

International Journal of Health Science

SUSTAINABLE PRACTICES IN MANAGING A RESTAURANT IN SÃO PAULO: A CASE STUDY

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Abstract: The demand for meals away from home has increased and generated the need to implement practices that preserve natural resources and the environment in food and nutrition units. These actions have aroused the interest and awareness of nutritionists who are willing to promote more conscious environmental actions in their work environment. This study aimed to identify sustainable practices that can be adopted by a restaurant by its nutritionist manager and suggest solutions and strategies for monitoring sustainability. This was a case study in which a survey of environmental sustainability practices was carried out through activities carried out in the restaurant from July to October in 2016, when this company unit received the challenge of identifying sustainable actions. It was possible to identify the following activities: monitoring of remaining intake, implementation of composting, replacement of individual blisters with stick butter, use of plastic lids instead of film paper, French bread cut in half, replacement of disposable dessert cups for returnable creamers, replacing disposable cups with glass ones for customers and porcelain cups for employees and the use of biodegradable detergent. It is necessary to raise awareness about environmental preservation, both on the part of managers and employees themselves, with effective actions. In the nutritionist's management, in addition to administrative activities, he must promote the management of solid waste in a manner compatible with environmental preservation in its entirety.

keywords: Sustainability, sustainable practices, nutritionist management, waste indicators.

INTRODUCTION

Research carried out worldwide has observed that the food away from home segment has been growing, resulting from changes in the lifestyle of urban society. In Brazil, the Family Budget Survey (POF) indicated that in 2002-2003 the population spent 24% of total food expenditure on consumption outside the home environment. In the research carried out in the period 2008-2009, these expenses exceeded 31%, an increase of 7%.¹¹

The growth in demand for meals away from home and the expansion in the number of restaurants encourages this segment to adopt practices that preserve natural resources and reduce harmful impacts on the environment.^{10,13} Business decisions made by food service managers can have a significant impact on the environment and the economy. corroborate further stating that the correct definition of significant environmental aspects is one of the most important steps for environmental management.¹⁵

However, for Food and Nutrition Units (UAN) to develop sustainably, they must align their meal production objectives with the concept of sustainable development, in which activities must meet current demands without compromising the future needs of society.⁹

Procedures on how to produce more sustainable meals have aroused the interest and awareness of food and nutrition professionals, in order to promote more conscious environmental actions.¹⁹

It is essential that the nutritionist gets involved in the UAN sustainability process and is able to promote a dialogue with suppliers about the scope of sustainable development, as well as favoring the rational supply of food (preferably recyclable type of packaging and the means of transport used). When preparing the menu, give preference to seasonal foods and/or foods coming from

an environmentally friendly production method, prefer equipment that consumes less water and energy, develop awareness programs with employees to avoid waste, plan and direct activities, equip and train teams and implement actions to conserve resources and reduce waste generation, so that they are adopted by all participants involved in the production and consumption of meals and carry out constant monitoring to define waste reduction strategies. waste, energy and water, creating specific indicators for the restaurant.^{1,7,16}

This work aimed to identify the sustainable practices adopted by the restaurant under study and suggest solutions and strategies for monitoring sustainability.

METHOD

Present in almost all Brazilian states, the restaurant studied promotes actions in the field of Education, Health, Culture, Leisure and Assistance. To promote health, they start from the premise of offering a balanced and healthy diet through meals and a mix of varied products, in cafeterias, snack bars, cafes and restaurants, at affordable prices, valuing the use of healthy, Brazilian and contemporary foods, balancing the principles of nutrition and gastronomy, respecting and exploring the particularities of the region and the public served. Food quality and safety are a priority, always considering health promotion for patrons.

The restaurant works on a *self-service* system, and operates from 11am to 3:30pm. From Wednesday to Friday it produces around 400 meals, and on weekends this number increases to approximately 1,000 meals/day on Saturdays and 1,800 on Sunday, serving employees and visitors in the same space.

It also has a specific breakfast service for employees: wholemeal bread and French bread, cold cuts, coffee, milk and fruit served

from 7:30 am to 9 am.

This is a case study. To carry out a survey of environmental sustainability practices, activities carried out in the restaurant were observed from June to October 2016.

