



WAYS TO REDUCE FOOD WASTE - A QUALITATIVE APPROACH TO ASSESSING CURRENT PERSPECTIVES OF FOOD BUSINESSES

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Abstract

Food waste in the lower part of the food chain, grocery stores, other retail food stores, restaurants, fast food, is a concern for generating losses overall. Food businesses engage in various strategies to reduce and recycle food waste. Knowledge about the perspective of employees and managers of these food service units on food waste remains limited. This paper



aims to increase understanding of the factors that influence the decision-making of retail employees and managers of food businesses to prevent and mitigate food waste. The analysis perspective of this paper was conducted under the knowledge of risk mitigation theory and social practice theory to uncover the aspects of the food waste causes and reduction routines. We conducted 30 qualitative semi-structured interviews with different businesses in the food sector across three districts in Albania: Tirana, Korça and Shkodra. Thematic analysis and manual coding were used to process the information to explore how representatives of food business to evaluate the factors that influence decision-making on food waste. The interviewees describe their daily activities guided by business leaders' decisions to prevent or recycle food waste. The participants considered food waste avoidance strategies as necessary but that they avoid them by mitigating the responsibilities of suppliers. The techniques used often seem unfocused but rely mainly on the same actions such as careful inventory management, product recycling while avoiding losses as much as possible.

Keywords: Food waste, risk mitigation, social practice theory, thematic analysis

INTRODUCTION

As part of the 2030 Agenda for Sustainable Development, Sustainable Development Goals (SDGs), widely recognized as a global approach for businesses to reduce their food losses and waste (FLW), is a challenge for the entire globe. Their support has been evidenced long ago by Timmermans & Vlek (1996) so that practitioners can identify strategic approaches in their decision-making. To uphold the principles of sustainability, food businesses should integrate SDGs into their management approaches to ensure sustainable consumption and production (United Nations, 2018).

Although food waste (FW) at the consumer level remains widely explored, according to United Nations, 13.2% of food produced is lost between harvest and retail sale or 1.05 billion tones wasted at retail, food service and household (UNEP, 2025). The purpose of defining the SDGs standard was also to assist food businesses in measuring waste with the aim of taking action to prevent it. According to van Bommel & Parizeau (2020), it is estimated that approximately 50% of all food produced is lost or wasted at various stages along the food supply chain. This figure has drawn the attention of policymakers.

According to the literature, food consumption behaviours are more evident in developed countries where the majority of food consumption comes from the lower stages of the chain and family consumption (Gaiani et al., 2018; Bravia et al., 2020; Dreyer et al., 2019, Parizeau et al., 2015; Muriana et al., 2017). FW management issues require intervention by all actors in the

food chain (Schanes et al., 2018). Determining the perceptions of actors along the food chain is the first step towards taking measures to reduce FW. Analysing the effects along the supply chain is the step that precedes determining the system-wide impacts of individual efforts to reduce FW (Beretta et al., 2017; Muth et al., 2019).

The definition of FW has now gained acceptance. Wasted food is defined as edible items that are not consumed, such as food discarded by retailers due to changes in appearance or colour. For the downstream supply chain, this represents a loss of profit in terms of lost labour and time (USDA ERS, 2018).

The main drivers of food business managers' actions are to avoid the risk of FW (Ceryes et al., 2021). For this reason, in this study, we have use some insights from the Theory of Risk Management and more precisely from Risk Mitigation is used to illustrate findings from interviews with food business managers and employees. The concept of risk mitigation is known as a fundamental practice, essential for protecting assets, ensuring operational continuity of various actors including food businesses (Afifa & Santoso, 2022).

Extending previous studies, we aimed to understand "in-role" FW behaviour that are aligned with workplace responsibilities and reflect how employees and managers may adjust their work tasks. Albania is a country in which there is still no assessment of FLW along the lower part of the food chain. The purpose of this study is to identify the perceptions of food business representatives regarding FW and to assess their actions to reduce FW. We conducted 30 qualitative semi-structured interviews and used thematic analysis to explore how employees and managers of different food business view FW decision drivers, and how these impact the effectiveness of FW reduction.

