

REVIEW

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# Trending research topics on carbon footprint and supply chains: a bibliometric analysis based on the Scopus data (2019–2023)

Ismail Abdi Changalima<sup>1\*</sup>, Prisca Pascrates Rutatola<sup>2</sup> and Goodluck Goldian Ntangeki<sup>3</sup>

## Abstract

This study analyzes the publication trend, most active contributors, most influential publications and trending research topics on the current context of carbon footprint and supply chains. The study conducted a bibliometric analysis of 809 documents retrieved from Scopus, published between 2019 and 2023, to identify trends, contributors, top publications, and trending topics. With the help of Harzing's Publish or Perish and VOSviewer, the study employed performance analysis and keyword co-occurrence analysis. The study reveals an upward trajectory in the number of publications in this research domain. Additionally, the study identifies several themes through keyword co-occurrence analysis, including "the application of regulatory mechanisms and game theory in carbon emission reductions," "strategies and mechanisms for enhancing low-carbon initiatives within supply chains," "the development and optimization of sustainable supply chain systems to reduce carbon emissions," "the use of simulation and optimization models for CO<sub>2</sub> emission reduction in supply chain and logistics operations," "financial legislation and mechanisms for improving carbon emission reductions," "the impact of logistics and supply chain operations on carbon emissions and climate change," and "the carbon footprint in supply chains and cold chain logistics operations." This review emphasizes the need of adopting low-carbon technologies to enhance sustainable practices within supply chains. The study highlights the role of advanced technologies in efforts linked to carbon reduction. The study also advocates for a multifaceted policy approach, including encouraging innovation, and implementing financial mechanisms to reduce carbon emissions, especially in logistics and supply chain operations.

**Keywords** Carbon footprint, Carbon emission, Supply chains, Sustainable supply chain, Low-carbon supply chain, Bibliometrics

## Introduction

Over the past years, environmentalists, academics, and various stakeholders have increasingly focused on environmental impacts and climate change concerns. This is intriguing as the negative impact on the environment

affect biodiversity and human operations on Earth. It has been reported that carbon emissions account for the largest portion of global emissions [1, 2]. Despite efforts being made to address this issue, academics continue to express concerns. Their concerns show that environmental aspects need to be more focused on with efforts from the government, customers, and businesses [3–10]. This triggers aspect related to carbon footprint, which refers to the overall quantity of greenhouse gases, mainly carbon dioxide, released directly or indirectly through human activities [11]. Measuring and managing carbon emission is crucial for reducing environmental impacts and addressing climate change [12–15].

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# Carbon Footprint Trending

**O García**



## **Carbon Footprint Trending:**

**Ecological Economics Research Trends** Carolyn C. Pertsova, 2007 This new book presents important research in the field of ecological economics which is a trans disciplinary field of academic research that addresses the dynamic and spatial interdependence between human economies and natural ecosystems Ecological economics brings together and connects different disciplines within the natural and social sciences but especially between these broad areas Ecological economics presents a more pluralistic approach to the study of environmental problems and policy solutions characterised by systems perspectives adequate physical and biological contexts and a focus on long term environmental sustainability *Future Trends in Modern Plastics* Johannes Karl Fink, 2024-04-02 Future Trends in MODERN PLASTICS The prolific author and polymer scientist discusses the current topics in the plastics industry and recommends future research in sustainable polymers and the recycling routes of plastic waste The book opens with a chapter discussing newly developed monomers such as alkylene based monomers epoxide monomers diol based monomers bio based monomers and several other types Modern polymerization methods are then explained such as ionic polymerization plasma polymerization and ring opening polymerization The book moves on to special issues and some future trends in the plastics industry with recommendations for future research Plastics have given society enormous benefits because of their versatility light weight durability and low costs However these properties have come with negative impacts because these persistent materials are leaked into the environment during their entire life cycle Therefore critical chapters report on the future directions for sustainable polymers the valorization of plastic waste and the recovery treatment and recycling routes of plastic waste The book concludes with chapters on the usage of plastics in medical devices as well as the use of plastics in restoration food applications additive classes and manufacturing Audience The book will be used by plastics engineers chemists polymer and materials scientists in both academia and the plastics industry **Current Trends in Environmental Psychology, volume I, 2nd edition** Giuseppe Carrus, Eugenio De Gregorio, Frederica Caffaro, Sabine Pirchio, Lorenza Tiberio, 2023-07-18 This Research Topic is linked to the 3rd International Conference of Environmental Psychology ICEP 2021 to be held in Siracusa Italy 4 9 October 2021 The ICEP is one of the most important scientific events in the global community for experienced scholars junior researchers and professionals working in the field of Environmental Psychology across the world Submissions to this Research Topic welcome but are not limited to works that have been presented on site and virtually at the ICEP 2021 Research Topic articles will be published immediately once accepted in the journal This Research Topic aims to promote the scientific debate over the most recent empirical findings and theoretical advances in Environmental Psychological science and to build evidence based knowledge and innovative approaches to understand the relationship between humans and their socio physical environments It aims at hosting empirical and theoretical works that contribute at advancing our scientific knowledge on some of the most urgent challenges of contemporary human society **RECENT TRENDS IN CHEMICAL**

