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Hunger and Environmental Nutrition
a dietetic practice group of the
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The Role of School Feeding Programs in Alleviating Hunger and Building Sustainable Food Systems

February 21, 2024: 1:00 – 2:30 PM Central Time

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Disclosures:

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- No endorsements, sponsorships, or affiliations influenced the creation of this presentation.

Webinar Learning Objectives:

1. Identify three benefits of school feeding programs;
2. Explain how school feeding programs can be applied to alleviate hunger and contribute to building a sustainable food system;
3. List the roles and responsibilites of nutrition and dietetics practitioners in developing and evaluating sustainabilty-oriented school feeding programs.

Presentation Outline:

- School Meal Programmes: UN World Food Programme (WFP)
- School Feeding Programs: Benefits/Potential Benefits
- Interculturalism and Differentiated School Feeding Programs: Climate Resilience and Food Security
- School Feeding Programs: Challenges
- School Meals Coalition: An Overview
- School Meals and Food Systems: Consequences for Climate, Environment, Biodiversity and Food Sovereignty
- Sustainable School Feeding Programs in Low-Income Countries: Planet-Friendly School Meals
- Sustainable School Feeding Programs in Latin America and the Caribbean (LAC)
- International School Meals Day: March 14, 2024
- Nutrition and Dietetics Practitioners: Roles and Responsibilities in Sustainable School Feeding
- School Feeding Programs: Additional Resources

Food for Thought: School Feeding Programs

"School feeding is a multi-sector programme, believe me, it is much more than a hot meal for a child in a school. In the case of Africa, when you feed a child, you feed the mother, when you feed the mother, you feed the family, when you feed the family, you feed the community. So, let's go and see the potential of school feeding."

– Cristina Duarte, Under-Secretary-General and Special Adviser on Africa to the United Nations Secretary-General

"School meals are not a cost, it is one of the best investments a country can make."

– Roy Steiner, Rockefeller Foundation.

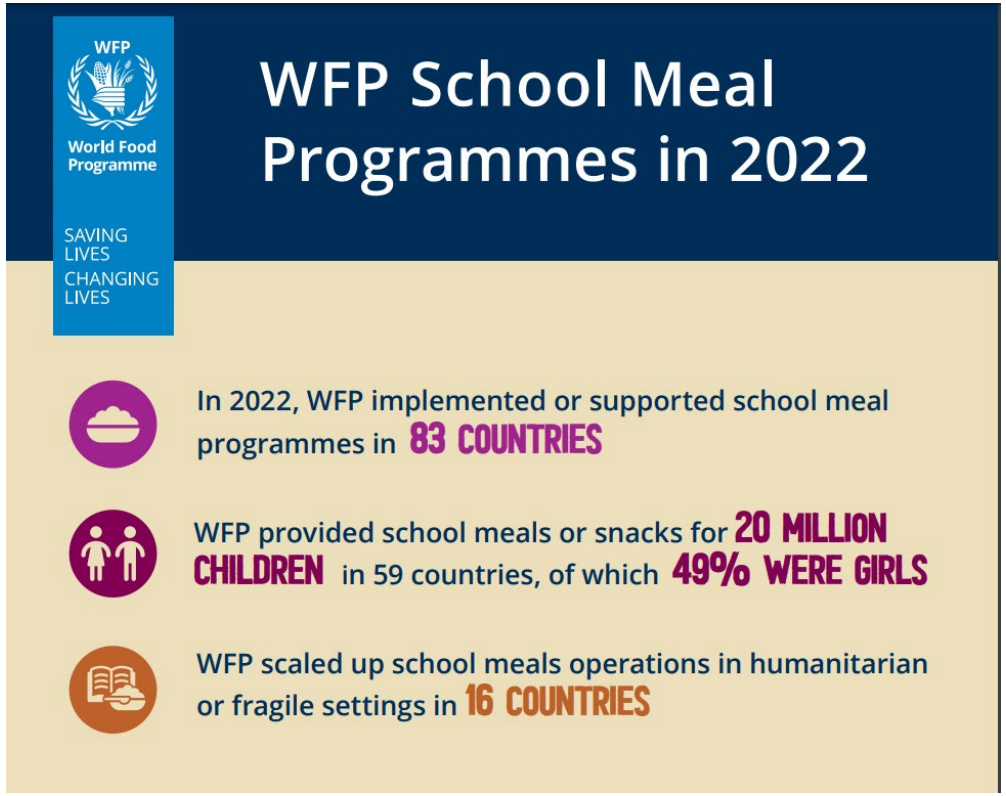
"Many countries around the world provide school lunches, but Sweden is unique in offering them for free."

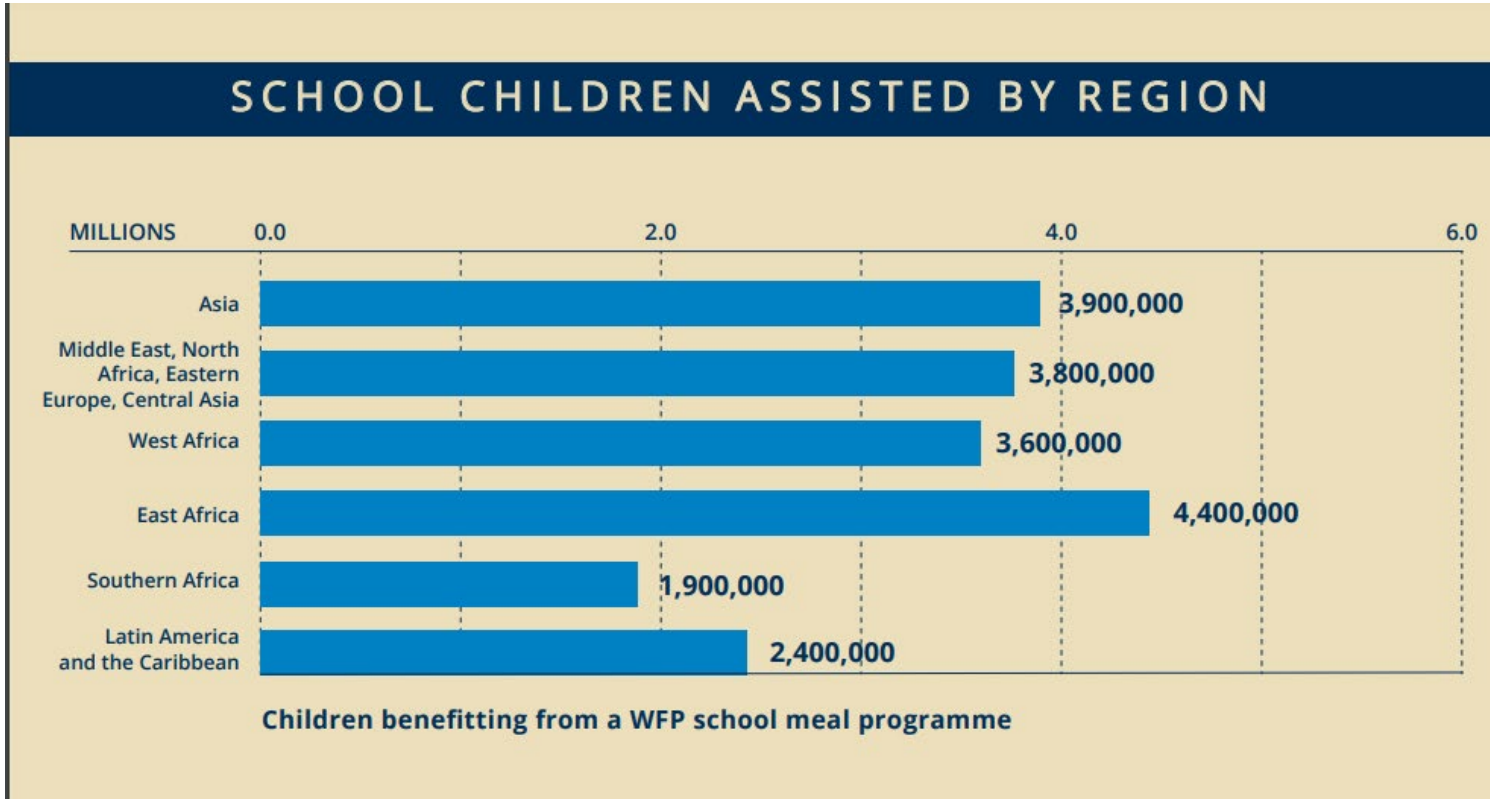
– Livsmedelsverket.

Source: Swedish International Agricultural Network Initiative, September 2023

UN World Food Programme (WFP) - School Meal Programmes: 2022

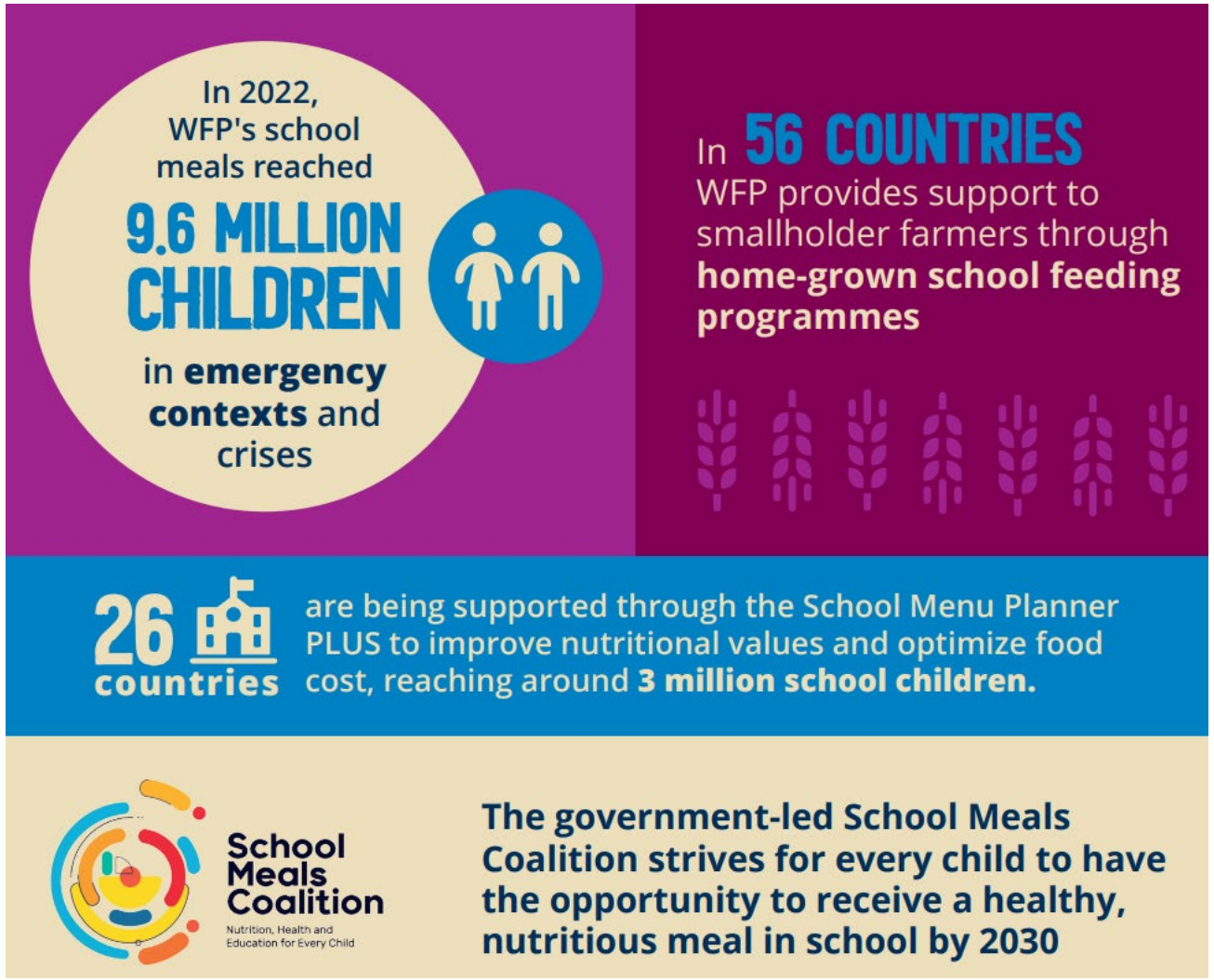
wfp.org/school-meals





Source: WFP School Feeding Infographic; October 2023

UN World Food Programme (WFP) - School Meal Programmes: 2022



Source: WFP School Feeding Infographic; October 2023

School Feeding Programs/Programmes: Benefits

- 418 million children benefit from school meals* globally, 30 million more children than the 388 million children reached before the pandemic in early 2020.

School meals: "the provision of meals, snacks, or take-home incentives through schools conditional upon the attendance of children."

- Benefit-cost analyses have shown that school feeding programs can yield impressive returns: **up to US $9 dollars in benefits for every US $1 dollar invested.**

- School feeding can positively impact different sectors: 1) **agriculture**, 2) **job creation** 3) **learning & access to education**, 4) **nutrition and health**, and 5) **sustainability of food systems** and 6) **social protection/safety net**.

*The UN World Food Programme (WFP) defines school meals as, "the provision of meals, snacks, or take-home incentives through schools conditional upon the attendance of children." (WFP, September 2023)

Sources: UN World Food Programme (WFP). *State of School Feeding Worldwide 2022*. Rome, Italy: UN World Food Programme; March 2023. UN WFP. *Two Minutes on School Meals*. Rome, Italy, UN WFP; September 2023.

School Feeding Programs/Programmes: Different Sector Benefits

- School feeding can positively impact numerous different sectors:

- **Agriculture:** School feeding programs that procure food locally can offer benefits to small farmers, support local food production and economies, and promote sustainable local markets for diverse and traditional nutritious foods.

School meals procurement can create demand for planet-friendly food production.

