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## THEORETICAL FOUNDATIONS OF WASTE-FREE PRODUCTION IN THE RESTAURANT BUSINESS

## ТЕОРЕТИЧНІ ОСНОВИ БЕЗВІДХОДНОГО ВИРОБНИЦТВА В РЕСТОРАННОМУ ГОСПОДАРСТВІ

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**Abstract.** This study examines the theoretical foundations and modern innovative practices of zero-waste production in the restaurant business. It identifies the reasons why Ukraine does not pay enough attention to this issue and provides recommendations for improvement. The growing focus on sustainable development and environmental protection challenges industry enterprises with the task of reducing waste and optimizing production processes.

**Keywords:** restaurant business, zero-waste production, food waste, innovative practices, ecology, pollution, inventory management, economic efficiency.

**Introduction.**

The implementation of innovative practices of zero-waste production in the restaurant business is not only a responsible step in the direction of sustainable development, but also a competitive advantage. Restaurants that choose this path contribute to the preservation of nature and attract diners who value environmental awareness. Sustainability is a key component of successful business in the 21st century, so the implementation of innovative solutions in the field of zero-waste production is a step towards the most efficient and ethical future.

In today's world, where sustainability is becoming a necessity, restaurants have great potential to become leaders in zero-waste production. Innovative practices allow them not only to reduce their ecological footprint, but also to create unique, ecologically clean and exclusive dishes, thanks to a creative approach to the use of products and optimization of production processes. Implementing innovative zero-waste production practices can be a challenge, but it's worth the effort to save the planet and attract conscious visitors.

**Main part.**

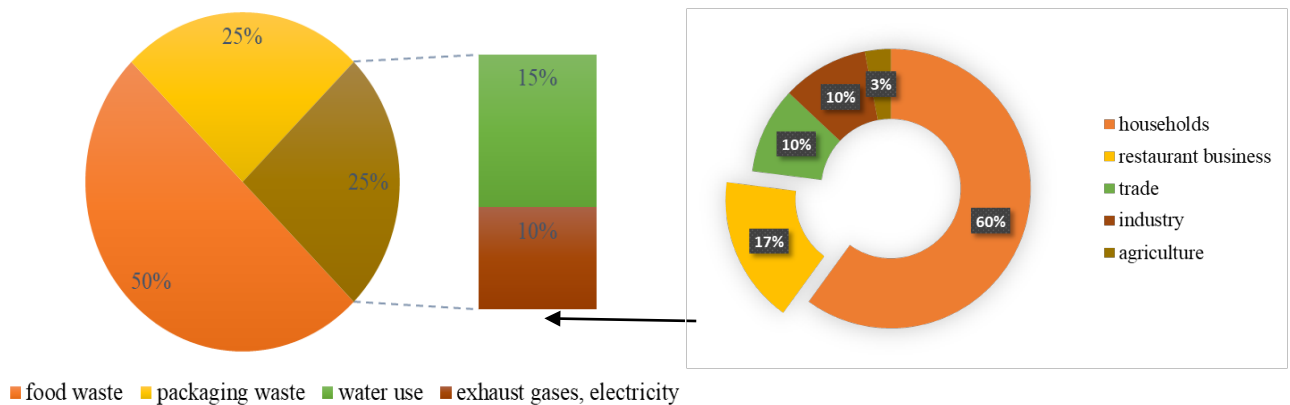
The restaurant business is one of the most resource-intensive branches of the economy. Every year, restaurants generate a significant amount of waste, which has a negative impact on the environment and the economy.

The trend of zero-waste production has gained significant momentum. Actions are held every year that highlight the problems of excessive consumption, open restaurants that work as much as possible without waste, which is economically beneficial and environmentally conscious for the country.



Zero-waste production is about increasing social, financial and environmental benefits, which include the creation of green working cities and the growth of the market for reusable materials. Consequently, this concept encourages local business to develop, improves air and water quality, and improves the environment. This important issue is also relevant for the hospitality industry, because food waste accounts for 8% of global greenhouse gas emissions. The popularity of the zero-waste trend is based on statistics that clearly show how much food is wasted every day. The distribution of food waste in Ukraine by economic sector and the main environmental problems of the restaurant business are shown in fig. 1.

