Sustainability accounting and disclosures of responsible restaurant practices in environmental, social and governance (ESG) reports

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Abstract

For the time being, there are limited contributions that explore responsible food and beverage operations and their corporate environmental, social and governance (ESG) disclosures. This research addresses these knowledge gaps. Its underlying objectives are threefold: Firstly, it raises awareness on different phases of food preparation and consumption; Secondly, it elaborates about sustainability accounting dimensions, where it advances a theoretical model that clearly depicts ESG performance aspects in the context of hospitality operations; Thirdly, it appraises various accountability standards including those formulated by the Global Reporting Initiative (GRI), Sustainability Accounting Standards Board (SASB) and the Food Loss and Waste Accounting and Reporting Standard (FLW Standard), among others. This contribution identifies profitable, yet eco-friendly restaurant behaviors. It promotes different standards, principles and guidelines, that can be utilized by practitioners for their ESG accounting and disclosures in corporate sustainability reports.

Keywords: responsible food sourcing, responsible inventory management, responsible food preparation, responsible food consumption, waste management, ESG accounting.

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Introduction

Currently, humanity is generating more than one billion tons of food waste, including packaging, biodegradable edible food scraps, fruits and vegetables, among others. Together, these items accumulate about one hundred and thirty-two (132) kilograms per capita and almost one-fifth ($^1/_5$) of all food available to consumers (DOE, 2024). Out of the total food that was wasted in 2022, sixty per cent (60%) was produced by private households, twenty-eight per cent (28%) originated from food and beverage service providers including hotels, restaurants, pubs and cafes, and twelve percent (12%) came from retail stores (UNEP, 2024).

Frequently, food items and their ingredients are wasted because of a decline in quality, due to contamination, overstocking and/or spoilage issues, as they are not consumed before their expiry date, resulting in their decay (Pearson et al., 2025). Notwithstanding, the preparers of food tend to over-produce perishable items that are uneaten by consumers. Such spoilt products and surplus food will usually end up in municipal landfills, resulting in negative repercussions for our fragile natural environments, bio diversities and ecosystems(EuroStat, 2023). In other words, the piling up of food waste is inevitably causing pollution and irreparable damage including global greenhouse gas emissions (GHG) that can exacerbate climate change for our planet.

At the time of writing, food loss and waste are triggering eight to ten per cent (8-10 %) of annual (GHG) emissions and are taking up the equivalent of almost a third of the world's agricultural land. The disposal, handling and accumulation of food waste is costing the global economy about USD 1 trillion (UNEP, 2024). Therefore, the reduction of food loss is critical to increase the efficiency of the globe's food systems, to improve food security for every nation and its citizens, whilst decreasing production costs in the value chain.

In this light, the rationale of this contribution is to raise awareness on responsible food food and beverage operations in the hospitality industry. Primarily, it identifies sustainable practices that are intended to reduce food loss and waste from the value chain through sustainable sourcing of food products, by implementing sound inventory management systems as well as by promoting ecofriendly behaviors during responsible food preparation and consumption practices. A thorough review of the extant literature suggests that, currently, there are just a few articles that shed light on responsible food and beverage operations (Oke et al., 2023; Yong et al., 2024), although a number of institutions and organizations are raising the agenda on sustainable food production behaviors among practitioners (EU, 2021; HOTREC, 2017).

Secondly, this article highlights the importance of sustainability accounting and reporting during each stage of food preparation, production and consumption (Huang et al., 2023; Lee et al. 2024; Lin et al., 2024). It clearly explains in a pragmatic manner how environmental, social and governance (ESG) accountability standards, like the ones formulated by Global Reporting Initiative (GRI), Sustainability Accounting Standards Board (SASB) and the Food Loss and Waste Accounting and Reporting Standard (FLW Standard) among others, could be applied in the hospitality industry context.

Therefore, the research objectives of this contribution are threefold: (i) It identifies and discusses about sustainable practices that hotels, restaurants and cafes can implement to minimize food loss and waste; (ii) It sheds light on different regulatory instruments including guiding principles and standards, that can be utilized for ESG accounting, disclosures, audit and assurance of food and beverage services, including those operated by hospitality practitioners;

(iii) It advances a theoretical model that clearly summarizes different aspects related to ESG dimensions.

The following section identifies various aspects of responsible food and beverage operations. It explores key areas of responsible food production and consumption, from sourcing to waste reduction. It illustrates a table that sheds light on possible responsible behaviors that are intended to curb food loss from the value chain. Afterwards, this research discusses about ESG reporting. It elaborates on the three (3) ESG dimensions and puts forward a theoretical framework that clearly highlights the main elements of sustainability accounting. In addition, this contribution discusses about regulatory instruments, including standards and metrics (E.g. GRI) that could be utilized for corporate ESG disclosures. In conclusion, it presents practical implications for the hospitality businesses' food service providers and outlines future research avenues for academia.

Responsible food and beverage operations

The "responsible food and beverage operations" notion emphasizes environmentally, socially, and economically sustainable practices in the procurement, storage, preparation, consumption and disposal of food and beverage items. It aims to promote ethical practices across the supply chain, enhance resource efficiencies in the restaurants' kitchens and minimize their environmental impact. At times, other academic colleagues could have referred to other phrases or concepts to describe sustainable or responsible restaurant practices that raise awareness on preventative measures and recycling behaviors, that are meant to reduce the generation of waste (Filimonau & Krivcova, 2017; Kim & Hall, 2020). Some of them have also made reference to

reference to the ethical sourcing and fair trading with stakeholders in their supply chain, to procure their menu items (Shafieizadeh & Tao, 2020; Sharma et al., 2022). Others have focused on other aspects including responsible inventory management (Camilleri, 2021), sustainable production and consumption of food and beverage services (Madanaguli et al., 2022) and recycling policies that are intended to minimize food loss (Lang et al., 2020).

Sustainable procurement of food and beverages

Hospitality practitioners ought to purchase different types of recipe items to prepare the food featured on their menus. This way, they could be in a position to meet the needs, wants and expectations of their customers. Their hotels, pubs, restaurants, bistros, bars or cafes may have to provide different types of meals including specialty items like gluten-free, diabetic, vegan and the like. They may also have to utilize specific food preparation methods, to cater to customers, hailing from diverse cultures and backgrounds (Park & Widyanta, 2022). Such items are typically sourced from a wide array of suppliers in their value chain, including wholesale distributors, food retailers, farms, fishmongers, specialty food service providers, et cetera.

