role of top management. *Supply Chain Management: An International Journal*.
- Shi, Q., Zuo, J., Huang, R., Huang, J., & Pullen, S. (2013). Identifying the critical factors for green construction—an empirical study in China. *Habitat international*, 40, 1-8. <https://doi.org/10.1016/j.habitatint.2013.01.003>
- Sim, Y. L., & Putuhena, F. J. (2015). Green building technology initiatives to achieve construction quality and environmental sustainability in the construction industry in Malaysia. *Management of Environmental Quality: An International Journal*.

- Singh, A., & Misra, S. C. (2020). Ordering drivers of green supply chain management practices in Indian construction industry. *International Journal of Quality & Reliability Management*.
- Singh, J., & Ordoñez, I. (2016). Resource recovery from post-consumer waste: important lessons for the upcoming circular economy. *Journal of Cleaner Production*, 134, 342-353.
- Son, H., Kim, C., Chong, W. K., & Chou, J. S. (2011). Implementing sustainable development in the construction industry: constructors' perspectives in the US and Korea. *Sustainable Development*, 19(5), 337-347.
- Souhila, C., & Kourbali, B. (2012). Energy consumption and economic growth in Algeria: Cointegration and causality analysis. *International Journal of Energy Economics and Policy*, 2(4), 238.
- Sourani, A., & Sohail, M. (2011, December). Barriers to addressing sustainable construction in public procurement strategies. In *Proceedings of the Institution of Civil Engineers-Engineering Sustainability* (Vol. 164, No. 4, pp. 229-237). Thomas Telford Ltd.
- Stambouli, A. B., Khiat, Z., Flazi, S., & Kitamura, Y. (2012). A review on the renewable energy development in Algeria: Current perspective, energy scenario and sustainability issues. *Renewable and sustainable energy reviews*, 16(7), 4445-4460.
- Sundram, V. P. K., Bahrin, A. S., Othman, A. A., & Munir, Z. A. (2017). Green supply chain management practices in Malaysia manufacturing industry. *International Journal of Supply Chain Management*, 6(2), 89-95.
- Suryanto, T., Haseeb, M., & Hartani, N. H. (2018). The correlates of developing green supply chain management practices: Firms level analysis in Malaysia. *International Journal of Supply Chain Management*, 7(5), 316.
- Song, M., & Shin, K. S. (2019). Forecasting economic indicators using a consumer sentiment index: Survey-based versus text-based data. *Journal of forecasting*, 38(6), 504-518.
- Schroeder, P., Anggraeni, K., & Weber, U. (2019). The relevance of circular economy practices to the sustainable development goals. *Journal of Industrial Ecology*, 23(1), 77-95.

- Sdrolia, E., & Zarotiadis, G. (2019). A comprehensive review for green product term: From definition to evaluation. *Journal of Economic Surveys*, 33(1), 150-178.
- Sönnichsen, S. D., & Clement, J. (2020). Review of green and sustainable public procurement: Towards circular public procurement. *Journal of cleaner production*, 245, 118901.
- Sekaran, U., & Bougie, R. (2016). *Research methods for business: A skill building approach*. John Wiley & Sons.
- Saunders, M. N., & Bezzina, F. (2015). Reflections on conceptions of research methodology among management academics. *European management journal*, 33(5), 297-304.
- Sudman, S. (1983). Survey research and technological change. *Sociological Methods & Research*, 12(2), 217-230.
- Schriesheim, C. A., & Hill, K. D. (1981). Controlling acquiescence response bias by item reversals: The effect on questionnaire validity. *Educational and psychological measurement*, 41(4), 1101-1114.
- Tan, Y., Shen, L., & Yao, H. (2011). Sustainable construction practice and contractors' competitiveness: A preliminary study. *Habitat international*, 35(2), 225-230.
- Tebbouche, H., Bouchair, A., & Grimes, S. (2017). Towards an environmental approach for the sustainability of buildings in Algeria. *Energy Procedia*, 119, 98-110.
- Teixeira, C. R. B., Assumpção, A. L., Correa, A. L., Savi, A. F., & Prates, G. A. (2018). The contribution of green logistics and sustainable purchasing for green supply chain management. *Independent Journal of Management & Production*, 9(3), 1002-1026.
- Tekin, M., Öztürk, D., & Khiter, A. (2020). The Impact Of Green Supply Chain Management On Operational Efficiency: A Case Study. *Kahramanmaraş Sütçü İmam Üniversitesi İktisadi ve İdari Bilimler Fakültesi Dergisi*, 10(2), 1-17.
- Testa, F., & Iraldo, F. (2010). Shadows and lights of GSCM (Green Supply Chain Management): determinants and effects of these practices based on a multi-national study. *Journal of cleaner production*, 18(10-11), 953-962.
- Tian, F. (2017, June). A supply chain traceability system for food safety based on