- **Job Creation:** School feeding programs can encourage local agricultural development by offering food producers visibility and stability in demand. In 2022, 4 million jobs were created through such programs, mostly for women.

- **Learning and Education:** Hunger blunts a student's ability to concentrate and learn, therefore, school feeding programs can support a student's ability and motivation to learn. Nutritionally adequate school meals provide an incentive for families to ensure their children attend school regularly.

- **School meals can also enhance equity and inclusion in education**, especially for girls and vulnerable students. To ensure positive nutrition outcomes, school feeding programs should be linked with nutrition education efforts.

Sources: WFP, March 2023; IDB and WFP, 2023; WFP, October 2023; WFP, November 2023a&b

Photo Credit: *Planet-Friendly School Meals.* Rome, Italy: UN World Food Programme (WFP); November 2023a.

Photo Credit. Locally-grown school meals can help children, farmers and the climate. CGIAR; November 28, 2022.

School Feeding Programs/Programmes: Different Sector Benefits

- **Health and Nutrition** – Nutrition-sensitive meals, especially in marginalized & vulnerable communities, can offer children a regular source of nutrients essential for a child's physical and mental development. When combined with micronutrient fortification or supplementation (e.g., iron, folic acid), the effects are multiplied.

- **Sustainability of food systems** – In many countries, school feeding is the largest source of government procurement of food.

  - Making school meals more sustainable can have an impact on a country's greenhouse gas emissions and serve as a policy lever & model for positive change.

- **Latin American and Caribbean countries** have adopted **public food procurement strategies involving family farmers** as *policy instruments to enable food systems transformation*

- **Social Protection** - School meals have become the world's most extensive safety net. They present an opportunity to transform the lives of children and families affected by the global food crisis.

Sources: WFP, March 2023; Inter-American Development Bank (IDB) and WFP, 2023; WFP, November 2023a&b

Design of Eco-friendly Menus

Food Loss Prevention and Waste Reduction, Reduced Plastic Use

Photo Credit: *Planet-Friendly School Meals*. Rome, Italy: UN World Food Programme (WFP); November 2023a.

School Feeding Programs/Programmes: Benefits

Contribute to countries' achievement of numerous UN Sustainable Development Goals (UN SDGs):

- SDG 1 – No Poverty
- SDG 2 – Zero Hunger
- SDG 3 – Good Health and Well-Being
- SDG 4 – Quality Education
- SDG 5 – Gender Equality
- SDG 8 – Decent Work and Economic Growth

Photo Credit: UN Sustainable Development Goals (SDGs)

School Feeding Programs/Programmes: Potential Benefits

- "**The global annual investment of US $48 billion dollars in school meal programs** creates a huge and predictable market for food and **offers an extraordinary opportunity to transform food systems and diets, and to respond proactively to the global food crisis**."

- "School meal programs can purchase more local food and match quality diets to local production, increasing **local agro-biodiversity** and strengthening **food sovereignty.***" This effort can support more small farmers, especially rural women and indigenous producers."

- "**Climate-smart meal programs** could be part of country efforts to become more climate resilient, by diversifying diets, aligning agriculture and procurement to local food sovereignty, and by rethinking energy and farming practices." **– e.g., Home Grown School Feeding (HGSF) approach.**

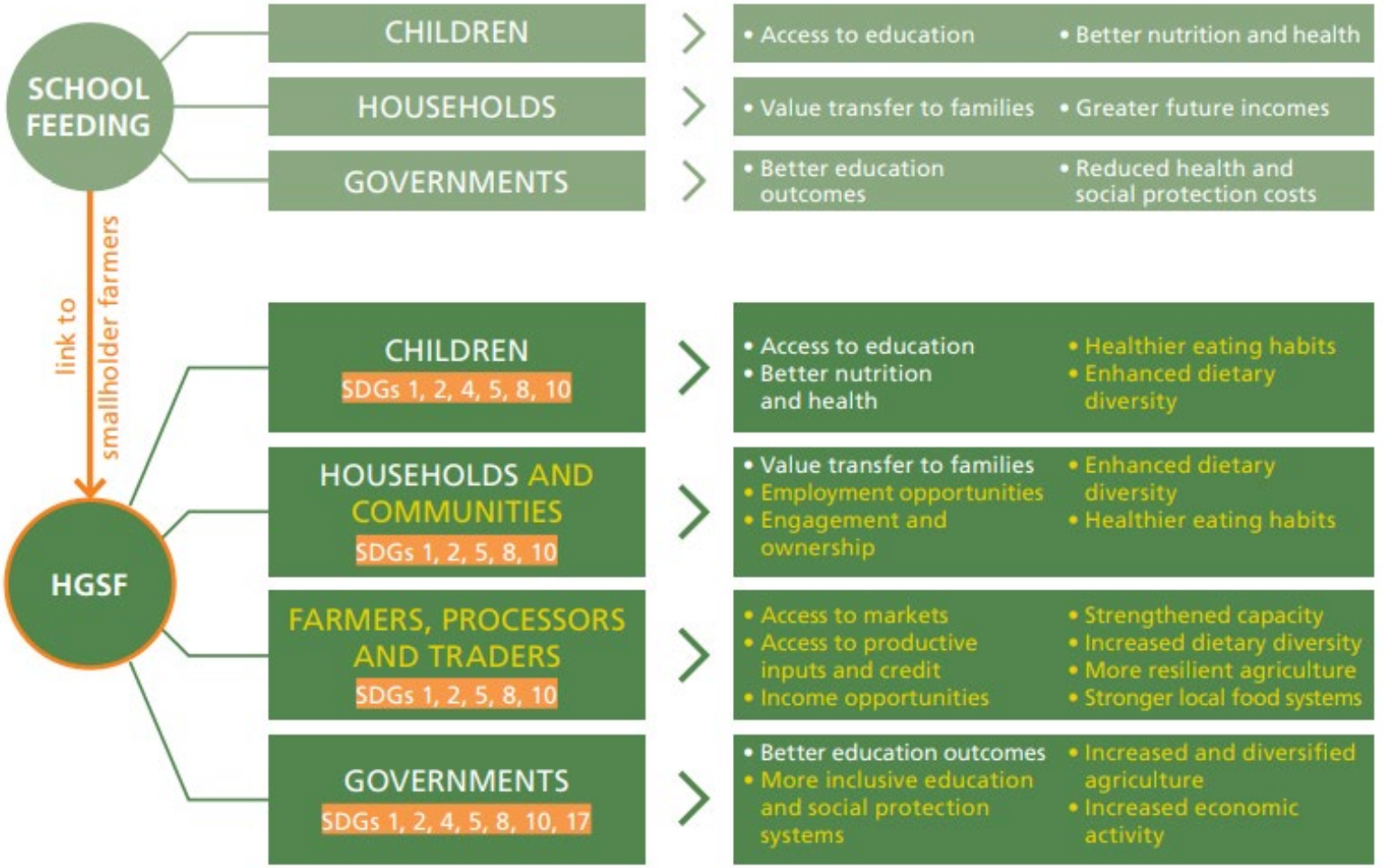
Sources: WFP, March 2023; IDB and WFP, 2023; WFP November 2023a&b; Pastorino, 2023

Indigenous women like this Ecuadoran farmer have precious ancestral knowledge about growing and using traditional foods. Photo: WFP/Giulio d'Adamo

Photo Credit: Supporting Latin America's 'custodians of the seeds.' Rome, Italy: UN World Food Programme (WFP). International Day of Rural Women. October 14, 2022.

*"The primary objective of **food sovereignty* movements** is to create socially and ecologically equitable and healthy food systems that are also resilient and sustainable." (Pastorino et al., 2023)

Beneficiaries & Potential Benefits of School Feeding and Home-Grown School Feeding (HGSF)



SDGs = UN Sustainable Development Goals; HGSF = Home-grown school feeding constitutes a school feeding model designed to provide children with safe, diverse, and nutritious food, which is sourced locally from smallholder farmers.

Sources: FAO and WFP, 2018 and Chilambwe C. *Zambia taps into homegrown solutions to provide school meals to 4 million children*. September 11, 2023. Available at: https://schoolmealscoalition.org/zambia-homegrown-school-meals/

Agrobiodiversity Index: A Tool to Monitor Agrobiodiversity in School Feeding Programs

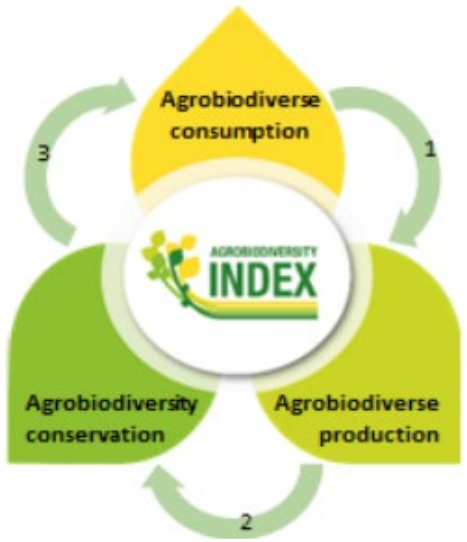


Figure 15: A virtuous cycle triggered by higher consumption of agrobiodiversity in school meals results in more diverse, resilient, and locally adapted production systems that conserve and maintain the agrobiodiversity that will be key to recovering and adapting.

- "Agricultural biodiversity, or **agro-biodiversity** includes all plants, animals, micro-organisms, and ecosystems that directly or indirectly contribute to food and agriculture."

- **"Agrobiodiversity** includes… many food crops including orphan, lost, native, neglected, underutilized, traditional, indigenous, forgotten, nutrient-rich, climate-smart, and climate-resilient foods or crops. Hence, school feeding programs fostering the adoption of agrobiodiversity in school meals and gardens for healthy diets."

(Pastorino et al., 2023)

Agro-Biodiversity and Traditional, Neglected and Underutilized Crops (NUS)

- “Currently, over 50% of consumed calories come from just three staple crops (rice, maize, and wheat), leaving behind the extensive variety of nutrient-rich plants that have been historically utilized by humanity.” (Karunaratne et al., 2024)

- There are many different **native varieties of potatoes in Colombia,** some that have deep purple, fuchsia or even red flesh (Galvis-Tarazona et al., 2022)

Aguirre has been growing dozens of native varieties of potato for 20 years. Photo courtesy of Jaime Aguirre.

Photo Credit: Earth Island Journal, 2022

Traditionals Crops

Amaranth

Amaranth is consumed as both a vegetable and a grain. Amaranth leaves are usually picked fresh for use as greens in salads or blanched, steamed, boiled, fried in oil, and mixed with meat, fish, cucurbit seeds, groundnut or palm oil. Cooked greens can be used as a side dish, in soups or as an ingredient in sauce and baby food formulations. Amaranth grain is a popular snack sold in Mexico, sometimes mixed with chocolate or puffed rice, and its use has spread to Europe and parts of North America.

Photo Credit: FAO

- "There is ample evidence from around the world underscoring the importance of **incorporating neglected and underutilized crop species (NUS) into food systems as a strategy to enhance the resilience of agricultural systems in the face of climate change**." (Karunaratne et al., 2024)

- **Neglected and Underutilized Crop Species (NUS)** emerge as a highly promising solution to fulfill the increasing food and nutritional needs of the growing global population. NUS are also recognized by FAO as Future Smart Food (FSF) have untapped potential to fight hunger and malnutrition. (Karunaratne et al., 2024)

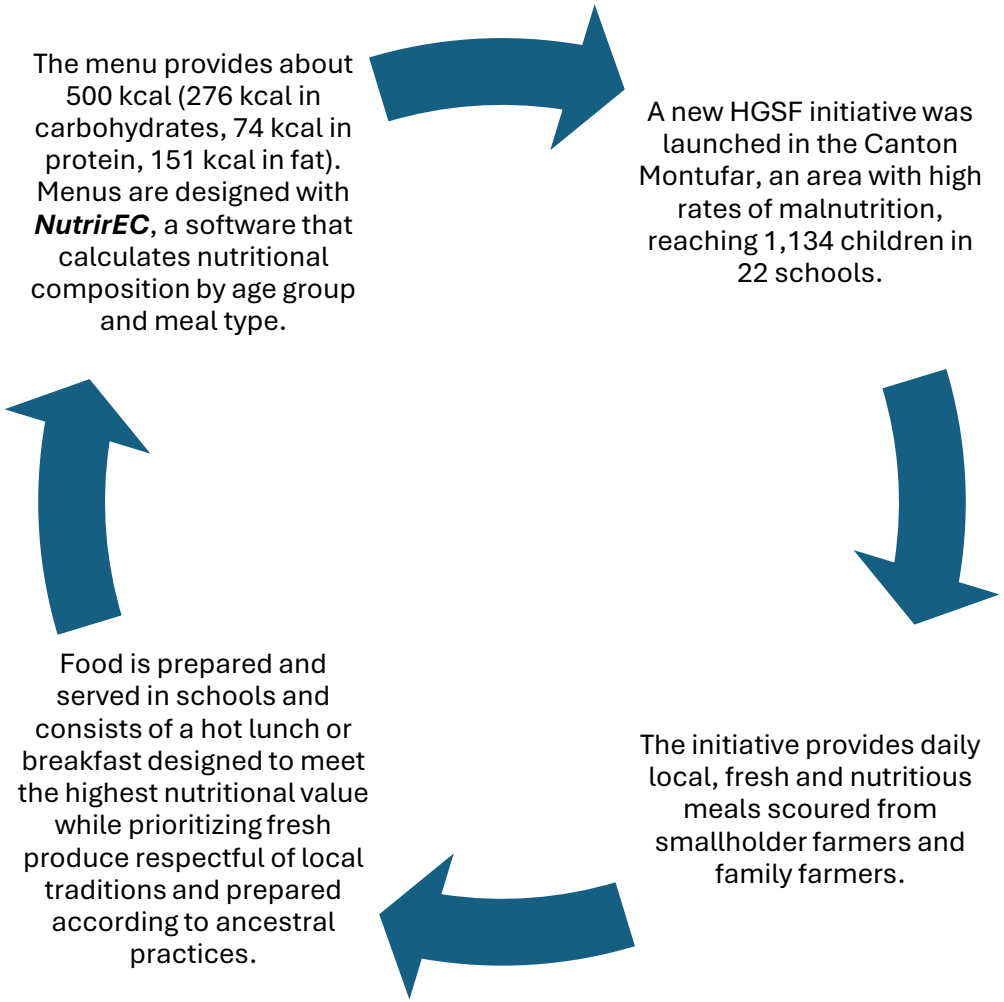
- **Amaranth** is a native species to the Andean region of South America, including Argentina, Bolivia, and Peru. (FAO, undated)

Home Grown School Feeding (HGSF) and Nutrition in Ecuador

Photo Credit: IDP and WFP, 2023

- An example menu is corn, broad beans, potatoes with cheese and tomato salsa, radish, onion, broccoli, and egg accompanied by half a banana.
- Its nutritional composition meets 100 of the macro and micronutrients required by schoolchildren.