Stakeholders are increasingly demanding restauranteurs to procure food items and ingredients from ethically, environmentally conscious and socially responsible suppliers, preferably from local sources. They are pressured to prepare organic products and recipe items that are in season, to use minimal packaging, in order to minimize their carbon footprint. They are encouraged to purchase only what is needed, to plan their meals, to decrease portion sizes, to repurpose ingredients in creative cooking, to reduce leftovers and food waste (Pearson et al., 2025). A number of non-governmental institutions (NGOs) and consumer groups are raising awareness about Fair Trade practices that safeguard the rights of farmers, producers and workers involved in the food supply chain. At times, these entities are using different media to draw the

attention of customers to products linked to exploitative employment practices, child labor and unfair wages (LeBaron, 2021).

Discerning consumers are prioritizing high standards during food production, particularly when they meticulously select quality, nutritious food, that is free from additives, artificial colors, flavors, contaminants, et cetera, to meet and exceed their customers' expectations (Choi et al., 2024). Hence, they would probably appreciate when and if hospitality businesses are transparent about the traceability of their key ingredients (Perez et al., 2021). This argumentation is synonymous with the farm-to-fork or farm-to-table approaches, that are intended to enhance the food and beverage service providers' accountability and trustworthiness (Bux & Amicarelli, 2023). Restauranteurs are expected to remain well-informed of the latest sustainable practices in food procurement. It is in their interest to forge strong relationships with responsible suppliers, NGOs, consumer groups as well as with policymakers, to continuously improve the quality of their food and beverage services (Higgins-Desbiolles & Wijesinghe, 2021; Jang, 2022). Their stakeholder engagement could also benefit the communities where they operate their business.

Responsible inventory management of food and beverages

Again, as in the procurement phase, it is crucial that practitioners bolster strong relationships with suppliers to ensure a reliable supply of goods, when required (Higgins-Desbiolles & Wijesinghe, 2021). They ought to develop well-articulated plans to address possible contingent situations, like supply chain disruptions due to stockouts and/or external factors like economic and socio-political issues or unexpected natural disasters. It would be logical for them to diversify their supplier base to avoid dependencies from specific suppliers, and to reduce unnecessary risks.

There is scope for service providers to ensure they are maintaining optimal inventory levels to always meet customer demands and expectations. It would be reasonable for them to manage and control their inventories on a regular basis, to prevent the spoilage of perishable foods (Filimonau et al., 2023). The accumulation of surplus food and leftovers can be reduced through responsible inventory management, particularly if practitioners adopt first in, first out (FIFO) approaches when handling their stocked items. Food can be stored and organized in a way where older items are placed in front of newly purchased ones in order to prioritize their usage according to the expiration date (Okumus, 2020). Food and beverage service providers ought to invest in temperature and humidity management systems. In addition, they should regularly monitor what is being discarded as waste. It is imperative that they store perishables properly by monitoring ambient conditions of cold storage facilities, and to utilize appropriate containers to avoid premature decay of food items (Sun et al., 2022). They are encouraged to reuse and recycle resources, where applicable, whilst complying with all relevant health and safety standards, regulations and legislation.

Food and beverage service providers may utilize technological tools for demand forecasting purposes, to ensure that their stock levels always meet customer demands to prevent overstocking or inventory stockouts (Camilleri, 2021). Inventory control techniques like just-in-time (JIT) systems, economic order quantity (EOQ) or ABC analysis can help them reduce costs, food loss and the generation of waste. While a JIT strategy reduces in-process inventories as goods are acquired only when they are needed; EOQ determines the optimal order quantity that minimizes inventory costs. Moreover, ABC analysis involves dividing items into categories (e.g. A, B, C), based on their importance, to prioritize certain items over others.

Hospitality businesses may avail themselves of Enterprise Resource Planning (ERP) systems and analytics software like SAS Forecasting, IBM SPSS, and Oracle Demantra among others, to track and adjust inventory levels according to forecasted customer demand (Chofreh et al., 2020). This way, they can better optimize their operations by continuously improving the accuracy and efficiency of orders, thereby minimizing food loss and waste.

Responsible preparation of food and beverages

Once the hospitality businesses receive the raw materials and recipe ingredients from their suppliers, their members of staff are expected to comply with health and safety rules and regulations (Hu et al., 2021). They ought to follow strict sanitization practices when they handle foods and their ingredients. Food preparers should engage in behavioral practices that contribute to creating safe, efficient and clean kitchen environments. They need to consistently maintain personal hygiene, adopt stringent health and safety protocols like regularly cleaning working surfaces, utensils and equipment, to avoid the cross-contamination of foods, in compliance with relevant legislation.

Members of staff are expected to abide by strict food safety standards as well as by relevant health regulations to protect customers from foodborne illnesses and to safeguard their well-being at all times. Hospitality businesses are expected to remain up to date with the latest food safety guidelines and best practices. They need to regularly organize training sessions on safe food handling and preparation techniques for their members of staff (Okumus, 2020). For example, their employees should be taught to store food at the correct temperatures, to keep raw and cooked items separately, and to refrigerate perishables, to safeguard the consumers' wellbeing. Kitchen employees may receive on-the-job courses to enhance their food quality and to keep up to date with the latest developments in the industry (Graham et al., 2020).

Food preparers can plan meals and portion sizes in advance, to reduce leftovers and waste (Reynolds et al., 2021). They are encouraged to use air-tight containers and proper storage techniques to extend the life of their food items and components. Stakeholders, particularly the regulatory ones, are urging food and beverage service providers to avoid using equipment including certain metals, ceramic cookware with cracked glaze and single-use plastics, among others. Several jurisdictions are banning such items to protect their consumers' health and safety (from leaching during food preparation) as well as to reduce the businesses' environmental impacts. Hospitality firms are urged to invest in containers made from glass or biodegradable materials made from compostable or renewable resources, as they offer similar functionalities to unsustainable ones.

Restauranteurs ought to encourage constructive feedback from employees as well as from consumers to better understand how they can improve their food and beverage services. Their human resources would surely benefit from regular staff appraisals as well as from ongoing audits focused on health and safety, food preparation processes and waste management (Filimonau et al., 2024).

Responsible consumption of food and beverages

Food and beverage service providers may encourage their members of staff, as well as their consumers to make sustainable, ethical and health-conscious choices, in terms of food consumption behaviors. They may organize campaigns to educate stakeholders about their businesses' responsible practices. They may highlight nutritional information on their menus. In addition, they can promote sustainable meals and communicate about the origin of their foods. They could leverage themselves by offering responsibly sourced, authentic local dishes and seasonal foods as they have a lower carbon footprint. Notwithstanding, they can promote fair

trade certified foods and ingredients among customers, as such items support fair wages and conditions of employment for distributors and producers in the value chain. Specialized restaurants could differentiate their business by offering sustainable options, including plant-based or insect-based recipes. They could indicate in their menus that they clearly adhere to welfare-certified, humane animal treatment standards.