**SCIENCES AND ENVIRONMENTAL SCIENCE** Dr. Azad Kumar, Dr. Rajesh Kumar Singh, Dr. Yashvant Rao, 2021-11-18 Our intention in publishing this book was to discuss and interpret all of the major issues in the chemical and environmental science disciplines because this book covers such a broad range of chemical and environmental science research area. Rather we have selected the themes and challenges, briefly defined them, and demonstrated how they connect, clarified the terminology, and indicated where further research may be accessed. We hope that the result is an excellent introduction to chemical and environmental science. It is primarily aimed towards researchers in chemical science and related fields but it should be accessible to new researchers as well. We have explored in more depth on issues that have received little attention elsewhere. There are several useful sources for topics such as chemical science, environmental science, nanotechnology, ionic liquids, solid waste management, photodegradation, Nanomaterial adsorption of hazardous metals, and conducting polymers. However, we attempted to provide up to current knowledge; we are well aware that books may soon go out of date if they seek to provide too much detail, so we concentrated on basic concepts that should not go out of fashion too quickly. Our book differs somewhat from other texts in the chemical and environmental sciences in its concentration. We have focused on ideas and theories because we feel that a solid grasp of them will be more useful in the long run than specifics of present systems, services, and approaches. We've also highlighted the dimension since we feel it's critical to understand where the discipline and its components originated from and why some things are the way they are. This approach is based on the research with several references provided at the end of each chapter for convenience. Our intention is that the content of this book will be sufficient to provide a fundamental knowledge of the entire field and that readers will refer to the references for more information and examples of the parts of which they are most interested. The conclusion words and captions, as well as the important references at the conclusion of each chapter, are intended to present the main points in a factual way.

Environmental and Economic Impacts of Decarbonization Óscar Dejuán, Manfred Lenzen, Maria Ángeles

Cadarso, 2017-07-31 On December 12th 2015 at the United Nations Conference on Climate Change held in Paris 195 countries adopted the first ever universal and legally binding climate deal. They agreed to decarbonize the economy in order to hold the increase in the global average temperature to well below 2°C relative to the preindustrial levels. Although each country is free to design its own strategy on mitigation and adaptation, it will be bound to such strategy and is supposed to implement the bulk of the adjustments by 2050. Many questions arise from the Paris Agreement that points to a second Industrial Revolution. What are the required changes in the structure of production and in the patterns of consumption? What will be their impacts on emissions, employment, and international trade? This book answers these questions from a variety of input-output models able to compute the impacts on specific sectors and regions. This volume has 17 chapters written by 52 co-authors who are specialists in input-output analysis and environmental sustainability. They come from 24 universities, research centers, and international agencies all over the world, sharing their commitments to explain important and complex

ideas in a way that is understandable to the non experts and experts alike Environmental and Economic Impacts of Decarbonization is a very important read for those who study environmental economics climate change and ecological economics