The Government of Ecuador and the WFP have joined forces to design and implement a HGSF program in the northern part of the country.



Source: Inter-American Development Bank (IDB) and WFP, 2023

Interculturalism, School Feeding Programs, and Indigenous Peoples Food Systems

Interculturalism is the result of a process that includes a continuous interaction, communication, and learning amongst people and communities, valuing different traditions, aiming at building mutual respect, and providing conditions for the individual and community to develop capacities beyond their cultural or socioeconomic differences.

Takes place in a safe environment, in which different cosmogonies and cultures coexist, enabling the conditions for the recuperation of knowledge and diets related to Indigenous Peoples' food systems and respect for the environment

- A culturally adequate diet is a way of supporting Indigenous Peoples in a meaningful way that fully respects their right to food and self-determination by ensuring they participate and are involved in decision-making.

- A school meals program is a strategy to address inequalities and to ensure Indigenous Peoples' children attend and stay in school while also meeting some of their nutritional needs.

Source: Inter-American Development Bank (IDB and WFP, 2023)

Source: WFP Centre of Excellence Against Hunger and FNDE, 2021.

Indigenous Peoples' Food Systems: Key Features

1. Cosmovision and the centrality of territory

1. **Humans and nature are not separate**; their territories are essential for their resilience and sustaining their livelihoods. These practices enable sustainability.

2. **Indigenous Peoples' knowledge** is the backbone of their food systems. Through adaptation and innovation, they know which foods to harvest according to season, and what to use as food and medicine.

Source: Inter-American Development Bank (IDB) and WFP, 2023

Photo credit: FAO SCALA Colombia

Among the indigenous community are the "Wayúu" people in the '*La Guajira*' department of Colombia, who rely on cultivating the guajiro bean (*Vigna unguiculata*) to adapt to changing climate patterns. For them, cultivating the *guajiro bean* serves as more than just a means of survival; it is an integral part of their culture, connecting them to their land, traditions, and resilience in a changing world making it essential for sustaining their way of life.

Guajiro bean cultivation: The Wayúu community's path to adaptation

The *guajiro bean*, cultivated over generations, has naturally evolved to withstand the hot and dry climate of the 'La Guajira' department, making it inherently adaptive to drought conditions. With climate change leading to more frequent and severe droughts, the beans' resilience becomes increasingly vital, providing a reliable source of sustenance during times of water scarcity. (FAO, 2023)

Indigenous Peoples' Food Systems: Key Features

3. **Circularity** is an essential part of the system through which waste is minimized. Food used as part of a ritual or ceremony can be turned into meals for families for an entire week.

4. **Social norms, values, and governance structure** that promotes social capital and reciprocity within the community.

Source: Inter-American Development Bank and WFP, 2023

- Indigenous woman from municipality of Puerto Nariño, Amazonas Department, Colombia, cooking fish with banana

"Producing our food is inherited from our parents, it is respect for nature and its future children." - Community member and participant to the thematic discussions in Puerto Nariño."

(FAO and Alliance for Bioversity and CIAT, 2021)

Differentiated School Feeding Programs in Latin America (e.g., Bolivia and Colombia):

The Concept of ***"Buen Vivir"*** **–** Principles that Recognize Harmony Between Nature and Human Beings

Source: Inter-American Development Bank (IDB and WFP), 2023

School Meal Programmes: Differentiated Approaches

Colombia's *Programa de Alimentación Escolar - PAE para–Pueblos Indígenas*

Differentiated approaches consider Indigenous Peoples' cultural uniqueness, food preferences, habits, and governance practices, as well as unique logistical challenges in remote areas such as the Amazon.

Colombia's 2018 Resolution on technical guidelines for the school feeding programme for Indigenous Peoples *(Lineamientos técnico-administrativos, estándares y condiciones mínimas del Programa de Alimentación Escolar - PAE para–Pueblos Indígenas)*, includes Indigenous Peoples' collective approaches through specific programming in certain communities in Indigenous territories benefitting 390,000 children.

The specialized programme works with the Indigenous and traditional authorities; and involves the design of an Indigenous Peoples' Plan which includes menus that are approved by the same authorities. The implementation of the plan is often through an *olla comunitaria* or community pot.

Colombia's programming is couched in a perspective rescuing cultural and ancestral traditions and incentivizing local production and purchasing.

Source: Inter-American Development Bank (IDB) and WFP, 2023

Source: United Nations, Economic Commission for Latin America and the Caribbean (ECLAC). Available at: https://igualdad.cepal.org/en/repository-of-policies-and-strategies/creacion-de-espacios-para-la-coordinacion-local-programa-de#:~:text=El%20Programa%20de%20Alimentaci%C3%B3n%20Escolar,autonom%C3%ADa%20de%20las%20instancias%20de

School Feeding Programs/Programmes: Challenges

- **73 million vulnerable children are still in need of school meals**. The cost of covering an additional 73 million children in need of school feeding is US $4.7 billion, averaging $US 64 per child per year.

- In high and upper middle-income countries, school feeding programs reach 61% and 48% of school-age children, respectively.

- In low-income countries, the reach of school feeding programs remains inadequate (only 18% of school-age children). The reach of school meals in low-income countries also remains 4 percent below pre-pandemic levels.

- While low-income countries have increased their domestic investment in school meals, there has been a reduction in international support, from US $267 million in 2020 to US $214 million in 2022.

- Development partners, especially global financial institutions should commit to increasing support for school meal programs by US $1 billion.

- To achieve the global target of ensuring that 724 million primary school children receive nutritious school meals by 2030, the 430 million children who currently do not have access to nutritious school meals must be reached through the **School Meals Coalition.**

Source: UN World Food Programme (WFP). *State of School Feeding Worldwide 2022*. Rome, Italy: UN World Food Programme; March 2023.

School Meals Coalition
Nutrition, Health and Education for Every Child

The School Meals Coalition drives actions to urgently improve and scale up school meal programmes to ensure that every child has the opportunity to receive a healthy, nutritious meal in school by 2030.

In 2021, amidst the COVID-19 pandemic, with billions of children out of school, rising poverty, and disrupted food supply chains, governments were urgently looking for solutions to these interconnected crises. School meal programs emerged as a powerful, cost-effective means to provide vulnerable children with nutritious meals and support their families and communities.

schoolmealscoalition.org

How does school meals impact different sectors?


Education


Health & Nutrition


Food System Transformation


Climate Action


Peace Building


Equity and Equality


Economic Growth

School Meals Coalition

We strive for every child to have the opportunity to receive a healthy, nutritious meal in school by 2030.

Learn More

- **By 2023, restore the progress we made** by supporting all countries as they re-establish effective school meal programmes and repair what was lost during the pandemic.
- **By 2030, reach those we missed.** The most vulnerable, in low and lower-middle-income countries, were not being reached even before the COVID-19 pandemic.
- **By 2030, improve our approach** by improving the quality and efficiency of existing school meals programmes in all countries by facilitating a healthy food environment in schools and promoting safe, nutritious, and sustainably produced food.

Recognizing their transformative potential, a group of member states launched the School Meals Coalition at the UN Food Systems Summit in 2021.

96 countries from North to South have joined the Coalition and 114 partners are supporting governments in achieving their objectives.

schoolmealscoalition.org

School Meals Coalition
Nutrition, Health and Education for Every Child

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National commitments

Two years after its launch, more than 95 countries have joined the School Meals Coalition. Out of these, 35 countries have defined their national commitments in support of achieving the overall goal of ensuring that all children have access to healthy and nutritious meals in school by 2030.

Download the Declaration of Commitment document in pdf

Armenia | Bangladesh | Burkina Faso | Cambodia | Cameroon | Chad | Chile | China | Dominican Republic | Democratic Republic of Congo | Finland | France | Gambia | Germany | Guatemala | Honduras | Iraq | Japan | Kenya | Latvia | Lebanon | Lesotho | Liberia | Libya | Luxembourg | Mexico | Mongolia | Philippines | Rwanda | Senegal | Somalia | South Sudan | Sri Lanka | Tajikistan | USA | Zambia

schoolmealscoalition.org

- “Our goal is to provide all our children by 2030 with meals they need to learn and grow well at school… It is an essential fight in our country but also internationally.” **France** is contributing more than 28 million Euros to WFP school meal programmes, and providing support to school meals in emergency situations such as in Afghanistan, Haiti, and Venezuela. – **President Emmanual Macron, France**

- Through a financing package with **Haiti’s National Fund for Education** and in partnership with the Inter-American Development Bank and the Global Partnership for Education’s Multiplier Fund, the Government of Haiti will expand its school meals coverage by 20 percent to reach 1.5 million children in pre and primary schools.”

The Haitian government is also experimenting with school gardens to impart knowledge about food production and nutrition.

France, Finland, and Brazil serve as Co-chairs of the Global School Meals Coalition

Sources: School Meals Coalition. *Investing in Future Generations: Human capital, sustainable food systems and climate change action through school meals. Paris, 18-19 October 2023. Report.* School Meals Coalition, First Global Summit; October 2023. Available at: https://schoolmealscoalition.org/wp-content/uploads/2024/01/SMC_ParisSummit2023Report.pdf

School Meals Coalition. Haiti embraces innovative financing to scale up school meals. November 20, 2023. Available at: https://schoolmealscoalition.org/haiti-innovative-financing-schoolmeals/

Brazil co-chairs Global School Meals Coalition. October 30, 2023. Updated December 4, 2023. Brazilian Cooperation Agency (ABC). Available at: https://www.gov.br/abc/en/subjects/news/established-after-the-covid-19-pandemic-the-coalition-joins-80-countries-committed-to-strengthening-school-meals-programs

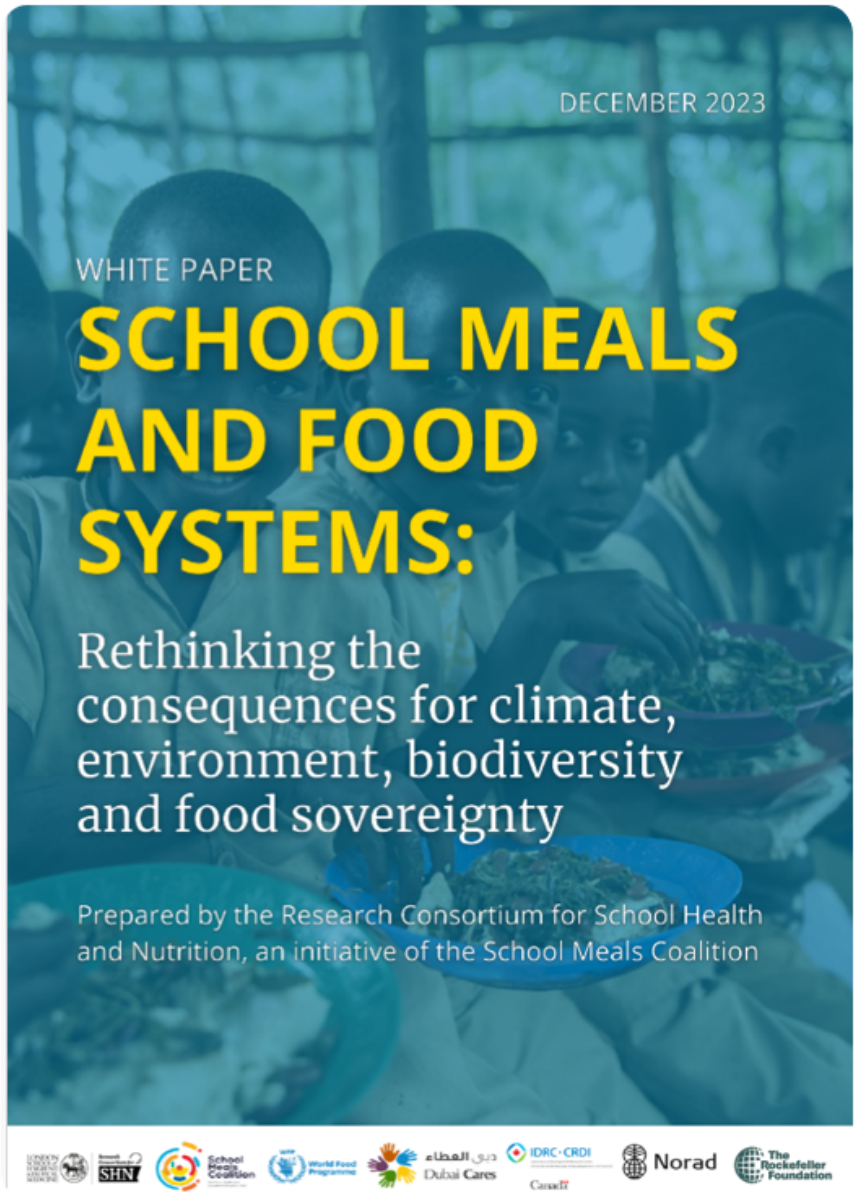
https://unfccc.int/event/nourishing-the-planet-sustaining-futures-reimagining-school-meals-for-planetary-and-child-health

COP28, Dubai UAE – November 30 - December 13, 2023

In Kenya, **“[T]he planet-friendly school meals programme** will buy from local smallholder farmers, particularly women, aligning with a global understanding that empowering women in agriculture leads to more robust food systems as they are often the custodians of biodiversity and champions of nutritional needs in their local communities. All efforts are geared towards reducing the carbon footprint of the school meals program, a strategy that speaks to Kenya’s sustained actions in the areas of climate change mitigation and adaptation.”