Besides, they could raise awareness among customers about how they can contribute to prevent food loss. For instance, servers can guide buffet patrons to reduce portion sizes, to avoid over-serving them with surplus food, unnecessarily. They may educate them in making healthy and nutritious choices in terms of balanced and varied diets that include a wide range of nutrients (Clodoveo et al. 2022; Yang et al., 2023). Hospitality businesses need to be sensible to different consumers' requirements. Their patrons may have different dietary needs and preferences for a variety of reasons. For example, consumers may experience health conditions, food intolerances and/or allergies. On the other hand, they could simply appreciate a variety of cuisines and flavors. Hence, restaurants are expected to offer suitable alternatives to their valued customers. Food and beverage servers can encourage their patrons to limit their intake of processed foods with additives and artificial flavors, and to choose from their restaurant's healthier food options (Hagen, 2021). Ultimately, they have corporate social responsibilities to bear towards consumers and to society at large (Mejia et al., 2022).

Arguably, there is scope for hospitality businesses to engage with external stakeholders including with local communities. They could collaborate with different institutions and organizations. For example, they can raise awareness about responsible food consumption and waste management in schools, among students and their educators. In addition, they may use the digital media to disseminate good practices, share tips and inspire their followers to adopt

sustainable behaviors. Their implementation of responsible consumption strategies and the communication of their sustainable practices can help create positive ripple effects for the benefit of the food businesses themselves (in terms of corporate image and reputation) as well as for their stakeholders.

Reducing, reusing and recycling practices to minimize food loss and waste

Practitioners can reduce food loss if they manage waste in a responsible manner. They could minimize the generation of waste at source through efficient meal planning; by avoiding over-purchasing food items; by regularly monitoring and controlling their inventories; by limiting the preparation of surplus food; by using leftover foods; by distributing excessive, edible foods; by recycling organic, inedible waste; and by educating stakeholders (Camilleri, 2021; Karki et al., 2021; Messner et al., 2021). Food and beverage service providers should ensure they have adequate and sufficient inventory levels to optimize the production of meals without over-purchasing and over-preparing food. The procurement of food and its ingredients ought to be based on plausible meal plans to avoid spoilage. The hospitality businesses may utilize smart inventory systems that are meant to monitor stock levels and reduce over-ordering. In addition, FIFO approaches can help them ensure that old items are being used before recently purchased ones to minimize the likelihood of spoilt foods.

Despite the restauranteurs' endeavors to track, analyze and minimize food loss, there could still be instances where hospitality businesses might generate unwanted waste. Once the meals are prepared, food servers should be taught how to serve appropriate portions to reduce plate waste, as much as possible (Junkrachang, et al., 2024). Their surplus (unserved) food can be repurposed and redistributed in creative ways to make new meals. Conversely, they could donate edible food items that are still appropriate for consumption, to employees or those in need

including local food banks, shelters and charities. Otherwise, they may avail themselves of mobile applications (apps) and sharing economy platforms to reach consumers, who may be willing to purchase discounted food items, that would probably be disposed of in the landfills (Ng & Sia, 2023).

Yet, the hospitality businesses may also consider composting and recycling their organic waste, if they have adequate and sufficient room in their premises to do so. For instance, they could set up recycling systems by using vermicomposting that would turn food scraps into compost for gardens. Furthermore, they may consider investments in the development of anaerobic digesters that could convert waste into biogas (a mixture of methane and carbon dioxide) as well as fertilizers, if such investments are feasible solutions for them. Such technological infrastructures require significant financial resources, ongoing maintenance and technical expertise. They may also result in emissions that may lead to possible conflicts with local communities.

Regulatory stakeholders are expected to formulate policies that are intended to encourage food waste reduction initiatives (Vizzoto et al., 2021; Somlai, 2023). For example, they may offer valuable data and expertise that can help practitioners make informed decisions related to their unwanted externalities. Moreover, they could provide incentives and grants to food and beverage service providers to donate surplus food to charitable institutions and/or could mandate food waste management practices as well as responsible disposal of organic leftovers. Hospitality businesses are expected to understand and comply with current regulations, to reduce the risk of fines and legal issues. It is in their interest to engage with government institutions and agencies where they operate their business, to anticipate regulatory changes and interventions. Arguably, there is scope for them to voluntarily adopt proactive measures, not only to ensure compliance

with existing rules, but also to foster sustainable innovations that are meant to reduce their impact on the environment and to improve their relationships with stakeholders. Table 1 illustrates responsible behaviors that can be implemented by food and beverage businesses to reduce food loss and waste from their premises:

Table 1. Responsible food and beverage operations

Preventative measures	Creating 'sustainable' menus	
	Responsible procurement of food items and ingredients	
	Responsible inventory practices	
	Reducing portions	

Recycling practices	Recycling surplus food	Utilizing sharing economy platforms and mobile apps to promote surplus food
		Donating surplus food to charities and food banks
	Recycling food waste	Composting
		Anaerobic digestion

Furthermore, practitioners may also benefit from publicizing their responsible behaviors through corporate social responsibility (CSR) reports that raise awareness on their environmental, social and governance (ESG) credentials (Uyar et al., 2021).

Environmental, social and governance (ESG) reporting of food and beverage businesses

Hospitality businesses are expected to engage in two-way communications with different parties, to ensure transparency and to instill trust in their ESG activities. In many cases, they are already preparing ESG disclosures that shed light on their environmental, social and governance policies and practices.

The environmental dimension

Generally, many hospitality chains are already monitoring the usage of their energy, water, raw materials and other resources, to minimize their running costs. For example, their restaurants could turn off certain appliances when not in use, invest in efficient lighting, appliances, cooking methods, as well as in water conservation practices (Madanaguli et al., 2022). In addition, they could generate their energy from renewable sources. Other aspects that are related to ESG's 'E' dimension include environmental protection measures, sustainable sourcing of food items and their components (as the responsible procurement of items from local suppliers would reduce their environmental impact), as well as waste minimization efforts before, during and after food consumption, among others laudable practices (Elkhwesky, 2022). Hospitality businesses may avail themselves of food waste tracking systems to optimize their production and consumption activities, and to identify areas for improvement (Okumus et al. 2020). Such systems could help them reduce food scraps that will probably end up in landfills, if they recycle them into compost, that may be used for local farming or landscaping.

