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RCMOS – Multidisciplinary Scientific Journal of Knowledge.
ISSN: 2675-9128. Sao Paulo-SP.
Year II, v.1, n.1, Jan/July 2022. | submission: 23/05/2022 | accepted: 25/05/2022 | publication: 27/05/2022

Social Architecture and School Feeding: infrastructure, logistics and combating food insecurity in vulnerable communities

Social Architecture and School Feeding: infrastructure, logistics and the fight against food insecurity in vulnerable communities

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Summary
School meals are essential to ensure the right to adequate food for vulnerable children in Brazil. Their success, however, depends on factors such as school infrastructure and food distribution logistics. In this scenario, social architecture stands out as an important strategy for creating healthier, more accessible school environments that are suitable for preparing and offering quality meals.

Keywords: School meals, logistics, social architecture

Abstract
School feeding is essential to ensure the right to adequate food for children in vulnerable situations in Brazil. Its success, however, depends on factors such as school infrastructure and food distribution logistics. In this scenario, social architecture stands out as an important strategy to create healthier school environments, accessible and suitable for the preparation and provision of quality meals.

Keywords: School feeding, logistics, social architecture

1. Introduction

School meals play a fundamental role in guaranteeing the right to food suitable for millions of children in situations of social vulnerability in Brazil. However, its success depends on a series of interdependent factors, including the physical structure of schools and the logistics of food supply distribution. In this context, the concept of architecture social emerges as a strategic ally to promote healthier school environments, accessible and functionally prepared to offer quality meals.

Social architecture is not limited to the design of buildings; it incorporates a humanized and inclusive, guided by listening to communities, environmental sustainability and respect for cultures local. When applied to school meals, this approach proposes efficient kitchens, welcoming cafeterias, educational gardens and integrated living spaces. Such elements, often absent in schools in peripheral or rural communities, may represent the difference between a safe and nutritious meal or continuing the cycle of hunger. Brazil has one of the largest public school feeding programs in the world, the National School Feeding Program School Feeding Program (PNAE), which serves more than 41 million students (FNDE, 2022). In However, most school units still do not have the minimum infrastructure

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necessary to prepare and store food safely. According to a report by FIOCRUZ (2021), more than 30% of Brazilian public schools do not have adequately equipped kitchens, which compromises the effectiveness of public policy.

Furthermore, food transportation and distribution logistics face structural challenges in remote or deprived regions. Poor roads, lack of cold chain and lack of integration between local suppliers and the public system make it difficult to provide regular products fresh. The lack of adequate storage spaces in schools worsens this situation, resulting in waste or the supply of ultra-processed foods as a replacement for perishable products.

Thus, this article proposes a critical reflection on the intersection between social architecture, school meals and distribution logistics. The aim is to understand how planning Adequate physical and logistical support can contribute to food security for children in vulnerable communities. The analysis is based on the concept that the environment is an active agent in educational and nutritional process, and that designing adequate spaces is part of guaranteeing rights.

Therefore, the study has the general objective of analyzing the role of social architecture in strengthening school feeding, with a focus on vulnerable communities. Specifically, the aim is to: identify the main structural obstacles in public schools; discuss the importance of adequate physical space for the preparation and consumption of food; and present integrated logistics and distribution strategies. The research is based on a literature review and technical documents from organizations such as FNDE, FIOCRUZ, FAO and UNICEF.

2. Social architecture and the right to a decent school space

The concept of social architecture emerged as a critical response to traditional architecture centered on elitist aesthetic standards and little attention to diverse social realities. It is about a field that aims to plan built spaces with a focus on inclusion, dignity and functionality, especially in contexts of vulnerability. When applied to school public, this concept gains even more significant contours, as the school environment is a of the few structured spaces accessible to the population in poverty.

In the context of school meals, social architecture proposes a new perspective on the space of kitchen, cafeteria and outdoor areas. Many Brazilian schools, especially in rural areas and urban peripheries, were built without any planning aimed at school nutrition. Makeshift kitchens, lack of ventilation, absence of pantries and dining areas inadequate are recurrent, according to a study by the Brazilian Institute of Architects (IAB, 2021). This precariousness not only makes it difficult to implement the PNAE, but also affects the dignity and

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student well-being.

