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# INCLUDING GASTRONOMY IN THE SCHOOL FEEDING PROGRAMME

THE ALTERNATIVE TO ACHIEVE THE RIGHT TO HEALTHY, TASTY AND WASTE-FREE FOOD

**GUIDANCE NOTE** FOR THE PILOT PROJECT IN BARRANQUILLA, **COLOMBIA**

## I . S U M M A R Y

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Each year, the department of Barranquilla, Colombia, invests around 40 billion Colombian pesos (USD 12.2 million) in the School Feeding Programme (PAE) to feed 113 818 children and adolescents. This research estimated that including gastronomic techniques in just one menu of the PAE Barranquilla could prevent 99.7 tonnes of food waste, which represents around USD 159 000 per year (1.5 percent of the total budget). This food waste is partly due to students leaving the food that they do not find tasty on their plate.

These data are derived from a small-scale pilot intervention, with a before-and-after assessment design, carried out in an educational institution in the city of Barranquilla, Colombia, where the gastronomic quality of a school menu was improved through a reinforcement training provided by a professional chef to the PAE food handlers. In order to identify if there were differences before and after the intervention, a survey was applied to a sample of children aged 8 to 14 years, which resulted in an increase in acceptance (from 52 percent to 72 percent) and a decrease in food waste (87.6 grammes on average per child per day).

Taking as a reference the cost of implementing a gastronomic laboratory in the Chilean PAE (0.017 percent of the total budget), the implementation cost in Colombia was estimated at USD 123 000. Comparing these resources with those that would correspond to food waste in the PAE Barranquilla (USD 159 000), it is clear that investing in gastronomy is a useful mechanism for optimising the use of public resources invested in the PAE. For this reason, based on the findings of this study, it is highly advisable to incorporate gastronomic personnel into the Colombian PAE team, able to advise throughout the entire implementation chain.



## II. INTRODUCTION

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Colombia, like other countries in the region, faces the double burden of malnutrition (persistent problems of child undernutrition and micronutrient deficiencies, coupled with increasing obesity in children, adolescents and the adult population) (FAO, PAHO, WFP and UNICEF, 2019; Ministry of Health of Colombia, 2015). In addition to malnutrition problems, our planet faces severe environmental risks as a consequence of climate change. Current food systems are responsible for one third of the gas emissions that contribute to this phenomenon (Swinburn *et al.*, 2019). Concerning food loss and waste, it has been estimated that in Latin America and the Caribbean alone, 11.6 percent of food is wasted from post-harvest to distribution annually. In Colombia, this figure rises to 34 percent and includes retail and consumption (FAO, 2019; National Planning Department, Republic of Colombia, 2016).

To meet these challenges, it is necessary to implement multisectoral policies, programmes, projects and strategies that are based on the right to health and adequate food – enshrined in the International Declaration of Human Rights, among other covenants and treaties (FAO, 2005). The following measures are examples of these policies: food labelling legislation, the development of food-based dietary guidelines, the taxation of food products that are harmful to health, the protection and regulation of school environments to promote healthy practices, among others (FAO, 2019; PAHO and WHO, 2014).

In Latin America and the Caribbean, the United Nations Food and Agriculture Organization (FAO) is already undertaking activities along these lines, particularly in relation to strengthening the PAE. In this way, FAO advises countries to establish activities for the adoption of healthy school menus, the implementation of pedagogical school gardens, food and nutrition education, multisectoral coordination and articulation, social and community participation, the reform of school kitchens and canteens, and the direct purchase of local family farming products, among others (FAO and WFP, 2019).

In this context, based on the experience of the Gastronomic Laboratory of the National Board of School Aid (JUNAEB, by its acronym in Spanish) of the Chilean Ministry of Education (JUNAEB, 2017), a pilot project was designed in 2019, to be implemented in three Latin American and Caribbean countries (Colombia, Guatemala and the Dominican Republic) to include gastronomy in the different processes of planning, implementation and evaluation of School Feeding Programmes.





