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Guatemala: Double burden of malnutrition (DBM)

Integrated community strategies to address the Double Burden of Malnutrition (DBM) in Villa Nueva, Guatemala

Guatemala, with over 18 million inhabitants, faces significant socioeconomic challenges. Over 60% of the population lives in poverty, with indigenous and rural populations disproportionately affected (WFP, 2023). Agriculture employs about 31% of the workforce but is dominated by small-scale farms averaging less than one hectare, limiting food diversity and economic stability (FAO, 2024; MAGA, 2024; FANTA, 2017). Urbanization is accelerating, with 53% of the population now living in urban areas, intensifying pressures on infrastructure, services, and food systems (SESAN, 2024). The country struggles with a double burden of malnutrition: nearly 47% of children under five are stunted, while overweight and obesity rates are rising, affecting 63% of children under five (at risk of overweight) and 29.6% of adult women (WFP, 2023; IAEA, 2015; Global Nutrition Report, 2023). These issues stem from poverty, limited access to nutritious foods, and changing diets dominated by ultra-processed products and sugar-sweetened beverages, particularly in urban centers (FANTA, 2017). The consequences are profound, affecting cognitive development, increasing the risk of chronic diseases, and imposing substantial economic costs estimated at over 16% of the national GDP (WFP/ECLAC, 2020). The government's National Nutrition Crusade, supported by international partners, aims to address these problems, but urban centers continue to face growing nutritional vulnerabilities (SESAN, 2024).

Urban Context: The Case of Villa Nueva

Villa Nueva, the second most populated municipality in the Guatemalan department, is home to over 600,000 residents and exemplifies the complex challenges of the double burden of malnutrition (DBM) in rapidly urbanizing areas. The municipality has experienced accelerated urban growth and unplanned expansion, resulting in densely populated neighborhoods with limited access to fresh foods and traditional markets. Instead, ultra-processed products and sugary beverages dominate local supermarkets and small stores, shaping unhealthy dietary patterns and nutritional outcomes (Secretaría de Seguridad Alimentaria y Nutricional SESAN, 2023).

The impact of DBM in Villa Nueva is significant. Chronic child malnutrition remains high at approximately 30%, exceeding the national urban average and reflecting persistent undernutrition despite urbanization (Ministerio de Salud Pública y Asistencia Social MSPAS, 2023). Concurrently, over 40% of school-age children are overweight or obese, driven by high consumption of processed snacks, sugary drinks, and a lack of safe spaces for physical activity (World Food Programme WFP, 2023; Instituto de Nutrición de Centroamérica y Panamá INCAP, 2022). This paradoxical coexistence of stunted children and overweight adults within the same households illustrates the nutritional transition fueled by poverty, food insecurity, and an obesogenic environment (WFP, 2023).

Most families rely on informal employment, such as street vending, construction, and domestic work, resulting in unstable incomes that limit food purchasing power. Inflation and rising costs of fresh produce exacerbate these challenges, pushing households toward cheaper, calorie-dense, nutrient-poor foods (SESAN, 2023). Consequently, Villa Nueva faces increasing rates of non-communicable diseases, including diabetes and hypertension, even among young adults, alongside poor academic performance and impaired cognitive development in children (INCAP, 2022; WFP, 2023).

Municipal and national authorities have initiated programs such as urban gardens, certification of healthy food retailers, junk food regulation in schools, and youth nutrition education brigades. However, these efforts have yet to reach the scale necessary to significantly reduce malnutrition due to ongoing structural inequalities and limited resources (SESAN, 2023). The obesogenic environment, characterized by aggressive marketing of unhealthy foods and limited recreational spaces, continues to drive DBM in the community (WFP, 2023).

International organizations, including WFP, FAO, and UNICEF, alongside local NGOs and universities, provide technical assistance, funding, and community programs. Nonetheless, sustained multi sectoral coordination, stronger policy enforcement, and enhanced community engagement are critical to transforming Villa Nueva's food environment and improving nutritional outcomes (SESAN, 2023; WFP, 2023).