Food waste is the biggest problem caused by the restaurant business (50%). According to estimates, about 1.3 billion tons of food waste are thrown away in restaurants around the world every year. This is about a third of all food produced in the world. Food waste is a source of greenhouse gases and also pollutes the environment. Restaurants also use a large amount of packaging, which is often made from non-recyclable materials (25%). This leads to environmental pollution and complicates waste processing. Restaurants also consume a significant amount of water for cooking, washing dishes and other needs, polluting wastewater (15%). Restaurants use transport for food delivery. This leads to emissions of greenhouse gases, which contribute to climate change, and also consumes a lot of electricity for cooking (10%) [3].



**Figure 1 – Distribution of food waste in Ukraine by economic sectors and the main environmental problems of the restaurant business**

That is why, in order to solve environmental problems, the restaurant business needs to implement measures that will include zero-waste production. Reducing food waste has many positive environmental and socio-economic consequences. Although there are many programs to reduce food waste, the attitudes and behaviors that lead to food waste, as well as strategies to reduce it, remain poorly understood. Therefore, we conducted research on how restaurateurs in Berkeley, California, USA perceive food waste, taking into account current financial incentives and policies, compared to how they do it in Ukraine. We found that 65% of restaurants in Berkeley measure food waste. In Ukraine, only 10% of restaurants measure the amount of food waste [4]. This means that most restaurants in Ukraine have no idea how much food they



throw away. This is a serious problem, as food waste is one of the main sources of environmental pollution. About 3 million tons of food waste is thrown away in Ukraine every year. This is about 10% of the total amount of garbage that is thrown out in Ukraine. The restaurant sector is one of the main sources of food waste in Ukraine. According to estimates, about 200,000 tons of food waste is thrown away in Ukrainian restaurants every year. This is about 17% of the total amount of food waste that is thrown away in Ukraine.

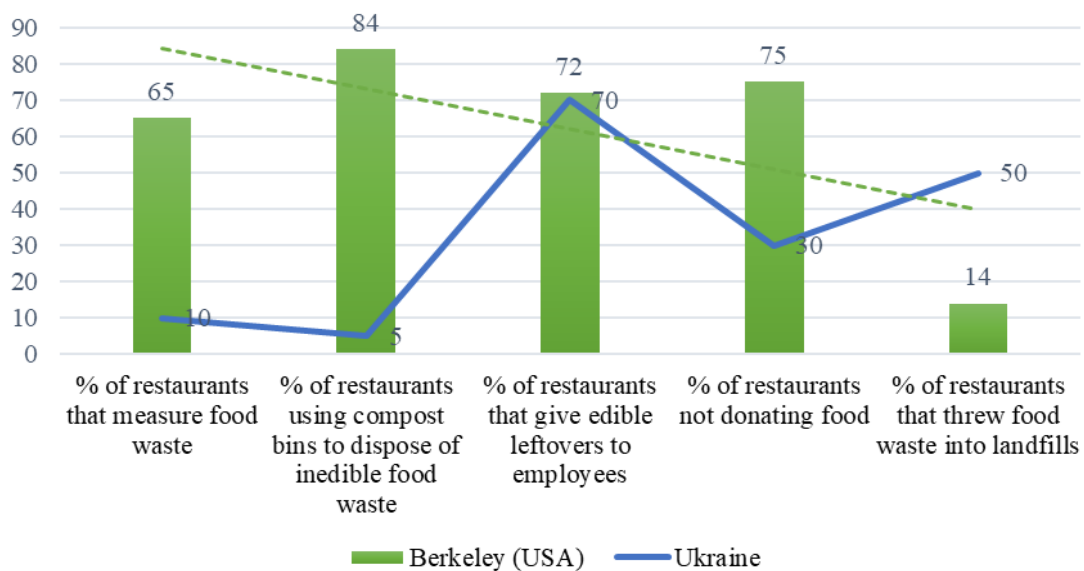
In Berkeley, more than three-quarters of them (84%) use compost bins to dispose of inedible food waste. In Ukraine, only 5% of restaurants use compost bins to dispose of inedible food waste. This means that most restaurants in Ukraine dispose of inedible food waste along with other waste, which leads to environmental pollution. Inedible food waste, such as peels of vegetables, fruits, pits, bones, skins, can be processed into compost, which is a valuable organic fertilizer. Composting inedible food waste is one of the effective ways to reduce food waste and protect the environment. Our survey results also show that the most common method of food waste disposal (72% in Berkeley) was giving away edible leftovers to restaurant staff. In Ukraine, about 70% of restaurants give edible leftovers to restaurant workers. This means that most restaurants in Ukraine have programs that allow restaurant employees to take food left after the restaurant closes for free. Programs that allow restaurant workers to pick up food are an important way to reduce food waste.

