

УДК 338.46+640.45+642.5

L. Udvorheli,
PhD in Technical Sciences, Associate Professor, Associate Professor
of the Department of Hotel, Restaurant and Museum Affairs, Mukachevo State University
ORCID ID: <https://orcid.org/0000-0001-6596-8272>

D. Molnar-Babilya,
PhD in Chemistry, Associate Professor of the Department of Hotel,
Restaurant and Museum Business, Mukachevo State University,
Associate Professor of the Department of Biology and Chemistry,
Ferenc Rakoczi II Transcarpathian Hungarian College of Higher Education
ORCID ID: <https://orcid.org/0000-0003-1063-013X>

O. Holovko,
PhD (Engineering), Associate Professor,
Associate Professor the Department of Technology and Organization of Restaurant Business,
Uzhgorod Institute of Trade and Economics of State University of Trade and Economics
ORCID ID: <https://orcid.org/0000-0003-4821-1598>

DOI: 10.32702/2306-6792.2025.7.86

SUSTAINABLE CATERING CONCEPT: ECOLOGIZATION AND FOOD SAFETY

Л. І. Удворгелі,
к. т. н., доцент, доцент кафедри готельно-ресторанної та музейної справи, Мукачівський державний університет
Д. І. Молнар-Бабіля,
к. х. н., доцент кафедри готельно-ресторанної та музейної справи, Мукачівський державний університет,
доцент кафедри біології і хімії, Закарпатський угорський інститут ім. Ференца Ракоці II
О. М. Головко,
к. т. н., доцент, доцент кафедри технології і організації ресторанного господарства,
Ужгородський торговельно-економічний інститут Державного торговельно-економічного університету

КОНЦЕПЦІЯ СТАЛОГО КЕЙТЕРИНГУ: ЕКОЛОГІЗАЦІЯ ТА ХАРЧОВА БЕЗПЕКА

In the current context of rising environmental challenges (including the depletion of natural resources, environmental pollution, and the increase in food waste) and the global necessity of ensuring food security, the concept of sustainable catering is becoming particularly relevant. The aim of this article is to analyze the main approaches to the ecologicalization and improvement of food security in catering activities by identifying the features and priority directions of sustainable development. The study emphasizes that sustainable catering is an approach to organizing public food services that combines environmental responsibility, efficient resource use, and adherence to food safety standards. It is concluded that the concept of sustainable catering aims to minimize the negative environmental impact through the efficient use of natural resources, waste reduction, greenhouse gas emission reduction, and the implementation of eco-friendly technologies in the food preparation process. At the same time, it provides consumers not only with high-quality and safe food but also promotes their health by incorporating nutritious and beneficial products into the menu, particularly seasonal, local, and organic ingredients that meet modern food safety standards and ethical production requirements. This approach helps maintain a balance between environmental, economic, and social responsibility in the food service industry. Considering the key aspects of developing environmental responsibility and ensuring environmentally safe food organization, several fundamental directions of sustainable catering have been identified: the use of local and seasonal products; reduction of plastic use; energy conservation and eco-friendly technologies; an ethical approach to suppliers; provision of healthy nutrition; community support; and social responsibility. The identified key directions of sustainable catering ensure not only environmental but also social responsibility in the catering industry, contributing to sustainable development and the preservation of natural resources. Future research prospects lie in a detailed study of the impact of implementing sustainable catering principles on the economic efficiency of food service enterprises and their ability to adapt to evolving environmental and social requirements.

У сучасних умовах загострення екологічних викликів, зокрема виснаження природних ресурсів, забруднення довкілля та зростання обсягів харчових відходів, а також глобальної необхідності забезпечення продовольчої безпеки, концепція сталого кейтерингу набуває особливої актуальності. Відтак, метою цієї статті є аналіз основних підходів до екологізації кейтерингової діяльності та підвищення її безпечності шляхом визначення ключових аспектів і пріоритетних напрямів сталого розвитку. У межах дослідження підкреслено, що сталий кейтеринг є підходом до організації громадського харчування, який поєднує екологічну відповідальність, раціональне використання ресурсів і дотримання стандартів харчової безпеки. Зроблено висновок, що концепція сталого кейтерингу спрямована на мінімізацію негативного впливу на довкілля через ефективне використання природних ресурсів, зменшення кількості відходів, скорочення викидів парникових газів та впровадження екологічно чистих технологій у процес приготування їжі. Водночас вона забезпечує споживачів не лише якісною та безпечною їжею, а й сприяє зміцненню їх здоров'я, шляхом включення до меню корисних та поживних продуктів (зокрема сезонних, місцевих та органічних, які відповідають вимогам сучасних стандартів харчової безпеки та етичного виробництва). Такий підхід дозволяє зберегти баланс між екологічною, економічною та соціальною відповідальністю у сфері громадського харчування. З огляду на особливості формування екологічної відповідальності та екологічно безпечної організації харчування, виділено кілька принципових напрямків сталого кейтерингу: використання місцевих та сезонних продуктів; зменшення використання пластика; енергозаощадження та екологічно чисті технології; етичний підхід до постачальників, забезпечення здорового харчування, підтримка громад та соціальна відповідальність. Виділені принципові напрямки сталого кейтерингу забезпечують не лише екологічну, але й соціальну відповідальність у сфері кейтерингу, сприяючи сталому розвитку та збереженню природних ресурсів. Перспективи подальших досліджень полягають у детальному вивченні впливу впровадження принципів сталого кейтерингу на економічну ефективність підприємств громадського харчування та їх здатність адаптуватися до змінюваних екологічних та соціальних вимог.