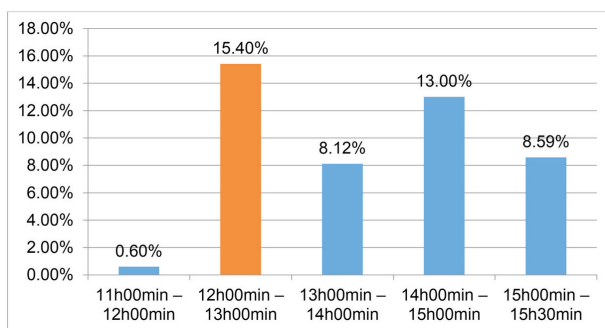
RESULTS AND DISCUSSION

Some opportunities were identified to apply sustainable practices to control the reduction of: food waste, disposable materials, in addition to the use of the composting method and employee awareness.

REST INTAKE STUDY

Waste in UANs is due to leftover food (food that is prepared and not consumed) and leftovers (food served and not consumed, that is, what is left on plates and trays), being influenced by several factors: inadequate planning of the number of meals, inadequate per capita, daily customer frequency, food preferences, employee training in production and distribution.²⁰

In the entity studied, to obtain data for calculating the remaining food intake, all remaining food left on the plates by employees and visitors were weighed, and these were identified at the time of weighing, according to the category: employees (unmarked) and visitors (with post it) in addition to being separated by time according to the restaurant's operation.



Graph 1 - Percentage of remaining intake, SP, 2016

According to the graph, it was noted that between 11:00 and 12:00 hours, the percentage of waste was minimal (less than 1%). As the restaurant only opens to the general public at 12pm, at the time of measurement there were only a few employees who eat lunch at that time, the majority of whom were in the food sector.

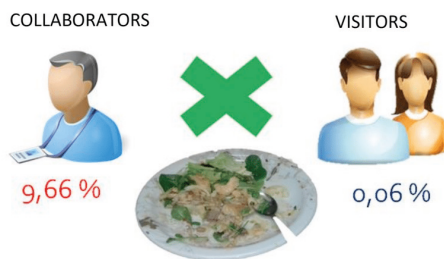
Between 12:00 and 1:00 pm, a higher percentage of leftovers on dishes was observed, exceeding 15%. During this period, employees from the gardening and cleaning sector (both outsourced) and employees from the institution who belong to the infrastructure sector had lunch. The high rate of waste on the part of these employees, whether outsourced or not, was visually noticeable and this perception was later confirmed through weighing and data analysis.

Between 1:00 pm and 2:00 pm, mainly employees from various other sectors passed through the restaurant and, according to the weighing, there was a reduction in food discarded. However, the percentage of 8.12% is still considered high compared to the number of diners.

In the period from 2:00 pm to 3:00 pm we obtained the second highest percentage of remains of the day, servers from different sectors passed at this time and it was not possible to assess a predominance of any of them. However, this is just an observation that does not justify 13% of food waste.

The last time, from 3:00 pm to 3:30 pm, presented a percentage of 8.59% of remains. However, the number of passers-by is low, which leads us to understand that the level of waste at this time of day is very high.

According to the infographic, in relation to the percentage of waste (remainder) between employees and visitors, it is observed that employees waste more with 9.66% but visitors waste 0.06%.



INFOGRAPHIC 1 - Total percentage of remains (SP, 2016).

The results presented show a significant difference between the percentage of employees and visitors, however, the study was carried out on a low-traffic day (07/21/2016 – Thursday). For data relating to visitors' food remains to be more accurate, this monitoring would need to be carried out periodically.

In relation to employees, it is necessary to delve deeper into the reasons behind such high intake. It is possible to raise some hypotheses such as low acceptance of the menu; however, it is more likely that the fact that the meal has a fixed value and that this waste does not cause financial damage.

The percentage of remainder intake in communities is 10% for healthy people, and 20% for sick people, and if these values are higher than acceptable, the menu is possibly being poorly planned or poorly executed.⁹

“Awareness of the importance of a strategic stance in relation to controlling costs and waste in production activities is fundamental for companies to achieve the expected success”¹⁵, and to achieve this objective, the same author states that companies need to manage, control and eliminate waste in the production process. To do this, these losses must first be identified. In view of the above, it is understood that quality improvement is linked to the elimination of waste, which will bring several benefits to the company, including cost reduction.