- HACCP, blockchain & Internet of things. In 2017 International conference on service systems and service management (pp. 1-6). IEEE.
- Tibor, T., Feldman, I., 1996. ISO 14000: A Guide to the New Environmental Management Standards. Irwin Professional Publishing, Burr Ridge, IL
- Tischner, U., & Charter, M. (2017). Sustainable product design. In Sustainable Solutions (pp. 118-138). *Routledge*.
- Trirat, T., Brahamia, K., & Bensehoub, A. (2017). The issues of the implementation of an environmental management system ISO 14001 in the Algerian companies. *Studia Universitatis Vasile Goldis Seria Stiintele Vietii (Life Sciences Series)*, 27(4).
- Tsireme, A. I., Nikolaou, E. I., Georgantzis, N., & Tsagarakis, K. P. (2012). The influence of environmental policy on the decisions of managers to adopt G-SCM practices. *Clean technologies and environmental policy*, 14(5), 953-964
- Tumpa, T. J., Ali, S. M., Rahman, M. H., Paul, S. K., Chowdhury, P., & Khan, S. A. R. (2019). Barriers to green supply chain management: An emerging economy context. *Journal of Cleaner Production*, 236, 117617.
- Udawatta, N., Zuo, J., Chiveralls, K., & Zillante, G. (2015). Improving waste management in construction projects: an Australian study. *Resources, Conservation and Recycling*, 101, 73-83.
<https://doi.org/10.1016/j.resconrec.2015.05.003>
- Ülengin, F., Kabak, Ö., Önsel, S., Aktas, E., & Parker, B. R. (2011). The competitiveness of nations and implications for human development. *Socio-Economic planning sciences*, 45(1), 16-27.
- Ferrón Vílchez, V. "The dark side of ISO 14001: The symbolic environmental behavior" *European research on management and business economics*. 2017; vol 23. p 33–39.
- Varnäs, A., Balfors, B., & Faith-Ell, C. (2009). Environmental consideration in procurement of construction contracts: current practice, problems and opportunities in green procurement in the Swedish construction industry. *Journal of Cleaner Production*, 17(13), 1214-1222.
- Vertakova, Y., & Plotnikov, V. (2017). Problems of sustainable development worldwide and public policies for green economy. *Economic annals-XXI*,

(166), 4-11

- Walker, A. (2015). *Project management in construction*. John Wiley & Sons.
- Walton, S.V. Handfield R.B. and Melnyk, S.T. (1998) “The green supply chain: integrating suppliers into environmental management process”, *International Journal of Purchasing and Materials Management*, Vol. 34 No. 2, pp. 2-11
- Wang, C., Zhang, Q., & Zhang, W. (2020). Corporate social responsibility, Green supply chain management and firm performance: The moderating role of big-data analytics capability. *Research in Transportation Business & Management*, 37, 100557.
- Wibowo, M. A., Handayani, N. U., & Mustikasari, A. (2018). Factors for implementing green supply chain management in the construction industry. *Journal of Industrial Engineering and Management*, 11(4), 651- 679.
- Wibowo, M. A., Handayani, N. U., Mustikasari, A., Nurdiana, A., & Soleh, M. N. (2018). Determining factors for implementing green supply chain management in the construction industry: a literature review. In *MATEC Web of Conferences* (Vol. 159, p. 01022). EDP Sciences.
- Wibowo, M.A., & Koestalam, P. (2015). Identification and Analyze of Influence Level on Waste Construction Management of Performance. *Procedia Engineering*, 125, 46-52. <https://doi.org/10.1016/j.proeng.2015.11.008>
- Wu, H., Li, Z., King, B., Ben Miled, Z., Wassick, J., & Tazelaar, J. (2017). A distributed ledger for supply chain physical distribution visibility. *Information*, 8(4), 137
- Wu, J., Dunn, S., & Forman, H. (2012). A study on green supply chain management practices among large global corporations. *Journal of Supply Chain and Operations Management*, 10(1), 182-194.
- Wu, K.-J., Tseng, M.-L., & Vy, T. (2011). Evaluation the drivers of green supply chain management practices in uncertainty. *Procedia-Social and Behavioral Sciences*, 25, 384-397. <https://doi.org/10.1016/j.sbspro.2012.02.049>
- Wu, Z., & Pagell, M. (2011). Balancing priorities: Decision-making in sustainable supply chain management. *Journal of operations management*, 29(6), 577-590.
- Wuni, I. Y., Shen, G. Q., & Osei-Kyei, R. (2019). Scientometric review of global

research trends on green buildings in construction journals from 1992 to 2018. *Energy and buildings*, 190, 69-85.