Key words: environmental responsibility, resource utilization, food safety standards, public catering, natural resources.

Ключові слова: екологічна відповідальність, використання ресурсів, стандарти харчової безпеки, громадського харчування, природні ресурси.

PROBLEM STATEMENT

In the context of rising environmental challenges (including the depletion of natural resources, environmental pollution, and the growing volume of food waste) and the global need to ensure food security, the concept of sustainable catering is becoming particularly relevant. In this context, it is important to ensure the integration of ecological principles and efficient resource usage models into the processes of food organization, which involves the preparation, delivery, and service of meals outside the premises of stationary food establishments, as well as minimizing food waste from such activities (the volume of which increases every year).. In addition, an important aspect is ensuring food safety, which includes quality control of raw materials, adherence to sanitary and hygienic standards, and the implementation of innovative food preservation technologies.

ANALYSIS OF RESEARCH AND PUBLICATIONS

The features and prospects of catering development are discussed in the works of Ivashyna L.L. [1], Kononenko T.P., Efimova V.O. [3], and Pyatnytska H. [4]. According to most scholars, catering is one of the promising forms of the restaurant business, ensuring the organization of food services outside stationary establishments. The researchers emphasize the importance of flexibility, mobility, and an innovative approach in catering services. However, the issues of catering development within the framework of sustainable development, as well as its impact on the environmentalization and enhancement of food safety in the processes of food preparation, transportation, and service outside stationary public catering establishments, remain insufficiently studied.

The use of local and organic products (products grown without pesticides and chemicals, which reduces soil and water pollution).

Reducing the carbon footprint (using seasonal ingredients and reducing the transportation of products over long distances, which decreases CO₂ emissions).

Components and features of environmentally responsible food organization.

Waste minimization (using technologies and practices that reduce food waste and enable its recycling).

Elimination of single-use plastics (introducing reusable dishes, biodegradable materials, and packaging).

Figure 1. Specifics of environmentally responsible food organization according to the sustainable catering concept

Source: compiled based on [2; 3; 6—7].

FORMULATION OF THE ARTICLE'S OBJECTIVES

The aim of this article is to analyze the main approaches to the environmentalization and enhancement of food safety in catering activities by identifying the features and priority areas of sustainable development.

THE PAPER MAIN BODY

The concept of sustainable catering originates from the broader movement for sustainable development, which gained momentum in the 1980s and 1990s. A particularly significant influence on the formation of the principles of ecological catering was the report "Our Common Future" (1987) (prepared by the UN, which first formulated the idea of sustainable development), the global action plan for ecological development adopted at the Earth Summit in Rio de Janeiro, and the movement for sustainable gastronomy (which began to actively develop in the early 2000s, focusing on eco-friendly food production, local suppliers, and waste minimization).

With the development of ecological awareness in business and society, catering companies, both domestic and international, began to implement the principles of "green and safe catering," aimed at reducing environmental impact and enhancing food safety in services related to the preparation, delivery, and service of meals outside of stationary public catering establishments.

Thus, sustainable catering is an approach to organizing public catering that combines environmental responsibility, efficient resource use, and adherence to food safety standards. In fact, this concept is aimed at minimizing the negative impact on the environment and providing consumers with high-quality, safe food.

Today, the concept of sustainable catering is applied in various sectors [4; 6—7]:

1. Corporate sector. Large companies integrate sustainable catering into their corporate

cafeterias and events (for example, the offices of Google, Microsoft, and SharksCode (a Ukrainian company) actively implement ecological principles in employee meals). The main goal of such catering is to reduce food waste and support local farmers.