References: School Meals Coalition. Kenya champions planet-friendly school meals. December 20, 2023. Available at: https://schoolmealscoalition.org/kenya-planet-friendly-school-meals. Bhalla G, Klug I, Ambuko J, et al. *Policy Strategies for Building Sustainable Home-Grown School Feeding Initiatives, Empowering Communities and Bolstering Local Food Systems*. January 18, 2024. Available at: https://socialprotection.org/discover/blog/policy-strategies-building-sustainable-home-grown-school-feeding-initiatives

Launched at COP28: December 8, 2023



Key areas where school meal programs can drive systemic change:

1. ***School children and adolescents as agents of change***

Planet-Friendly School Meals

"planet-friendly school meals coupled with consistent and action-oriented food education can empower future generations by fostering healthier and more sustainable food habits at a critical age when life-long dietary preferences and social attitudes are formed and carried into adulthood."

2. ***The power of procurement: local procurement from sustainable agriculture and home-grown school feeding programs***

"Alongside the direct benefits to children, changes to the world's national school meals programs can also create demand-driven planet-friendly actions in local food systems."

3. Policy changes to promote ecologically sustainable agriculture

"actively promote and give preference to ecological approaches (defined within the local context) such as regenerative or organic farming, agroecology, and agroforestry to source school meal ingredients."

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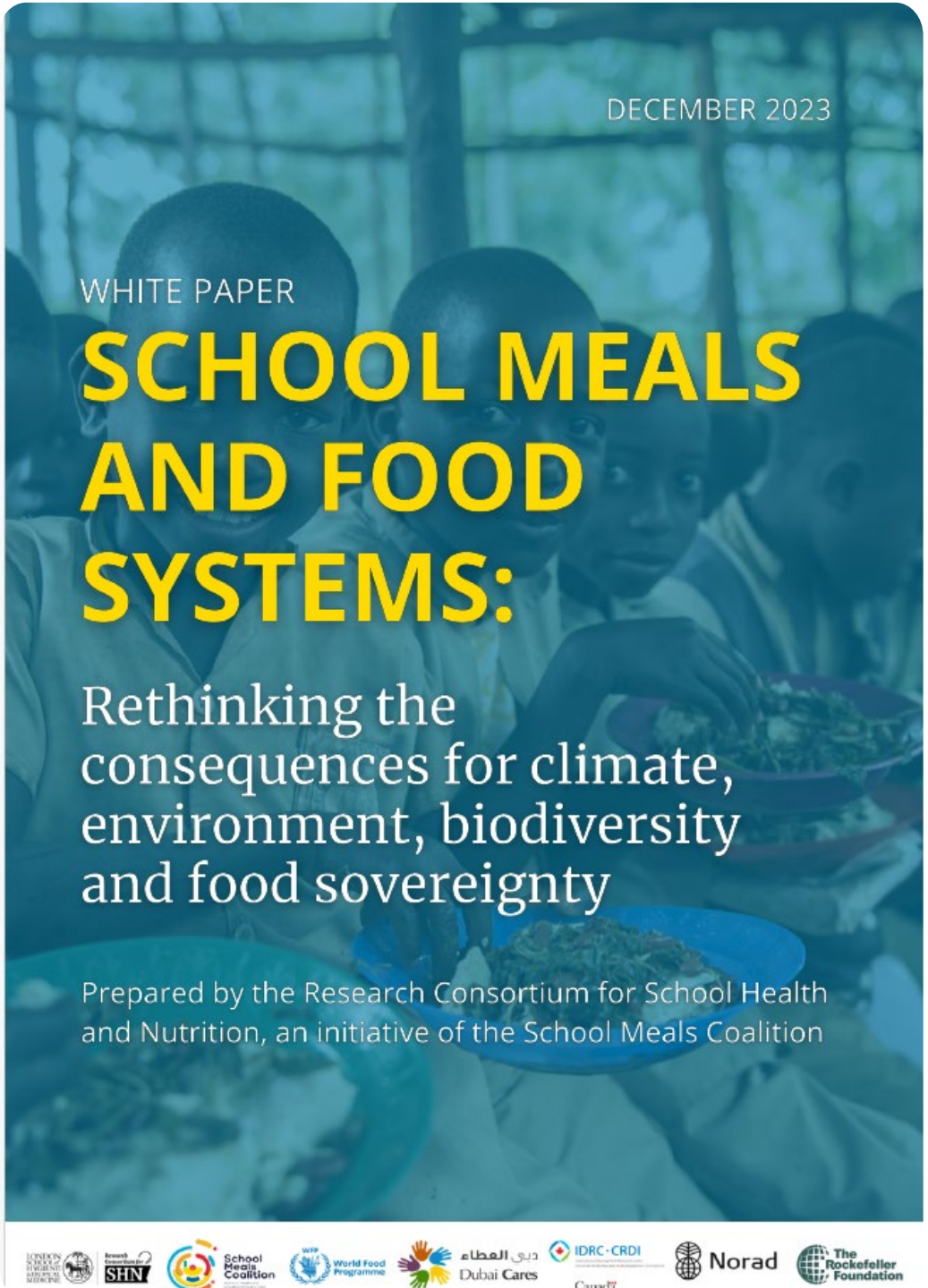


Health Impacts

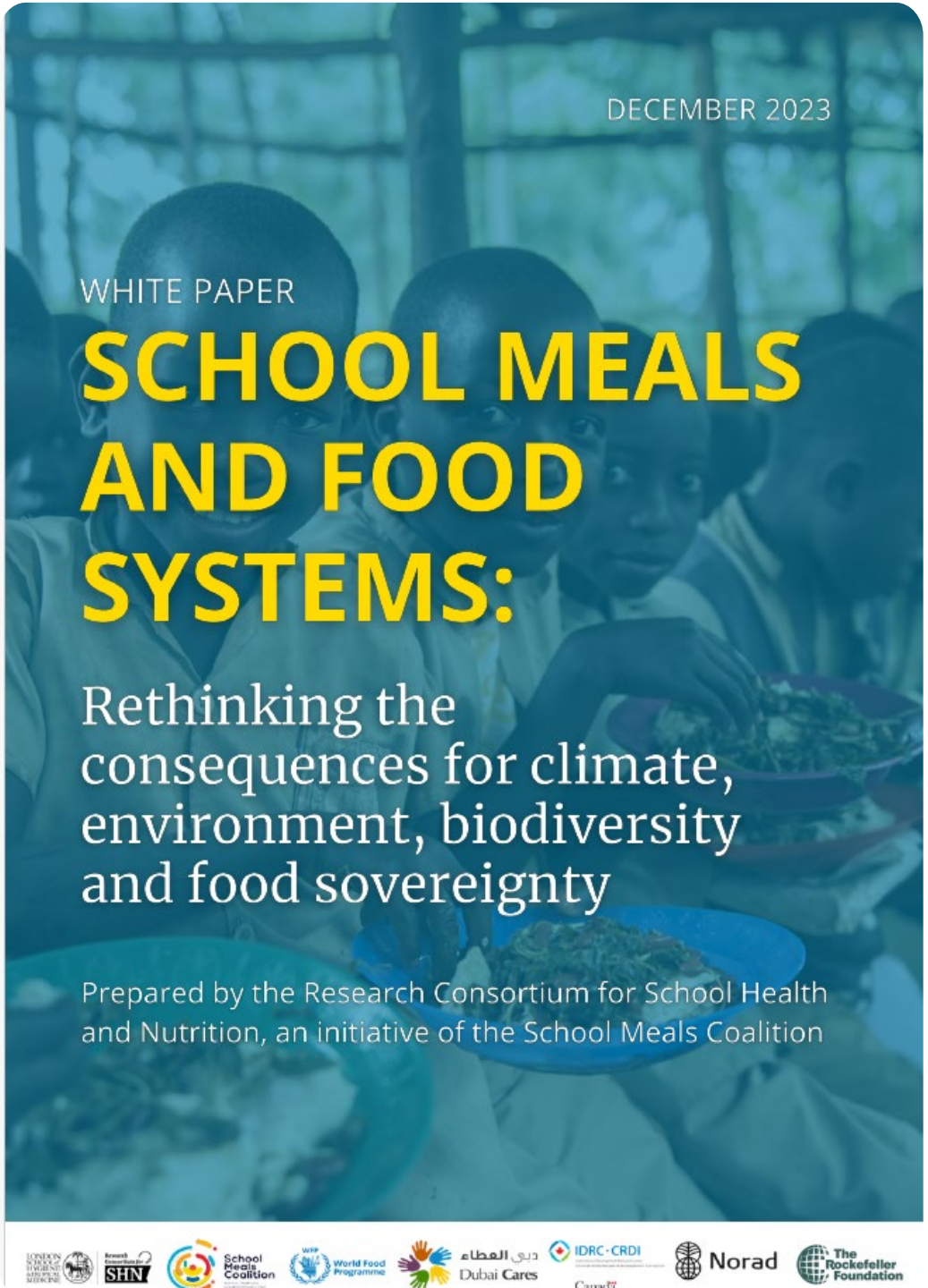
- "Increasing the coverage of school meal programmes can have immediate impacts on the nutritional status of children, and where undernourishment is a persistent problem, also on the associated households, e.g., by allowing foods distributed to other family members."

- "[I]f school meals were provided in addition to current diets in at-risk regions, then **energy intake could increase by 9% in low-income countries** and **3% in middle-income countries**."

- "This, in turn, would **reduce the prevalence of undernourishment in low and middle-income countries by 25% of average** (with a range of 23-28% across the income spectrums), and the number of undernourished people by about 120 million."

- At a **country level**, the relative reductions were largest for **Senegal**, **Malaysia**, **Niger**, **Uganda**, and **Cambodia**.

(Pastorino et al., 2023)



Health Impacts (cont'd)

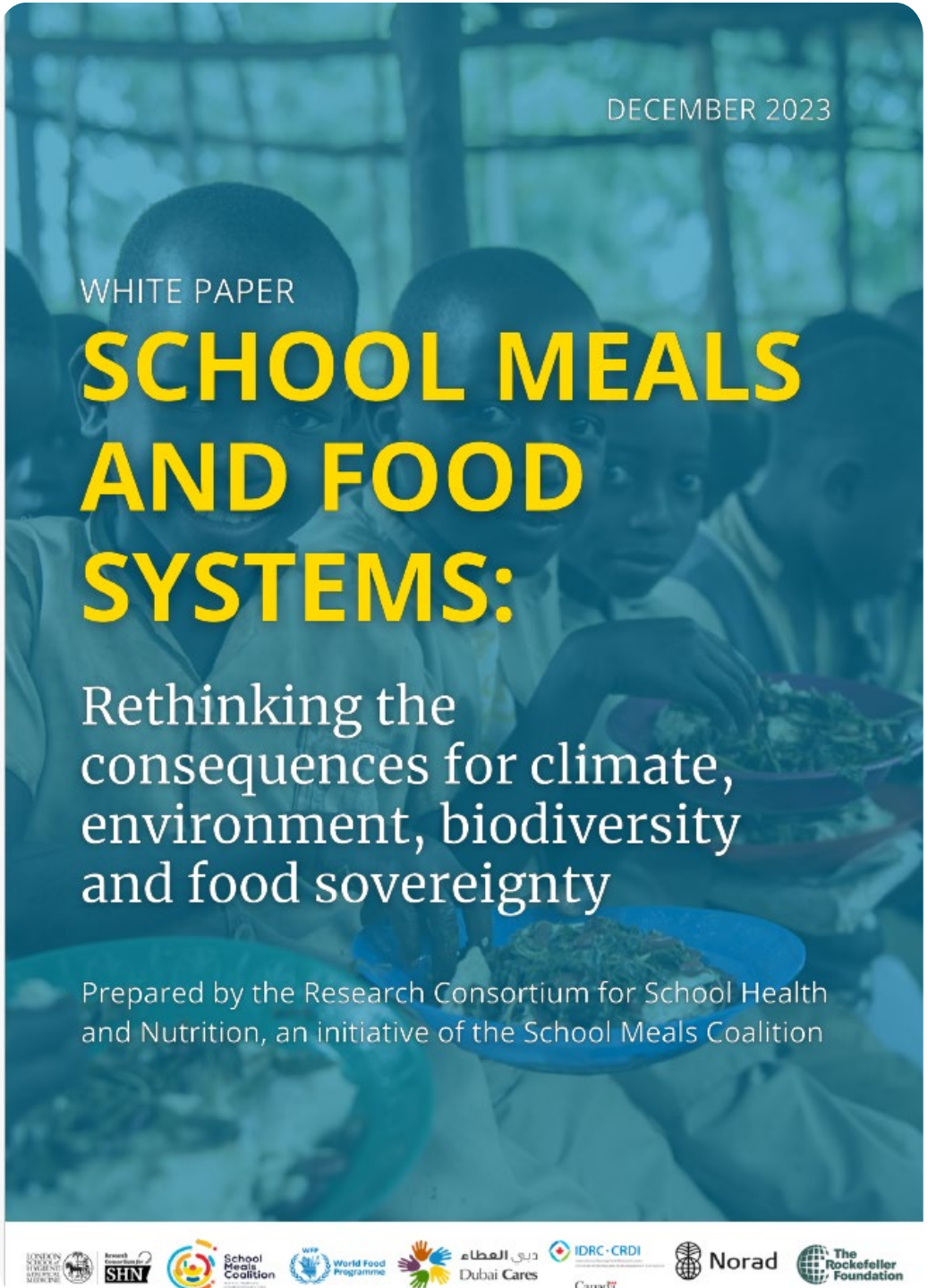
Assuming dietary preferences are maintained, "2.2-3.0 million annual deaths could be avoided in the original cohort of children, representing reductions in the total number of deaths in the school cohort of 12-16%."