**Sustainability as a Trend in Fashion Industry. An Empirical Study about Changing Consumer Behaviour** Dagmar Cyrklaff,2017-06-14 Master s Thesis from the year 2017 in the subject Business economics Offline Marketing and Online Marketing grade 1 7 University of Applied Sciences Berlin course International Marketing language English abstract A trend in society to take care of environmental issues is observed and the generation born around the millennium shift between 1980 and 2000 so called generation Y became a growing consumer market in Germany Fashion is one of the most consumed segments by the Millennials who value transparent production and are sensitive to environmental issues at the same time This study seeks to provide a current status of the generation Y s knowledge attitude and behaviour in regards to fashion consumption with the impact of sustainability A literature review and an online survey have been conducted to analyse the consumer behaviour of 84 Generation Y consumers aged 17 to 37 in 2017 The major result shows that there is no significant difference in attitude and behaviour towards a sustainable development between consumers that live a conscious life and conventional consumers Sustainability as a topic has reached Millennials who should further deepen their knowledge in order to foster a sustainable development in fashion

**How to Reduce Your Carbon Footprint** Joanna Yarrow,2008 How to Reduce Your Carbon Footprint is the world citizen s guide to pushing back the advance of global warming This colorful handbook offers 500 practical easily achievable ideas that conserve energy prevent pollution and save money Did you know that unplugging appliances and cell phone chargers when not in use can reduce electricity bills by 10 percent Or that recycling just one glass bottle saves enough power to run a computer for 30 minutes Whether the subject is jet travel dish washing or any of the 50 topics in the book surprising statistics and innovative graphics will inspire action and demonstrate that simple habits can lead to big results Amazon com

*Global Trends in Sustainable Energy Investment* ,2010 The report provides an overview of capital flows and an analysis of the trends in sustainable energy investment activity

**Green Trends in Mechanical Engineering** S.R. Jayaram,Lingappa M. Shashank,Y. M. Shashidhara,M.S. Srinath,2019-11-01 International Conference on Green Trends in Mechanical Engineering Sciences ICGTMES Selected peer reviewed papers from the International Conference on Green Trends in Mechanical Engineering Sciences ICGTMES October 3 5 2018 Karnataka India

Kenya T21 Model Kenya. Ministry of State for Planning, National Development, and Vision 2030,Kenya. Ministry of Environment and Mineral Resources,2012

**2012 Natural Gas Market Trends** Leon D. Brathwaite,2012

**National Coffee Drinking Trends Through ...** ,2010

2017 Natural Gas Market Trends and Outlook Melissa Jones,2018

2016 Regional Trends Report Jun Tian (Economist),Sean Ratka,Kimberly Roseberry,2016 The 2016 Regional Trends Report on Energy for Sustainable Development in Asia and the Pacific supports the implementation of the SDG7 and outcomes of the Asian and Pacific Energy Forum 2013

**Social Trends** ,2010

**Minnesota Economic**

**Trends** ,2009-12     *Trends magazine* ,1988  
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## Adopting the Tune of Phrase: An Emotional Symphony within **Carbon Footprint Trending**

In a global used by displays and the ceaseless chatter of quick transmission, the melodic elegance and psychological symphony developed by the published word frequently fade into the background, eclipsed by the relentless noise and distractions that permeate our lives. However, situated within the pages of **Carbon Footprint Trending** a stunning fictional prize overflowing with organic emotions, lies an immersive symphony waiting to be embraced. Constructed by a masterful composer of language, this charming masterpiece conducts viewers on a mental journey, skillfully unraveling the concealed songs and profound affect resonating within each carefully crafted phrase. Within the depths with this moving examination, we shall explore the book is central harmonies, analyze its enthralling writing fashion, and submit ourselves to the profound resonance that echoes in the depths of readers souls.

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