LITERATURE REVIEW

Development of the Food Industry in Albania

The food processing industry in Albania consists mainly of enterprises that process fresh agricultural products (livestock products, milk, cereals, vegetables, fruits, aquaculture products), as well as fewer processing enterprises. The growth of this industry has been at quite high rates (with an annual average of almost 10%) in relation to other sectors. The food sector has developed significantly in terms of the number of companies operating in the agro-industry, the size of investments and the volume of activity they develop. Enterprises related to food service occupy a significant percentage that varies from 17-20% of the total active enterprises for the last five years. Considering the number of manufacturing enterprises registered in the agriculture and aquaculture sectors, the share of these enterprises is almost 46% in relation to the total number of enterprises (INSTAT, 2024). Some of the main sub-sectors of this industry

are: oil industry, meat and by-products industry, beverage industry, fruit and vegetable processing industry, milk and by-products industry, flour and by-products industry.

FW in the context of the food business

The high rates of FW have attracted the attention of many researchers to investigate different stages of its use and from different research perspectives. Understanding FW in the lower part of the food supply chain is of particular interest in developing countries. Global resource depletion, food shortages and challenges with food security, environmental impact have made more sustainable business practices to reduce food waste represent important opportunities for the food industry (Thyberg & Tonjes, 2016).

The Global Food Loss and Waste Standard provides an opportunity for businesses to develop FLW inventories (Hanson et al., 2016). The FLW Standard guides businesses in determining the amount of food wasted and to adopt Target Measure-Act approach, which involves: (1) setting a reduction target, (2) measuring FLW and (3) applying methods to reduce it (Champions 12.3, 2019).

FLW occur for various reasons at different stages of the food chain, such as: the agricultural production stage (Johnson et al., 2018; Milepost Consulting, 2012), intermediate stages as a result of its spoilage (Jedermann et al., 2014; Kantor et al., 1997) as well as the consumer or consumption by the consumer through food service establishments (Wilson et al., 2018).

FW concept between risk mitigation and social practice theory

Food businesses engage in managing FW to avoid economic damage as well as image damage. Risks are classified into avoidable and unavoidable types (Afifa & Santoso, 2022). Based on the classification of risks, risk mitigation is part of the risk control process carried out by various actors including food businesses in the framework of management of FW. The role of risk management can increase understanding of the relationship between proactive mitigation strategies and supply chain management (Saglam et al., 2020). According to Chan (2003) risk mitigation aims to reduce or minimize the potential negative impact of a problem. This is reinforced by Ceryes et al., (2021) and Rausand, (2011) that state that risk mitigation actions are used to reactive barriers against hazardous events. Risk mitigation can be developed, as well as risk mitigation plans (Shahzad, 2010; Choirun et al., 2020). Risk mitigation strategy can be used as an alternative to solve a problem (Rahmatin, 2018) like FW in the lower part of food chain.

Business actions regarding food waste are driven by economic considerations as well as norms and values that guide the behaviours of employees and managers of food businesses.

Social Practice Theory (SPT) is part of sociology literature focusing in the analysis of human as the actor to the practice itself hence positing that the structures, practices, materiality and social contexts surrounding an individual shape their attitudes, values and behaviours observed (Nand et al., 2025). This theory has been contributed to understand the intersection of various actor's behaviour, practices, activities, elements in the generation of FW (Southerton and Yates, 2015, Filimonau et al., 2024). FW issues can be explained using insights from SPT, which suggests that individuals' actions are driven by the complex interplay of: (a) individual knowledge and skills (competences), (b) socially shared norms, and (c) materiality, including technology and infrastructure. According to Keegan & Breadsell, (2021) since a complex interplay between all three features can generate or reduce FW, changing food-related practices. Examples of practices that can generate excess food that can lead to waste include overstocking, over preparation, overcooking, offering a wide range of menu choices, and offering a single size plate for all customers (Filimonau & Delysia, 2019). As mentioned above, food businesses operate in their daily activity in a combination between the demand to reduce economic losses and the complexity of combining factors such as knowledge, understanding and materiality. This combination can affect FW at every stage of the food supply sector in the lower part of the food chain. The food business activities from the perspective of this study is shown in the Figure 1.



Figure 1. Theory insights used to understand food Business Strategies

Business practices to avoid food waste

According to the literature, retailers use various forms of food management that are at risk of being wasted. Some of these techniques are selling at a discount on products that still maintain their nutritional value and good appearance, giving various products to staff, or donating to rescue organizations or non-profit grocery stores (Holweg et al., 2016).