Waste is an extra expense, added to the normal costs of the products, and which does

not bring any benefit, as its final destination is trash. The costs of waste are included in the cost of quality and represent the cost of failure in production and control, thus being an avoidable cost. "While the estimated prevention and assessment costs are not high, the costs due to failures can be catastrophic"⁶. It corroborates this statement, and adds that, although quality cost management generates a momentary increase in costs at the beginning, the return in the medium and long term is guaranteed, as long as every effort has been made to achieve this.¹⁵

POSSIBILITY OF COMPOSTING

Composting is the process of controlled degradation of organic waste under aerobic conditions, that is, in the presence of oxygen. It is a process in which we seek to reproduce some ideal conditions (humidity, oxygen and nutrients, especially carbon and nitrogen) to favor and accelerate the degradation of waste in a safe way (avoiding the attraction of disease vectors and eliminating pathogens). The creation of such ideal conditions favors a large diversity of macro- and micro-organisms (bacteria, fungi) to act successively or simultaneously for the accelerated degradation of waste, resulting in a material with a homogeneous color and texture, with characteristics of soil and humus, called organic compound.

One of the institution's perspectives is to use the restaurant's organic waste for composting, producing an organic compost rich in humus and re-destining it for agricultural activities in the form of fertilizer, in order to recondition the soil and fertilize it for the use of its facilities in the Plant Nursery and vegetable garden. This natural fertilizer is obtained through the decomposition of organic materials (animal and vegetable) under the action of aerobic or anaerobic microorganisms without the addition of any other chemical component.

It is a simple, safe method that allows a uniform product, ready to be used in plant cultivation and that can be carried out both on a small scale (domestic) and on a medium scale (community, institutional) or large scale (municipal, industrial).

In the study carried out¹⁹ In restaurants in the USA, managers were asked whether there was a practice of composting food waste, and 30% of those interviewed stated that 37 carried out this procedure, while 44% stated that they only carried out selective collection. Second⁸ the 12.6 tons of organic waste from university restaurants were sent for composting and the fertilizer produced was used to maintain the gardens of a campus of the university of Minas Gerais.

In the restaurant studied and according to data collected by the institution itself, around 250 kg/day of organic waste were produced (food leftovers from dishes, peels, leaves, leftovers from vats that cannot be reused).

By transforming all this waste into compost, it is possible to eliminate the costs of purchasing land and humus for the production of seedlings from the Institution's Plant Nursery and the costs of storing and transporting this waste to the landfill, as well as contributing to recycling of nutrients in green areas.

The institution studied acquired specific equipment to optimize the disposal of solid waste (food crusher) with the aim of draining and reducing the environmental impact of organic waste as shown in figure 1.

Crusher

Restaurant leftovers



Result after using the shredder



Figure 1 – Food crusher installed in the restaurant pantry

smaller amount of butter and there is no waste of either content or packaging residue.

BEFORE
Use of plastic film



AFTER
Use of plastic lid



Figure 3 – Use of plastic lids instead of film paper

According to the Restaurant ²² Waste Guide, the use of the shredder must provide:

- Consumption of fewer plastic bags to contain waste, reducing volume;
- Reduction in the amount of waste to be landfilled, and all expenses arising from this activity;
- Recovery of natural resources and nutrients
- Production of an excellent soil fertilizer, to be used in pots, gardens and vegetable gardens.

The use of plastic film was reduced with the adoption of dishes with lids, a measure that guarantees better protection for food and makes it easier for the public to handle. Based on polyvinyl chloride (PVC), its manufacture results in the emission of dioxins, which are extremely polluting, and its use can contaminate food through the migration of toxic additives such as lead and plasticizers.²

SUSTAINABLE PRACTICES

Seeking to meet the need to reduce waste, UAN initiated some changes in favor of sustainability, as shown in Figure 2.

BEFORE

Blister with wasted content and metallized lid



AFTER

Butter, cut into cubes



Figure 2 – Replacing individual blisters with stick butter

Individual blisters often generate waste of their contents, with this in mind, UAN prioritized replacing them with stick butter, eliminating content waste in addition to reducing the disposal of plastic and metallized lids. Now with the substitution, diners get a

BEFORE
Only one option – Whole bread



AFTER
Half loaf option



Figure 4 – Bread cut in half

One of the most significant changes was the replacement of disposable dessert containers with durable ones. This required the reorganization of kitchens, adaptation of infrastructure and teams to sanitize durable utensils and the space to store them.