However, three-quarters (75%) of restaurants in Berkeley avoided donating food due to unfounded fear of legal liability. About 30% of restaurants in Ukraine do not donate food that is still edible to charities or other organizations that help those in need. This is due to concerns that restaurants could be held liable if someone becomes ill after eating the donated food. However, in Ukraine, as a rule, restaurants are not legally responsible for the food they donate. That's because there are laws in place that protect restaurants from liability for voluntarily donated food.

Finally, 14% of the restaurants surveyed in Berkeley threw food waste into landfills. In Ukraine, about 50% of restaurants threw food waste into landfills. This means that most restaurants in Ukraine do nothing to reduce the amount of food waste they produce. Throwing food waste into landfills is a problem because it leads to environmental pollution. Food waste that rots in landfills releases greenhouse gases that contribute to climate change. A generalized comparison of the perception of food waste in restaurants in Berkeley (USA) and Ukraine is shown in Fig. 2.

So, as you can see, the perception of food waste in Ukraine is less developed. Many restaurants in Ukraine do not have food redistribution or composting programs. In addition, some restaurants in Ukraine still throw food waste into landfills.

Changes in legislation and policy will help reduce the amount of food waste in restaurants in Ukraine. For example, the Ukrainian government could introduce tax incentives for restaurants that implement food redistribution or composting programs. The government could also introduce legislation that would require restaurants to reduce food waste.



**Figure 2 – Comparison of perception of food waste in restaurants in Berkeley (USA) and Ukraine**

### Conclusions.

Food waste management is a major operational issue in the restaurant business sector. However, this issue is understudied, which is a significant drawback given the growing frequency of eating out. The key conclusion of this study is that the national culture of Ukrainians significantly contributes to the occurrence of food waste on the consumption side. Moreover, increasing consumer expectations for high-quality restaurant food offerings and the industry's desire to meet these expectations for customer loyalty leads to overproduction of food and thus encourages food waste at the production stage. Government support is important to help the industry reduce waste. This support can be organized through the development of new, broader and larger public awareness campaigns, including those carried out by celebrities, and through the provision of specialized training on food waste reduction to restaurant managers and employees. To evaluate the effectiveness of various waste reduction measures, the industry and the Ukrainian government should cooperate with scientists.

### Literature:

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3. Bhattacharya, A., & Fayezi, S. (2021). Ameliorating food loss and waste in the supply chain through multi-stakeholder collaboration. *Industrial Marketing Management*, Vol. 93, pp. 328-343.

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1. Alfiero, S., Christofi, M., & Bonadonna, A. (2020). Street food traders, farmers and sustainable practice to reduce food waste in the Italian context. *British Food Journal*, Vol. 122(5),



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**Анотація.** У даному дослідженні розглядаються теоретичні основи та сучасні інноваційні практики безвідходного виробництва в ресторанному бізнесі. Визначено причини, чому в Україні приділяється недостатня увага цьому питанню, та надано рекомендації щодо покращення. Зростаюча увага до сталого розвитку та охорони навколишнього середовища ставить перед промисловими підприємствами завдання скорочення відходів та оптимізації виробничих процесів.

**Ключові слова:** ресторанний бізнес, безвідходне виробництво, харчові відходи, інноваційні практики, екологія, забруднення, управління запасами, економічна ефективність.