- Xiao, C., Wilhelm, M., van der Vaart, T., & Van Donk, D. P. (2019). Inside the buying firm: Exploring responses to paradoxical tensions in sustainable supply chain management. *Journal of Supply Chain Management*, 55(1), 3-20.
- Xu, A., Hu, X., & Gao, S. (2013). Review of green supply chain management. *International Journal of Networking and Virtual Organisations* 11, 12(1), 27-39.
- Yadav, D. K., & Yadav, P. K. (2019). A review of green supply chain management. *International Journal of Scientific Research and Engineering Trends*, 5(2), 566-570.
- Yang, W., & Zhang, Y. (2012). Research on factors of green purchasing practices of Chinese. *Journal of business management and economics*, 3(5), 222-231.
- Yin, B. C. L., Laing, R., Leon, M., & Mabon, L. (2018). An evaluation of sustainable construction perceptions and practices in Singapore. *Sustainable cities and society*, 39, 613-620.
- Yin, Y., Stecke, K. E., & Li, D. (2018). The evolution of production systems from Industry 2.0 through Industry 4.0. *International Journal of Production Research*, 56(1-2), 848-861.
- Ying, J., & Li-jun, Z. (2012). Study on green supply chain management based on circular economy. *Physics Procedia*, 25, 1682-1688.
- Ying-Liu, J., Pheng-Low, S., & He, X. (2012). Green practices in the Chinese building industry: drivers and impediments. *Journal of Technology Management in China*, 7(1), 50-63. <https://doi.org/10.1108/17468771211207349>
- Younis, H., Sundarakani, B., & Vel, P. (2016). The impact of implementing green supply chain management practices on corporate performance. *Competitiveness Review*.
- Zadeh, R. S., Eshelman, P., Setla, J., Kennedy, L., Hon, E., & Basara, A. (2018). Environmental design for end-of-life care: An integrative review on improving the quality of life and managing symptoms for patients in institutional settings. *Journal of pain and symptom management*, 55(3), 1018-1034.

- Zhou, L., & Lowe, D. J. (2003, September). Economic challenges of sustainable construction. In *Proceedings of RICS COBRA foundation construction and building research conference* (pp. 1-2).
- Zhu, Q., Sarkis, J., & Lai, K. H. (2013). Institutional-based antecedents and performance outcomes of internal and external green supply chain management practices. *Journal of Purchasing and Supply Management*, 19(2), 106-117.
- Zou, P. X., & Couani, P. (2012). Managing risks in green building supply chain. *Architectural Engineering and Design Management*, 8(2), 143-158.
- Zulkefli, N. S., Mahmud, F., & Zainudin, N. M. (2019). A survey on Green supply chain management (GSCM) challenges in the Malaysian construction industry. *KnE Social Sciences*, 1202-1



Appendix D**LIST OF PUBLICATION**

- 1) Harouache, A., Chen, G. K., Sarpin, N. B., Hamawandy, N. M., Sabir Jaf, R. A., Qader, K. S., ... & Azzat, R. S. (2021). Importance of Green Supply Chain Management in Algerian Construction Industry towards sustainable development. *Journal of Contemporary Issues in Business and Government*, 27(1), 1055-1070.
- 2) Harouache, A., Chen, G. K., Sarpin, N. B., Hamawandy, N. M., Abubakr, Z. A., Othman, B., & Othman, J. (2021). The Mediation Effectiveness of Green Supply Chain Management Practices Toward Sustainable Development in Algerian Construction Industry. *Journal of Contemporary Issues in Business and Government*, 27(1), 1909-1925.
- 3) Harouache, A., Goh, K. C., Sarpin, N., Mohamed, S., Omar, R., & Goh, H. H. (2019). The Implementation of Energy Efficiency for Buildings In Algeria: A Perspective of Stakeholders. *Journal of Technology Management and Business*, 6(3).



Appendix E**Vita**

I *Ahmed Harouache*, born in Djelfa, Algeria. I graduated as Civil engineer on July 2011 from Civil Engineering Department in University of Djelfa. On September 2017 I obtained a Master degree in construction Technology Management from FPTP in UTHM. I am currently doing PhD in Technology Management.