One of the forms that is often encountered in managing excess food is donating products that are close to spoiling to various organizations such as food banks. This form has prompted discussions regarding the ethical aspects of using these products in this way of management. To avoid this, recycling methods have been applied such as redirecting them as animal feed, generating energy through anaerobic digestion or composting (ReFed, 2018).

There is also a recycling relationship between food businesses, for which there is little information regarding their manner and quantity as reporting is not required for some countries (United States Department of Agriculture, 2020).

In most cases, the business incentive to reduce food waste is seen in terms of economic losses. More and more studies are showing that many supermarket chains have committed to reducing waste and redistributing food (Pulker et al., 2018) and this is as a result of social pressure or the psychological impact that food waste has on food business managers (Gruber et al., 2016). However, their options for reducing food waste appear limited (Filimonau & Gherbin, 2017). A very large impact also seems to exist among business members themselves. Frontline employees seem to play an important role in managing food waste (Ceryes et al., 2021; Goh & Jie, 2019; Ozbük & Cos, 2020).

Understanding the perceptions of employees and managers in food businesses can guide business practices, inform intervention policies, and better orient these businesses toward sustainability.

For this reason, this study raises 2 research questions:

1. Do employees and managers of food businesses have information about FW and what factors influence their decision-making regarding FW?
2. How do the business practices in developing countries, such as Albania, differ from those in developed countries, and what factors contribute to these differences?

METHODOLOGY

Interviews and data processing

This study used in-depth interviews to systematically collect information about the causes of FW and waste prevention and reduction strategies in food businesses. We recruited respondents from three regions of Albania (Tirana, Korça and Shkodra). The interviewees were

asked directly on site without explaining the interview questions in order to gather their thoughts on their daily activities and avoid having to prepare answers in advance. In total, 30 food businesses (Table 1. Interview Distribution) were interviewed, with a breakdown of 20 businesses in Tirana, 6 businesses in Korça and 4 in Shkodra. The distribution of interviews by business type was: supermarkets, convenience stores, fresh products stores, fast-food, stores offering dough products (bread, biscuits) and pastries. Recruitment sources were found from: websites (n = 8 recruited interviewees); personal contacts (n = 12); professional contacts (n = 5); snowball sampling (n = 5). All respondents were currently working in these businesses and had at least 1 year of experience to avoid the lack of information that newly hired employees or managers may have. Interviews ranged from 20-40 min.

The semi-structured interview covered three major topics: (1) respondents' knowledge about FW; (2) discard processes and decisions (including date labelling, store policies, and perceived reasons for product discards); and (3) food reductions strategies. Researchers' audio-recorded interviews in Albanian language at the premises of the businesses. Following interviews, we made transcription of the recorded interview in notes. We created a data inventory to assess interview thickness and major themes and collected data to thematic saturation. Throughout the process, we iteratively refined and finalized the interview, continually assessing emergent themes and content (Charmaz, 2006). To develop themes from the data collected it was use the thematic analysis approach. Thematic Analyses, in the processing of qualitative data, identifies, analyses and constructs certain themes. According to Joffe (2012), it is a flexible approach that organizes data into a series of patterns or themes that exist in the collected data.

The information obtained was analysed and the data were processed through the Nvivo 15 program. The next step was to read the transcripts and develop codes using line-by-line coding (Saldana, 2016). The final code file contained nine code themes and 50 codes.

Table 1. Interview Distribution

Business Profile	Number of Interviews	Business Type	Person Interviewed
Bar-Restaurant	6	Small and Medium Enterprises	Managers and Owners
Fast Food	6	Small and Medium Enterprises	Managers and Owners
Convenience Food Store	7	Small and Medium Enterprises	Managers and Owners
Supermarket	2	Big Enterprises	Employees and Managers
Fresh Products Store	4	Small and Medium Enterprises	Managers and Owners
Bakery-Pastry	5	Small and Medium Enterprises	Employees and Managers

RESULTS AND DISCUSSION

Food Business knowledge of FW

Business knowledge regarding the concept of food waste is diverse and stems from various sources, including education at school or within the family, business activities, media and social networks, charitable foundations, as well as practical experience gained through employment in similar businesses, including those encountered during emigration.

There are various definitions of FW, but they generally refer to a similar concept. FW includes unsold or surplus food, items that remain after cooking and are not edible, as well as food that has passed its expiration date and is no longer considered suitable for consumption.

