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# Sustainable Food Waste Management

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Sustainability in the Food Industry

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## SHAMAR ELSA

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### **Food Waste in Hospitality Operations** Elsevier

Solid waste management issues, technologies and challenges are dynamic. More so, in developing and transitory nations in Asia. This book, written by Asian experts in solid waste management, explores the current situation in Asian countries including Pacific Islands. There are not many technical books of this kind, especially dedicated to this region of the world. The chapters form a comprehensive, coherent investigation in municipal solid waste (MSW) management, including, definitions used, generation, sustainable waste management system, legal framework and impacts on global warming. Several case studies from Asian nations are included to exemplify the real situation experienced. Discussions on MSW policy in these countries and their impacts on waste management and minimization (if any) are indeed an eye-opener. Undoubtedly, this book would be a pioneer in revealing the latest situation in the Asian region, which includes two of the world's most dynamic nations in the economic growth. It is greatly envisaged to form an excellent source of reference in MSW management in Asia and Pacific Islands. This book will bridge the wide gap in available information between the developed and transitory/developing nations.

### **Waste Management and Sustainable Consumption** Elsevier

This book provides a critical, systemic analysis of the challenge of food waste and its drivers in hospitality operations. It reviews existing approaches to mitigating food waste in catering services and highlights best practices in effective mitigation. It also discusses the determinants of the broader adoption of effective approaches to food-waste management across the sector and within the various geographical markets of out-of-home food consumption. This book is suitable for academics in the hospitality and tourism field as well as for professionals such as hotel and restaurant managers. It can also be used in undergraduate and postgraduate classes in hospitality management.

[Sustainable Food Systems from Agriculture to Industry](#) Springer Nature

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.

### **Sustainable Food Waste-to-Energy Systems** Academic Press

*Food Waste Recovery: Processing Technologies, Industrial Techniques, and Applications, Second Edition* provides information on safe and economical strategies for the recapture of value compounds from food wastes while also exploring their re-utilization in fortifying foods and as ingredients in commercial products. Sections discuss the exploration of management options, different sources, the Universal Recovery Strategy, conventional and emerging technologies, and commercialization issues that target applications of recovered compounds in the food and cosmetics industries. This book is a valuable resource for food scientists, technologists, engineers, chemists, product developers, researchers, academics and professionals working in the food industry. Covers food waste management within the food industry by developing recovery strategies Provides coverage of processing technologies and industrial techniques for the recovery of valuable compounds from food processing by-products Explores the different applications of compounds recovered from food processing using three approaches: targeting by-products, targeting ingredients, and targeting bioactive applications

[Food Waste Upcycling for a Sustainable Food Waste Management in Hong Kong](#) Penguin

*Sustainable Resource Recovery and Zero Waste Approaches* covers waste reduction, biological, thermal and recycling methods of waste recovery, and their conversion into a variety of products. In addition, the social, economic and environmental aspects are also explored, making this a useful textbook for environmental courses and a reference book for both universities and companies. Provides a novel approach on how to achieve zero wastes in a society Shows the roadmap on achieving Sustainable Development Goals Considers critical aspects of municipal waste management Covers recent developments in waste biorefinery, thermal processes, anaerobic digestion, material recycling and landfill mining

*Drawdown* Academic Press

This book discusses one of the biggest challenges of the food industry, which is waste management. Food industries generate high amounts of waste, both solid and liquid, resulting from the production, processing and consumption of food. Stringent environmental legislators have made the task of waste management more challenging. Through the three sections of this book, the readers are introduced to the different types of wastes generated, utilization of waste through food processing industry and sustainable waste management technologies. The different chapters describe how the biomass and the valuable nutrients from food industry wastes could be used to develop value-added products. The book reiterates that food wastes and their by-products are an excellent source of sugars, minerals, dietary fiber, organic acids, bio active compounds such as polyphenols, carotenoids and phytochemicals etc. This book is an excellent resource for industry experts, researchers and students in the field of food science, food processing and food waste management.

*Environmental Sustainability and Education for Waste Management* John Wiley & Sons

