

Food Waste Reduction And Valorisation Sustainability Assessment And Policy Analysis

[#food waste reduction](#) [#waste valorisation](#) [#sustainability assessment](#) [#food policy analysis](#) [#sustainable food systems](#)

This resource explores critical strategies for food waste reduction and the valorisation of food by-products. It delves into comprehensive sustainability assessments, coupled with in-depth policy analysis, to identify effective solutions and drive a more sustainable approach to food systems management.

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Food Waste Reduction and Valorisation

This book adds a new dimension to the sustainability assessment of food waste reduction and valorisation: policy analysis. Featuring a transdisciplinary analysis by key experts in the field, it identifies the drivers of change in food-waste reduction and valorisation technologies by looking, for example, at the regulatory framework and at policy actions undertaken by local and global actors. The book explores the development of regulations and policies for food-waste prevention, management, and valorisation at a global as well as European Union level. It also discusses the notion of food waste in legal terms and investigates the effects of the lack of a standard, universal definition of food waste on the efficient use of by-products, promising processes and products for technological and commercial exploitation. Utilising mathematical mapping methods to assess food consumption impacts and providing supply chain models that allow the testing of consumption scenarios, the book goes on to discuss a series of emerging technologies (tested at lab scale and/ or pilot scale) and opportunities for the valorisation of food waste.

Food Loss and Food Waste

Global food insecurity is a growing issue. At a time when the world's population is increasing and agricultural production is challenged by climate change, it is estimated that around a third of the food produced globally is lost or wasted. This book examines the problem of food loss and waste (FLW) and the policies that could be enacted to remedy this fundamental global concern.

Assessing the Economic, Social and Environmental Impacts of Food Waste Reduction Targets

Halving food waste by 2030 is an ambitious target of the Sustainable Development Goals, echoed by the Farm to Fork Strategy within the European Green Deal. This report offers a comprehensive evaluation of the economy-wide implications for different food waste reduction targets. The study utilizes the further adapted computable general equilibrium model MAGNET and employs a range of sustainability indicators to analyse the economic, social, and environmental impacts associated with

the reduction of food waste. A bottom-up analysis based on life cycle assessment is conducted as an additional approach to assess the environmental implications of achieving the food waste reduction targets. The results show that despite income reductions in the food chain as a consequence of the declining demand, positive effects in other economic areas offset these losses. Additionally, food waste reduction is expected to yield substantial environmental benefits, as well as increase food affordability and financial savings for households.

Recovery of Bioactives from Food Wastes

This book is a concise presentation of important aspects involved in dealing with extraction and utilization of bioactive compounds from the food industry waste. It starts with a focus on the global scenario of food waste generation and potential of food waste in various industries. Thereafter, the various conventional and advanced extraction techniques are discussed to highlight on how to separate bioactive compounds from the food waste. The application of industrial food-waste derived bioactive compounds in various emerging sectors are highlighted. Features: Presents critical discussion on various advancement in various extraction processes including future trends. Provides elaborative description of food waste sources and challenges associated with it. Highlights potential of bioactive compounds in various industries. Quantitatively discusses existing as well as new technologies/methodologies. Includes a separate chapter on pertinent policies of various countries. This book is aimed at researchers and graduate students in chemical and food engineering, separation technology and bioactive compounds.

Food Sharing

This book presents the concept of food sharing from a European perspective, and provides a concise analysis of its safety implications and the chemical properties of recovered foods. In our modern world, 33% of the total food produced is lost each year, with serious economic, environmental and social consequences. Food worth approximately 1 trillion USD is wasted per year, and it is estimated that this wasted food could feed more than 3.4 billion people. Considering that 1/10 of the global population still does not have enough money for basic needs, and in view of the impact of consumer behaviour, food retailers and industry in food waste, food sharing appears to be an attractive solution, and several communities have recently been created with the main goal of saving food and giving it to those in need. Despite the positive impact of food sharing, it also raises concerns since recovered foods are subject to spoilage, decay and irreversible chemical-physical transformations. In this book, the authors explore the current situation and the regulatory definition of food sharing in various European countries, presenting the German experience in the city of Magdeburg, where food-sharing networks have been implemented. They also discuss the chemical and safety evaluations of durable foods, and provide a simulation of food waste by comparing a food product with the same food produced with re-worked and still edible raw materials (recovered foods).

Food Industry 4.0

This book provides industry insights and fresh ideas for the advancement of the most vital global industry - food. Drawing on their industry and academic expertise the authors have identified three controlling aspects of food business operations that can unleash long term success: consumer health and wellbeing; product and process sustainability; and harnessing advances in digitalization. If developed to their maximum potential these factors have the capability to revolutionize the food sector. Food Industry 4.0 highlights advancement opportunities for the food manufacturing sector, including innovation in products, processes and services, as it seeks to combine productive, efficient and sustainable practices.