Very often, they gather and hold records about their recycling efforts as well as on their generated waste and emissions that can ultimately affect biodiversity and eco-systems including

climate change, water and marine resources (Klaura et al., 2023). If this is the case, their captured data can be utilized to identify inefficiencies in their restaurants and to better understand how sustainable practices (like the ones mentioned in the above text) could reduce their costs as well as their overall financial performance. Moreover, it enables them to be in a good position to disclose information about their sustainability credentials.

Restauranteurs should prioritize purchasing from local sources to support the domestic economy and reduce transportation emissions. Food and beverage preparers could utilize seasonal menus to ensure that the dishes they serve and/or their ingredients are fresh and in-season. This reasoning is congruent with the farm-to-fork or farm-to-table initiatives adopted by various hotels and restaurants (Bux & Amicarelli, 2023). Frequently, hospitality businesses are opting for organic certified products and food components, to reduce the environmental impact associated with conventional agricultural practices. In a similar vein, many practitioners are investing in ant-based and insect-based items as more consumers are recognizing their nutrition benefits (Motoki et al., 2022). A number of colleagues are recognizing that such protein foods would result in lower externalities on the environment.

In this day and age, it is imperative that food and beverage service providers utilize sustainable food items in their menus. They are pressured by stakeholders to use eco-friendly packaging made from recycled, biodegradable, compostable, and/or reusable materials for food delivery and takeaway services as opposed to single-use plastic waste that pollute the natural environment. In sum, the hospitality businesses' environmental responsibilities comprise sustainable sourcing of food items, sound inventory management, innovative food preparation practices, responsible consumption of food, and the use of eco-friendly packaging, to minimize their environmental footprint, and contribute to broader sustainability goals.

The social dimension

Most practitioners are taking into account non-financial information about hospitality businesses' labor practices related to their own employees as well as to other workers employed by organizations in the value chain (including distributors, suppliers, subcontractors, et cetera) (Bullock et al., 2024). Report preparers may usually gather information about the conditions of employment of human resources, training and development records, health and safety measures, work life balance initiatives, living wage policies as well as on issues related to equal opportunities, diversity and inclusion in their workplace environment. A number of contributions reported that there is scope for hospitality owner-managers to delegate responsibilities to employees to enhance their morale and job satisfaction (Camilleri, 2022; Gewinner, 2020). Frequently, they indicated that it is in their businesses' interest to provide regular training and development opportunities on sustainable practices like food hygiene and safety, meal portion control as well as on food waste management, among others (Okumus, 2020). Notwithstanding, they are expected to communicate about their active engagement with suppliers. It is within their responsibility to ensure that they treat their marketplace stakeholders in a fair manner. They are expected to forge long lasting, mutual relationships with trustworthy suppliers and partners, who are recognized as responsible employers by stakeholders in society.

Hospitality businesses ought to be encouraged to source food items from local suppliers to promote community well-being. They should prioritize suppliers that are renowned for their dependability, responsible human resources management and environmental sustainability practices. Working closely with reliable suppliers could help improve the efficient sourcing of products and may result in timely delivery of fresh items (Vaughan, 2024). The practitioners' engagement with suppliers would increase their chances of receiving food products and

ingredients in an optimal condition, to reduce the likelihood of spoilage and of overstocking their inventories.

In addition, the social dimension may usually involve aspects related to the businesses' engagement with customers as well as with societal stakeholders. Hospitality practitioners can promote their sustainable procurement and food production practices with customers. The food and beverage businesses' communications and corporate disclosures about their sustainable credentials can influence their consumers' behaviors. They could even induce their patrons to reduce food loss and waste in their households.

Report preparers could make reference to responsible marketing practices. They can raise awareness about their transparent pricing and on how they avoid deceptive or misleading tactics (Aschemann-Witzel et al., 2023). They might communicate about their commitment to protect their consumers' personal data. It this case, practitioners may reveal that they are using secure systems to prevent data breaches and unauthorized access to information. In addition, they could publicize the provision of accessible facilities for disabled patrons. Furthermore, they may shed light on their cultural sensitivity, as well as on their engagement with local communities through food donation programs to philanthropic and charitable institutions, among other socially responsible behaviors. Their proactive collaboration with local communities, NGOs, and other stakeholders can help them achieve the sustainable development goal related to the responsible production and consumption (of food) to reduce the accumulation of waste originating from their operations (UNEP, n.d). Conversely, they may decide to monetize their waste resources by utilize sharing economy platforms and functional mobile apps to sell surplus/excessive food to consumers, at reduced prices.

