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POSSIBILITIES OF RECOVERY OF WASTE FROM FOOD PROCESSING IN HOSPITALITY INDUSTRY

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Abstract: Food waste has one of the highest shares of total waste generated in the hospitality industry. This paper presents some accessible methods to reduce the amount of waste resulting from food preparation in the hospitality sector as well as some methods to recover it. Optimizing logistics and implementing efficient food storage and preparation measures in hospitality companies are among the most useful ways to reduce waste collection and disposal costs. Redistributing unsold meals to charities or animal welfare organizations is one way of recovering food waste in the hospitality sector. Another solution for recovering the waste generated during food preparation in the hospitality industry is to compost it and use it as fertilizer. Converting food waste from the hospitality sector into biomass and using it as biofuel is also one of the most viable solutions for its recovery and valorization.

• Introduction

Waste is a major sustainability challenge given the substantial impact it poses on business revenues, public health and the environment. This is an issue of critical importance for the hospitality sector whose operations generate disproportionately large amounts of waste. As the hospitality sector continues to grow, it produces more waste, thus calling for the mitigation of the associated negative socio-economic and environmental repercussions as a means of achieving more sustainable and equitable futures.

The substantial amounts of food waste produced within the national food supply chains have been recognized and the detrimental effect of food waste on the long-term, global socio-economic and environmental sustainability has been acknowledged.

• Material and method

Although the hospitality food waste management hierarchy has been proposed, there is no standardized method to quantify, characterize and reduce the amounts of hospitality food waste. Furthermore, there is no inventory of good business practice examples and case studies that industry professionals could avail of when designing the corporate agenda on hospitality food waste management. There is sufficient evidence of practices that have been successfully applied to minimize hospitality food waste in the academic and 'grey' literature, but these remain dispersed and require better systematization.