Transition Towards a Sustainable Biobased Economy

Globally we are being confronted by the depletion of many natural resources as a result of unsustainable use and increasing global population. Although the debate on the bioeconomy has gained momentum in recent decades, the interest in certifications and standards for biobased products is still weak. This book aims to fill this gap by promoting a holistic approach, which covers environmental, social and economic sustainability aspects and pushes forward the development of a circular, biobased economy. This book promotes the development of sustainability schemes (including standards, labels and certifications) for the assessment of biobased products, which are fundamental to the establishment of a cutting-edge sustainable bioeconomy. Chemical-related, globally relevant

case studies are used throughout the book. The content covers a range of issues from upstream and downstream environmental, techno-economic and social assessment, to crosscutting issues such as indirect land use change (iLUC) and end-of-life options. The chapters included in this book will provide a comprehensive review of recent works on life cycle assessment (LCA), life cycle costing (LCC) and social life cycle assessment (s-LCA) methodologies. An important resource for researchers, industrial professionals and policy makers involved in the bioeconomy.

Encyclopedia of Data Science and Machine Learning

Big data and machine learning are driving the Fourth Industrial Revolution. With the age of big data upon us, we risk drowning in a flood of digital data. Big data has now become a critical part of both the business world and daily life, as the synthesis and synergy of machine learning and big data has enormous potential. Big data and machine learning are projected to not only maximize citizen wealth, but also promote societal health. As big data continues to evolve and the demand for professionals in the field increases, access to the most current information about the concepts, issues, trends, and technologies in this interdisciplinary area is needed. The Encyclopedia of Data Science and Machine Learning examines current, state-of-the-art research in the areas of data science, machine learning, data mining, and more. It provides an international forum for experts within these fields to advance the knowledge and practice in all facets of big data and machine learning, emphasizing emerging theories, principals, models, processes, and applications to inspire and circulate innovative findings into research, business, and communities. Covering topics such as benefit management, recommendation system analysis, and global software development, this expansive reference provides a dynamic resource for data scientists, data analysts, computer scientists, technical managers, corporate executives, students and educators of higher education, government officials, researchers, and academicians.

From Waste to Value

From Waste to Value investigates how streams of organic waste and residues can be transformed into valuable products, to foster a transition towards a sustainable and circular bioeconomy. The studies are carried out within a cross-disciplinary framework, drawing on a diverse set of theoretical approaches and defining different valorisation pathways. Organic waste streams from households and industry are becoming a valuable resource in today's economies. Substances that have long represented a cost to companies and a burden for society are now becoming an asset. Waste products, such as leftover food, forest residues and animal carcasses, can be turned into valuable products such as biomaterials, biochemicals and biopharmaceuticals. Exploiting these waste resources is challenging, however. It requires that companies develop new technologies and that public authorities introduce new regulation and governance models. This book helps policy-makers govern and regulate bio-based industries, and helps industry actors to identify and exploit new opportunities in the circular bioeconomy. Moreover, it provides important insights for all students and scholars concerned with renewable energy, sustainable development and climate change.

Food Waste Management

This book focuses on the crucial sustainability challenge of reducing food waste at the level of consumer-society. Providing an in-depth, research-based overview of the multifaceted problem, it considers environmental, economic, social and ethical factors. Perspectives included in the book address households, consumers, and organizations, and their role in reducing food waste. Rather than focusing upon the reasons for food waste itself, the chapters develop research-based solutions for the problem, providing a much-needed solution-orientated approach that takes multiple perspectives into account. Chapters 1, 2, 12 and 16 of this book are available open access under a CC BY 4.0 license at link.springer.com

Food Waste at Consumer Level

This book presents what is the state-of-the-art in the field of the food waste phenomenon at consumer level, including a thorough literature review, and it highlights trends in the field. It provides a comprehensive starting point for future research. Food waste represents a major public policy issue, which is included in the UN Sustainable Development Goals. In this context, the present work identifies the most important definitions given to food waste and its environmental, social and economic impacts. With a comprehensive literature review that covers a forty-year time span (1977-2017), this book highlights the multiple, complex facets of food waste at the consumer level. Drawing from behavioural and marketing

theories, it proposes a new theoretical framework with the aim to better explain food waste behaviour. Extensive research is being carried out on the main worldwide initiatives (both public and private) and food policies aimed at tackling the phenomenon.

Food Waste to Valuable Resources

Food Waste to Valuable Resources: Applications and Management compiles current information pertaining to food waste, placing particular emphasis on the themes of food waste management, biorefineries, valuable specialty products and technoeconomic analysis. Following its introduction, this book explores new valuable resource technologies, the bioeconomy, the technoeconomical evaluation of food-waste-based biorefineries, and the policies and regulations related to a food-waste-based economy. It is an ideal reference for researchers and industry professionals working in the areas of food waste valorization, food science and technology, food producers, policymakers and NGOs, environmental technologists, environmental engineers, and students studying environmental engineering, food science, and more. Presents recent advances, trends and challenges related to food waste valorization. Contains invaluable knowledge on food waste management, biorefineries, valuable specialty products and technoeconomic analysis. Highlights modern advances and applications of food waste bioresources in various products' recovery.