In a nutshell, the hospitality practitioners' social responsibility aspects cover aspects related to their engagement with responsible suppliers, employees, customers and with the community at large. Restauranteurs are expected to communicate about their organizations' responsible food production and consumption practices with a wide array of stakeholders. Their corporate reporting can add value to their business in terms of increased profits, as they benefit from an improved brand image and corporate reputation, among other positive outcomes.
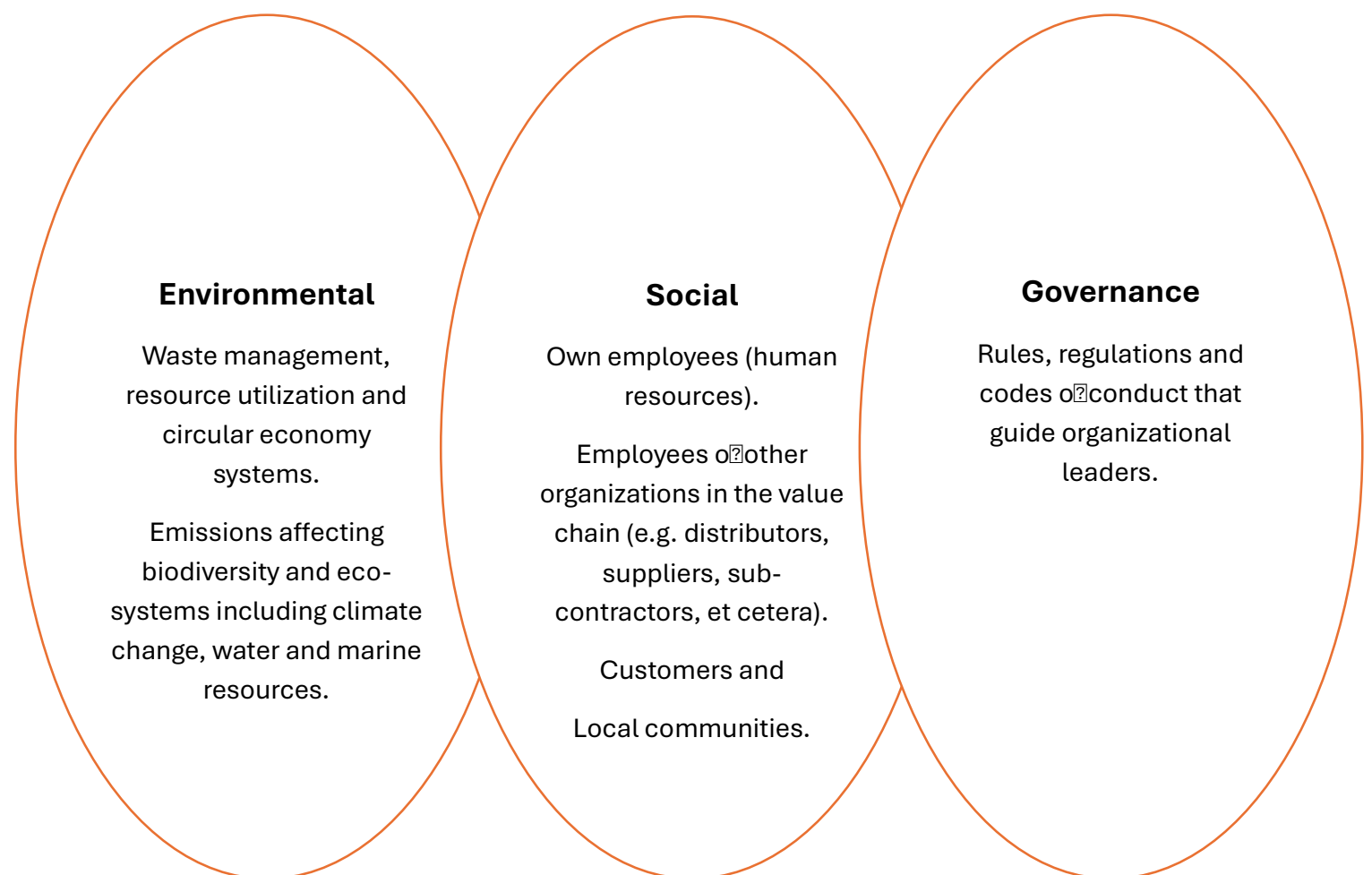
The governance dimension

Listed hotel chains are frequently disseminating content about their corporate governance efforts, as they publish rules, regulations, collective agreements with trade unions and codes of conduct through offline and online channels (Yu et al., 2025). Such information would usually serve as formal guidelines for their organizations' modus operandi. They also shed light on how the businesses are directed and controlled among internal and external stakeholders. Ultimately, it is in the organizations' interest to build stakeholder relationships and to maintain open lines of communication with different parties, including with creditors, investors, shareholders, employees, customers, suppliers, regulatory institutions and with local communities, among others.

There is scope for hospitality businesses to report about governance aspects including details about their organizations' standards of integrity, accountability, board structure, executive compensation, and shareholder rights among other matters in their ESG reports. Such disclosures would probably make also reference to their businesses' ethical dispositions as well as to risk management practices (e.g. compliance with health and safety, security issues, financial and operational aspects, reputation management, etc.) as these issues can help them build brand equity, instill trust in their activities and enhance their corporate reputation.

Specific disclosures about governance matters related to responsible food production and responsible consumption may include reference to accountable and transparent leadership that prioritizes the prevention of food loss and waste. The higher echelons of the organization ought to implement clear policies and procedures that ensure sustainable supply chain management. They are expected to monitor responsible food and beverage operations, at all times, from the procurement stage, through food preparation and consumption, in order to reduce food loss and waste. Food and beverage service providers ought to comply with relevant national legislation (where they operate their business) as well as with food safety and hygiene standards to protect their consumers' health and wellbeing. They should handle, prepare and store their food and its components, in clean environments, to minimize spoilage, contamination and waste. This argumentation is congruent with substantive legislative instruments that are present in different jurisdictions, which require restaurants, among other entities, to implement sustainable measures that improve resource efficiency and prevent the generation of waste (EU, 2023a; GovUK, 2024; NEA, 2024).

A number of regulatory standards encourage practitioners to utilize food labeling that feature expiration dates (as well as nutrition information), to reduce food loss (Clodoveo et al. 2022). They may establish dedicated committees or sustainability champions to lead responsible food and beverage operations and initiatives that are intended to achieve continuous improvements in preventative and mitigative measures that reduce waste generated from hospitality businesses. Such practices may require ongoing training and development of employees on food and beverage practices like offering reduced portions and implementing efficient inventory management, to minimize food waste as much as possible.

Hospitality businesses may refer to the industry standards (that are duly mentioned in this paper), and they can even obtain certifications from some of them, including Green Key Certification, International Standards Organization's ISO 14001: Environmental Management Systems (EMS), among others, to improve their sustainability credentials for their food and beverage operations. These regulatory instruments can play a critical role in fostering ESG accounting, reporting, auditing and assurance. Figure 1 clearly illustrates key elements that can be disclosed in the businesses' ESG reports.

Environmental

Waste management, resource utilization and circular economy systems.

Emissions affecting biodiversity and eco-systems including climate change, water and marine resources.

Social

Own employees (human resources).

Employees of other organizations in the value chain (e.g. distributors, suppliers, sub-contractors, et cetera).

Customers and

Local communities.

Governance

Rules, regulations and codes of conduct that guide organizational leaders.

Figure 1. The environmental, social and governance (ESG) dimensions (Camilleri & Carroll, 2024)

Regulatory instruments including standards and metrics for ESG reporting

Currently, several governments and intergovernmental institutions are encouraging big businesses to report information about their environmental, social and governance performance, in addition to their financial statements. Many of them are developing rules, regulations and guiding principles for corporations and listed enterprises. With regards to the materiality of their disclosures, report preparers need to take into account pertinent information (in terms of the reliability and completeness of the content they feature in their ESG reports) including on aspects related to critical issues related to sourcing of food and its ingredients, inventory management, preparation of meals (such as hygiene standards, use of local and organic ingredients), as well as other relevant details about measures that were undertaken to reduce food loss and waste. Hospitality businesses are expected to be transparent in their disclosures, to track progress vis-a-vis their efforts to reduce waste (year after year), and to identify areas that should be improved. Their ESG disclosures could also link food loss reduction initiatives with broader sustainability and financial performance metrics. This could enable them to evaluate their social, economic and environmental impacts of responsible food and beverage operations, and to develop comprehensive strategies and courses of action, for the future, to address their deficits.