Here, a consensus is noted regarding businesses that delivery products where the emphasis is placed on their invalidity due to the expiration date or the spoiled of the texture in the case of fresh products, while businesses such as restaurants define them as part of the food that is generated by the cooking process.

A manager of a fresh food products business defines it as:

"...Food waste is fruit and vegetables that are not sold at the end of the day, have changed their freshness and are not liked by consumers."

A bakery employee defines food waste as:

"...Products such as bread or pie that have not been sold by the end of the day"

Employees and food business managers recognize the importance of FW issues due to economic losses, environmental degradation, and ethical concerns. However, because they actively take preventive measures, they tend to believe that their own operations do not generate significant amounts of food waste.

At this point it seems that only businesses that sell fresh produce are sensitive to the importance that FW has in terms of economic losses.

"...FW is somewhat of a problem that requires attention as fruits and vegetables spoil faster than packaged products, especially lettuce, spinach, strawberries, and fresh herbs."

Regarding the business commitment to measuring food waste, it turns out that they have never taken action to measure FW, nor have they been instructed to do such measurements. Some managers of fresh produce businesses claim:

"...We make a rough estimate, e.g. a box"

"...We have never measured how many kg of product we have supplied and how much we have left...we generally look at how much money we have spent and collected from sales...but we do not have high amounts of waste"

Types of food effect in food waste

Examination of the types of food products that result in the most food waste results in:

(1) Fruits and Vegetables – Appearance Appeal

This product category requires retailers to maintain high product quality standards as consumers demand that products maintain the colour and texture of the products and easily refuse to consume products that are not fresh.

(2) Bakery and Pastry – Freshness Appeal

Bakeries and pastry shops emphasize that consumers have high demands for fresh products even at the end of the day. This makes the business produce small quantities several times a day while managing inventory carefully. In cases where there are unsold products, they are distributed to staff or sold at very low prices

(3) Packaged Products – Shelf life Appeal

Packaged products have a longer shelf life due to longer shelf life. Interviews indicate that in the food industry, it is common practice for products to be returned to suppliers without objection. This return process is widely accepted and integrated into daily operations across all types of food businesses. The ability to return goods seamlessly is facilitated by contractual agreements established between wholesalers, distributors, and retailers. These contracts explicitly outline the terms and conditions for product returns, ensuring that such transactions occur smoothly and without dispute. Consequently, returns have become a routine aspect of supply chain management within the food sector, reflecting a collaborative approach among all parties involved.

The expiration date also has a significant effect on customer sales, especially with dairy products, yogurt, as consumers do not buy products that are close to the expiration date.

Managers also claim that these products, usually withdrawn from markets before the expiration date, can be traded in 2 in 1 markets that are quite widespread in Albania.

Food Business reduction of food waste activities

Based on responses from both managers and employees, a slight difference is noted in how sales promotions are implemented across different business structures. In food chains such as supermarkets, specific promotional efforts are commonly employed to manage products approaching their expiration dates. These strategies include offering promotional prices, “pay 1 get 2” deals, product bundling, and other incentives designed to accelerate product turnover and minimize waste.

Managers often focus on planning and executing these promotions strategically to optimize inventory management and sales, while employees may have more direct interaction with customers and insight into the effectiveness and customer reception of these promotions.

These structures also offer products by undertaking light processing efforts such as grating cheese and offering it in boxes, offering fresh products such as spinach, tomatoes, onions, to other stores as pies. Practices of distributing leftover products to employees of the unit or offering it to people in economic difficulty are also undertaken. The latter initiative, however, is somewhat chaotic, disorganized and mainly based on personal acquaintances. In the case of bakeries, practices of selling products at very low prices to families in need or even family units that use them as animal feed are noted.

In the case of fresh produce sales units, business representatives claim that they undertake actions to manage inventory. They claim that:

“...we carry out the selection of products by mixing them with the next day’s supplies and thus we have the opportunity to market products that still maintain the good appearance of the product a day later”

In the case of restaurants and fast food where one of the main problems is the use of high quantities of oil, there is again a contractual relationship regarding the withdrawal of used oil by the company, thus disciplining them without financial costs for waste disposal.

Regarding the engagement of businesses in terms of consumer awareness, the only efforts are reflected in the case of units that sell fresh products by advising them regarding the type of product, but without undertaking formalized initiatives in the form of awareness raising on waste management or cooking of products in order to increase consumer knowledge.