Food Loss and Waste Policy

This book examines policy responses to food waste and loss, an issue of significant, global concern, with one-third of food produced for human consumption lost or wasted. Investigating food waste and loss under an interdisciplinary lens, the contributors employ a variety of methodological approaches, including quantitative and qualitative techniques, drawing on in-depth case studies and action research. The volume is organised into four parts: Understanding Food Loss and Waste, International Programmes, National Policies and Local Initiatives. The first part introduces the reader to the concept of food loss and waste, how it can be measured, its causes and consequences, and how it can be reduced. The second part is dedicated to international and cross-country case studies, with six chapters reviewing national policies implemented in France, Italy, Romania, Japan, China and the United States. In Part Four, three chapters are dedicated to local food recovery and redistribution initiatives. By focusing on different territories and different levels of governance, the book provides a detailed evaluation of food loss and waste policies, the barriers and opportunities of implementing the policies, as well as the impact they are actually having. The chapters are both descriptive and evaluative and draw out lessons for designing, implementing and reforming programmes. This book will be of great interest to students and scholars working on food waste, food policy, sustainable food systems, agricultural production and supply chains and public policy, as well as policymakers involved with developing and implementing programmes and policies to regulate and reduce food waste and loss.

Designing Urban Food Policies

This Open Access book is for scientists and experts who work on urban food policies. It provides a conceptual framework for understanding the urban food system sustainability and how it can be tackled by local governments. Written by a collective of researchers, this book describes the existing conceptual frameworks for an analysis of urban food policies, at the crossroads of the concepts of food system and sustainable city. It provides a basis for identifying research questions related to urban local government initiatives in the North and South. It is the result of work carried out within Agropolis International within the framework of the Sustainable Urban Food Systems program and an action research carried out in support of Montpellier Méditerranée Métropole for the construction of its agroecological and food policy.

Waste to Wisdom

Description: In a world facing the dual challenges of food waste and environmental sustainability, this groundbreaking book, "Exploring Technology's Role in Reducing Food Waste and Carbon Footprint," provides a comprehensive guide to understanding and addressing these critical issues. **Overview:** The global food system is at a crossroads, with an increasing need to produce more food while simultaneously reducing the carbon emissions associated with its production and disposal. This book takes you on a journey through the complex landscape of food waste and carbon emissions, offering insights, solutions, and hope for a sustainable future. **Key Features:** **In-Depth Analysis:** Delve deep into

the intricacies of the global food system and its challenges. Explore the causes of food waste and the environmental impact it has on carbon emissions. Understand how to quantify the carbon footprint in the food industry. Supply Chain Insights: Gain a comprehensive overview of the food supply chain and discover the key points of waste generation. Learn about the impact of an inefficient supply chain on carbon emissions. Root Causes: Investigate the factors contributing to food waste, from agricultural practices and post-harvest losses to retail and consumer behavior. Environmental Consequences: Understand the far-reaching consequences of food waste on the environment, including greenhouse gas emissions, land and water resource depletion, and biodiversity loss. Cutting-Edge Technologies: Explore innovative technologies and practices that can help reduce food waste and carbon emissions. From smart packaging to data analytics and cold chain management, discover how technology is transforming the food industry. Policy and Regulation: Examine government initiatives and policies aimed at reducing food waste and carbon emissions. Learn about carbon pricing, emissions targets, and the importance of cross-sector collaboration. Consumer Awareness: Discover strategies for educating consumers about food waste and encouraging sustainable consumption patterns. Explore the role of media and marketing in shaping consumer behavior. Real-World Examples: Dive into case studies highlighting successful food waste reduction strategies by companies, cities, and regions. Extract valuable lessons from real-world implementations. Future Outlook: Look ahead to the future of the food industry. Explore technological advancements, anticipated shifts in consumer attitudes, and long-term sustainability goals. Call to Action: Conclude your journey with a recap of key findings and a passionate call to action for various stakeholders. Find hope in the potential for a reduced-carbon food future. Why this Book Matters: As global citizens, we all play a role in addressing the pressing issues of food waste and carbon emissions. "Exploring Technology's Role in Reducing Food Waste and Carbon Footprint" equips you with the knowledge and tools to make a positive impact on the world. Whether you're a policymaker, a business leader, a student, or a concerned consumer, this book empowers you to take meaningful action toward a more sustainable future. Don't miss the opportunity to be part of the solution. Download this book now and join the movement to reduce food waste and carbon emissions for a healthier planet.