This dissertation, "Household Attitudes and Behaviour Toward Sustainable Food Waste Management: a Case Study in Residential Estates" by Chau-ping, Mak, 廖佩儀, was obtained from The University of Hong Kong (Pokfulam, Hong Kong) and is being sold pursuant to Creative Commons: Attribution 3.0 Hong Kong License. The content of this dissertation has not been altered in

any way. We have altered the formatting in order to facilitate the ease of printing and reading of the dissertation. All rights not granted by the above license are retained by the author. Abstract: Being a densely populated city, Hong Kong is now facing a serious waste problem. According to waste disposal statistics from Environment Protection Department, 9,547 tonnes of municipal solid waste were generated every day in Hong Kong in 2013. Food waste was the major composition in the MSW, accounting for 38% of MSW in 2013, whereas over 70% of food waste was generated from the residential sector. Since 2005, the government has introduced various schemes and policies with the objectives of waste reduction and development of sustainable waste management system. In this connection, changes in individual household attitudes and behaviour to support the sustainable food waste management are detrimental to achieving the goal of waste reduction in Hong Kong. Therefore, this study will focus on examining the household attitudes and behaviour toward the sustainable food waste management in residential estates. Recommendations will be made on enhancing public involvement of residential sector in sustainable food waste management according to the findings of questionnaire survey. Subjects: Plate waste - Recycling - China - Hong Kong  
Organic Waste Recycling: Technology, Management and Sustainability Springer

This work presents the findings of an extensive study on the state-of-the-art regarding the problem of food waste in Belarus, Estonia, Germany, Latvia, Lithuania, Poland and Sweden. The results show that the problem of food waste can be found at different levels in each country and that our knowledge of it is limited by the current lack of studies in the area. The problem is primarily due to food waste generated by the manufacturing sector, mostly in the form of unused or inefficiently used by-products, as well as on a share of food thrown away by households that is still suitable for human consumption. The main reduction/prevention method, applied across the countries, is food donation; the remaining methods are the same ones used for biodegradable waste in the respective countries. The findings gathered in this study show a number of potential measures/methods for sustainable food waste management, which may be considered in future works in order to reduce the amounts of food waste generated in each of the aforementioned

countries.

*Food Waste Reduction and Valorisation Sustainable Food Waste Management*

Food Industry Wastes: Assessment and Recuperation of Commodities, Second Edition presents a multidisciplinary view of the latest scientific and economic approaches to food waste management, novel technologies and treatment, their evaluation and assessment. It evaluates and synthesizes knowledge in the areas of food waste management, processing technologies, environmental assessment, and wastewater cleaning. Containing numerous case studies, this book presents food waste valorization via emerging chemical, physical, and biological methods developed for treatment and product recovery. This new edition addresses not only recycling trends but also innovative strategies for food waste prevention. The economic assessments of food waste prevention efforts in different countries are also explored. This book illustrates the emerging environmental technologies that are suitable for the development of both sustainability of the food systems and a sustainable economy. So, this volume is a valuable resource for students and professionals including food scientists, bio/process engineers, waste managers, environmental scientists, policymakers, and food chain supervisors. Provides guidance on current regulations for food process waste and disposal practices Highlights novel developments needed in policy making for the reduction of food waste Raises awareness of the sustainable food waste management techniques and their appraisal through Life Cycle Assessment Explores options for reducing food loss and waste along the entire food supply chain.

**Municipal Solid Waste Management in Asia and the Pacific Islands** Academic Press

Global population by 2050 is predicted to be over 9 billion and accordingly, the production systems will demolish about 140 billion tons per year of minerals, ores, fossil fuels and biomass, i.e., thrice of the current need, and the food production itself has to be doubled. Optimized resource usage, lifecycle management, and reduced carbon emission have become a priority for agri-food businesses today, and circular economy (CE) helps for a sustainable and flexible way to grow without exhausting primary materials, and it thinks beyond recycling and resource usage. The word CE best relates to the resource and efficiency management, 6Rs, closed-loop production systems, zero waste and lifecycle

engineering, reduced overconsumption of resources and waste generation, enriched system redesign and business model innovation, thereby leading to sustainable development goals. In this light, the book calls for theoretical and empirically sound contributions that are focused on the different aspects of the circular economy, 6R's, sustainable production and consumption, closed-loop systems, etc. in the agri-food sector.

**Food Waste Management** Springer Nature

This dissertation, "Food Waste Upcycling for a Sustainable Food Waste Management in Hong Kong" by Hoi-ting, Leung, 廖浩庭, was obtained from The University of Hong Kong (Pokfulam, Hong Kong) and is being sold pursuant to Creative Commons: Attribution 3.0 Hong Kong License. The content of this dissertation has not been altered in any way. We have altered the formatting in order to facilitate the ease of printing and reading of the dissertation. All rights not granted by the above license are retained by the author. Abstract: Food waste issue is not only concerned in Hong Kong, but for the worldwide in recent years. Landfilling is the major method treating large amount of food waste by the government in Hong Kong, and only small amount of food waste would be upcycled by the government's pilot composting plant and the private food waste upcycling companies. This management system on food waste is not sustainable which would lead to different social and environmental problems. Several plans are conducted by the government on dealing with food waste; the most frequently heard project is the project of Organic Waste Treatment Facilities (OWTFs), which is aimed to build five to six OWTFs between 2014 and 2024. Besides the government's efforts on food waste issue, food banks, researches and upcycling food waste by the private parties are observed. Therefore, develop a sustainable food waste management in Hong Kong especially on upcycling would be the best choice to reduce food waste as well as to solve the landfill exhausting problem. The final aims of this study is to confirm the most suitable sustainable food waste management framework for Hong Kong and to develop a set of recommendations on food waste upcycling for stakeholders involved. This is achieved by reviewing related literature and international best practice; developing an universal sustainable food waste management framework; understanding the current situation in Hong Kong and identifying key issues through literature review and first hand