2. Banquet and buffet sector. Hotels and restaurants are implementing sustainable strategies in their banquet and buffet services. Examples include both international chains (such as Marriott and Hilton) and domestic establishments (such as Fairmont Grand Hotel Kyiv, Restaurant "Vino e Cucina" (Lviv)), which have programs aimed at reducing food waste, using local and seasonal products, and utilizing eco-friendly materials, among other initiatives.

3. Outdoor catering. In many countries, catering programs for schoolchildren outdoors have been implemented (for example, in Sweden, Denmark, and France). Universities (such as Harvard University) are also introducing such catering initiatives in outdoor settings and unconventional locations. The main goal of this type of catering is to improve the quality of food, reduce the negative impact on the environment, while simultaneously promoting healthy development and educating citizens.

4. Event catering. Festivals, conferences, weddings, and other events are increasingly adopting ecological principles. For example, the Glastonbury Festival in the UK has completely banned single-use plastics. In Ukraine, the "Up Fest" (Kyiv) festival is actively working to reduce the environmental footprint of its events (its organizers refuse single-use plastics, use reusable dishes, and organize a waste recycling program, creating an opportunity to reduce waste emissions at the events).

The main goal of catering in each of these sectors is to reduce the negative impact on the environment and ensure maximum benefit for clients. Its key features include creating opportunities for service at any location, adapting the

Adherence to food safety standards
(for example, using the HACCP (Hazard Analysis and Critical Control Points) system to control safety at all stages – from production to serving).

Співпраця з перевіреними постачальниками
(придбання продуктів тільки у сертифікованих постачальників, які дотримуються стандартів безпеки та якості)

Components and features of safe food organization.

Food storage and handling according to regulations
(adhering to proper temperature conditions to maintain freshness and prevent contamination of products).

Labeling and informing consumers
(clearly indicating on labels the ingredients, shelf life, and information about potential allergens).

Figure 2. Specifics of safe food organization according to the sustainable catering concept

Source: compiled based on [3-4; 7].

menu and service to meet the clients' needs, using modern equipment and technologies, ensuring high levels of safety, logistics, and service [5].

Environmentally responsible food organization means providing meals and catering services that contribute to the preservation of natural resources, waste minimization, and reducing the negative impact on the environment. Specifics of environmentally responsible food organizations according to the sustainable catering concept include (see Figure 1):

- the use of local and organic products;
- reducing the carbon footprint;
- minimizing waste;
- eliminating single-use plastics.

So, catering companies or other service providers should collaborate with local farmers to supply fresh organic vegetables, fruits, dairy products, and meat, which helps reduce the use of chemical fertilizers and pesticides, as well as supports the local economy. For example, some catering service providers in Kyiv, such as "Vino e Cucina" and "Kiev Food Market," work exclusively with organic products from local farmers, which helps reduce environmental impact.

Catering companies and other catering service providers should offer dishes made with seasonal ingredients, as this reduces the need for transporting products from other countries, thereby lowering CO₂ emissions. For example, in the domestic context, during the spring and summer months, more fruits and vegetables grown in Ukraine can be served, while in the fall, products that are easy to store can be used.

Catering companies and event organizers should implement principles of food waste minimization, for example, by:

1. Using technologies to freeze food leftovers or donating unused food to charitable organi-

zations (as some restaurants in Ukraine, such as "Restaurant Tsarskoye" in Kyiv, do);

2. Introducing separate containers for collecting plastic, paper, and food waste at events, which helps reduce the overall volume of waste going to landfills;

3. Using biodegradable materials and packaging. Specifically, catering companies can replace plastic cups, cutlery, and dishes with compostable materials (such as corn starch or bamboo products) or even return to using reusable dishes at events.

As part of initiatives aimed at reducing the impact of human activity on the environment and supporting sustainable development, many Ukrainian festivals and events are actively implementing environmentally responsible practices. One such step is offering visitors reusable cups and cutlery. For example, at the "GOGOLFEST" festival in Poltava, the organizers focus on reducing waste by providing reusable dishes, which helps decrease the use of single-use plastic products. Additionally, since a deposit system for dishes is implemented at these events, it encourages people to take responsibility for the environment (they are motivated to return the dishes and avoid their destruction).

Environmentally responsible food organization by caterers contributes to resource conservation, reduction of emissions and waste, and supports sustainable development.