Food Supply Chains in Cities

This book analyses the food sector which has economic and political significance for all countries. A highly fragmented and heavily regulated sector, it has become increasingly complex owing to globalisation and geographical decoupling of production and consumption activities. The urban population of the world has grown from 746 million in 1950 to 3.9 billion in 2014 and more than 70% of the population is anticipated to be living in urban areas by 2050. Food supply chains play a vital role in feeding the world's most populous cities, whilst underpinning transportation, storage, distribution, and waste management activities for the sustainability of the urban environment. That is why, this book presents the latest research on food supply chain management with a focus on urbanisation. The contributions involve food distribution in cities, food waste minimisation, and food security with a focus on models and approaches to achieve more sustainable and circular food supply chains.

Current Developments in Biotechnology and Bioengineering

Current Developments in Biotechnology and Bioengineering: Sustainable Food Waste Management: Resource Recovery and Treatment covers the latest methods of food waste management and resource recovery from a sustainability perspective and is suitable for universities, municipalities, and companies working in the field. This book provides a comprehensive account of food waste chemistry, the latest techniques for food waste treatment and recycling, sustainability assessment (social, economic, environmental), and challenges in food waste management. The book explores recycling to value-added products using sustainable concepts and methodologies, and is useful as a course or reference book for biochemical engineering, environmental sustainability, and waste management. Covers recycling to value-added products using sustainable concepts and methodologies Provides an exhaustive description of general treatment options and their evaluation guidelines in terms of cost, energy consumption, and waste generation, enabling readers to understand the principles behind various recovery and treatment schemes Describes existing and emerging food waste recycling technologies, products obtained, and process efficiencies Offers a thorough account of critical factors and challenges in food waste valorization, such as handling of new emerging contaminants, end-product purity, and life-cycle assessment

Responsibility in Environmental Governance

This book provides a comprehensive study of the notion of responsibility in environmental governance. It starts with the observation that, although the rhetoric of responsibility is indeed all-pervasive in environmental and sustainability-related fields, decisive political action is still lacking. Governance architectures increasingly strive to hold different stakeholders responsible by installing accountability and transparency mechanisms to manage environmental problems, yet the structural background conditions affecting these issues continue to generate unevenly distributed, socially unjust, and ecologically devastating consequences. *Responsibility in Environmental Governance* develops the concept of responsibility as an analytical approach to map and understand these dynamics and to situate diverse meanings of responsibility within larger socio-political contexts. It applies this approach to the study of food waste governance, uncovering a narrow governance focus on accountability, optimization, and consumer behavior change strategies, opening up spaces for organizing more democratic solutions to a truly global problem.

Routledge Handbook of Food Waste

This comprehensive handbook represents a definitive state of the current art and science of food waste from multiple perspectives. The issue of food waste has emerged in recent years as a major global problem. Recent research has enabled greater understanding and measurement of loss and waste throughout food supply chains, shedding light on contributing factors and practical solutions. This book includes perspectives and disciplines ranging from agriculture, food science, industrial ecology, history, economics, consumer behaviour, geography, theology, planning, sociology, and environmental policy among others. The *Routledge Handbook of Food Waste* addresses new and ongoing debates around systemic causes and solutions, including behaviour change, social innovation, new technologies, spirituality, redistribution, animal feed, and activism. The chapters describe and evaluate country case studies, waste management, treatment, prevention, and reduction approaches, and compares research methodologies for better understanding food wastage. This book is essential reading for the growing number of food waste scholars, practitioners, and policy makers interested in researching, theorising, debating, and solving the multifaceted phenomenon of food waste.

Valorization of Agro-Industrial Byproducts

This book covers sustainable approaches for industrial transformation pertaining to valorization of agro-industrial byproducts. Divided into four sections, it starts with information about the agro/food industry and its byproducts, including their characterization, followed by different green technologies (principle, process strategies and extraction of bioactive compounds) applied for the management of agro industry byproducts. It further explains biotechnological interventions involved in the value addition of these byproducts. Various regulatory and environmental concerns related to by-product management along with biorefinery concept and future strategies are provided as well. Features: Provides extensive coverage of agro-industrial by products and their environmental impact. Details production of value-added products from agro-industrial waste. Describes environmental legislations and future strategies. Presents multidisciplinary approaches from fundamental to applied and addresses the biorefinery and circular economy. Includes innovative approaches and future strategies for management of agro-industrial waste. This book is aimed at researchers, graduate students and professionals in food science/food engineering, bioprocessing/biofuels/bioproducts/biochemicals and agriculture, bioeconomy, food waste processing, post-harvest processing, and waste management.