400 units of desserts are produced daily to meet the restaurant's demand. Thinking about reducing the waste generated by the use of disposable pots, the use of creamers that are returnable was introduced. In terms of water, it did not affect their washing. The

Federal Institute of Education, Science and Technology (IFSP) Itapetininga, estimates that machine washing is even more economical and uses only 100 ml per cup, that is, only 20% of what is spent to produce a plastic cup that on average 500 ml is used. Durable products contribute to less waste being generated, avoiding pollution and obstruction of waterways and drainage channels – which poses a risk of disease, especially when one considers that much of it still does not end up in landfills.

personal mugs until adequate support was implemented.

This replacement meets the standards of the Ministry of Labor and Employment (NR 24), which deals with Sanitary and Comfort Conditions in Workplaces.



Figure 7 – Encouraging the use of cups instead of disposable cups for breakfast

BEFORE Use of plastic pots - disposable
AFTER Use of creamers - returnable



Figure 5 – Use of returnable creamers for desserts instead of disposable ones

The common floor detergent was replaced by another that has sustainability seals and guarantees cleaning efficiency, performance, savings and a biodegradable formula, which reduces the impact on the environment.

In addition to the creamers, it was decided to use glass cups for the public, restricting access to disposable cups, handing them out to customers only upon request.

BEFORE CYCLON AMMONIACAL Automatic dilutor - 16 ml per liter of water	AFTER WASH N' WALK Automatic dilutor - 50 ml for liters of water
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Figure 6 - Water in food spaces is now free and is made available through one of the water filters already in use at the Institution

Figure 8 – Replacing detergent with biodegradable formula

For internal use by employees, the use of a durable mug was suggested. To encourage this practice, a cabinet was made available to store

With the replacement, there was also a decrease in water use. Previously, around 10 buckets (50 liters) were used to wash an area of 10 m, currently only 1 bucket is used, which corresponds to just 5 liters of water.

FINAL CONSIDERATIONS

It is necessary to define reduction strategies and constant monitoring, such as specific indicators for the unit, training of handlers and awareness among users about waste. Given the large volume of waste produced by the Unit, it was suggested that periodic training be carried out with the team and campaigns with customers, aiming to raise awareness about waste, and also a periodic assessment in the Food and Nutrition Unit to find problematic points to be addressed. be corrected and to establish a standard within the unit itself that is not just to compare with the theoretically stipulated percentages. Training food employees becomes an excellent tool for reducing the volume of solid waste generated by correction factors and leftovers, as knowledge of correct fruit and vegetable handling techniques and adequate per capita sizing can significantly reduce the volume of

waste produced.

Although there is concern about preserving the environment, there is still a lack of effective actions to make this happen. In general, UANs need to have greater awareness about environmental preservation, both on the part of managers and employees themselves. These apply few measures and actions that reduce the risks of environmental degradation, demonstrating a lack of guidance and knowledge of environmentally correct methods.

This way, it is observed that the roles performed by nutrition and food professionals are important in the entire context of meal production and distribution, and one of the nutritionist's duties, in addition to administrative activities, is to promote the management of solid waste in a sustainable manner. compatible with environmental preservation in its entirety.