Regarding food safety, the catering service ensures the meals are not only delicious and nutritious but also free from any health risks to consumers. This is ensured through (see Figure 2):

- adherence to food safety standards;
- collaboration with trusted suppliers;
- proper food storage and handling by regulations;
- labeling, and informing consumers.

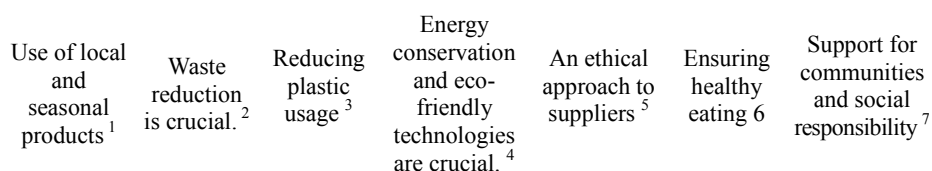


Figure 3. Key principles of sustainable catering

Note

1. Is based on the use of ingredients that are grown or produced in a specific region and those available in a particular season.
2. Is based on minimizing waste generation at all stages of production and consumption. This includes the efficient use of resources, reuse of materials, recycling, and the implementation of technologies that help reduce the amount of waste sent to landfills.
3. Is based on minimizing the number of plastic products that end up in the environment.
4. Is based on the effective use of resources and the implementation of technologies that have minimal or zero impact on ecosystems.
5. Is based on cooperation with suppliers who adhere to ethical standards.
6. Providing people with balanced, nutritious food that supports health and prevents the development of chronic diseases.
7. Includes various initiatives aimed at improving the quality of life, addressing social issues, and promoting sustainable development.

Source: compiled based on [1-2]

Catering companies and other catering service providers must adhere to standards such as HACCP (Hazard Analysis and Critical Control Points), which allows for safety control at all food production stages and services. It includes temperature control during food storage (e.g., refrigerators with temperature regulation) and checking the shelf life of products.

All catering service providers must collaborate with suppliers with quality certifications, such as ISO 22000 or organic certifications (e.g., organic milk or meat from certified suppliers). It is also important to cooperate with farmers who operate according to state regulations, ensuring the absence of pesticides and chemicals in the products.

Catering service providers must ensure proper storage conditions for products, such as storing meat and fish at temperatures no higher than 4°C and freezing them at temperatures no higher than -18°C. It helps prevent the growth of bacteria like salmonella or E. coli. Additionally, all dishes must be prepared in clean conditions, with staff mandatory handwashing and the use of disinfectants for cleaning work surfaces [5].

At all events where catering is provided, it is essential to provide information about potential allergens in the dishes. For example, the menu may include labels indicating the presence of gluten, nuts, milk, or soy in the dishes. The main ingredients, expiration date, and information about the absence of preservatives should be listed on the packaging or near the food served at events.

An environmentally safe food organization by the caterer helps ensure the health and well-being of consumers. According to the outlined features of environmental responsibility and eco-friendly food organization, the following key principles of sustainable catering can be highlighted (Figure 3).

Let's examine key principles of sustainable catering in more detail [2]:

1. Use of local and seasonal products. So, using products grown locally reduces the carbon foot-

print by minimizing transportation. Additionally, seasonal products are more affordable and require less storage, which helps conserve resources.

2. Waste reduction is crucial. This includes minimizing food waste through precise menu planning, using leftovers, composting, or recycling. It also involves using reusable or biodegradable packaging instead of plastic and implementing programs for waste collection and recycling (such as organic waste).

3. Reducing plastic usage. This can be achieved by replacing single-use plastic dishes with reusable alternatives or biodegradable materials.

4. Energy conservation and eco-friendly technologies are crucial. This includes using energy-efficient cooking appliances, utilizing renewable energy sources (such as solar panels and wind turbines), and applying technologies that reduce emissions during food preparation.

5. An ethical approach to suppliers. This involves selecting those who adhere to ethical standards, such as organic farming, fair trade practices, and good labor conditions.

6. Ensuring healthy eating. This including nutritious foods in the menu, such as vegetables, fruits, whole grains, and minimizing the use of processed products. It's also important to offer options for people with various dietary needs, such as vegetarians, vegans, and those following gluten-free or lactose-free diets.

7. Support for communities and social responsibility involves collaborating with local charities to provide food to those in need. It also includes supporting the sustainable development of local communities by creating job opportunities and using local resources.