Waste Valorisation

A guide to the wide-variety of waste valorisation techniques related to various biomass, waste materials and by products *Waste Valorisation* provides a comprehensive review of waste chemistry and its application to the generation of value-added products. The authors – noted experts on the topic – offer a clear understanding of waste diversity, drivers and policies governing its valorisation based on the location. The book provides information on the principles behind various valorisation schemes and offers a description of general treatment options with their evaluation guidelines in terms of cost, energy consumption and waste generation. Each of the book's chapters contain an introduction which summarises the current production and processing methods, yields, energy sources and other pertinent information for each specific type of waste. The authors focus on the most relevant novel technologies for value-added processing of waste streams or industrial by-products which can readily be integrated into current waste management systems. They also provide the pertinent technical, economic, social and environmental evaluations of bioconversions as future sustainable technologies

in a biorefinery. This important book: Presents the most current technologies which integrate waste and/or by-product valorisation Includes discussions on end-product purity and life-cycle assessment challenges Explores relevant novel technologies for value-added processing of waste streams or industrial by-products which can be integrated into current waste management systems Offers a guide to waste reuse, a key sustainability goal for existing biorefineries wishing to reduce material and environmental costs Written for academic researchers and industrial scientists working in agricultural and food production, bioconversions and waste management professionals, Waste Valorisation is an authoritative guide to the chemistry and applications of waste materials and provides an overview of the most recent developments in the field.

Sustainability of European Food Quality Schemes

This edited volume evaluates recent EU quality policy, focusing on the structure, governance, technical specifications and performances – economic, environmental and social – of Food Quality Schemes (FQS) in the European Union and South East Asia. The intended benefits of FQS include generating a fair return for farmers and producers, and enabling consumers to make better informed purchasing choices through effective labeling. In addition, policy makers now consider FQS as a means of guaranteeing not only quality in food production, but also sustainability. Despite these potential benefits, the economic performance of the FQS (e.g. PDO, PGI, organic) has been variable. While some support significant value added production, with substantial benefits to producers, consumers and wider economies, many others have failed to become economically sustainable. In addition, the environmental and social performance of FQS remains largely unexamined, with the exception of the environmental performance of organic products. The editors examine these discrepancies and offer a nuanced evaluation of the effectiveness of such policies. Several unique features make this volume a key resource for those interested in FQS and in the sustainability of food products. The editors provide a concise description of the value chain, the governance and the technical specifications of 27 FQS in Europe and South East Asia. The editors also provide a sustainability assessment of each of these FQS, and support or question the view that FQS are moving from “quality” to “sustainability.” Finally, the volume serves as a repository of key data on these FQS. Readers have access to the raw data necessary to compute the indicators used in the sustainability assessment (eg. value added, number of jobs, quantity of fertilizers, etc), allowing them to conduct novel re-analysis. The book is designed for an interdisciplinary audience of academics, policy makers, and stakeholders. The compilation of FQS case studies makes it a useful reference for researchers and students of food policy, geography, food anthropology, local and rural development, local agri-food systems and agri-food chains. Stakeholders such as national and European regulators, entities responsible for FQS technical specifications, and embassy staff will also find the information relevant. Additionally, individuals helping to implement food quality schemes, including auditors, producers, and consumer associates, as well as stakeholders in the sustainability of food products, including farmers, farmer's associations, and environmental NGOs, will also find the information relevant and important for their work.

Designing Sustainable Technologies, Products and Policies

This open access book provides insight into the implementation of Life Cycle approaches along the entire business value chain, supporting environmental, social and economic sustainability related to the development of industrial technologies, products, services and policies; and the development and management of smart agricultural systems, smart mobility systems, urban infrastructures and energy for the built environment. The book is based on papers presented at the 8th International Life Cycle Management Conference that took place from September 3-6, 2017 in Luxembourg, and which was organized by the Luxembourg Institute of Science and Technology (LIST) and the University of Luxembourg in the framework of the LCM Conference Series.

Food Microbiology and Biotechnology

Food Microbiology and Biotechnology: Safe and Sustainable Food Production explores the most important advances in food microbiology and biotechnology, with special emphasis on the challenges that the industry faces in the era of sustainable development and food security problems. Chapters cover broad research areas that offer original and novel highlights in microbiology and biotechnology and other related sciences. The authors discuss food bioprocesses, fermentation, food microbiology, functional foods, nutraceuticals, extraction of natural products, nano- and micro-technology, innovative processes/bioprocesses for utilization of by-products, alternative processes requiring less energy or

water, among other topics. The volume relates some of the current developments in food microbiology that address the relationship between the production, processing, service and consumption of foods and beverages with the bacteriology, mycology, virology, parasitology, and immunology. Demonstrating the potential and actual developments across the innovative advances in food microbiology and biotechnology, this volume will be of great interest to students, teachers, and researchers in the areas of biotechnology and food microbiology.