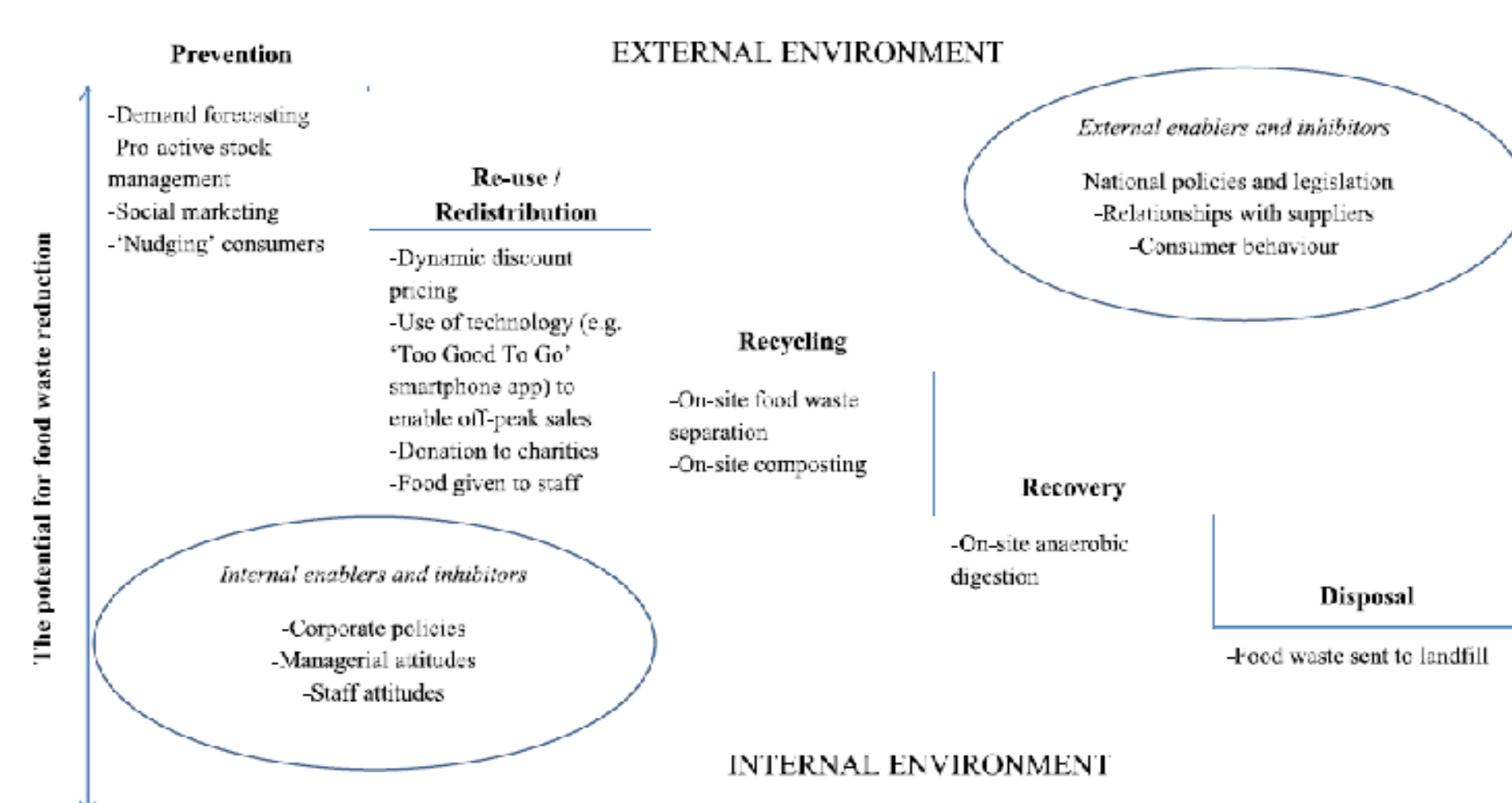


Fig. 1 Hospitality food waste transformation framework with examples of activities that can be undertaken by hospitality managers to minimize food waste occurrence

Fig. 1 uses the hierarchy as a basis for the development of the food waste transformation framework which can be utilized by hospitality managers when designing mitigation interventions. The proposed managerial framework outlines the major stages in food waste minimization, provides examples of concrete actions to be adopted by managers at each stage and offers an overview of the key, internal and external, factors that can enable and inhibit the successful adoption of these actions

• Conclusions

Hospitality food waste is a growing global challenge whose mitigation requires commitment of multiple stakeholders. Despite its political, socio-economic and environmental significance, the issue of hospitality food waste remains academically under-studied, especially from the perspective of industry professionals. This hampers comprehension of the true magnitude of the hospitality food waste challenge by policy-makers, practitioners, academics and consumers and hinders design of effective mitigation measures. This review paper provides a critical, analytical account of hospitality food waste by elaborating on the challenges attributed to its classification, quantification, characterization and management. The literature revealed that the key definitions retain ambiguity while there is no standardized methodology on how to assess the volume and appraise the content of hospitality food waste. While there is good evidence of successful mitigation as applied by hospitality enterprises across the globe, there is no comprehensive inventory of good business practices which could be adopted and utilized as a universal, all-in-one managerial framework. The absence of such a framework hampers the application of food waste mitigation measures by hospitality enterprises worldwide.

• Results and discussions

The growing recognition of the significance of the issue of food waste has led to the development of public awareness programs aiming to assist managers and engage consumers in mitigation. Although no dedicated initiatives have been designed for hospitality food waste mitigation, some programs have integrated hospitality food waste into their agenda. For instance, the Save Food Initiative was introduced by FAO in 2011 focusing on the necessity of business and consumer collaboration and coordination, raising customer awareness, promoting research on food waste mitigation, also in the context of hospitality (FAO 2015a; Save Food Initiative, 2017). Likewise, The European Commission have committed to reduce food waste by investing into the creation of a toolkit which offers guidance on the techniques for food waste quantification and characterization and highlights consumer-focused approaches to food waste management, including good business practices across various sectors (European Commission, 2015). The industry professionals have also developed their own programs for hospitality food waste mitigation. For example, the Love Food Hate Waste (LFHW) initiative launched in 2015 in the UK aims to educate consumers on the negative repercussions of food waste across various economic sectors, including hospitality. It further strives to develop business partnerships to raise consumer awareness of the impacts of food waste (LFHW 2017). Among hospitality-related activities, the LFHW initiative educates customers on the importance of applying portion control and using smaller plates and take away boxes for food waste mitigation

Operational stage	Pre-kitchen (pre-consumption)			Kitchen			Post-kitchen (consumption)	
	Demand forecasting	Procurement	Stock management	Menu design	Storage	Preparation	Plating	Serving
Operational measures to reduce food waste	Evidence-based forecasts	Short and responsive food supply chain	Demand-driven stock forecasting	Analysis of recipes	Contemporary technology and modern facilities	Cooking	Portion control	Full plate service versus buffet service
Core in-house competencies required	Use of (more advanced) demand forecasting models	Understanding of demand drivers	Knowledge of suppliers and negotiation skills	Regular stock inventory	Knowledge of kitchen equipment	Knowledge of cooking and food serving techniques	Understanding of the implications of the adopted business model and addressing them pro-actively	Knowledge of consumer behaviour and principles of behavioural economics
Training needs	Managerial and chef training	Chef training		Kitchen staff and chef training	Chef training	Managerial, chef, kitchen and waiting staff training	Waiting staff training	Managerial, chef, kitchen and waiting staff training
Estimated initial investment cost	High	Low		Medium	Low	Medium	Low	Low/Medium
Estimated potential financial savings		High		Medium	Low	Medium		High

Fig. 3. Managerial framework for hospitality food waste mitigation across all areas of hospitality business operations.

Fig. 3 serves the purpose of summarizing specific management actions, core in-house competencies and financial resources required for hospitality food waste mitigation and presenting these actions in the form of a stand-alone managerial framework. The proposed framework should not be considered complete as its elements may not necessarily apply to all hospitality ventures across the sector and around the world. Instead, the framework can be used as a basis for its subsequent development and adoption by hospitality managers to fit the particular contexts that hospitality enterprises operate in. It can be further refined to meet the business objectives and match the resources of specific hospitality ventures.