The **reductions were greater for adherence to the more comprehensive recommendations for healthy and sustainable diets** (i.e., flexitarian, vegetarian, or vegan diets).

Across regions, "the **reductions** ranged from **8-12% in low-income countries** to **16-20%** in **high-income countries** where baseline diets are relatively more imbalanced and levels of overweight and obesity are higher."

- At a **country level**, the **reductions were the largest** for **Slovakia, Lithuania, Bulgaria, Estonia,** and **Poland** for a meal composition in line with healthy and sustainable flexitarian dietary patterns.

(Pastorino et al., 2023)



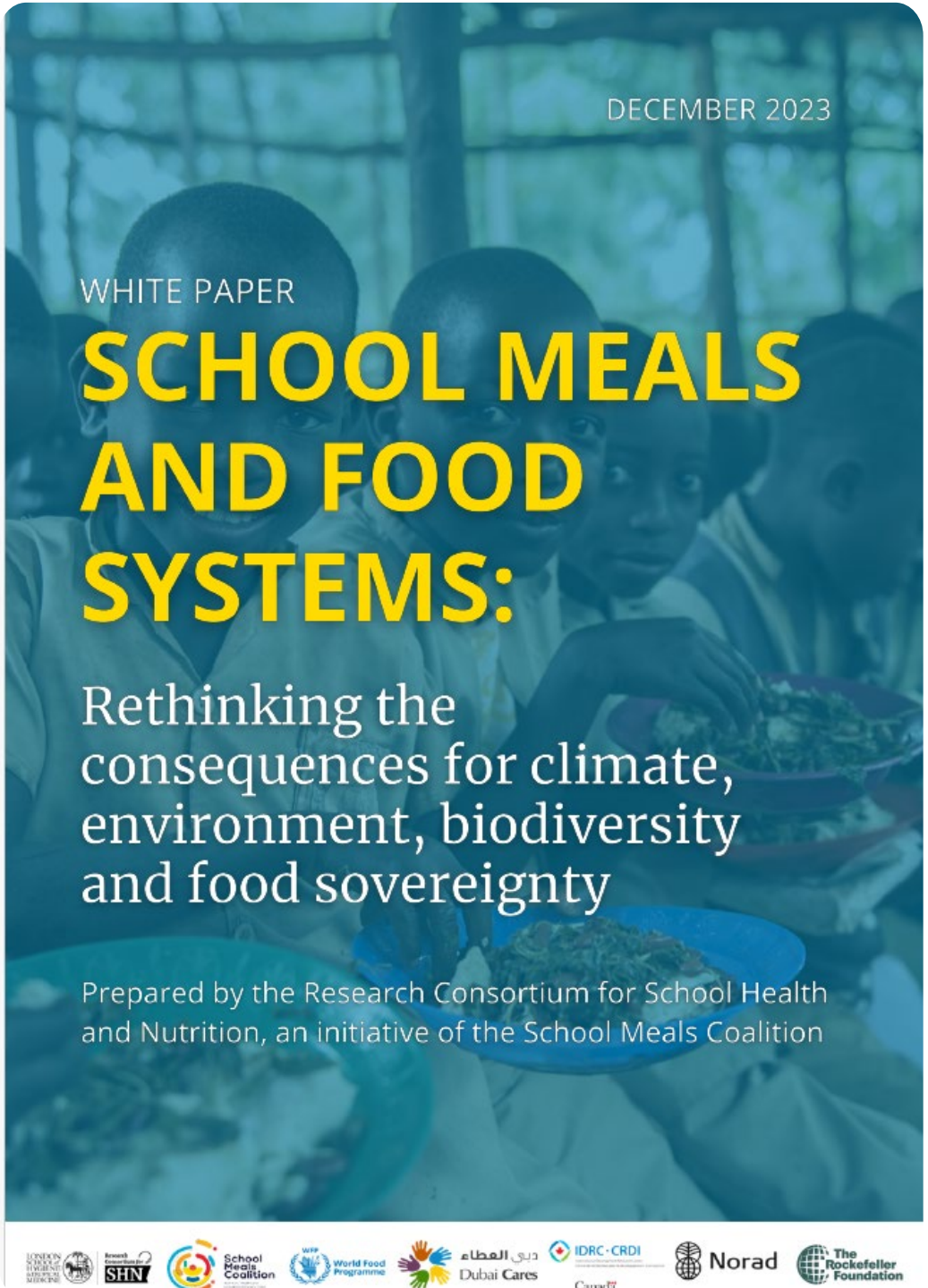
Environmental Impacts

- "Providing every child with at least one meal at school by 2030 would substantially increase the current coverage of school meal programmes."

- "Universal meal coverage with school meals would triple the food-related environmental impacts, if a country's average diet was provided at school from 1% in 2020 to 3-4% in 2030."

- "Changes in meal composition and reductions of food waste can reduce the environmental resource use and pollution of school meal programmes, either by reducing the demand for foods with high environmental impacts such as meat and dairy, or by reducing the overall demand for foods."

(Pastorino et al., 2023)



Environmental Impacts (cont'd)

- "Providing meals in line with recommendations for healthy and sustainable dietary patterns could reduce environmental impacts on average by:

- 26% (12-42% across environmental indicators) for flexitarian meals,

- 43% (18-62%) for vegetarian meals, and

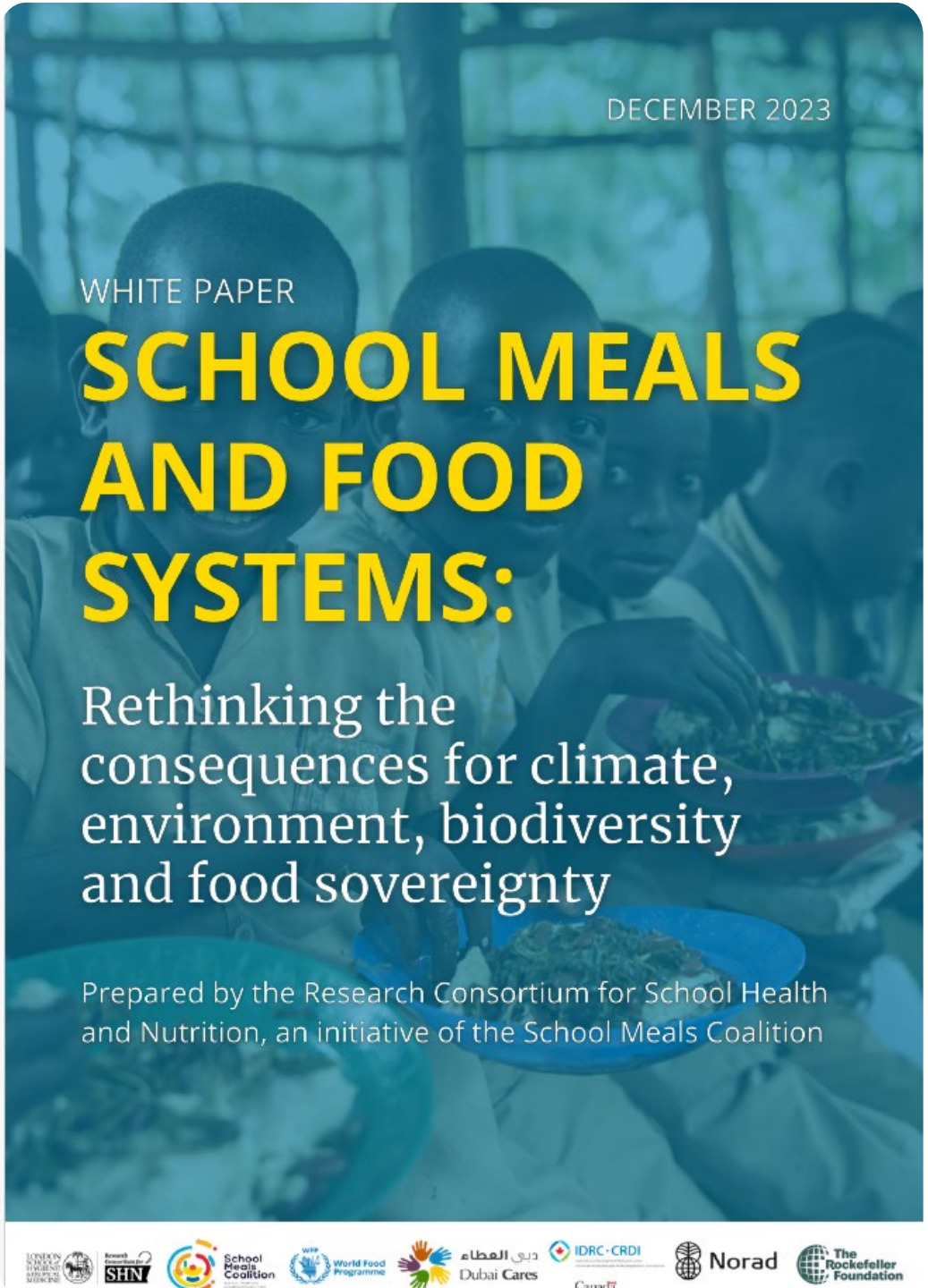
- 52% (23-81%) for vegan meals

in each case with the greatest reductions for land use, followed by GHG emissions, eutrophication potential, and fresh-water use."

- "The reduction potentials were substantial in all regions, including **35-55% across the dietary patterns in high-income countries** and **19-47% in low-income countries**."

- "**Halving food waste could reduce environmental impacts by 13%** (10-14% across environmental indicators), with similar reductions across income regions."

(Pastorino et al., 2023)



Environmental Impacts (cont'd)

- **Combining reductions in food waste with changes in meal composition** resulted in:

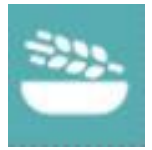
combined reductions of **13% on average in line with national or WHO guidelines**, and of **35-57% for meals in line with recommendations for healthy and sustainable dietary patterns**, with greatest reductions for vegan meals, followed by vegetarian and flexitarian meals."

(Pastorino et al., 2023)

Key Areas Where School Meal Programmes Can Drive Systemic Change in Low Income Countries

- ***Measures at the School Level***

1. **Menu changes which encourage dietary shifts to promote planetary and human health**



e.g., Eco-friendly menus: nutrient rich and diverse including whole grain, legumes, fruits, vegetables and low impact animal foods

Culturally relevant, integrating traditional, indigenous, heritage foods

Locally procured foods from smallholder farmers **(e.g., Home Grown School Feeding Program [HGSF] model)**

Integrate fortification of staple foods where needed

Ecologically-produced foods increasing agrobiodiversity and climate resilience (e.g., regenerative/organic, agroecological approaches such as agroforestry).

2. **Clean and energy efficient cooking solutions**

Shift from cooking with biomass on traditional stoves to clean cooking solutions where feasible

Provide vocational training programs to chefs and kitchen personnel on sustainable cooking practices and the co-development of planet-friendly recipes

Ensure kitchen equipment and school buildings are climate resilient and planet-friendly (e.g., green energy, energy efficient equipment).

Source: *Planet-Friendly School Meals*. Rome, Italy: UN World Food Programme (WFP); November 2023a.

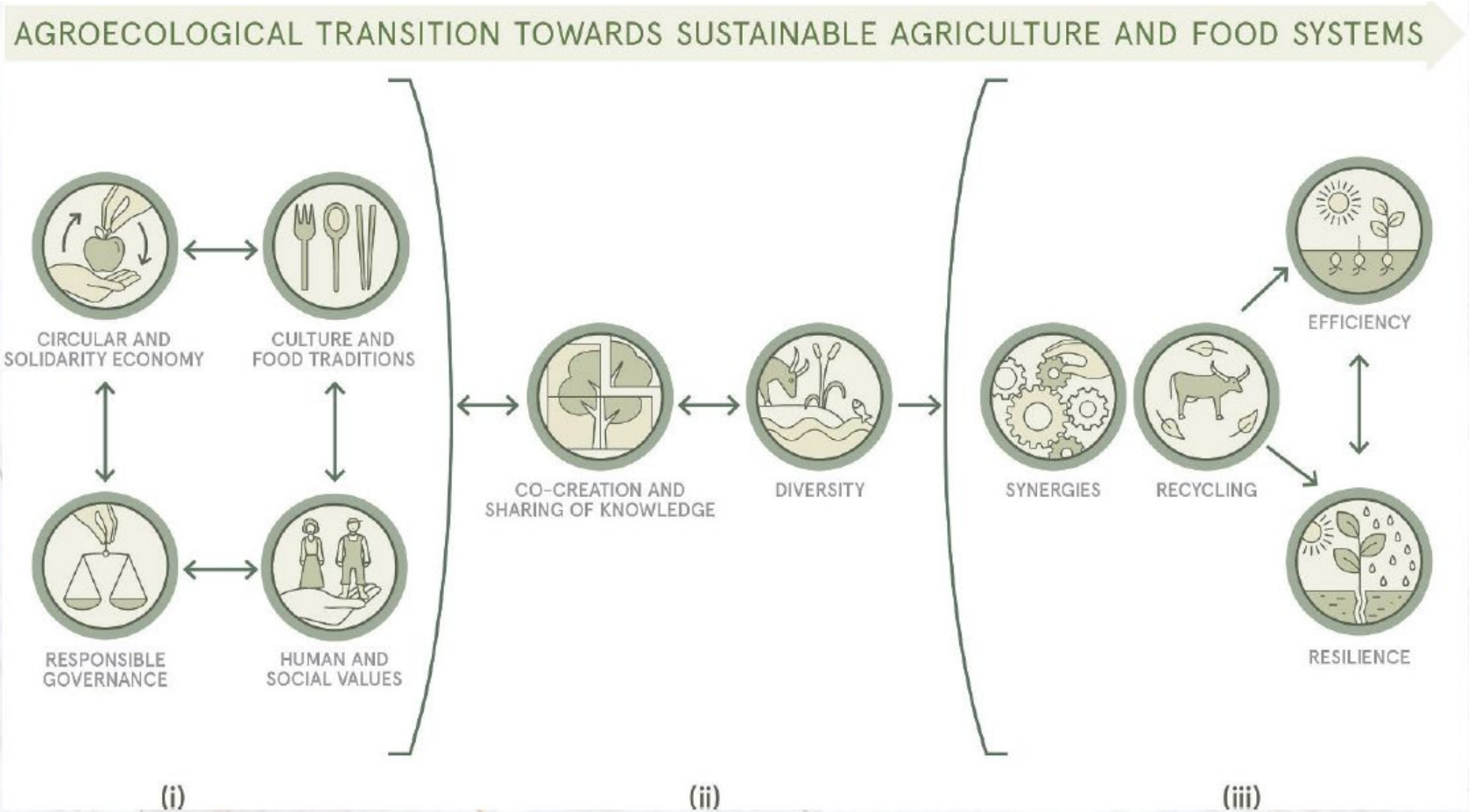


Figure. A theory of transformative change and agroecological trajectory in the **consumers-markets-health nexus** based on the FAO's 10 Elements of Agroecology. (Barrios et al., 2020)