Large entities, including hospitality chains as well as international food and beverage franchises, are usually expected by their stakeholders to prepare non-financial reports about their ESG performance in accordance with certifiable standards and/or eco-labels. They are bound to comply with relevant legislation about sustainability accounting, disclosures, audit and assurance practices applicable in specific jurisdictions where they operate their business,

For example, the European Union's (EU's) Non-Financial Reporting Directive (NFRD) Directive 2014/95/EU was one of the regulatory instruments that encouraged large undertakings to disclose non-financial information relating to ESG matters in their annual reports. Subsequently, the European Union built on the foundations of NFRD when it launched its Corporate Sustainability Reporting Directive (CSRD). Arguably, the latter directive has improved the harmonization and standardization of ESG disclosures (across the EU), in terms of their transparency, consistency, comparability and reliability aspects. While the NFRD was primarily focused on large public-interest entities (PIEs), the CSRD has extended reporting obligations to more companies, including large private companies and subsidiaries of non-EU parent companies operating within the EU member states (EU, 2023b). Business practitioners, including hospitality firms are encouraged to utilize renowned international standards to prepare their ESG disclosures. They may refer to Global Reporting Initiative's (GRI's) and/or to the Sustainability Accounting Standards Board's (SASB's) standards, among others. Whilst the former was not specifically designed to disclose information about food and beverage operations, GRI's principles can still be applied in the hospitality industry sector.

Organizations could utilize the Global Reporting Initiative's (GRI's) guidelines to prepare non-financial reports that shed light on their ESG initiatives (Koseoglu et al., 2021; Li et al., 2025). They could refer to GRI's Standards that are intended to support organizations in various aspects of their operations. Several GRI standards and guidelines can be used to address and reduce food loss and food waste in hotels and restaurants. While GRI does not have a specific standard solely focused on food waste, various standards cover aspects related to sustainability, waste management, and social responsibility that can be applied in this context. GRI has formulated topic standards related to the management approach (GRI 103 2016), procurement

practices (GRI 204 2016), waste (GRI 306 2020), supplier environmental assessment (GRI 308 2016), labor/management relations (GRI 402 2016), occupational health and safety (GRI 403 2018), training and education (GRI 404 2016), marketing and labeling (GRI 417 2016): among others, that could be used to assess the businesses' credentials, with regards to their responsible production and sustainable consumption of food. Table 2 presents a non-exhaustive list of GRI topic standards[4] that can be employed by hospitality practitioners when they are accounting for their ESG activities.

Table 2. A list of GRI standards that can be used to assess responsible food and beverage operations

GRI standard (or topic standard)	Focus
GRI 103 (2016)	Management approach
GRI 204 (2016)	Procurement practices
GRI 306 (2020)	Waste
GRI 308 (2016)	Supplier environmental assessment
GRI 402 (2016)	Labor/Management relations
GRI 403 (2018)	Occupational health and safety
GRI 404 (2016)	Training and education
GRI 417 (2016)	Marketing and labeling

GRI 103's "Management Approach" standard provides guidance on how organizations can identify, prioritize and manage their impacts on the environment and society. This standard can help organizations prevent food loss and reduce food waste throughout their operations by

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[4] The GRI standards are updated regularly. This information was compiled in December 2024.

identifying material topics related to different stages of the value chain including sustainable sourcing of ingredients, inventory management, energy and water usage in food production, waste management, and the like. Once the material topics are identified, GRI 103 may guide businesses in setting clear objectives and goals, in implementing policies and procedures that are intended to promote responsible production, sustainable consumption of food and waste management.

The businesses' stakeholder engagement is a crucial aspect of GRI 103. Hospitality businesses ought to communicate with suppliers to ensure they understand and comply with their sustainable sourcing requirements. They need to educate members of staff on responsible inventory management, safe food preparation techniques and waste reduction practices. It is imperative that they gather consumers' feedback on food quality and sustainability practices to continuously improve their food and beverage services. This standard emphasizes the importance of monitoring and evaluating the effectiveness of management approaches. For example, hospitality businesses could utilize key performance indicators (KPIs) to determine the percentage of sustainably sourced ingredients and to track their compliance with food safety standards. They may also measure their food waste levels. It is in their interest to conduct regular audits and assessments to identify areas for improvement, and to ensure they are adhering to policies.

GRI 103 encourages transparent reporting on sustainability performance. Hospitality businesses can publish sustainability reports that shed light on their efforts and progress in terms of responsible sourcing, storage, preparation, consumption and disposal of food. They could make reference to sustainable initiatives such as portion control, menu planning, donation of

surplus food and may indicate whether they are using mobile applications to promote their surplus food to price-sensitive customers.

GRI 204's "Procurement Practices" standard has been designed to promote responsible behaviors relating to the provision of resources. It describes good practices and identifies contingent issues that may cause or could contribute to the negative impacts in the supply chain. This standard raises awareness of the importance of ongoing stakeholder engagement (with suppliers) to improve relationships and avoid conflicts with them. It makes explicit reference to responsible actions taken to adjust payment policies and procedures. It encourages the sourcing of resources from local suppliers. In fact, it describes policies and practices used to select locally-based suppliers, either organization-wide, or for specific locations; it explains the rationale and methodology for tracing the source, origin, or production conditions of raw materials and production inputs purchased, if applicable; it describe policies and practices used to promote economic inclusion when selecting suppliers; discusses about the stability or length of relationships with suppliers; delves into lead times; ordering and payment routines; purchasing prices; changing or cancelling orders. It also elaborates on small and medium-sized suppliers; suppliers owned by women; suppliers which are owned by or recruit workers from members of vulnerable, marginalized, or under-represented social groups, among other matters.

GRI 306's "Waste" standard clarifies that report preparers ought to report the process flow of inputs, activities and outputs that lead or could lead to waste-related impacts. This standard makes reference to waste generated through the organization's own operations as well as to waste generated upstream or downstream in its value chain. It specifies that practitioners are required to report about the inputs they receive from suppliers (upstream in the value chain),

as well as on their outputs as they deliver their products and packaging to customers (downstream in the value chain).

For instance, food and beverage operations could inevitably generate waste as a consequence of spoilage of inventory items, as well as during food preparation and consumption activities. When reporting waste disclosures, they ought to specify which food items are moving into, through and out of their business in the form of waste. The standard suggests that if practitioners identify many inputs (e.g. ingredients) and outputs or activities (e.g. large portions) that are leading or could lead to significant waste-related impacts, they may group these by: quantity of inputs used to prepare food; quantity of waste generated during food production (whilst cooking); and quantity of waste generated after the consumption of food.