Villa Nueva's experience underscores the urgent need for integrated, long-term strategies that improve food access and quality, promote nutrition education, and empower families to break the cycle of malnutrition. With committed collaboration among stakeholders, Villa Nueva can become a model for urban nutritional resilience in Guatemala (WFP, 2023).

Solutions

Villa Nueva exemplifies both the challenges and opportunities in tackling the Double Burden of Malnutrition (DBM) in Guatemala's urban settings, where transforming the food environment and advancing comprehensive public policies are urgent and essential.

1. Regulation of Supermarkets and Grocery Stores Along With Municipal Certification for "Healthy" Stores

To address the excessive consumption of ultra-processed products in Villa Nueva, an integrated strategy combining two complementary approaches is proposed: first, municipal laws setting clear limits on the establishment of new supermarkets and grocery stores that primarily sell processed and ultra-processed products; second, a municipal certification program for existing stores that promote the sale of healthy foods.

This proposal is based on successful experiences of municipalities in Mexico, Colombia and Ecuador, where similar certification programs have incentivized merchants to offer healthier products, thereby

improving access to fresh foods without conflicts caused by the abrupt closure of business. (SESAN, 2023).

COMUSAN Villa Nueva—a municipal body charged with food security—will convene an initial working group comprising representatives from the Ministry of Public Health (MSPAS), local merchant associations, and the Facultad de Ciencias y Sistemas Agroalimentarios at Universidad del Valle. In these preliminary sessions, participants will adapt ISO 22000 food safety standards to our local context, defining specific benchmarks: a minimum 20% shelf space for whole grains and legumes, daily deliveries of seasonal fruits and vegetables, and clear labeling of nutritional information. This threshold was selected based on regional pilot programs in Mexico and El Salvador, where 15–25% shelf space has proven effective in shifting consumer behavior without overwhelming small retailers (PAHO, 2019).

Once the certification criteria are ratified, COMUSAN will invite shop owners from three priority neighborhoods in Villa Nueva to attend intensive two-day workshops. The choice of three neighborhoods allows for geographic diversity and manageable oversight during the pilot phase, following the phased implementation model used by COMUSAN in previous municipal programs (SESAN, 2023). Led by MSPAS nutritionists and Universidad del Valle food-safety specialists, these workshops will cover best practices in produce handling—temperature control, rotation schedules, and contamination prevention—alongside basic marketing techniques to showcase healthy products attractively. Each participant will receive a starter kit including temperature-monitoring stickers, shelf dividers, and promotional materials bearing the “Tienda Saludable VN” logo.

Certified stores will undergo quarterly audits, conducted by mixed teams of municipal inspectors and community volunteers drawn from women’s collectives and youth brigades. These on-site visits will verify compliance with storage and display standards, assess fresh-food turnover rates, and gather customer feedback through brief intercept surveys. Stores that meet all criteria will receive window decals, social-media shout-outs on COMUSAN’s channels, and priority placement in our nutrition app’s geolocated directory—driving new foot traffic and reinforcing positive behavior.

From the program’s launch event to the release of a transparent impact report every six months, the certification scheme will maintain momentum. Reports will track key indicators: changes in the proportion of healthy items sold, average customer basket composition, and participating store retention rates. Funding will be sourced from a dedicated 5% allocation of Villa Nueva’s SAN budget, a proportion recommended by SESAN’s municipal investment guide for innovative pilot programs (SESAN/USAID/FANTA, 2016). Walmart Centroamérica was selected as a strategic partner due to its documented commitment to combating malnutrition in Guatemala. In 2025, the company launched the “Nutriendo la Vida” initiative in Chiquimula, financing food kits, family gardens, and water purification systems for vulnerable communities, in collaboration with United Way Guatemala (Walmart Centroamérica, 2025). This alignment with food security and community empowerment makes Walmart a relevant and credible contributor to the goals of this proposal.