Resilience: "The capacity of a system to absorb disturbance and reorganize while undergoing change as to retain essentially the same function, structure, identify, and feedbacks." (Barrios et al., 2020)

Circular and solidarity economy: it reconnects producers and consumers and provides innovative solutions for living within our planetary boundaries while ensuring the social foundation for inclusive and sustainable development. Re-designing food systems based on the principles of circular economy can help address the global food waste challenge by making food value chains shorter and more resource-efficient.

Agroecology seeks to reconnect producers and consumers through a circular and solidarity economy that prioritizes local markets and supports local economic development by creating virtuous cycles.

Agroecological approaches promote fair solutions based on local needs, resources and capacities, creating more equitable and sustainable markets. Strengthening short food circuits can increase the incomes of food producers while maintaining a fair price for consumers. These include new innovative markets, alongside more traditional territorial markets, where most smallholders market their products.

Social and institutional innovations play a key role in encouraging agroecological production and consumption. Examples of innovations that help link producers and consumers include participatory guarantee schemes, local producers' markets, denomination of origin labelling, community supported agriculture and e-commerce schemes. These innovative markets respond to a growing demand from consumers for healthier diets.

Source: **UN FAO. Agroecology Knowledge Hub**. https://www.fao.org/agroecology/knowledge/10-elements/circular-economy/en/?page=29&ipp=5&tx_dynalist_pi1%5Bpar%5D=YToxOntzOjE6IkwiO3M6MToiNiI7fQ%3D%3D

Key Areas Where School Meal Programmes Can Drive Systemic Change in Low Income Countries

- ***Measures at the School Level***

3. **Prevention of food loss and waste and reduction of plastic use**

- Measure food portions to avoid waste
- Dispose of organic waste matter through composting
- Minimize the use of plastic and explore recycling opportunities

4. **Food System education**

Mixed theoretical and hands-on learning strategies to understand the interconnectedness between food systems, health and environment are key for students of all grades including:

- Embedded learning about the impacts of food systems on the environment and climate as part of the curriculum (e.g., science curriculum)

- Prioritize real-life and practical activities such as farm visits, hands-on activities involving school gardens, taste tests/sessions and waste awareness.

Photo Credit: World Vegetable Center - Nepal

Source: *Planet-Friendly School Meals*. Rome, Italy: UN World Food Programme (WFP); November 2023a.

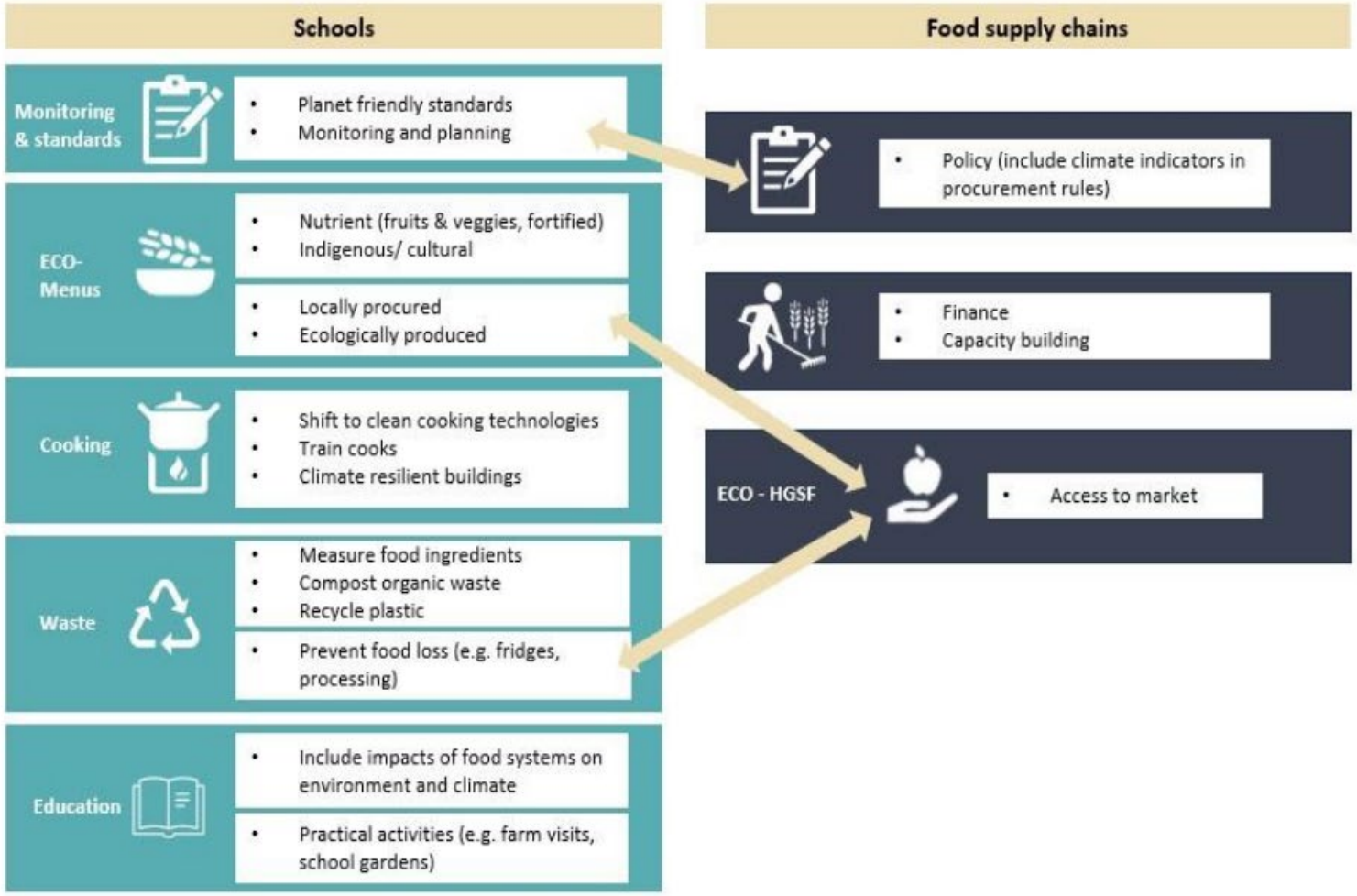
Key Areas Where School Meal Programmes Can Drive Systemic Change in Low Income Countries

- ***Measures at Supply Chains Level***

- Integrate climate targets in policies, recommendations, procurement rules and contracts as a guide to school meal provisioning at national, regional and local levels

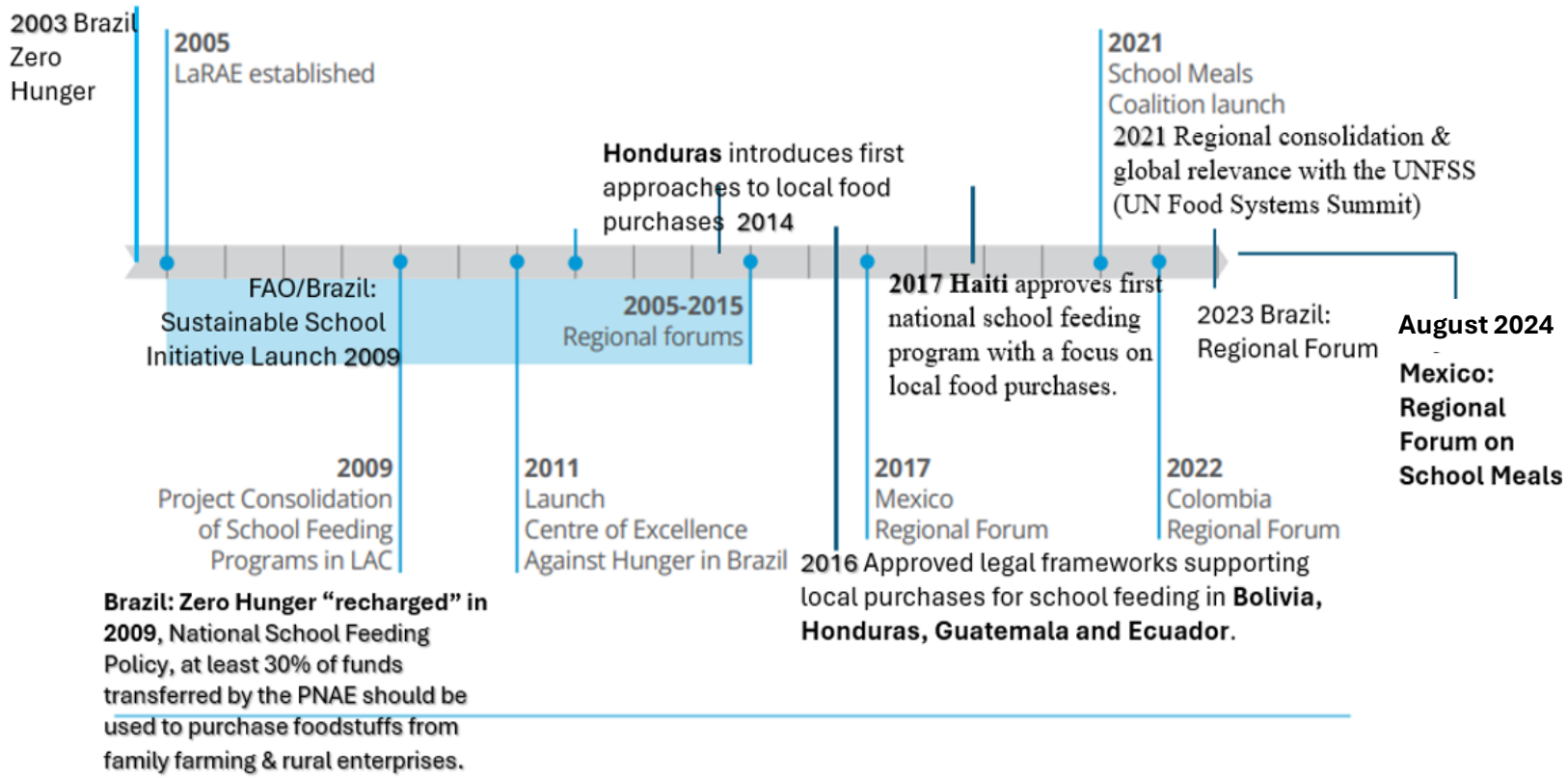
- Make innovative financing models available to support local micro small and medium enterprises, farm organizations, and cooperatives to support climate resilient investment and microfinance.

- Build linkages to markets including to schools.



Source: *Planet-Friendly School Meals.* Rome, Italy: World Food Programme (WFP); November 2023a.