*Including gastronomy in School Feeding Programmes is a powerful strategy that contributes to guaranteeing the right of children and adolescents to **adequate and tasty food**, and at the same time, **reduces food waste**. All of this improves the **efficiency of the PAE**.*

Although in Bogotá, the Secretariat of Education has already implemented a similar gastronomic project under the leadership of renowned chefs, this proposal is different. In addition to influencing the acceptance of healthy menus, it seeks to contribute to the reduction of food waste generated by students, which in turn will contribute to a more efficient use of public resources invested in the PAE (Bogota City Council, 2018).

In these circumstances, FAO, together with the Municipality of Barranquilla through its District Education Secretariat, launched the pilot project "Including Gastronomy in School Feeding Programmes" (IGPAE, by its acronym in Spanish). This document seeks to present how the project was implemented, its main results and some strategic recommendations so that the actors involved in the PAE become interested in reinforcing the insertion of gastronomy in these programmes as a measure that contributes to improving their efficiency.

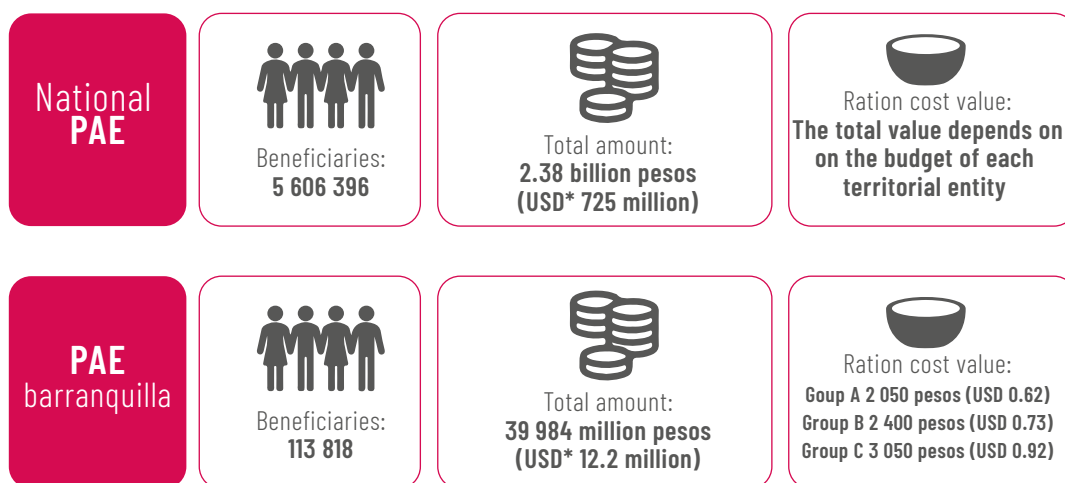
# III. KEY INFORMATION OF THE SCHOOL FEEDING PROGRAM IN COLOMBIA

Backed by the Political Constitution of Colombia and a series of official decrees and resolutions, the PAE aims to "contribute to education access and retention for school-age children and adolescents registered in the official school enrolment system, promoting healthy lifestyles and improving their learning capacity through the provision of a food supplement" (Ministry of National Education of Colombia, 2019).

The Colombian PAE is led by the Special Administrative Unit for School Feeding, attached to the Ministry of National Education, which in turn hands over responsibility for its implementation to the Secretariats of Education, according to a decentralised model. For their part, the Secretariats of Education are responsible for defining the PAE coverage in their territory and contracting food operating companies. Making up the menus, as well as the preparation and provision to educational institutions is carried out by these operating companies (Ministry of National Education of Colombia, 2019a).

Reports on PAE operation in 2019 indicate that more than 5 million beneficiaries were served at the national level, with a budget allocated to the programme of almost 2.38 billion Colombian pesos – equivalent to USD 725 million per year<sup>1</sup> (Ministry of National Education of Colombia, 2019b) (Figure 1). In the case of Barranquilla, there were 113 818 beneficiaries, with a budget allocation of 39 984 million Colombian<sup>2</sup> pesos – equivalent to USD 12.2 million.

Figure 1. PAE selected features in Colombia and Barranquilla



\*Representative Market Rate (RMR): 3 281 Colombian pesos per USD, average 2019. Source: Banco de la Republica de Colombia

Source: Ministry of National Education of Colombia, 2019b.