GRI 306 considers potentially hazardous characteristics of input materials as well as the design characteristics of outputs that could limit or prevent the recovery of waste. The standard makes reference to specific materials, like plastics, that could leak into waterbodies, when discarded irresponsibly with organic waste. It recommends that practitioners shed light on their responsible activities that are adopted to prevent waste generation (Disclosure 306-2), provide information about the composition of waste generated (Disclosure 306-3), on recovery operations used to divert waste from disposal (Disclosure 306-4), as well as on their disposal operations (Disclosure 306-5).

GRI's 308's "Supplier Environmental Assessment" can be used to guide practitioners in enhancing their suppliers' environmental responsibility credentials. The standard raises awareness about possible environmental impacts caused by stakeholders in the supply chain and explains how they could manage such impacts. It explicates that report preparers can avail themselves of GRI Topic Standards (e.g., GRI 302: Energy 2016, GRI 303: Water and Effluents

2018, GRI 305: Emissions 2016) to reduce externalities linked to a suppliers' operations, products or services. It recommends specific actions including the implementation of due diligence processes before contracting suppliers and the execution of regular audits once they have been contracted, in order to scrutinize the suppliers' environmental performance.

Report preparers are expected to evaluate their suppliers' compliance with environmental legislation, and to review their policies and practices that could have an impact on natural resources. They can report on the suppliers' sustainability initiatives and/or incentives that are intended to prevent, mitigate, or remediate potential negative impacts. They may communicate about the suppliers' courses of action and could indicate the percentage of them that are committing themselves to address their shortcomings that were noted in their audit. In addition, they need to report on the percentage of suppliers whose contracts were terminated as a result of their assessment, and may specify the reasons why they are not trading with them anymore.

GRI 308 recommends that the businesses ought to consider suppliers based on their environmental performance. The standard advises practitioners to favor those with certifications like ISO 14001: Environmental Management Systems (EMS) or other recognized environmental management standards. It urges practitioners to collaborate closely with suppliers and encourages them to offer training to the latter, to share the best practices (e.g. on renewable energy sources, waste and emissions reduction). This way, they will help suppliers to improve their environmental practices, and to establish a process that promotes continuous improvements. Arguably, this standard enables hospitality businesses to enhance their environmental stewardship, to contribute to global sustainability efforts, and to build a resilient and responsible supply chain.

GRI's 402's "Labor/Management Relations" may be used to report on the organization's leadership of its human resources. This standard raises awareness about the importance of the managers' ongoing engagement with employees and their representatives. It posits that employers are expected to communicate with members of staff about operational changes that may be implemented in their workplace environments. They are expected to consult and negotiate through collective bargaining with employee representatives (e.g. trade unions), to continuously improve their organizational culture, the employees' working conditions and terms of employment, according to relevant international norms and standards.

Hospitality businesses may refer to GRI 402 to promote responsible production, responsible consumption, as well as measures that could minimize food loss and waste among members of staff. For example, practitioners may organize meetings with employees to gather their insights and suggestions on how they can improve their inventory management and food preparation. They may organize training programs on hygiene and sanitization, health and safety, water and energy conservation, resource efficiency by reducing, reusing and recycling resources, to diminish the generation of waste. Restauranteurs may also delegate responsibilities and involve their staff in decision making. In addition, they should monitor their employees' progress in terms of achieving other GRI standards including GRI 306. This standard encourages two-way communication between the management and employees. This enables organizational leaders to better understand whether they are achieving their sustainable development goal related to responsible production and consumption of food, to adjust their extant strategies, and pursue alternative courses of action if required.

GRI's 403 "Occupational Health and Safety" is focused on disclosures about the organization's occupational health and safety-related issues. This standard explains that the

reporting organization ought to disclose health and safety information for the benefit of employees as well as for other workers who are not members of staff, but whose work and/or workplace is controlled by the reporting organization. It recommends that practitioners identify possible hazards like work-related injuries and work-related ill health, that can affect their operations. It raises awareness on risk assessment, as well as on incident investigation in the eventually that they occur. Therefore, GRI 403 encourages organizations to prevent and mitigate of occupational health and safety impacts directly linked by business relationships with stakeholders in the value chain. Like GRI 402, this standard also encourages worker participation, consultation, and communication (particularly on occupational health and safety matters). It also makes reference to the importance of ongoing employee training in this regard.

Report prepares of hospitality businesses may refer to GRI 403 metrics in their disclosures. They could report information about worker safety and well-being including on injury and illness rates, training hours on health and safety issues in restaurants (e.g. programs that teach proper handling and storage of food products to reduce hazards, food spoilage and waste), in order to promote a culture of responsibility and vigilance. In addition, other training may be provided to prevent emergencies, reduce workplace stress and support mental health. Such programs can improve worker productivity and could foster the employees' attention to detail, thereby reducing mistakes in the kitchen, that could affect food safety, its quality and the generation of waste. The integration of GRI 403's recommendations into responsible food and beverage operations can help practitioners create a safer and more efficient working environment, for the benefit of their employees as well as for their customers/patrons.

GRI 404's "Training and Education" standard is focused on disclosures related to the provision of training and development opportunities for human resources. This standard sheds

light on the organization's approach to upgrading extant employees' skill sets and competences. It reveals the extent to which the employer appraises its members of staff's performance levels. Moreover, it covers transition assistance programs that are intended to facilitate the employability prospects of human resources at the end of their career due to termination or retirement.

Report preparers are encouraged to refer to the metrics of GRI 404. They could disclose the average hours of training per year, per employes. In addition, they may categorize this information according to diversity and equal opportunity criteria by specifying the workers' genders, employment type (e.g. full-time, part-time, contracted, seasonal or temporary), et cetera. Notwithstanding, it is in the interest of practitioners to communicate about the delivery of internal training courses related to responsible (lean) production and consumption of food. Rapporteurs may shed light on the provision of training safety standards and quality control processes that are meant to prevent contamination, promote eco-friendly production methods, efficient uses of resources as well as waste reduction techniques like, proper storage techniques to reduce spoilage (by monitoring expiration dates); portion control; composting, recycling and upcycling food; and sharing best practices, among others.