The appropriate physical structure directly influences the quality of the food served. Kitchens with good lighting, modern equipment and functional flow favor safe handling of food. Comfortable dining areas encourage socialization and full consumption of meals. School gardens and green areas promote environmental and nutritional education. They are these elements that social architecture proposes to include in school projects, articulating pedagogy, health and well-being.

Another fundamental point is the participation of the school community in the planning process. of spaces. Active listening to lunch ladies, managers, parents and students allows projects to reflect real local needs, promoting greater appropriation of environments. The social architecture, therefore, does not act in an imposing way, but as a dialogical tool between technique and territory, which increases the effectiveness of their interventions.

The guidelines of the National Fund for Education Development (FNDE, 2020) already provide architectural parameters for school meals. However, most buildings schoolchildren in Brazil still follow generic standards, disconnected from climate realities, cultural and geographical. This reinforces the importance of public policies that encourage projects based on social architecture, adaptable and community-centered.

Therefore, considering social architecture as an integral part of school meals is to recognize that the physical space also educates and feeds. It is there that food is prepared and consumed. food, where nutritional values are learned and citizenship is built. Investing in quality of school environments is as strategic as investing in school lunch supplies or training of nutritionists.

3. Food Security and School Infrastructure: A Right Under Construction

Food security goes beyond the supply of food: it involves regular and permanent access to quality meals, in sufficient quantity and with sanitary safety. In the context of school meals, this means ensuring that children receive balanced meals, prepared in hygienic conditions and consumed in suitable environments. However, many Brazilian schools operate with improvised kitchens, inefficient cafeterias and a lack of essential equipment, which directly compromises this fundamental right (FIOCRUZ, 2021).

The Federal Constitution of 1988, in article 6, establishes the right to food as a right social. The Statute of Children and Adolescents (ECA), in its article 4, reinforces the duty of State to guarantee, with absolute priority, the health and nutrition of children. Even so,

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the school environment where this right should be guaranteed often does not offer the physical conditions necessary for its implementation. Schools without running water, without stoves industrial and without appropriate places for food preservation are no exception in different regions of the country.

A study by the United Nations Children's Fund (UNICEF, 2022) revealed that more than 4 millions of Brazilian children live with some degree of food insecurity. In indigenous and quilombola communities, this rate is even more alarming. Many of these children depend exclusively on school meals to meet their daily nutritional needs.

Therefore, the structural precariousness of schools in these contexts is not just a technical challenge: It is a violation of basic rights and an institutional way of perpetuating inequality.

The quality of the school environment directly influences students' acceptance of food. Studies indicate that children are more likely to consume food when the environment is welcoming, illuminated, ventilated and when there is thermal and acoustic comfort (GARCIA; MENDES, 2020). Unhealthy or disorganized environments discourage the consumption of snacks, in addition to pose a health risk due to cross-contamination, poor storage conditions or incorrect handling of food.

In addition to the physical structure, it is necessary to think about the infrastructure in an integrated way: electrical energy stable, potable water, refrigeration equipment, utensils in adequate number and conditions decent work for lunch ladies. These factors are often made invisible in public school feeding policies, which often focus only on purchasing food. However, without structure, the execution of the PNAE is compromised, even with funds available.

Investing in school infrastructure with a focus on food security is investing in dignity, in public health and social justice. Social architecture emerges here as a tool to reverse this scenario, designing schools that fulfill not only pedagogical functions, but also nutritional and health requirements of the communities in which they are located. This requires a new public mindset, capable of understanding that space is also politics.

4. Logistics and Distribution: The Silent Path of Snacks

If school meals start with menu planning and end on the student's plate, it is the logistics that stitches together all the intermediate points. The logistics process involves everything from acquisition of food until its transportation, storage and delivery to school units.

When this gear fails, the result is visible: expired food, insufficient snacks or improvised menus. In vulnerable communities, this logistical failure represents more than

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Revista Ibero-Americana Multidisciplinary Scientific Journal of Knowledge.
ISSN: 2675-9128. Sao Paulo-SP.

that a disorder — may be the only reason a child does not eat that day.

In Brazil, the logistical challenge of school meals is immense. The territorial dimensions, added to the regional inequalities and the precariousness of municipal roads and fleets make it difficult to reach of inputs, especially perishables. According to FAO (2022), about 15% of food intended for school meals are wasted due to transportation and storage problems.