Table 2. Example of reduction of food waste activities reported by workers and managers

Examples of Reduction Food Waste Activities	Food Business type	Primarily responsible for activity within the store
Product withdrawal from the supplier before the expiration date (e.g. up to 1 month before)	Supermarket	Managers
	Convenience Store	
Limiting over-ordering	Bar-Restaurant	Managers
	Convenience Store	
	Fresh Products Store	
	Bakery-Pastry	
Date Tracking	Supermarket	Employees
	Convenience Store	
Discounting Products	Fresh Products Store	Managers

Table 2...

	Bakery-Pastry	Employees
Arranging donation or at-cost sale to farmers	Bakery-Pastry	Managers Employees
Stocking space and rotating	Fresh Products Store	Employees
Arranging Sales with Small producers	Fresh Products Store	
Giving food to employees	Supermarket Convenience Store Bakery-Pastry Bar-Restaurant	Managers

Table 3 shows the opinion of employees and managers regarding potential interventions to better manage their routines regarding food waste and the closest direct link they see to economic, environmental and social impact.

Table 3. Potential Routines and Interventions related to Food Waste Reduction

Potential Routines and interventions	Economic Benefits	Environmental Benefits	Social Benefits
Improve in store standards	X		
Discard staff training focused on distinguishing quality indicators	X		
Improving relationships with other supply chain actors	X		
Consumer education		X	
Government policy			X

CONCLUSION

From the interview process it is noted that in general the concept of food waste is known to entrepreneurs, managers and employees in the Tirana, Korce, Shkodra regions, yet it seems that there is no active effort in their management.

This picture is also related to the way small food businesses function, especially in relation to working hours, openness, relations with suppliers and consumers.

Due to the nature of distribution channels that are characterized by a very large capillarity of sales units, familiarity with the clientele, business development on a community basis and relations with suppliers where the transfer of risk and responsibility remains mainly in their chain, the management of food products is on a daily basis and relies on trained staff and

in some cases, especially in the case of markets and supermarkets, in support of software programs for inventory management.

The interviews show that business managers and employees see the issue of food product management as an issue that needs to be managed to reduce economic losses more than environmental and social ones. The latter are seen as formalized efforts by policy-making or consumer education.

It is also noted that most businesses in the lower part of the supply chain are not very involved in preventive actions to reduce food losses as this is regulated by contracts for the withdrawal of damaged product from the supplier. From this behaviour, it is noted that the dominant behaviour is the mitigation of the risk of the distributor or supplier.

The findings of this study yield several important managerial implications that can guide more effective food waste management practices among small and medium-sized food businesses:

Managers need to expand their view of food waste beyond immediate economic loss and begin to consider its broader environmental and social consequences. Awareness campaigns and targeted training can help business leaders internalize the full cost of food waste, including reputational risks and long-term regulatory pressures related to sustainability.

Businesses should adopt simple but robust tools and practices to measure and monitor food waste.

Frontline employees play a critical role in daily food handling and inventory practices. Investing in their training on food safety, stock rotation, and waste minimization techniques can significantly reduce losses.

Formalizing agreements with suppliers that go beyond product returns to include shared responsibility for waste reduction can foster collaboration and innovation.

Food businesses can benefit from building local networks to share surplus or near-expiry products with other actors in the supply chain (e.g., bakeries, restaurants, animal feed producers). Coordinated redistribution efforts can reduce waste, build community goodwill, and potentially open new revenue or partnership opportunities.

As regulations around food waste management evolve, businesses should prepare for increasing pressure from both policymakers and consumers.

Managers can explore business models aligned with the circular economy—such as using food waste for compost, energy production, or alternative product lines. Partnerships with local NGOs, startups, or waste-processing enterprises can make such innovations more feasible for small businesses.

This study suggests that future research should broaden its scope by including interviews with supplier businesses, importers, and manufacturers. Engaging these key stakeholders would provide deeper insights into the issue by capturing perspectives from various points along the supply chain, thereby enabling a more comprehensive understanding of the underlying factors and challenges involved.

FUNDING

This work is a product of the Project “Challenges for a sustainable agro-food sector with a focus on food losses and waste”, funded by the Albanian National Agency for Scientific Research and Innovation (NASRI) and Agricultural University of Tirana (AUT).

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