<sup>1</sup> The distribution of the budget according to financing sources was: 1) Resources from the National General Budget: 1.03 billion Colombian pesos in 2019 (USD 42 million); 2) Compensation resources from CONPES 151 of 2012: 137 billion Colombian pesos (USD 40 million); 3) Resources from the General System of Participation (SGP, by its acronym in Spanish): 205 billion Colombian pesos (USD 62 million); and 4) Co-financing from the Territorial Entities to the Programme, made with their own resources, royalties and other financing sources: 1.01 billion Colombian pesos (USD 308 million).

<sup>2</sup> Information provided by the Secretariat of Education of Barranquilla by email of 10 December 2020.

# IV. GENERAL DESCRIPTION OF THE PROJECT

## a. Project objective

The IGPAE seeks to contribute to increasing the efficiency of the PAE by including gastronomic criteria and techniques in the different planning and execution processes, allowing the menus served to be nutritious and tastier, increasing their acceptance and intake and reducing food waste.

## b. Intervention design

Case study with a "before-and-after" design, applied in March 2020, in which children from a departmental educational institution received a modified school menu according to the gastronomic techniques recommended by a professional in the area. To identify whether there were differences in the acceptance and generation of food waste resulting from the application of the gastronomic techniques, a survey was applied before and after the intervention in a sample of 30 children aged 8 to 14 years who consumed the menu (Figure 2).

Figure 2. IGPAE design in Colombia



Source: IGPAE team.

### What was the selected menu and what gastronomic techniques were included at no additional cost?

The selected menu is part of PAE minute 2 in Barranquilla<sup>3</sup> and is called "Julienne chicken breast, white rice, French fries, and carrot, tomato and onion salad". Since there is no explicit mechanism for measuring acceptability in this PAE, this menu was selected because the food handlers reported low acceptability due to students rejecting vegetables. Using the same ingredients, this preparation replaced a recipe of "arroz con pollo" (chicken and rice) in which, in addition to the list of ingredients and basic preparation process – commonly included, a list of condiments was incorporated, as well as a section on previous steps, and a more detailed explanation of gastronomic techniques in the preparation process. In summary, the culinary techniques included were:

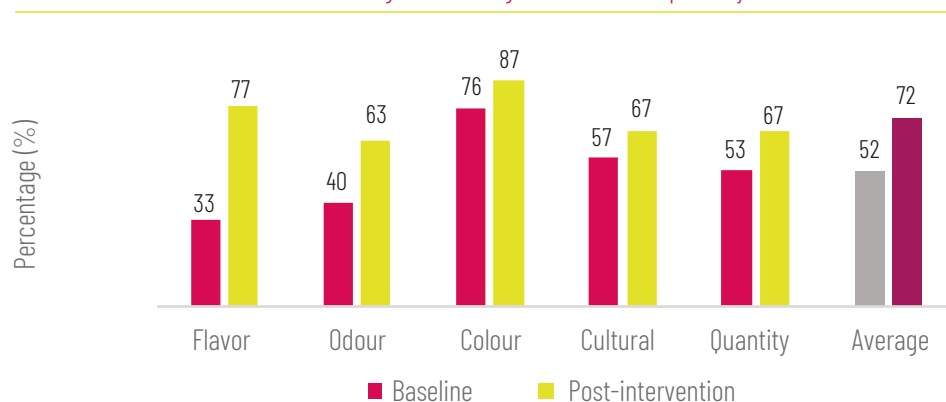
- use of spices and aromatic herbs such as achiote, oregano and coriander, etc.;
- inclusion of pre-recipe steps such as marinating the chicken breasts with vegetables that were being wasted (carrot tips and leftover onions and paprika that were previously disposed of with the rubbish);
- instruction to "brown" the chicken added to the process manual, generating pleasant flavours and aromas that were not produced before;
- base stock elaborated from the chicken bones, and used in the preparation of the rice.

### c. Results

#### Acceptance of the school menu

The acceptability test involved the analysis of five categories (flavour, odour presentation, cultural acceptability and quantity acceptability) in hedonic scale. With the application of the gastronomic techniques, the level of acceptability increased in all categories; however, the change was greater in the flavour and odour categories (Figure 3). There was also an increase in colour acceptance, cultural acceptance and quantity acceptance, but to a lesser degree. In terms of quantity acceptability, it appeared that age and gender could be reasons why some boys and girls consider the portion to be too large or too small for them (girls prefer smaller amounts and boys prefer larger amounts), resulting in food waste or lack of food, respectively.