data / information collections. Online survey and interviews are conducted. 174 people completed the online survey and 29 interviews are conducted on upcycling businesses, catering sectors, actual customers of those upcycling products and NGOs. 6 factors are recognized and discussed under the 4 - steps food waste upcycling process framework, which causing the differences in management options and outcomes: 1. Late starting point; 2. Low variety of food wastes management methods; 3. Concerns; 4. Availability of food waste industry and market; 5. Lack of promotions and 6. Lack of education and resources. "Research and Development on Upcycling Food Waste Fund" is suggested for researching and developing new value - added upcycled products, subsidies and incentives are also suggested to maintain the competitiveness of upcycled products and develop an upcycling market in Hong Kong. Internet promotions and interactions are highly recommended on promotion, consultation and education aspects. The recent campaign -Food Wise Hong Kong is a good example for food waste management and it should be kept and further focused on food donation, and finally to promote food waste separation. The proposed food waste management plans and projects are also reviewed, collecting food waste from catering sector would be a better method at the beginning. Quantity-based charging scheme that charge by rubbish bags is suggested, facilities in the current waste station are needed to improve. An amended food waste management framework for current Hong Kong is constructed at last, hoping that can lead to sustainable development. DOI: 10.5353/th\_b5334268 Subjects: Plate waste - Recycling - China - Hong Kong

#### **HOUSEHOLD ATTITUDES & BEHAVIOU** IGI Global

This book surveys state-of-the-art and prospective practices, methods and technologies in agri-food and forestry sectors to document the potential measurable improvements in areas of environmental management, food security, economic growth, social cohesion and human health at the local and global scale. With a focus on the ecosystems-resources-climate-food-health nexus as a framework towards achieving the UN Sustainable Development Goals applicable in these sectors, the book offers a portfolio of guidelines and standards that assesses the affordability, potential profitability and possible unintended consequences of interventions. The areas of intervention covered

in the study include global and local forest resources management, safe wastewater reuse for irrigation, sustainable crop and plant protection (e.g. biopesticides, bioherbicides), carbon sequestration and emission reduction strategies, and safe processing methods for food and food waste (e.g. sustainable food preservatives and healthier food). The book is primarily intended for academics, professionals, and policymakers. The professional audience, including enterprises in the forestry, farming, food processing, healthcare and waste management sectors, will take advantage of the updated knowledge basis concerning the innovations in the respective practices, methods and technologies, including their feasibility, affordability and profitability, and policymakers will find useful the comprehensive review of these innovations which could be strategically promoted and deployed in the next decade, with the aim of achieving the UN Sustainable Development Goals.

#### A National Strategy to Reduce Food Waste at the Consumer Level Academic Press

The world is currently experiencing increased environmental contamination with solid waste, which is one of the greatest environmental threats today. Although solid waste is harmful, proper management and profitable recycling can make it beneficial to the environment. In this regard, estimation of the true quantities of solid wastes generated annually in developed and developing countries is important for evaluating suitable strategies for economic and sustainable procedures of waste management. This book presents an interesting review of the economics of solid waste management in various developing and developed countries. It examines several economic applications of solid waste, such as innovative methods to generate bioelectricity from organic waste using microbial fuel cells and using solid waste as an alternative fuel in cement kilns.

#### **Designing Sustainable Technologies, Products and Policies**

John Wiley & Sons

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

#### *Sustainable Food Waste Management* Springer

Sustainable Food Systems from Agriculture to Industry: Improving Production and Processing addresses the principle that food supply needs of the present must be met without compromising the ability of future generations to meet their needs. Responding to sustainability goals requires maximum utilization of all raw materials produced and integration of activities throughout all production-to-consumption stages. This book covers production stage activities to reduce postharvest losses and increase use of by-products streams (waste), food manufacturing and beyond, presenting insights to ensure energy, water and other resources are used efficiently and environmental impacts are minimized. The book presents the latest research and advancements in efficient, cost-effective, and environmentally friendly food production and ways they can be implemented within the food industry. Filling the knowledge gap between understanding and applying these advancements, this team of expert authors from around the globe offer both academic and industry perspectives and a real-world view of the challenges and potential solutions that exist for feeding the world in the future. The book will guide industry professionals and researchers in ways to improve the efficiency and sustainability of food systems. Addresses why food waste recovery improves sustainability of food systems, how these issues can be adapted by the food industry, and the role of policy making in ensuring sustainable food production Describes



in detail the latest understanding of food processing, food production and waste reduction issues. Includes emerging topics, such as sustainable organic food production and computer aided process engineering. Analyzes the potential and sustainability of already commercialized processes and products.