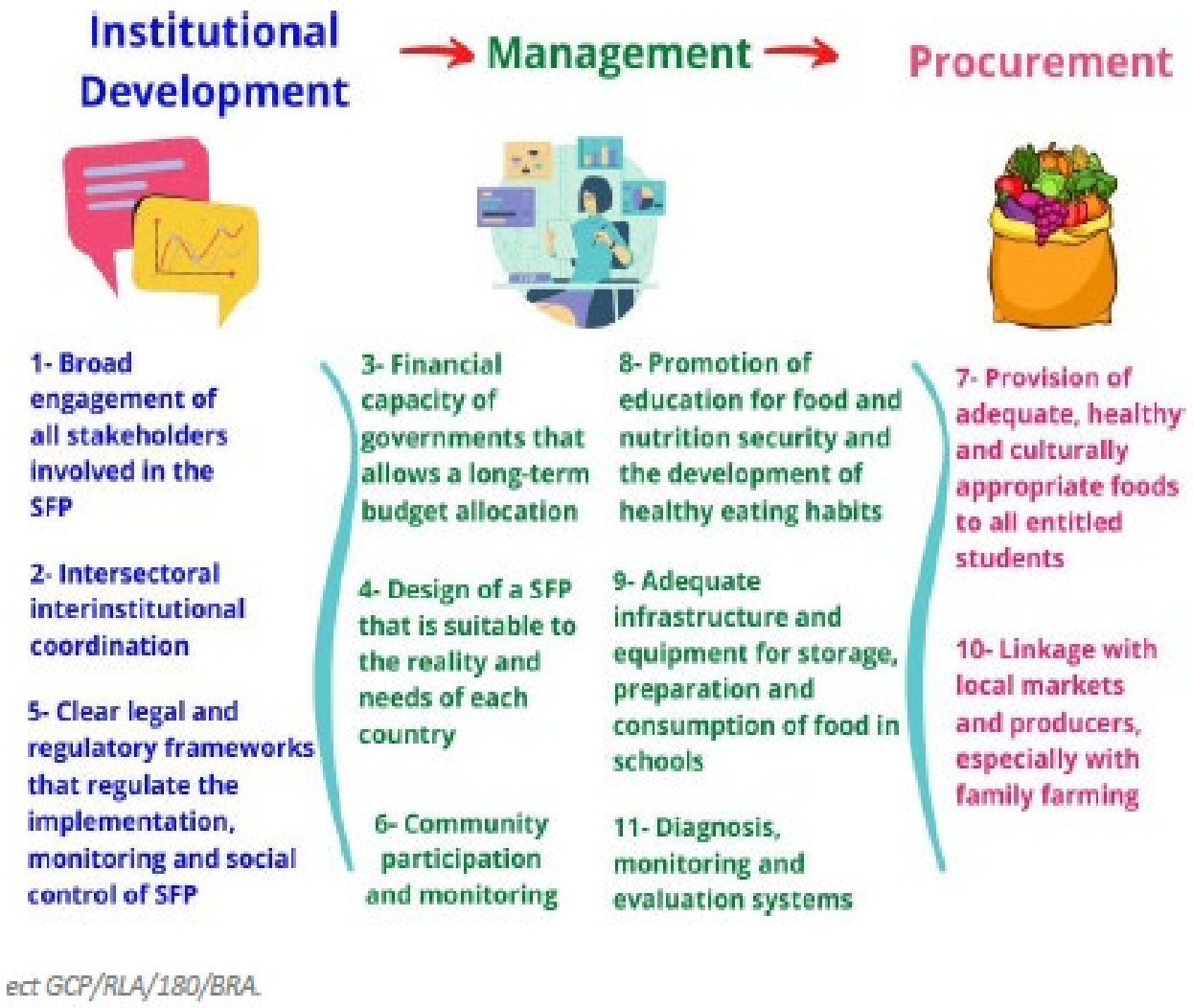
Timeline of regional cooperation on school meals in Latin America and the Caribbean (LAC)



In 2009, the Brazilian Cooperation Agency (ABC) and the National Fund for the Development of Education (FNDE), with FAO support, established a *South-South and Triangular Cooperation Framework* to implement the *Consolidation of School Feeding Programmes in Latin America and the Caribbean* project. The project has promoted improvements in school feeding policies, recognizing them as means of social protection and a guarantee of the human right to adequate food.

Adapted from: Inter-American Development Bank (IDB) and WFP, 2023 and Martinez et al. (2023)

Sustainable School Feeding Programs (SFP) in Latin America and the Caribbean (LAC)



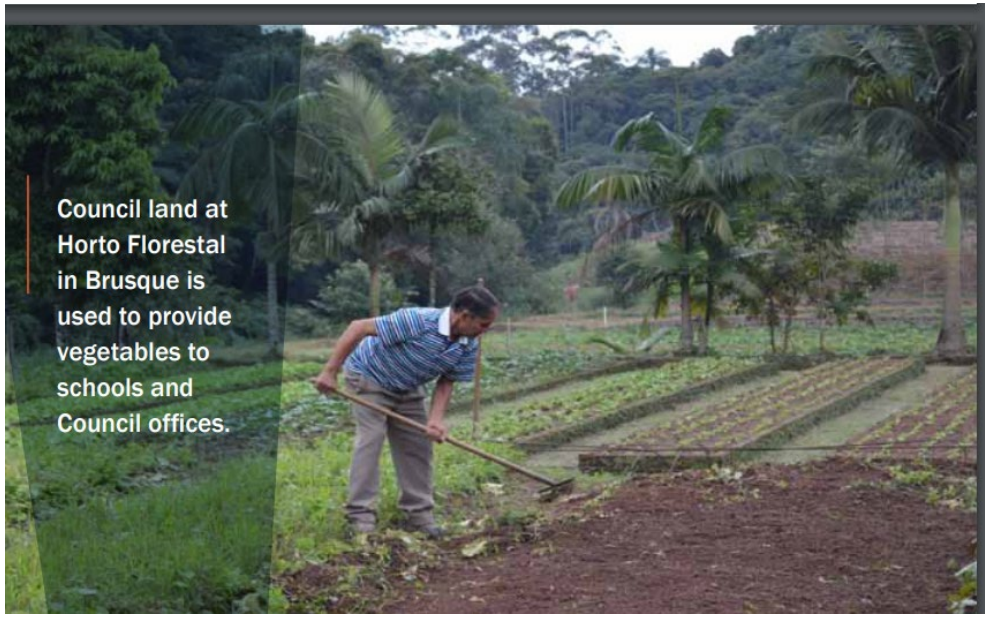


Photo Credit: FAO (Brazil)

Law 11, 947, June 16, 2009, and Res. CD/FNDE 38, July 16, 2009 – **Brazilian National School Feeding Policy (PNAE),**

at least 30% of resources transferred by the FNDE must be used in the purchase of foodstuffs from family farming and rural enterprises.
(Martinez et al., 2023)

Source: Sustainable Schools: Conceptual and methodological guidelines. 4th Edition. *Sustainable School Feeding Network: Latin America and the Caribbean. RAES (An initiative of FAO, FNCE, ABC, Ministry of Education, Ministry of Foreign Affairs, Brazilian Government)*: Brasília, Brazil. November 2022.

Step-by-step process for adequate implementation of Sustainable School Feeding Programs in LAC

1 - Interinstitutional and intersectoral coordination	2 - Community involvement and monitoring	3 - Food and nutrition education and educational school gardens	4 - Improvement of infrastructure for school feeding	5 - Adoption of adequate and healthy menus	6 - Direct purchases from local family farming for school feeding
Step 1 - Set up an interinstitutional and intersectoral committee at national and local level **Step 2** - Undertake participatory consultation **Step 3** - Plan the SS pilot in collaboration with all stakeholders **Step 4** - Run the SS pilot	**Step 1** - Set up the technical committee at a local level (municipalities) **Step 2** - Raise awareness in the school community about the SS pilot **Step 3** - Plan local actions in collaboration with all stakeholders	**Step 1** - Convoke the National Technical Committee (NTC) and formation of the Local Technical Committee (LTC) **Step 2** - Diagnose best practices of FNE **Step 3** - Plan FNE activities **Step 4** - Train technicians and managers for the FNE **Step 5** - Carry out a follow-up ofFNE actions	**Step 1** - Call the NTC and formation of the LTC **Step 2** - Diagnose infrastructure status in the school **Step 3** - Plan actions for the improvement of school infrastructure **Step 4** - Identifyfe budget for the school infrastructure component **Step 5** - Carry out infrastructure work	**Step 1** - Set up committee for the development of FNP **Step 2** - Carry out a Study on the Nutritional Status of Students (SNSS) **Step 3** - Analyze school meals offered in schools **Step 4** - Follow the mapping of local production of family farming (FF) **Step 5** - Develop adequate, healthy, and culturally appropriate menus **Step 6** - Develop complementary actions **Step 7** - Systematize the FNP document	**Step 1** - Convoke the LTC with involved institutions **Step 2** - Review legal frameworks and public policy related to SFP and FF **Step 3** - Identify the budget and define processes for public purchases **Step 4** - Map local FF production (supply) **Step 5** - Identify school feeding demand based on the menu elaborated **Step 6** - Put in place the process of local and direct purchases fromFF for school feeding

Source: Sustainable Schools: Conceptual and methodological guidelines. 4th Edition. *Sustainable School Feeding Network: Latin America and the Caribbean. RAES (An initiative of FAO, FNCE, ABC, Ministry of Education, Ministry of Foreign Affairs, Brazilian Government)*: Brasília, Brazil. November 2022.

Main Actors involved in Sustainable Feeding Programs (SFP) in LAC

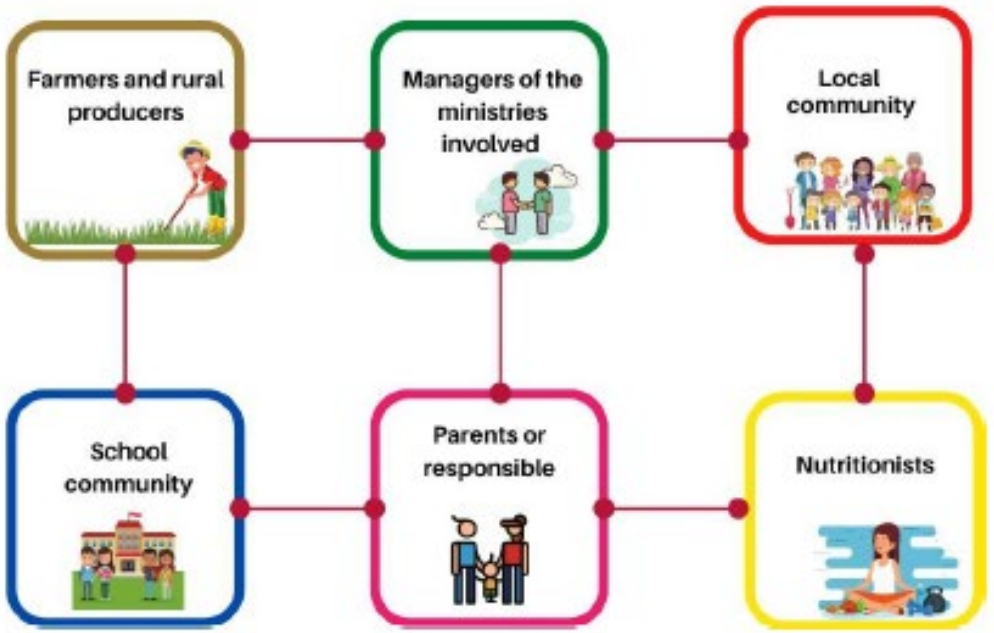


Photo Caption: El Salvador - Sustainable School

Source: Sustainable Schools: Conceptual and methodological guidelines. 4th Edition. *Sustainable School Feeding Network: Latin America and the Caribbean. RAES (An initiative of FAO, FNCE, ABC, Ministry of Education, Ministry of Foreign Affairs, Brazilian Government)*: Brasília, Brazil. November 2022.

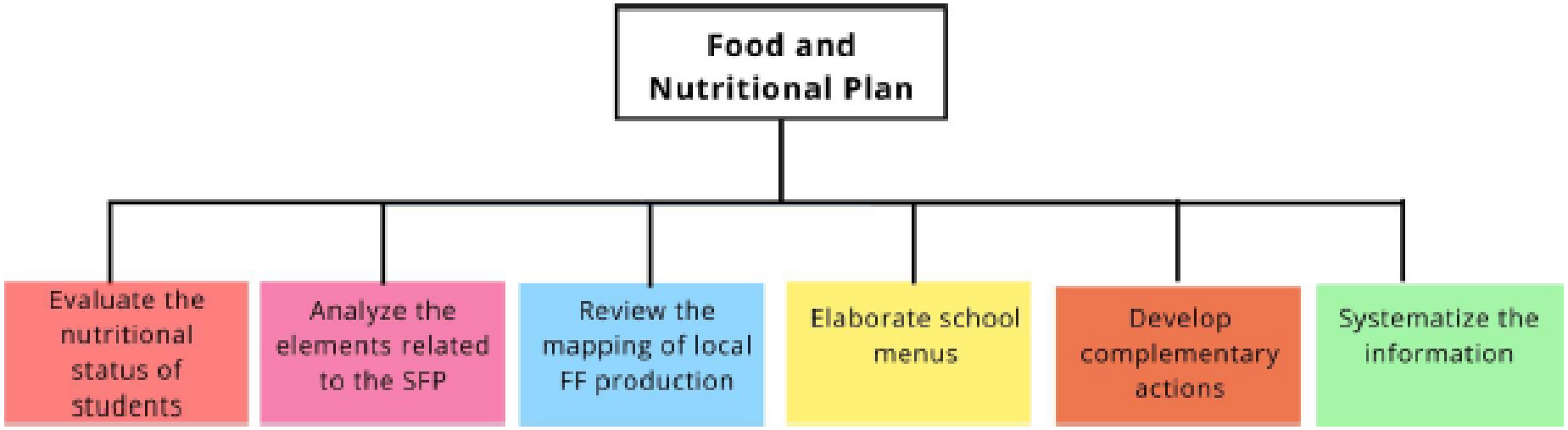
Elements of the Food and Nutrition Education (FNE) Action Plan

The FNE activities should be planned considered three levels of participants:

1) health and education managers (including nutritionists/registered dietitians (RDs)/registered dietitian nutritionists (RDNs) and dietetic technicians, 2) principals, teachers and other educational community members and 3) parents.

Source: Sustainable Schools: Conceptual and methodological guidelines. 4th Edition. *Sustainable School Feeding Network: Latin America and the Caribbean. RAES (An initiative of FAO, FNCE, ABC, Ministry of Education, Ministry of Foreign Affairs, Brazilian Government)*: Brasília, Brazil. November 2022.

Steps for the Implementation of the Food and Nutrition Plan (FNP) for Sustainable Feeding Programs (SFP)



Source: Sustainable Schools: Conceptual and methodological guidelines. 4th Edition. *Sustainable School Feeding Network: Latin America and the Caribbean. RAES (An initiative of FAO, FNCE, ABC, Ministry of Education, Ministry of Foreign Affairs, Brazilian Government)*: Brasília, Brazil. November 2022.