In the North and Northeast regions, the absence of a cold chain, refrigerated trucks and infrastructure Adequate stocks exacerbate the problem.

Law No. 11,947/2009, which governs the PNAE, determines the prioritization of the purchase of food from family farming. Although commendable, this policy faces logistical obstacles. Small producers, sometimes located in rural areas that are difficult to access, face difficulties in deliver products within the required deadlines and standards. The absence of logistics centers regional and stable logistics contracts prevent the construction of a supply chain sustainable and continuous.

Social architecture, in this context, can contribute with innovative solutions, such as construction of community distribution centers, central kitchens and school units with increased storage capacity. Architectural projects that include loading docks, refrigerated rooms, industrial sinks and safe operational flows are essential to optimize the internal logistics of schools. This integration between physical space and logistics operations is the link lost in many school feeding policies.

International experiences demonstrate the viability of this model. In countries such as Chile and Mexico, integrated school feeding policies combine planned infrastructure, purchasing local public services and logistics systems with digital monitoring. In Brazil, municipalities such as Belo Horizonte and Sobral already show progress in this regard, with municipal logistics centers and inventory and distribution management software (MDS, 2022). However, these initiatives are still exceptions in a disjointed national scenario.

Therefore, the logistics of school meals must no longer be treated as a secondary aspect and to occupy the center of planning. It must be integrated into the architectural project, educational policies and strategies to combat hunger. After all, what's the point of food being available if it doesn't reach the right destination? Investing in logistics is investing in efficiency, transparency and, above all, guaranteeing the right to food.

5. Final Considerations

The intersection between social architecture, school feeding and logistics represents a field strategic action plan to address food insecurity in vulnerable communities.

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This article demonstrated that the quality of school meals does not depend solely on inputs and revenues, but from a set of structural and operational factors that are often neglected by public policies. The physical space and the path that food takes are as important as the food itself.

The adoption of social architecture principles in the planning of public schools is a step fundamental to transforming this reality. Adequate spaces promote dignity, encourage the consumption of snacks and strengthen the child's bond with the school environment. Functional kitchens, cozy dining areas and secure storage structures are instruments to combat hunger and also to enhance the value of public education services and to feed.

Likewise, logistics needs to be treated as an essential public policy. The distribution of school meals should be managed with the same seriousness applied to the distribution of vaccines or medicines. Trucks in good condition, tracking systems, distribution centers and logistical capacity are elements that determine the success or failure of food school. Without them, food insecurity continues — even with available budgets.

The integration between architecture and logistics must be considered from the beginning of school projects. This means involving engineers, architects, nutritionists, educational administrators and members of the community in the design and implementation process. The challenge is great, but the benefits are even greater: fighting hunger, reducing inequalities, improving school performance and strengthen citizenship from childhood.

As a final recommendation, it is suggested that governments prioritize the creation of lines of specific funding for food infrastructure projects in schools, with a focus on social architecture and regional logistics. It is also proposed to create regulatory frameworks that unite the education, agriculture and transport sectors for joint and coordinated action.

Finally, feeding with dignity means educating with justice. And for this to happen, it is necessary rethink the role of spaces and paths. Hunger is not solved with food alone — it is solved with design, structure and integrated action. This is what social architecture and logistics invite us to build.

References

FIOCRUZ. *Food insecurity and school structure in Brazil.* Rio de Janeiro: Fundação Oswaldo Cruz, 2021.

FNDE. *National School Feeding Program – Management Report.* Brasília: Fundo National Education Development Council, 2022.

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Machine Translated by Google

FAO. *The State of Food Security and Nutrition in the World 2022.* Rome: Organization of Food and Agriculture Organization of the United Nations, 2022.

GARCIA, Adriana; MENDES, Luan. *School environment and food: the influence of space on food consumption of children.* Brazilian Journal of School Nutrition, São Paulo, v. 13, n. 1, p. 24–35, 2020.

INSTITUTE OF ARCHITECTS OF BRAZIL (IAB). *Technical report on infrastructure of public schools and social architecture.* São Paulo: IAB Nacional, 2021.

MDS. *Good Practices Notebooks in Food and Nutritional Security.* Brasília: Ministry of Social Development, 2022.

UNICEF. *Overview of Child Food Insecurity in Brazil.* Brasília: United Nations Fund United for Children, 2022.

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