REFERENCES

1. Abreu ES, Spinelli MGN, Souza Pinto AM. Gestão de unidades de alimentação e nutrição: um modo de fazer. 5º ed. São Paulo: Metha; 2013. 378 p.
2. Barros, H. et al. Identification of fatty foods with contamination possibilities by plasticizers when stored in PVC film packaging. *Ciência e Tecnologia de Alimentos*, Campinas, v. 31, n. 2, p. 547-552, abr./jun. 2011.
3. Ministério do Trabalho e Emprego (Brasil). Norma Regulamentadora nº 24: condições sanitárias e de conforto nos locais de trabalho. *Diário Oficial de União*, Brasília, 6 jul. 1978.
4. Brasil. Lei 12.305, de 2 de agosto de 2010. Institui a Política Nacional de Resíduos Sólidos, cria o Comitê Interministerial da Política Nacional de Resíduos Sólidos e o Comitê Orientador para a Implantação dos Sistemas de Logística Reversa, e dá outras providências. *Diário Oficial de União*, Brasília, 23 dez. 2010a.
5. Ministério da Agricultura, Pecuária e Abastecimento (Brasil). Cartilha do Programa de aquisição de alimentos da agricultura familiar. Renda para quem produz e comida na mesa de quem precisa! 2010.
6. Brocka B, Brocka MS. Gerenciamento da qualidade. São Paulo: Makron Books, 1994.
7. Campos IC, Lemos M. Implantação da ISO 14001 na unidade de alimentação e nutrição de uma indústria de Santa Catarina, Brasil: Preliminares. *Revista Nutrição em Pauta*, v.13, n.72, p.30-35, 2005.
8. Carmo T V B, Sampaio R A. Aproveitamento de Resíduos Alimentares do Restaurante Universitário na Produção de Adubo Orgânico para uso na Arborização do *Campus* Universidade Federal de Minas Gerais/Instituto de Ciências Agrárias. *Revista Brasileira De Agroecologia*. vol. 4 n. 2. p.2982- 2985, Nov, 2009.

9. CASTRO, M.D.A.S, et al. Resto-Ingesta e aceitação de refeições em uma Unidade de Alimentação e Nutrição. Rev. Hig. Alim., São Paulo, v.17 n.114/115, 2003, p.24 – 28.
10. Comissão Mundial sobre Meio Ambiente e Desenvolvimento. Nosso futuro comum: Relatório da Comissão Mundial sobre Meio Ambiente e Desenvolvimento. Rio de Janeiro: Fundação Getulio Vargas, 1988.
11. Costello A, Abbas M. et al. Managing the health effects of climate change. *The Lancet*, v.373, n.9676, p.1693-1733, 2009.
12. Ministério do Planejamento, Orçamento e Gestão (IBGE). Pesquisa de Orçamentos Familiares 2008-2009: Aquisição alimentar domiciliar per capita Brasil e Grandes Regiões. Diretoria de Pesquisas Coordenação de Trabalho e Rendimento. Rio de Janeiro: 2010.
13. Harmon, A H. Gerald B L. Position of the American Dietetic Association: Food and Nutrition Professionals Can Implement Practices to Conserve Natural Resources and Support Ecological Sustainability. *Journal of American Dietetic Association.*, v.107, n.6, p.1033-1043, 2007.
14. FRIELS DANGOUR AD, GARNETT, LOCK K, CHALABI Z, ROBERTS I, BUTLER A, BUTLER CD, Waage J, Michael AJ, Haines A. Public health benefits of strategies to reduce greenhouse-gas emissions: food and agriculture. *Health Climate Change. The Lancet*. 2009; (374):2016–2025.
15. Oliveira, Otavio J. (Org.). Gestão da qualidade: tópicos avançados. São Paulo: Cengage Learning, 2004.
16. Peregrin T. Sustainability in foodservice operations: An update. *J Am Diet Assoc*. 2011;111(9):1286, 1288, 1290.
17. Preuss K. Integrando nutrição e desenvolvimento sustentável: atribuições e ações do nutricionista. *Nutrição em Pauta*, v.17, n.99, p.50-53, 2009.
18. Seixas G G. Avaliação do índice de resto ingestão e sobras em uma unidade produtora de refeição comercial em Ipatinga-MG. *Rec. Digital de Nutrição, Nutri Gerais, Ipatinga*, v. 6 n. 10, p. 857-868, fev./Jul. 2012.
19. Seng B, Hirayama K, Ochial S, et al. Scenario analysis of the benefit of municipal organic-waste composting over landfill, Cambodia. *Journal of Environmental Management*, n.114. p.216-224, 2013.
20. Veiros M B, Proença R P C. Princípios de Sustentabilidade na Produção de Refeições. *Rev. Nutrição em Pauta*, mai/jun, p.45-49, 2010.
21. Zandonadi H S, Mauricio A A. Avaliação do índice de resto-ingesta, de refeições consumidas por trabalhadores da construção civil no município de Cuiabá, MT. *Revista Higiene Alimentar*, São Paulo, v. 26, n. 206/207, p. 64-70, 2012.
22. Guia de gestão de resíduos nos restaurantes do Sesc : atividade nutrição [recurso eletrônico] / Sesc, Departamento Nacional. -- Rio de Janeiro : Sesc, Departamento Nacional, 2014.