Figure 3. Changes in menu acceptability



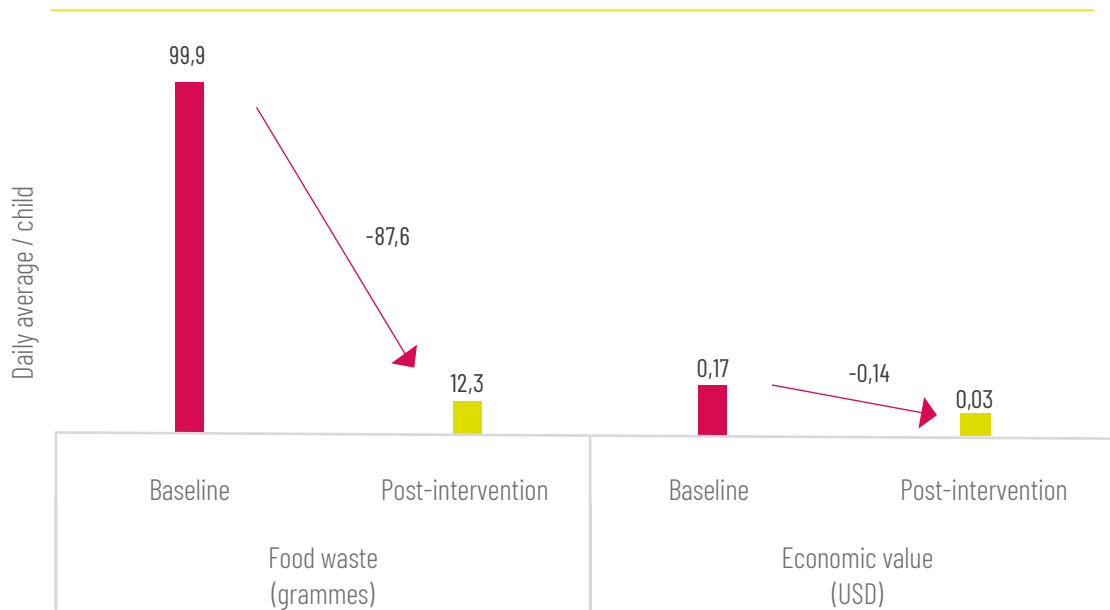
Source: Elaborated by the authors.

<sup>3</sup> PAE Minutes provided by the Secretariat of Education of Barranquilla by email of 04 July 2019.

## Food waste and economic value

After including gastronomic techniques in the selected menu, food waste was reduced by an average of 87.6 grammes per child per day. In economic terms, this implies an optimisation of resources of USD 0.14 on average per child per day (Figure 4). If we estimate the potential impact at scale in the city of Barranquilla with this gastronomic change in just one menu, USD 159 345.2 per school year<sup>4</sup> can be optimised. Similarly, when estimating the food waste that would be prevented in tonnes, a value of 99.7 tonnes per school year<sup>5</sup> is obtained. This is the result of intervening only one plate out of a total of 21 that are delivered at the departmental level.

Figure 4. Changes in menu acceptability



Source: Elaborated by the authors.

*With the insertion of gastronomic criteria and techniques in a selected menu in the city of Barranquilla, up to **USD 159 345** per school year could be optimised. This represents almost **100 tonnes** of food that would not be wasted.*

<sup>4</sup> For this calculation, the average value of optimised resources per child per day (USD 0.14) is multiplied by the number of times children receive the selected menu in a school year (ten times) and then by the total number of students receiving the PAE in Barranquilla (113 818 beneficiaries).

<sup>5</sup> For this calculation, the average value of waste avoided per child per day (87.6 grammes) is multiplied by the number of times children receive the selected menu in a school year (ten times) and then by the total number of students receiving the PAE in Barranquilla (113 818 beneficiaries).