Banco Industrial was included through its Fundación Bi, which has led social development projects such as “Conexión Raíz” in Alta Verapaz, supporting agricultural productivity, inclusion, and community resilience (Fundación Bi, n.d.). Their experience in financing community-based infrastructure and nutrition-related initiatives makes them a strong ally.

Technical support from WFP and UNICEF was selected based on their long-standing presence in Guatemala and their expertise in multisectoral nutrition strategies. WFP’s country brief outlines its work in strengthening food systems and municipal capacity (World Food Programme, 2025), while

UNICEF's strategy focuses on reducing chronic malnutrition through education, early childhood interventions, and digital tools (UNICEF Guatemala, 2023). Universidad del Valle de Guatemala was chosen for its academic leadership in nutrition and food safety, particularly through its undergraduate program in Nutrition and its collaboration with public health institutions (Universidad del Valle de Guatemala, 2025).

This proposal introduces a novel municipal certification model that goes beyond traditional food labeling or school-based regulation. By adapting ISO 22000 standards to small urban retailers and integrating community-led audits, it democratizes food safety enforcement. The use of digital visibility through a geolocated app and the inclusion of promotional incentives make it a replicable and scalable innovation. Unlike past efforts in Guatemala, this strategy transforms everyday purchasing environments and empowers local merchants as agents of nutritional change.

2. Implementation of Urban Gardens and Vertical Farming

The promotion of urban gardens and vertical farming systems in Villa Nueva aims to respond to the urgent need to increase the availability and consumption of fresh, nutritious food in a context of high social and economic vulnerability. This initiative will allow families, especially those living in poverty, to produce their own food in small spaces, thereby improving food self-sufficiency and reducing reliance on ultra-processed products. It will be provided technical support, specialized training, and nutritional monitoring to ensure the quality and impact of the initiative.

Similar experiences in municipalities such as San Jerónimo, Baja Verapaz, and Quetzaltenango, supported by FAO and WFP, have demonstrated that urban gardens and vertical farming can significantly improve food security while strengthening community ties and boosting local economies (SESAN, 2023).

The community-driven urban and vertical farming program will be in partnership with FAO, Fundación Solar, and USAC's Faculty of Agronomy. The first phase will involve a comprehensive mapping exercise, guided by municipal planners and agronomy students, to identify suitable sites: school rooftops, unused municipal lots, and backyards in densely populated sectors. Each location will be surveyed for sunlight exposure, water access, and structural safety.

With this data in hand, the municipal government will establish neighborhood garden committees—led by local women's groups and youth brigades—who will register participating families and oversee plot assignments. Thanks to a soft-loan line from MAGA (Ministerio de Agricultura, Ganadería y Alimentación/Ministry of Agriculture/Livestock and Food) and seed grants from FAO/WFP, every household will receive a starter kit: high-quality seeds of tomatoes, greens, and beans; lightweight raised-bed frames; organic soil mix; and basic tools. The use of standardized kits ensures equity and replicability, following Fundación Solar's best practices in urban agriculture (IUCN, n.d.). Fundación Solar agronomists will then conduct a week of on-site training, teaching residents how to prepare beds, plant seedlings, rotate crops, and manage pests with eco-friendly solutions. Fundación Solar was selected for its participatory methodology and technical expertise in implementing community-based agricultural projects in Guatemala. Although its internal documents are not publicly available, its work has been cited in municipal SAN reports and recognized by FAO for its contribution to urban food systems (IUCN, n.d.). FAO and WFP were included for their

experience in scaling food production systems and their ability to provide both technical assistance and seed funding aligned with national SAN strategies (FAO & WFP, 2018). USAC's Faculty of Agronomy was selected for its capacity to mobilize students and researchers in support of municipal agricultural initiatives. Its long-standing collaboration with MAGA and local governments makes it a key actor in technical training and monitoring (Universidad de San Carlos de Guatemala, 2025).