Sustainable School Feeding Program (SFP) Management

<u>See Annex, pages 30-38</u>:

- students survey
- teachers survey
- school survey (as part of the nutrition plan)

<u>Source:</u> Sustainable Schools: Conceptual and methodological guidelines. 4th Edition. *Sustainable School Feeding Network: Latin America and the Caribbean. RAES (An initiative of FAO, FNCE, ABC, Ministry of Education, Ministry of Foreign Affairs, Brazilian Government)*: Brasília, Brazil. November 2022.

Annex

SNSS methodological design, Student questionnaire,
Teacher Questionnaire and School Questionnaire

1. STAGES OF THE STUDY OF THE NUTRITIONAL STATUS OF THE STUDENTS (SNSS)

The five stages of the SNSS are detailed below:

A) Interinstitutional coordination

1. Convocation of the National Committee

In this first stage, the actors of the national committee should be gathered to explain about the scope of the implementation of this activity. The involvement of the health and education sector, as well as national and international organizations that work for the improvement of nutrition in the participating countries is very important. The result of this work session will be the approval of the beginning of the process at the level of the schools which have been selected.

2. Dissemination of information to local committee (Municipality)

Once the national committee has taken the decision to begin the implementation process of the SNSS in the territory, a meeting at each municipality level should be held, with the aim of exposing to the local committee the relevance and progress of the study in the schools.

3. Definition of responsibilities for each sector

At the Local Committee level, and with the participation of the National Committee actors, the process of defining the responsibilities of each sector and the coordinating team for the preparation and implementation of the SNSS begins.

4. Definition of the technical coordinator team of the study

Once the responsibilities of each sector and of the coordinating team have been defined, each country should define the technical team that will coordinate the implementation of the Sustainable Schools. It should be composed of a nutritionist, local managers, coordinators and other people involved with this topic. It can be made up of local people and/or contracted consultants at the national and local levels, and it is important to highlight that it also has the support of the Project's regional nutrition consultant and the FAO focal points of each country.

B) Planning

1. Meeting with coordinator team and focal points

It is recommended that a brief presentation be made of the SNSS principles and methodological guidelines. Next, the team should start planning the study, reviewing the proposed methodology (materials about population/sample, indicators, references and instruments) and adapt it when necessary.

2. Development of the SNSS technical and methodological design

2.1. Definition of the population and sample study

One of the initial actions is to calculate the total number of students who will participate in the sample in the selected schools. Firstly, the initial enrollment data should be obtained from each of the educational centers that comprise the study. The team should define the inclusion and exclusion criteria, according to the needs of each country. Some criteria suggestions are presented below:

Source: Sustainable Schools: Conceptual and methodological guidelines. 4th Edition. *Sustainable School Feeding Network: Latin America and the Caribbean. RAES (An initiative of FAO, FNCE, ABC, Ministry of Education, Ministry of Foreign Affairs, Brazilian Government)*: Brasília, Brazil. November 2022.

Inclusion criteria:

- ✓ Age of the students between the ranges defined by the team in each country. It is recommended the inclusion of children from all the educational levels covered by the SFP, when possible;
- ✓ Students whose parents or guardians have accepted the participation of their children in the study;
- ✓ Students who have accepted to participate in this study.

Exclusion criteria:

- ✓ Students with physical disabilities;
- ✓ Students in medical treatment or who present some kind of illness;
- ✓ Children of parents or guardians who have declined to participate in the study;
- ✓ Students who have declined to participate in the study; and
- ✓ Students whose parents or guardians have not been found to be invited to participate in the study.

2.2. Variables and proposed indicators

Some suggestions of variables and indicators that can be used for data and information collection of students and their families, teachers and schools are suggested below.

It is important to emphasize that each country can adapt them according to their reality and needs, the availability of human and financial resources, the epidemiological profile, the time available, the local conditions and local support, and the level of deepening that interests them, which should be discussed and agreed among the members of the coordinating committee. Other data and information that the country considers important may also be collected.

Table 2 - Variables, measures, indicators and references for the SNSS

Variables	Measurements and Indicators	Objective	Target Population	Method and reference values
Anthropometry	Weight and height BMI/age Height/age	Evaluate the growth and development of the student, in terms of weight and height gain It allows diagnosing malnutrition, in relation to deficit or excess (malnutrition, overweight and obesity)	All sample students	Portable electronic scale and height rod References For < 5 years old: WHO curves, 2006[10] For ≥ 5 years old: WHO 2007[11]
Clinical analysis (to be carried out according to country criteria)	Blood sample Hemoglobin, glucose, triglycerides, cholesterol levels in the blood	Investigate disturbances related to anemia, dyslipidemia, diabetes	All sample students	Methods and reference values of local laboratories
	Parasitology stool test Presence of parasites in the feces	Verify the presence of intestinal parasites	All sample students	Methods and reference values of local laboratories
Physical exam (to be carried out according to country criteria)	Blood pressure	Identify the presence of hypertension	Students from 10 to 15 years old (or from age ranges to be defined by country)	Verification of blood pressure with automatic equipment Nationally accepted reference values

[10] WHO. **WHO Child Growth Standards.** http://www.who.int/childgrowth/standards/en

[11] WHO. Growth reference 5-19 years. **Growth reference data for 5-19 years.** http://www.who.int/growthref/en

Variables	Measurements and Indicators	Objective	Target Population	Method and reference values
Socioeconomic food survey	Consumption/eating habits Food consumption in the canteen/cafeteria/school vendors. Others, according to the country.	Identify the reality of the students in relation to their diet at home and at school Identify information that can serve as input for FNE activities	4th and 5th grade students (or age ranges to be defined by country)	Questionnaire filled out by the students under the supervision of teachers and national consultants
Teachers	Perceptions and practices about FNE	Identify how teachers see the FNE, if they implement it in schools and how, in order to subsidize the planning of future activities in the school	All teachers	Questionnaire filled out by the teachers

2.3. Elaboration of instruments for information collection

In the annexes, some suggestions of instruments that were used in other countries are also presented. Coordination teams can make the necessary adjustments to the instruments to suit the demand of each country.

2.4. Institutional articulation and field visits

It is essential to ensure interinstitutional coordination at central and local level, including for the field visits. Visits to schools by the coordinating team are important to present the activity to the school community, to sensitize principals and teachers, to coordinate dates, collect data on students and learn about logistics aspects, such as transport conditions for the field team, schools schedule, routes and others.

2.5. Acquisition of equipment and supplies

The loan of the necessary equipment for the execution of the SNSS should be coordinated at country level. Only when absolutely necessary, equipment and materials should be purchased. All equipment must be tested and calibrated, before going to the field.

2.6. Establishment and training of a field team

In coordination with local institutions and with the support of the school, field work teams should be established, with trained professionals/technicians to carry out all the planned activities. Based on the experience of countries that have developed the SNSS, the following members have been part of the field team:

- ✓ A person responsible for receiving and guiding the participants of the study at the school;
- ✓ A person responsible for taking anthropometric measurements (anthropometrist, nutritionist or someone with experience);
- ✓ A nurse technician for blood sampling and blood pressure check;
- ✓ Researchers or experience professional for the application of the surveys;
- ✓ An anthropometrist assistant to support in the body weight and height measurements; and
- ✓ A person immediately responsible for transporting stool samples collected to the laboratory.

2.7. Organization of the materials

Source: Sustainable Schools: Conceptual and methodological guidelines. 4th Edition. *Sustainable School Feeding Network: Latin America and the Caribbean. RAES (An initiative of FAO, FNCE, ABC, Ministry of Education, Ministry of Foreign Affairs, Brazilian Government)*: Brasília, Brazil. November 2022

International School Meals Day: March 14, 2024

https://internationalschoolmealsday.com/

International School Meals Day: March 14, 2024

Photo Credits: International School Meals Day

Learn more and download the 2024 resource pack at:
https://internationalschoolmealsday.com/

Nutrition and Dietetics Practitioners: Roles and Responsibilities in Sustainable School Feeding

- Serve as a member of the technical team that is coordinating a sustainable school feeding program (planning, guidance, follow-up, implementation, and monitoring and evaluating of results).
- Serve as a member on a school health advisory committee or school feeding council.
- Develop eco-friendly sustainable menus in coordination with others at school and in the community including students, chefs/foodservice personnel, teachers, and local agricultural producers – depending on the availability of seasonal and local foods.
- Reduce food waste and plastic use and set up a food composting operation.
- Develop, implement, and evaluate school-based food system and nutrition education curriculum – in the classroom and cafeteria or school canteens.

Izabela Albani, a nutritionist with Brusque Council, is helping schools to tackle obesity and poor nutrition.

"One of our aims is to reduce levels of obesity by ensuring that the children have a healthy, well-balanced diet," says Izabela Albani, a nutritionist at the Department of Education in Brusque. The councils also devise diets for pupils with special needs, such as those suffering from diabetes or food allergies.

Photo Credit: FAO (Brazil)

Nutrition and Dietetics Practitioners: Roles and Responsibilities in Sustainable School Feeding

- Integrate climate targets in school policies, recommendations, procurement rules and contracts as a guide to school meal provisioning.

(include climate responsive approaches to school feeding in countries' Nationally Determined Contributions, National Adaptation Plans and long-term strategies under the United Nations Framework Convention on Climate Change and IPCC – see: Hunter et al. 2022; Pastorino et al., 2023)

- Provide humanitarian assistance that includes school feeding programs tailored to migrants and other at-risk populations to improve social inclusivity/sustainability.

- Participate in International School Meals Day – March 14, 2024:

  Download the 2024 resource pack at:

  https://internationalschoolmealsday.com

TAHOE TRUCKEE UNIFIED SCHOOL DISTRICT
Climate-Smart School Meals Award
Kat Soltanmorad, RDN, Director of Food and Nutrition Services

Kat Soltanmorad is committed to climate-smart school meals that support the health of students and the planet. When she joined Tahoe Truckee Unified School District as Director of Food and Nutrition Services, her mission was to transform the meal program, moving from pre-packaged heat-and-serve meals to fresh, delicious, scratch-cooking. Kat's menus reflect the knowledge and commitment she earned from over 20 years of experience in school nutrition. The district's freshly-prepared meals use produce and bulk milk sourced primarily from local distributors, Tahoe Food Hub and Produce Plus, allowing cafeterias to feature salad bars with reusable silverware, plates, and milk dispensers.

Photo Credit: Center for Ecoliteracy, 2023

School Feeding Programs/Programmes: Additional Resources

School Food Global Hub - FAO:

https://www.fao.org/platforms/school-food/en

- Hosts up-to-date information about the situation of school food nutrition guidelines and standards (NGS) and food and nutrition education programs around the world.
- Provides tools and guidance to support the design and implementation of school food and nutrition policies and interventions.
- Offers a space for youth and the school community to share their experiences and have their voices heard.

School Food and Nutrition – FAO:

https://www.fao.org/school-food/en/

➢ School Food and Nutrition: Inclusive Procurement and Value Chains

https://www.fao.org/school-food/areas-work/inclusive-procurement

- The **Home-Grown School Feeding approach** offers local farmers a regular market (schools) for their production. This approach can boost local agriculture, create business opportunities for smallholder farmers and other vulnerable producers (including women, youth, & members of traditional communities), and contribute to community socioeconomic development.

- Such an approach can increase the value of traditional foods, which are nutritious but often overlooked. These programs can also be designed to promote nutrition-sensitive, agro-ecological, and/or climate-sensitive agriculture practices.

Source: FAO

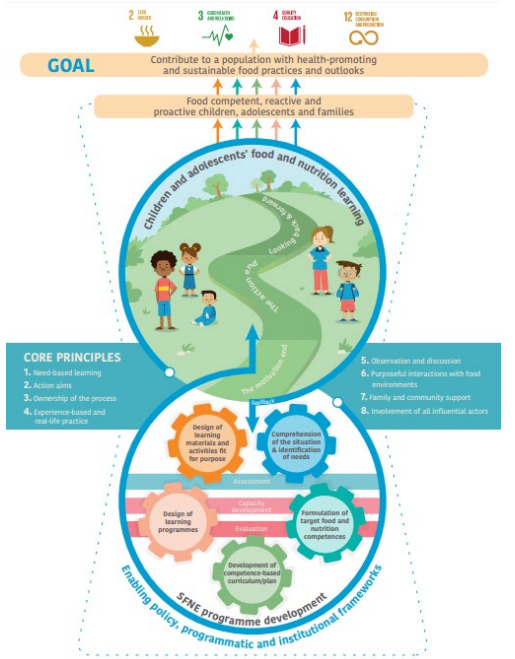
School Feeding Programs/Programmes: Additional Resources

Healthy and Sustainable Food Pathways for Schoolchildren – FAO:

https://www.fao.org/resources/digital-reports/school-nutrition/en/

School Nutrition Standards for Safeguarding Children's Right to Food - FAO:

https://www.fao.org/in-action/school-nutrition-standards-for-safeguarding-children-right-to-food/en/



School Connect – World Food Programme (WFP):

https://innovation.wfp.org/project/schoolconnect

"[A]n application that helps digitize information in schools in Africa."

SMP PLUS (formerly PLUS School Menus) – World Food Programme (WFP):

https://innovation.wfp.org/project/smp-plus

"The School Menu Planner (SMP) PLUS is an easy-to-use, online menu creation platform that uses artificial intelligence to create cost-efficient, nutritious, and local menus, all in just a few minutes."

School Feeding Programs/Programmes: Additional Resources

- **School Feeding Management App – World Food Programme (WFP):**

https://innovation.wfp.org/project/school-feeding-management-app

- "WFP's School Feeding Management App connects home grown farmers to schools to enhance school meals and nutrition in Guatemala, while creating new opportunities for farmers to generate income and improve their livelihoods."

Global Child Nutrition Foundation (GCNF):

https://gcnf.org/about/

- "GCNF stimulates investment in nutritious school meals, unlocking political will and resources necessary to implement and sustain national programs. GCNF helps governments around the world build national school meal programs that are locally-sourced, develop markets for smallholder farmers, create opportunities for female entrepreneurs, and are ultimately independent from international aid. "

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Thank You!

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