Waste Biorefinery

Waste Biorefinery: Potential and Perspectives offers data-based information on the most cutting-edge processes for the utilisation of biogenic waste to produce biofuels, energy products, and biochemicals – a critical aspect of biorefinery. The book explores recent developments in biochemical and thermo-chemical methods of conversion and the potential generated by different kinds of biomass in more decentralized biorefineries. Additionally, the book discusses the move from 200 years of raw fossil materials to renewable resources and how this shift is accompanied by fundamental changes in industrial manufacturing technologies (from chemistry to biochemistry) and in logistics and manufacturing concepts (from petrochemical refineries to biorefineries). **Waste Biorefinery: Potential and Perspectives** designs concepts that enable modern biorefineries to utilize all types of biogenic wastes, and to integrate processes that convert byproduct streams to high-value products, achieving higher cost benefits. This book is an essential resource for researchers and students studying biomass, biorefineries, and biofuels/products/processes, as well as chemists, biochemical/chemical engineers, microbiologists, and biotechnologists working in industries and government agencies. Details the most advanced and innovative methods for biomass conversion Covers biochemical and thermo-chemical processes as well as product development Discusses the integration of technologies to produce bio-fuels, energy products, and biochemicals Illustrates specific applications in numerous case studies for reference and teaching purposes

Case Studies in Food Retailing and Distribution

Case Studies in Food Retailing and Distribution aims to close the gap between academic researchers and industry professionals through the presentation of 'real world' scenarios and the application of field-based research. The book provides contemporary explorations of food retailing and consumption from various contexts around the globe. Using a case study lens, successful examples of practice are provided and areas for further theoretical investigation are offered. Coverage includes: the impact of retail concentration and the ongoing relevance of independent retailing how social forces impact upon food retailing and consumption trends in organic food retailing and distribution discussion of how wellbeing and sustainability have impacted the sector perspectives on the future of food retailing and distribution This book is a volume in the Consumer Science and Strategic Marketing series. Addresses business problems in in food retail and distribution Includes pricing and supply chain management Discusses food retailing in urban and rural settings Covers both global distribution and entry in developing nations Features real-world case studies that demonstrate what does and does not

Towards Sustainable Global Food Systems

One of the major knowledge challenges in the domain of Resilient and Sustainable Food Systems refers to the integration of perspectives on consumption, patterns that support public health, inclusive value chains, and environmentally sustainable food production. While there is a long record of the analysis of separate interventions, this special issue generates integrated insights, provides cross-cutting perspectives, and outlines practical and policy solutions that address these global challenges. The collection of papers promotes the view that sustainable food systems require thorough insights into the structure and dynamics of agri-food production systems, the drivers for integrating food value chains and markets, and key incentives for supporting healthier consumer choices. On the production side, potential linkages between agricultural commercialization and intensification and their effects for food security and nutritional outcomes are analyzed. Value Chains are assessed for their contribution to improving exchange networks and markets for food products that simultaneously support efficiency, circularity, and responsiveness. Individual motives and market structures for food consumption need to be understood in order to be able to outline suitable incentives to enhance healthy dietary choice. The contributed papers focus on interfaces between food system activities and processes of adaptive change that are critical for overcoming key constraints and trade-offs between sustainable food and healthy diets.

Sustainable Food System Assessment

Sustainable Food System Assessment provides both practical and theoretical insights about the growing interest in and response to measuring food system sustainability. Bringing together research from the Global North and South, this book shares lessons learned, explores intended and actual project outcomes, and highlights points of conceptual and methodological convergence. Interest in assessing food system sustainability is growing, as evidenced by the Milan Urban Food Policy Pact and the importance food systems initiatives have taken in serving as a lever for attaining the UN Sustainable Development Goals. This book opens by looking at the conceptual considerations of food systems indicators, including the place-based dimensions of food systems indicators and how measurements are implicated in sense-making and visioning processes. Chapters in the second part cover operationalizing metrics, including the development of food systems indicator frameworks, degrees of indicator complexities, and practical constraints to assessment. The final part focuses on the outcomes of assessment projects, including impacts on food policy and communities involved, highlighting the importance of building connections between sustainable food systems initiatives. The global coverage and multi-scalar perspectives, including both conceptual and practical aspects, make this a key resource for academics and practitioners across planning, geography, urban studies, food studies, and research methods. It will also be of interest to government officials and those working within NGOs. The Open Access version of this book, available at <https://www.routledge.com/Sustainable-Food-System-Assessment-Lessons-from-Global-Practice/Blay-Palmer-Conare-Meter-Battista-Johnston/p/book/9781032083933>, has been made available under a Creative Commons Attribution-Non Commercial-No Derivatives 4.0 license.

Sustainably Reducing Food Waste and Ensuring Food Security

Sustainably Reducing Food Waste and Ensuring Food Security brings together academic professors, scientists, and policy makers from around the globe to address how to reduce food waste and increase access to nutritious food for all. By addressing the impact of waste-to-energy technologies, plant-based diets, alternative protein sources, and emerging technologies such as AI and blockchain, the authors will provide practical guidance for anyone interested in the sustainability of the global food system and the entire food supply chain, from production to consumption. This book will be divided into five sections: Section one introduces the concept of sustainable foods systems including the importance and benefits, section two explores the economic, environmental and social impacts of understanding food waste, section three provides solutions for food waste reduction, section four explores sustainable agriculture and alternative food sources and section five covers the role of technology, data analytics, policy, and education and outreach in building a sustainable food system.

