

## **Circular economy and sustainability: Best practices in the restaurant sector**

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**Objectives** | Sustainability practices are a global challenge to which the restaurant sector is no exception. This study aims to characterize good practices in the field of the Circular Economy (CE) and sustainability.

**Methodology** | This study adopted a quantitative methodology. Initially, a literature review was carried out to clarify and identify the main trends, concepts, and challenges in these areas. This collection was broadly based, with a particular focus on the Guide to Good Practices for Circular and Sustainable Catering from Turismo de Portugal and AHRESP (TP & AHRESP, 2021).

The development of a green industry is imperative in the search for a balance between the three basic dimensions of sustainable development - economic, social, and environmental. From this perspective, the World Economic Fund (2023) defines CE as a restorative or regenerative industrial system, which replaces the end-of-life concept of a linear economy with renewal. CE stands out as a new paradigm for sustainability, by unveiling new opportunities for added value for organizations and their customers, in harmony with the environment, and can be seen as a lever for the future, through competitive advantages (Leitão, 2015).

A detailed questionnaire was developed with 34 closed-answer questions, covering sociodemographic issues and the dimensions of "Food and Beverages", "Suppliers and Transportation", "Packaging and Consumables", "Waste Management", "Water and Energy", "Equipment and Infrastructure Management" and "Environmental Sensitivity" were inquired on the restaurant companies.

In geographical and territorial terms, using the convenience sampling technique, the study included restaurant businesses located in the Territorial Unit III areas of Alto Minho, Cávado and Ave, Porto Metropolitan Area, and Coimbra. A total of 4038 companies were mapped using data from the websites of the local councils, which ended up constituting the universe of the study. Subsequently, the online questionnaire was constructed using the LimeSurvey platform and disseminated to the target population for data collection, which took place between June and

September 2023. Our sample has 304 answers. Data were analyzed with IBM SPSS Statistics Version 28..

**Main Results and Contributions** | Our main results show that many restaurants already adopt CE practices, but face challenges such as a lack of government support and costs associated with the transition to more sustainable practices. Employee awareness-raising is mostly carried out twice a year (32.9%), and communication with municipalities/associations needs to be improved, with 26.6% of companies never receiving information on sustainability from these entities.

Waste management is the most practiced dimension, with an average of 2.06 and, conversely, good practices in the area of packaging and consumables are less used (1.70). It is clear that companies are progressively making use of their leftovers, both at the time of production and when adjusting portions during plating, as well as investing in their efficient conservation. However, we still do not see this surplus production being sent to social support institutions and/or to combat food waste (53.3%), nor do we see an increase in the value of more vegetable-based dishes, to the detriment of animal protein (20.4%). There is not a great concern with the production and distribution methods of suppliers, but many companies are already seeking out local producers in whole or in part and selecting products according to their seasonality (96.1%). The results also show that 26.6% of companies already offer reusable and/or biodegradable packaging and 25% have already opted to distribute filtered and biodegradable water. Regarding waste management, several companies (37.2%) fully separate waste by category and 25.7% of companies partially quantify and recover waste. Approximately a quarter of restaurants (23%) already partially produce energy from renewable sources, almost all of them monitor their water and energy meters and bills in order to act on potential savings (90.1%) and there is already a growing demand for more energy-efficient equipment (67.5%).

**Limitations** | One of the limitations arises from the absence of a platform that aggregates the registration, licensing and territorial organization of all the restaurant businesses in operation. As a result, difficulties were encountered in creating a representative and reliable database of all the companies included in the geographical area of the study. Another limitation was the size of the sample, which made it impossible to carry out more specific statistical analyses. Future studies should analyze practices by region and type of restaurant.

**Conclusions** | Based on this study, we can conclude that many restaurant companies adopt sustainable practices, with a greater focus on waste management. These sustainability practices are seen as a guideline for the development of the future of CE and aim to safeguard sustainable service measures in restaurants. It is therefore essential to raise awareness among players in the sector of the advantages of integrating circularity into their practices in order to increase the

competitiveness and sustainability of their operations and value chains, to the detriment of the overuse of resources and food waste.

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