GRI 404 standard also encourages practitioners to provide details on their funding support for external training or education that are meant to foster innovation in the workplace environment; as well as on the provision of sabbatical periods with guaranteed return to employment; pre-retirement planning for intended retirees; retraining of employees who are willing to continue working with their employer; job placement services; assistance (such as training and/or counselling) on transitioning to a non-working life; and severance pay, which can take into account employee age and years of service; among others responsible practices.

Hospitality businesses can refer to this standard to enhance their employees' knowledge and skills related to responsible production and consumption of food and beverages intended to minimize waste. In a nutshell, this comprehensive standard suggests that there is scope for practitioners to deliver ongoing training and development opportunities to their employees, as this may result in positive outcomes including motivated employees, operational efficiencies and increased productivity levels, along with broader sustainability goals.

GRI 417's "Marketing and labeling" may be utilized by hospitality practitioners to communicate about the sourcing of their raw materials including of their foods and ingredients as well as on the impacts of their waste on the environment, in a transparent manner. They can use this standard to raise awareness among stakeholders about the importance of reducing food waste and to provide them with tips on how to minimize waste at home. Stakeholders are increasingly expecting food and beverage service providers to be responsible in their practices and to disclose how, where and when they are disposing of surplus edible foods as well as of inedible items. GRI 417 encourages report preparers to explain how they are complying with regulations and/or with voluntary codes as they report incidents of non-compliance, if any. This standard suggests that non-compliance can indicate either inadequate internal management systems and procedures, or ineffective implementation. Conversely, practitioners need to clarify (in a brief statement) that they have not identified any non-compliance with regulations and/or with voluntary codes.

Hospitality practitioners' report preparers may also avail themselves of SASB's bespoke sustainability disclosure topics and metrics that have been purposely designed for restaurant practitioners and their report preparers. SASB's topic standards provide guidelines on *energy management, water management, food and packaging waste management, food safety, nutritional content, labor practices as well as on supply chain management and food sourcing*.

Other noteworthy standards comprise the Food Loss and Waste Accounting and Reporting (FLW) Standard, that was developed by the World Resources Institute (WRI) and the World Business Council for Sustainable Development (WBCSD). This standard provides a useful framework that is intended to manage food loss and waste, to review, report and audit FLW data.

In addition, hotels and restauranteurs may consider employing the sustainability accounting guidelines of the Carbon Trust; EarthCheck, Food Safety System Certification (FSSC 22000); Global Food Safety Initiative (GFSI-Recognized Standards); Green Key Global; Green Restaurant Association (GRA); Integrated Reporting Initiative (IRI); ISO 14001: Environmental Management Systems (EMS); ISO 22000: Food Safety Management Standard; United States Zero Waste Business Council (USZWBC); Zero Waste Certification and Zero Waste International Alliance (ZWIA), among others.

These organizations can help hospitality businesses identify areas where they can track and minimize food waste through reducing, reusing and recycling resources, as part of their overall environmental management efforts. By implementing responsible initiatives and by adhering to such sustainability standards, food and beverage practitioners can be in a better position to manage the generation of waste, reduce food loss, while also enhancing their environmental performance and sustainability credentials.

Conclusion

The underlying rationale behind this contribution is to promote responsible food and beverage operations within the hospitality industry. The sustainable sourcing of food products and their ingredients, their sound inventory management and control, the responsible preparation,

production and consumption of food, can ultimately lead to a reduction in food loss and waste in hospitality settings including from hotels, restaurants and cafes, among others. The good practices that were mentioned in this article clearly address the environmental impact as well as social and economic dimensions, thereby promoting a holistic approach for the sustainability of food and beverage service providers.

This research raises awareness on the significance of non-financial accountability standards in the hospitality industry context. It makes reference to some of the most popular regulatory instruments and standards, including those set by the GRI, SASB and FLW among others, to promote ESG disclosures in corporate sustainability reports. Indeed, practitioners can utilize the standards mentioned in this paper, to account, measure and disclose their ESG performance. Arguably, such standards are instrumental to provide stakeholders with the necessary information to trace, evaluate and compare the sustainability efforts of hospitality firms.

This contribution builds on previous research that identified laudable food and beverage operations in the hospitality industry's value chain; from the procurement of resources required for food production, leading to the point when surplus food and leftover items are reused, recycled or upcycled. It clarifies that excessive, edible and unspoilt food could be donated to food banks and/or to those in need, or even sold at discounted pricing through sharing economy platforms. Moreover, it also indicates that inedible foods can be converted into sustainable resources like garden compost or could be transformed into biogases, including methane (through anaerobic digester systems), that may be utilized for different purposes.

This research identifies and explains several ESG dimensions associated with food and beverage operations. It sheds light on several regulatory instruments comprising principles and

standards, that may be adopted by practitioners to guide them in their ESG disclosures of their sustainable initiatives. Notwithstanding, this article puts forward a novel theoretical model that illustrates various responsible practices related to each of three (3) ESG dimensions. It clearly indicates that the hospitality businesses' kitchen behaviors can be measured and accounted for in ESG reports, to provide stakeholders with a true and fair view of their sustainability credentials.

Future research directions

There is scope for further research focused on the main themes of this contribution. Academic colleagues may conduct primary research activities to explore the hospitality practitioners' good practices, or lack thereof. They may reveal how they are planning, organizing, implementing and measuring the effectiveness of their responsible value chain activities. Prospective researchers may avail themselves of various methodologies and sampling frames, to explore this topic in depth and breadth. They could identify specific organizations including sustainability champions, that have a proven track record in: (i) reducing materials and resources, as well as in reusing and recycling surplus or leftover foods; (ii) utilizing sharing economy platforms and mobile apps to sell surplus foods at discounted prices; (iii) donating food to community projects; and/or iv) recycling inedible foods for compost purposes, among other options.

New submissions to journals could promote the positive multiplier effects of engaging in responsible food and beverage operations in terms of operational efficiencies and cost savings, improved corporate image and reputation, and the like. They could raise awareness on the business case for responsible food production and consumption behaviors. Alternatively, future researchers could prepare theoretical and/or discursive papers that clearly explain how, where,

when and why hospitality firms are accounting their sustainable ESG activities. They may refer to specific standards and metrics presented in this article.

In addition, they may prepare comparative analyses of different ESG reporting frameworks (e.g., GRI and SASB among others). Their research might reveal the strengths and weaknesses of each framework and could possibly evaluate their standards and metrics in detail. Scholars could explore the enablers and barriers associated with ESG accounting, reporting, auditing, and assurance. They may focus on organizational aspects, financial and technological issues, regulatory interventions, and/or on cultural influences that could either support or hinder the widespread adoption of sustainable food and beverage initiatives in the hospitality sector.

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