Food Systems Evaluation Methods and Sustainability Assessment

The food system is responsible for some of society's most pressing sustainability challenges. Diets are currently unsustainable in many countries as evidenced by the growing burden of malnutrition, degradation of natural resources, contributions to climate change, and unaffordability of healthy diets. There is an urgent need to address the gaps in understanding of what a sustainable food system means across varying populations and geographies and how we can better measure these systems, while identifying how dietary choices impact on human health and the environment. However, decision makers and experts are questioning whether it is possible to meet environmental, social, and economic goals simultaneously, or whether trade-offs are necessary. Thus, the development of better measurements and indicators to clearly understand the benefits and considerations for healthy and sustainable food systems is needed.

Handbook of Research on Waste Management Techniques for Sustainability

Sustainability is a growing area of research in ecology, economics, environmental science, business, and cultural studies. Specifically, sustainable waste disposal and management is a growing concern as both solid and liquid wastes are rapidly expanding in direct correlation with population growth and improved economic conditions across regions. The Handbook of Research on Waste Management Techniques for Sustainability explores the topic of sustainable development in an era where domestic and municipal waste is becoming a concern for both human and environmental health. Highlighting a number of topics relating to pollution, green initiatives, and waste reduction in both the public and private sector, this research-based publication is designed for use by environmental scientists, business executives, researchers, graduate-level students, and policymakers seeking the latest information on sustainability in business, medicine, agriculture, and society.

Sustainability Assessment at the 21st century

The sustainability of the human society is endangered by the global human-ecological crisis, which consists of many global problems that are closely related to each other. In this phenomenon, the global population explosion has a central role, because more people have a larger ecological footprint, a larger consumption, more intensive pollution, and a larger emission of carbon dioxide through their activities. This book presents the current state of sustainability and intends to provide the reader with a critical perspective of how the 21st century societies must change their development model facing the new challenges (internet of things, industry 4.0, smart cities, circular economy, sustainable agriculture, etc.), in order to achieve a more liveable world.

Handbook of Sustainability Science in the Future

Humanity will have to cope with many problems in the coming decades: for instance, the world population is likely to grow to 8.8 billion people by 2035. Also, changing climate conditions are negatively affecting the livelihoods of millions of people. In particular, environmental disasters are causing substantial damages to properties. From a social perspective, the inequalities between rich and poor nations are becoming even deeper, and in many countries, conflicts between national and international interest groups are intensifying. The above state of affairs suggest that a broader understanding of the trends which may lead to a more sustainable world is needed, especially those which may pave the way for future developments. In other words, we need to pave the way for sustainable futures. Consistent with this reality, the proposed Encyclopedia of Sustainability Futures aims to identify, document and disseminate ideas, experiences and visions from scientists, members of nongovernmental organisations, decision-makers, industry representatives and citizens, on themes and issues which will be important in pursuing sustainable future scenarios. In particular, the publication will focus on scientific aspects, as well as on social and economic ones, also considering matters related to financing and infra-structures, which are important in pursuing a sustainable future. The Encyclopedia of Sustainability Futures will involve the contributing authors in line with the principle of co-generation, from across a wide range of disciplines, e.g. education and social sciences, natural sciences, engineering, the arts, languages etc, with papers adopting a long-term sustainability perspective, with a time horizon until 2050. The focus will be on themes which are felt as important in the future, and the chapters are expected to interest and motivate a world audience. This book is part of the "100 papers to accelerate the implementation of the UN Sustainable Development Goals initiative".

Comprehensive Biotechnology

Comprehensive Biotechnology, Third Edition, Six Volume Set unifies, in a single source, a huge amount of information in this growing field. The book covers scientific fundamentals, along with engineering considerations and applications in industry, agriculture, medicine, the environment and socio-economics, including the related government regulatory overviews. This new edition builds on the solid basis provided by previous editions, incorporating all recent advances in the field since the second edition was published in 2011. Offers researchers a one-stop shop for information on the subject of biotechnology. Provides in-depth treatment of relevant topics from recognized authorities, including the contributions of a Nobel laureate. Presents the perspective of researchers in different fields, such as biochemistry, agriculture, engineering, biomedicine and environmental science.

Waste Management, Processing and Valorisation

This book highlights current efforts and research on waste management, processing and valorization, particularly in Asia-Africa countries. Chapters 1–2 highlight the overview of plastic waste management and the production of waste plastic oil (WPO). Chapters 3–5 discuss the landfill characterization and application of incineration and composting for waste processing. A new achievement in adsorbent production is highlighted in Chapters 6 and 7 while Chapters 10 and 11 focus on sewage characteristics and its utilization using microalgae. Enzyme production using waste is covered by Chapters 10–12. Chapter 13–14 dedicated to the advances in production of bioenergy. The book concludes with a discussion on life cycle analysis for solid waste management (Chapter 15).