Maintenance support will be provided through monthly “green brigade” visits, enlisting volunteers from technical high schools and university clubs. This frequency aligns with FAO's agronomic recommendations for tropical vegetable cycles, allowing timely intervention for pest and nutrient management (FAO, 2018). During these visits, agronomy students will help troubleshoot issues—such as nutrient deficiencies or water stress—and demonstrate advanced techniques like vertical trellising to maximize yields in confined spaces. Surplus produce will not only improve household nutrition but also feed into a community bartering network: at neighborhood share fairs, families can exchange extra vegetables for grains or cooking oil, strengthening social ties and reducing waste. This model draws from Utz Che's rural exchange networks, which have successfully improved diet diversity and reduced food waste in vulnerable communities (Utz Che', 2017).

Throughout the program, participants will log planting dates, germination rates, and harvest quantities via the mobile app's garden-monitoring feature. This data will feed into public dashboards maintained by the municipal committee, showcasing progress across neighborhoods and highlighting success stories. Each year, the program will expand into ten additional sectors—a scale-up rate modeled after FAO's urban agriculture programs in Guatemala City—, informed by lessons learned and community feedback. By weaving together hands-on training, peer support, and digital tracking, urban and vertical farming in Villa Nueva becomes a replicable model of food resilience and social cohesion (FAO, 2019).

While urban gardens have been piloted in Guatemala, this proposal innovates by combining vertical farming techniques with digital monitoring and community governance. The use of starter kits, monthly technical brigades, and public dashboards creates a feedback-rich ecosystem that is both participatory and data-driven. The inclusion of bartering networks and annual sector expansion adds economic and social dimensions that go beyond subsistence gardening. This integrated model responds to space constraints and builds resilience in densely populated urban areas.

3. Development of a Mobile Application for Food Education and Garden Monitoring

To leverage digital technologies and facilitate continuous learning, it is proposed to develop a free, user-friendly mobile application aimed at families participating in urban garden and food education programs in Villa Nueva. The application will offer tutorials, health recipes, practical tips, and a monitoring system for plant growth in different languages (Spanish, K'iche', and Q'eqchi'), enabling interaction among users, experts and community promoters.

Similar projects promoted by BID, UNICEF, and PMA intervention have demonstrated that mobile applications enhance adherence to healthy practices and facilitate access to reliable information, especially in communities with limited access to in-person services. This contributes to this sustainability and scalability of the programs. (GPSAN, 2023).

The free, multilingual mobile application will be co-managed by BID’s Innovation for Social Impact team and MIDES, with UNICEF advising on pedagogical design. Local Guatemalan developers will collaborate with youth focus groups and IT students from Universidad del Valle to co-create an interface that balances intuitive navigation with culturally resonant visuals. The app’s key modules will include interactive tutorials on urban and vertical farming techniques, a searchable map of certified “Tienda Saludable VN” locations, a digital recipe library featuring local ingredients, and a photo-based garden-monitoring tool.

Development will proceed in closely monitored phases. First, a needs assessment involving 200 households and five schools will identify content priorities and potential barriers—such as limited data plans or low digital literacy. This sample size follows FAO/WFP guidelines for municipal nutrition pilots, which recommend 150-250 households and 4-6 schools to ensure statistical relevance and manageable logistics (FAO/WFP, 2018). Next, youth co-design workshops will sketch wireframes, select color palettes, and draft content outlines in Spanish, K’iche’, and Q’eqchi’. After building a minimum viable product (MVP), we will run a six-week pilot in two different neighborhoods—consistent with COMUSAN’s phased zoning strategy for new programs—, collecting usability metrics (session length, feature usage) and qualitative feedback via in-app surveys (SESAN, 2023).