*Current Developments in Biotechnology and Bioengineering*  
National Academies Press

*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 technoeconomic 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.

*Agri-food and Forestry Sectors for Sustainable Development*  
Springer

Approximately 30 percent of the edible food produced in the United States is wasted and a significant portion of this waste occurs at the consumer level. Despite food's essential role as a source of nutrients and energy and its emotional and cultural importance, U.S. consumers waste an estimated average of 1 pound of food per person per day at home and in places where they buy and consume food away from home. Many factors contribute to this waste—consumers' behaviors are shaped not only by individual and interpersonal factors but also by influences within the food system, such as policies, food marketing and the media. Some food waste is unavoidable, and there is substantial variation in how food waste and its impacts are defined and measured. But there is no doubt that the consequences of food

waste are severe: the wasting of food is costly to consumers, depletes natural resources, and degrades the environment. In addition, at a time when the COVID-19 pandemic has severely strained the U.S. economy and sharply increased food insecurity, it is predicted that food waste will worsen in the short term because of both supply chain disruptions and the closures of food businesses that affect the way people eat and the types of food they can afford. A National Strategy to Reduce Food Waste at the Consumer Level identifies strategies for changing consumer behavior, considering interactions and feedbacks within the food system. It explores the reasons food is wasted in the United States, including the characteristics of the complex systems through which food is produced, marketed, and sold, as well as the many other interconnected influences on consumers' conscious and unconscious choices about purchasing, preparing, consuming, storing, and discarding food. This report presents a strategy for addressing the challenge of reducing food waste at the consumer level from a holistic, systems perspective.

**Valorization of Agri-Food Wastes and By-Products** IWA Publishing (International Water Assoc)

*Current Developments in Biotechnology and Bioengineering: Solid Waste Management* provides extensive coverage of new developments, state-of-the-art technologies, and potential future trends, reviewing the latest innovative developments in environmental biotechnology and bioengineering as they pertain to solid wastes, also revealing current research priority areas in solid waste treatment and management. The fate of solid wastes can be divided into three major areas, recycling, energy recovery, and safe disposal. From this foundation, the book covers such key areas as biotechnological production of value added products from solid waste, bioenergy production from various organic solid wastes, and biotechnological solutions for safe, environmentally-friendly treatment and disposal. The state of the art situation, potential advantages, and limitations are discussed, along with proposed strategies on how to overcome limitations. Reviews available bioprocesses for the production of bioproducts from solid waste. Outlines processes for the production of energy from solid waste using biochemical conversion processes. Lists various environmentally friendly treatments of solid waste and its safe disposal.

*Food Industry Wastes* Springer

Sustainability is beginning to transform the food industry with environmental, economic and social factors being considered, evaluated and implemented throughout the supply chain like never before. Sustainability in the Food Industry defines sustainability with a comprehensive review of the industry's current approach to balancing environmental, economic and social considerations throughout the supply chain. In addition, tools and information are provided to enhance future progress. To achieve this, the book combines technical research summaries, case studies and marketing information. Coverage includes sustainability as it relates to: agricultural practices, food processing, distribution, waste management, packaging, life cycle analysis, food safety and health, environmental labeling, consumer insight and market demand, product development, practices in food manufacturing companies, food retailing and food service. An international group of authors covers the information from a global perspective. Sustainability in the Food Industry offers an overview of sustainable sources of impact and improvement, how they relate to the key sectors of the food industry and how programs may be implemented for further improvement.

**Sustainable Resource Recovery and Zero Waste Approaches** Elsevier

The accelerated pace of global consumption over the past decades has meant that governments across the world are now faced with significant challenges in dealing with the dramatically increased volume of waste. While research on waste management has previously focused on finding technological solutions to the problem, this book uniquely examines the social and cultural views of waste, shedding new light on the topic by emphasizing the consumer perspective throughout. Drawing on a wide variety of disciplines including environmental, economic, social and cultural theories, the book presents philosophical reflections, practical examples and potential solutions to the problem of increasing waste. It analyses and compares case studies from countries such as Sweden, Japan, the USA, India, Nigeria and Qatar, bringing out valuable insights for the international community and generating a critical discussion on how we can move towards a more sustainable society. This book will be of great interest to post-graduate students and researchers in environmental policy, waste management, social

marketing and consumer behaviour, as well as policymakers and practitioners in consumer issues and business.

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