Waste Biorefinery

Waste Biorefinery: Value Addition through Resources Utilization provides scientific and technical information surrounding the most advanced and innovative processing technologies used for the conversion of biogenic waste to biofuels, energy products and biochemicals. The book covers recent developments and achievements in the field of biochemical, thermo-chemical and hybrid methods and

the necessities and potentials generated by different kinds of residual streams, including biomass in presumably more decentralized biorefineries. An assortment of case-studies from developing and developed countries illustrate the topics presented, covering energy, chemicals, fuels, food for animal recovery from different waste matrices, and more. Finally, the advantages and limitations of different technologies are discussed, considering local energy demand, government policies, environmental impacts and education in bioenergy. This book will serve as an excellent resource for science graduates, chemical engineers, environmental engineers, biotechnologists and industrial experts in these areas. Provides information on the most advanced and innovative processes for biomass conversion Covers information on biochemical and thermochemical processes and product developments surrounding the principles of biorefining Presents information on the integration of processes and technologies for the production of biofuels, energy products and biochemicals

Environmental Sustainability and Education for Waste Management

This book focuses on education for environmental sustainability, in particular the area of solid waste management. Presenting the latest studies from different countries, industries and education sectors on the approaches and innovative ideas to educate future citizens regarding sustainable development of our planet, it is of interest to educators, academics, tertiary students, policy-makers, environmental scientists, social scientists and practitioners who have been involved in education, policy, science, and technological innovation for solid waste management.

Biotechnology for Zero Waste

Biotechnology for Zero Waste The use of biotechnology to minimize waste and maximize resource valorization In *Biotechnology for Zero Waste: Emerging Waste Management Techniques*, accomplished environmental researchers Drs. Chaudhery Mustansar Hussain and Ravi Kumar Kadeppagari deliver a robust exploration of the role of biotechnology in reducing waste and creating a zero-waste environment. The editors provide resources covering perspectives in waste management like anaerobic co-digestion, integrated biosystems, immobilized enzymes, zero waste biorefineries, microbial fuel cell technology, membrane bioreactors, nano biomaterials, and more. Ideal for sustainability professionals, this book comprehensively sums up the state-of-the-art biotechnologies powering the latest advances in zero-waste strategies. The renowned contributors address topics like bioconversion and biotransformation and detail the concept of the circular economy. *Biotechnology for Zero Waste* effectively guides readers on the path to creating sustainable products from waste. The book also includes: A thorough introduction to modern perspectives on zero waste drives, including anaerobic co-digestion as a smart approach for enhancing biogas production Comprehensive explorations of bioremediation for zero waste, biological degradation systems, and bioleaching and biosorption of waste Practical discussions of bioreactors for zero waste and waste2energy with biotechnology An in-depth examination of emerging technologies, including nanobiotechnology for zero waste and the economics and commercialization of zero waste biotechnologies Perfect for process engineers, natural products, environmental, soil, and inorganic chemists, *Biotechnology for Zero Waste: Emerging Waste Management Techniques* will also earn a place in the libraries of food technologists, biotechnologists, agricultural scientists, and microbiologists.

SYNERGORS - A Systems Approach to Synergistic Utilisation of Secondary Organic Streams. Final Project Report

The SYNERGORS project ("A systems approach to synergistic utilisation of secondary organic streams") was funded by the UKRI Natural Environment Research Council (NERC), running from 2018 to 2021. The project aimed to develop new systems approaches for promoting resource recovery from secondary organic waste streams including food waste, residual biomass and municipal solid waste.

Circular Economy and Waste Valorisation

The authors and editors of this volume state that with the intensive growth of global industrialization and urbanization, the consumption of various resources and materials, such as energy, minerals, and even water, is increasing at an amazing speed, which poses great pressure on material resources. In addition, the massive utilization of materials has led to low efficiency, resulting in great wastes of resources as well as serious environmental pollutions and degradation, which has severely hindered the sustainable development of economy and society. In order to transit to sustainable development, it is necessary to improved resource efficiency, and circular economy and waste valorization are the best

alternative ways for achieving this goal. This book aims to provide an in-depth description of circular economy and waste valorization, make assessments for circular economy and waste valorization in different regions and countries and determine the technological pathways and roadmap for achieving circular economy and waste valorization. More specifically: (1) Conceptions and Theories: Concepts and definitions of circular economy and waste valorization and their nexus and contributions to sustainable development. (2) Policy and Practice: Measurement and assessment of performance or sustainability for implementing circular economy and waste valorization. (3) Pathways and Prospects: Identification and prioritization of the barriers, strategies, technologies, and pathways for achieving circular economy and waste valorization. The book systematically and comprehensively introduces the definitions, concepts, framework and nexus of circular economy and waste valorization, analyzes and measures their performance and sustainability and provides the methods for investigating and prioritizing the barriers and strategies and determining the pathways and roadmap for their development.