### Gastronomic aspects

- Use of seasonings and spices clearly included in recipes: PAE providers should provide them and food handlers should use them, allowing to improve the recipe.
- Incorporation of the previous step of "marinating the chicken breast". This allowed to enhance the flavours of the preparation.
- Inclusion of the "browning" step. This improved the appearance and taste of the chicken.
- By using the chicken bones, more flavour was obtained in the preparation, and consumption was optimised.
- Previously wasted vegetable was put to good use.

## V. GASTRONOMY IN THE PAE, MORE THAN JUST A MENU

This project is based on the Chilean experience, where JUNAEB of the Chilean Ministry of Education set up a gastronomic laboratory for the School Feeding Programme, which has been in operation since 2017, with good results in terms of increased acceptability (9 percent) and consumption of the food delivered (22 percent). This experience is mentioned because it will serve as a reference when making reflections based on the pilot carried out in Colombia.

As can be seen, the results of the sample implemented in Barranquilla are very auspicious, and demonstrate that the incorporation of certain gastronomic techniques has a direct effect on the acceptance and consumption of food provided by the government. Based on this, it is interesting to review the potential of this initiative to project its possible impact.

Although only one preparation was tested, and it cannot be assumed that the result of increased acceptability and intake of that recipe will be replicated in others, if we review some data from the Chilean case, it is possible to project some results. For example, in 2016 (the year prior to the implementation of the gastronomic laboratory), in the Chilean PAE there were numerous preparations with acceptability rates below 50 percent. Based on the above, we can infer that the low acceptability of the Colombian recipe is not an isolated case, and that, if more preparations were measured, we would find more cases that could be improved.



In Chile, the ten recipes with the worst acceptability in 2016, which were chosen for gastronomic intervention, saw an increase in acceptability and intake of up to 40 percentage points in some cases, with a consequent decrease in food waste. Each of the ten recipes showed considerable improvements in subsequent measurements.

Considering the above, it is food for thought that although Colombia worked on a single recipe, it is potentially true that the increase in acceptance and the waste reduction achieved in this recipe can be applied to numerous other recipes, as was demonstrated in the JUNAEB experience.

The gastronomic laboratory, on the other hand, does not only intervene in one dish with gastronomic techniques, as in the case of the pilot. The constant in the Chilean case shows that it can intervene in hundreds of dishes, not only by applying gastronomic techniques, but also by intervening in other instances of the design, processes and implementation of the PAE, such as the revision of bidding conditions, the incorporation of new obligations for service providers – gastronomic staff recruitment, for instance, or the presentation of dishes – for measurements prior to the delivery of the dishes in schools.

Thus, we would like to highlight a second reflection: there are various spaces to intervene, both in the institutional framework and among service operators, who can install gastronomic capacities in their staff and processes that, as a whole, can produce a long-term change. The results of such change can have an impact on a more efficient use of public resources, also justifying the costs of implementation. Regarding these costs, in the Chilean case, an investment has been made in the incorporation of gastronomy in the PAE, which has a team of five professionals who carry out various activities at the national level, representing an investment of only 0.017 percent of the PAE annual budget, and resulting in a considerable increase in acceptability and intake of the menus. Therefore, the implementation of a gastronomic laboratory in Colombia with potential benefits in the acceptability of menus and the reduction of food waste could cost around USD 123 000 per year; it is clear then, that investing in gastronomy is definitely an alternative that can achieve outstanding results.



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## VI. FINAL RECOMMENDATION

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The main recommendation for Colombia is to pursue this initiative by making PAE strengthening visible on the political agenda through the inclusion of gastronomy. To start with this task, a gastronomy professional could be incorporated to provide advisory services in order to strengthen the different links in the PAE chain at the national level, allowing for its extension to the local level. In parallel, in Barranquilla, the initiative could take a second step, expanding the number of schools to intervene. At the same time, strategic alliances could be established in other departments to implement the initiative.

## VII. ACKNOWLEDGEMENTS

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We would like to thank most warmly the Municipality of Barranquilla and its Secretariat of Education; thanks to the openness and willingness of their representatives, this initiative could be carried out successfully. We would also like to thank the educational institutes that participated in the implementation of the project, especially their authorities, students and food handlers; without their participation, this intervention would not have been possible.

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