CONCLUSIONS

In the context of the research, it has been emphasized that sustainable catering is an

approach to public catering organization that combines environmental responsibility, efficient resource use, and adherence to food safety standards. The following conclusions have been drawn:

1. The concept of sustainable catering is aimed at minimizing the negative environmental impact through the efficient use of natural resources, reducing waste, cutting greenhouse gas emissions, and implementing eco-friendly technologies in the food preparation process. At the same time, it provides consumers not only with high-quality and safe food but also promotes their health by including healthy and nutritious products in the menu, such as seasonal, local, and organic options that meet modern food safety standards and ethical production requirements. This approach helps maintain a balance between ecological, economic, and social responsibility in the field of public catering.

2. Given the specifics of forming ecological responsibility and environmentally safe food organization, several key directions of sustainable catering can be highlighted: the use of local and seasonal products (to reduce the carbon footprint and save resources); reducing plastic usage; energy conservation and environmentally friendly technologies; an ethical approach to suppliers; ensuring healthy nutrition; and supporting communities and social responsibility.

3. The identified key directions of sustainable catering not only ensure ecological responsibility but also social responsibility within the catering industry, contributing to sustainable development and the preservation of natural resources.

The prospects for further research lie in a detailed study of the impact of implementing sustainable catering principles on the economic efficiency of public catering enterprises and their ability to adapt to changing environmental and social demands.

Література:

1. Івашина А.А. Перспективи та проблеми кейтерингу в Україні. Глобальні та національні проблеми економіки. 2017. № 17. С. 314—317.
2. Dyllick T., Muff K. Clarifying the meaning of sustainable business: Introducing a typology from business-as-usual to true business sustainability. *Organization & Environment*. 2016. № 29 (2). 156 p.
3. Кононенко Т.П., Єфімова В.О. Сучасний кейтеринг та обладнання. Прогресивні техніка та технології харчових виробництв ресторан-

ного господарства і торгівлі: зб. наук. праць: ХДУХТ, 2006. № 2 (4). С. 264—270.

4. П'яницька Г. Глобальні тренди розвитку кейтерингу. Зовнішня торгівля: економіка, фінанси, право. 2019. № 3. С. 51—68.

5. Прилепа Н. В., Миколюк О. А. Особливості розвитку кейтерингу як інноваційної форми ресторанного бізнесу. Вісник Хмельницького національного університету. 2014. № 5. Т. 2. С. 91—94.

6. Плюта О. Реновація діючих та проектування нових форматів бізнес-моделей у ресторанному бізнесі: процесно-інноваційний підхід. Ресторанний і готельний консалтинг. Інновації. 2021. Т. 4. №. 2. С. 223—234.

7. Якименко-Терещенко Н., Чайка Т., Бєлікова О. Кейтеринг у місе-індустрії: тренди розвитку, міжнародний досвід і перспективи digital-трансформації. Економіка та суспільство, 2021. № 34. URL: <https://doi.org/10.32782/2524-0072/2021-34-39>.

References:

1. Ivashyna, L.L. (2017), "Prospects and problems of catering in Ukraine". *Hlobal'ni ta natsional'ni problemy ekonomiky*, vol. 17, pp. 314—317.
2. Dyllick, T. and Muff, K. (2016), "Clarifying the meaning of sustainable business: Introducing a typology from business-as-usual to true business sustainability", *Organization & Environment*, vol. 29 (2).
3. Kononenko, T.P. and Efimova, V.O. (2006), "Modern catering and equipment", *Prohresyvni tekhnika ta tekhnolohiyi kharchovykh vyrobnytstv restorannoho hospodarstva i torhivli: zb. nauk. prats': KHDUKHT*, vol. 2 (4), pp. 264—270.
4. Pyatnytska, G. (2019), "Global trends in catering development", *Zovnishnya torhivlya: ekonomika, finansy, pravo*, vol. 3, pp. 51—68.
5. Prylep, N.V. and Mykolyuk, O.A. (2014). "Peculiarities of the development of catering as an innovative form of restaurant business", *Visnyk Khmel'nyts'koho natsional'noho universytetu*, vol. 5 (2), pp. 91—94.
6. Plyuta, O. (2021), "Renovation of existing and design of new formats of business models in the restaurant business: a process-innovation approach". *Restorannyi i hotel'nyy konsal'tynh. Innovatsiyi*, vol. 4, no. 2, pp. 223—234.
7. Yakymenko-Tereshchenko, N., Chaika and T., Belikova, O. (2021), "Catering in the mice industry: development trends, international experience and prospects for digital transformation", *Ekonomika ta suspil'stvo*, vol. 34. <https://doi.org/10.32782/2524-0072/2021-34-39>.
Стаття надійшла до редакції 19.03.2025 р.