A high-profile launch event at Villa Nueva’s municipal auditorium will showcase the final app, complete with live demonstrations, user testimonials, and training sessions for community promoters. To maximize reach, we will forge partnerships with Claro and Tigo to zero-rate the app and ensure free data access. Post-launch, an agile development team will release quarterly updates informed by analytics—such as drop-off points in tutorials or low-engagement recipes—and direct user suggestions. Claro was selected based on its regional leadership in digital inclusion and its commitment to accessibility. In 2025, Claro Centroamérica launched a platform to eliminate digital barriers for vulnerable populations, including tools for low-literacy users and rural communities (Claro Guatemala, 2025). Tigo was included for its corporate responsibility programs focused on education and digital empowerment. Through initiatives like “Maestros Conectados” and “Conectadas,” Tigo has trained over 250,000 educators and 50,000 women in Guatemala, promoting the use of mobile technology for learning and entrepreneurship (Tigo Guatemala, 2025). BID was selected for its Innovation for Social Impact program, which funds digital tools for development across Latin America. Its experience in co-designing apps with youth and local governments ensures that the platform will be contextually relevant and scalable. UNICEF’s involvement is based on its digital pedagogy expertise and its strategic focus on nutrition education in Guatemala (UNICEF Guatemala, 2023). Universidad del Valle de Guatemala was chosen for its capacity to engage students in participatory design and its track record in developing educational content for public health (Universidad del Valle de Guatemala, 2025).

Beyond education, the app will serve as a real-time feedback loop: users can report store compliance issues, request garden-maintenance tips, and share successes via photo galleries. This continuous dialogue not only reinforces learning but also strengthens accountability: municipal and technical partners will receive dashboard alerts if certified stores fall out of compliance or if garden yields drop below expected thresholds. By entwining digital tools with on-the-ground initiatives, the nutrition app becomes the connective tissue that amplifies both supply and demand for healthy foods in Villa Nueva.

The proposed app is not just a digital tool, it's a multi-functional platform co-designed with youth and tailored to local realities. It merges nutrition education, urban farming tutorials, store certification tracking, and real-time feedback in one accessible interface. By partnering with BID, UNICEF, Claro, and Tigo to ensure zero-rated access, the app bridges digital divides and promotes equity. Unlike existing apps in Guatemala, which focus on isolated functions, this solution creates a connected ecosystem for learning, monitoring, and community engagement.

Conclusion

Villa Nueva stands at a crossroads. The double burden of malnutrition is not merely a crisis of food, but of equity, dignity, and opportunity. The solutions proposed—healthy store certification, urban and vertical farming, and a multilingual nutrition app—are not repetitions of past efforts. They represent a new generation of interventions rooted in innovation, community ownership, and systemic change.

Each aspect of the proposal introduces a distinct innovation: a municipal certification system that transforms everyday purchasing environments through digital visibility and citizen-led audits; a farming model that adapts to urban density with vertical techniques, youth brigades, and public dashboards; and a mobile app that integrates education, monitoring, and feedback in one accessible platform, co-designed with local youth and zero-rated for equitable access.

The solutions outlined in this research, rooted in evidence, community engagement, and multi sectoral collaboration, offer a transformation. By regulating the unchecked proliferation of unhealthy food outlets, certifying and incentivizing healthy stores, empowering families through urban agriculture, and rebuilding social ties, Villa Nueva can reclaim its food environment. School-based reforms and digital innovation will further ensure that the youngest and most vulnerable are equipped with the knowledge and access they need to thrive.

These strategies go beyond isolated programs. They form a connected ecosystem that empowers families, merchants, students, and institutions to reshape the food environment from the ground up. They are feasible, scalable, and culturally grounded. They reflect the kind of bold, locally-driven innovation that Guatemala needs to break the cycle of malnutrition.

True change demands more than isolated interventions or temporary projects. It requires the unwavering commitment of local leaders, the active participation of youth and families, and the strategic partnership of the private sector and international allies. Villa Nueva can become a beacon for urban Guatemala and all Latin America, a living example that a community, when united and resolute, can break the cycle of malnutrition and build a future where every child has the right to grow, learn, and flourish.

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