Policies and programs for minimally processed foods: a global perspective

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Background

Unprocessed and minimally processed foods (UMPs), are foods that **do not undergo any alterations or have very minimal processing methods** that include cleaning, the removal of inedible parts, or other methods that do not include the addition of oils, fats, sugars, and other substances.[1] Intake of UMPs is associated with diversified diets that are nutrient-rich and show less risk of developing cardiometabolic diseases.[2] Despite the benefits that come from eating UMPs, food markets across the world have been dominated by the presence of ultra-processed foods (UPFs), with nearly half of daily energy intake coming from these items.[3] **UPFs are typically energy-dense, have unfavorable macro- and micronutrient profile**s, and contain additives that can be detrimental to health when consumed in excess.[4] Rising consumption of these foods increases the risk of developing non-communicable diseases (NCDs) such as obesity and cardiovascular disease.[4]

With 70% of all deaths globally being attributed to NCDs, it is crucial to reduce the consumption of UPFs and promote the eating and selling of nutrient-dense foods.[5] The area with the greatest potential for change is the supply and demand sectors of UMPs, due to food supply chain being an integral part of any food system.[6] By influencing the market, the diets of individuals around the world can be changed to develop healthier lifestyles through the consumption of nutrient rich UMPs that can prevent the onset of NCDs through regulation of foods we purchase and eat. To achieve this initiative, policies and programs have been implemented around the world to improve and diversify the supply of UMPs. These policies and programs have acted as facilitators within their respective countries to address health adversities and provide opportunities for change in their local food systems and communities.

Why are programs/policies needed?

- **From a nutrition and public health perspective**: These policies and programs are essential for intervening in the risk of chronic diseases caused by malnutrition and for maintaining global nutritional standards. Increasing and diversifying the supply of UMPs facilitates the formation of balanced diets, reducing excessive intake of nutrients linked to health issues. This approach allows other nutrients to exert their health benefits, promoting overall public health and well-being.
- **From a health equity framework:** These policies are crucial for individuals living in environments such as food deserts that have limited access to UMPs. Increasing and diversifying the supply of UMPs is crucial for health equity because these foods are rich in essential nutrients and free from harmful additives found in highly processed foods which contribute to diseases that disproportionately affect low-income and minority populations.
- **From a local economic and social impact perspective:** these policies are crucial. They are not standalone solutions but are needed to work in conjunction with other equity-based initiatives. The goal of these combined efforts is to lower barriers and make it easier for people to access minimally processed foods. Beyond the institutional obstacles, **a more conspicuous barrier exists when it comes to accessing minimally processed foods - financial constraints**. These constraints are not only related to the costs of preserving the food and initial affordability but also extend to a broader economic context. This dual-faceted financial challenge affects both ends of the spectrum: from consumers grappling with purchasing power to farmers and suppliers bearing the costs of transportation, storage, and various stages of the supply chain until the product is market-ready.

What makes policies/programs effective?

- **Incentivization for cultivation of farm-grown foods:** Financial assistance to farmers increases their motivation to participate in these programs.
  - In the context of Mexico's National Crusade Against Hunger, subsidies of up to Mex $100,000 could be obtained by farmers based on their crop production along with insurance financed by the federal and state governments.[7]
- **Development of self-reliant food systems:** decreases the amount of food items needed to be brought in through external sources.
  - In Vietnam, the Home-Grown School Feeding pilot was able to create a sufficient supply of foods grown and procured locally as opposed to purchasing of goods from external sources.[8]
- **Emphasis on local procurement to provide stimulation to local economy:**
  - In the context of Brazil's PNAE program, these initiatives have been instrumental in promoting healthy eating habits by prioritizing local procurement. A directive has been implemented stipulating that at least 30% of all ingredients used in school meals should be sourced from local producers.
- **Integrated approaches:** The combination of nutrition education, agricultural support, and community involvement decreases food insecurity and contributes to the supply of UMPs.
  - Singapore's 30/30 proposal integrates local procurement strategies to build a stable food pipeline. It also promotes community participation and provides agricultural education.
- **Acknowledgement of vulnerabilities:** Inducing change within a country begins with the recognition of issues within the country such as socio-economic disparities, health-related illnesses, and others which was done through implementation of these policies and programs.
  - Nigeria's Agricultural Promotion Policy recognized the job insecurity farmers faced within the industry and addressed this issue through productivity enhancement and other measures.

Policies and programs that support UMP production:

These policies and programs have been implemented across diverse global settings with the primary objective of addressing nutrition and health related challenges. Each initiative has achieved successes in nutrition, public health, health equity, and local economics, while also encountering barriers or unintended consequences during implementation. In this factsheet, we aim to distinguish which parts of the supply chain these programs address in the process of procuring minimally processed foods. These range from the production aspect, where these interventions and programs are targeted towards farmers, alongside the development of programs that target the distribution of minimally processed foods. Lastly, we have programs that focus on making these foods readily available to customers.

► 30/30 Singapore Plan

- The 30/30 initiative, part of the 2021 Singapore Green Plan, aims to cut Singapore's 90% dependency on imported food and shield it from regional and geopolitical disruptions.[9] To enhance self-sufficiency and mitigate risks, the Singapore Food Agency is revolutionizing its agri-food industry.
- The goal is **to locally produce 30% of Singapore's nutritional needs by 2030**, creating a sustainable, efficient, and innovative model for urban food security. The main programs associated with this policy include the following:
  - Transforming the agri-food sector into a productive, climate-resilient, and resource-efficient industry through the ACT fund;[10]
  - Allocating **over $309 million to the Singapore Food Story R&D Program** for innovative research in sustainable urban food production in three major areas — leafy vegetables, fish and eggs — with an emphasis on food safety;[9]
  - Growing food using indoor growing technologies such as hydroponic and vertical farming;[11]
  - Promoting local produce to engage citizens and support sustainable growth of local farms;[9] and
  - Collaborating with educational institutions to develop a skilled agri-food workforce and create jobs. [12]

Impacts

- This program indirectly promotes health equity by improving access to nutritious food, a key health determinant. Local production under this initiative could boost food quality in Singapore.[13]
- Enhances food security and resilience by decreasing Singapore's reliance on food imports and mitigating supply disruptions.[13]
- Contributes to economic stability by curbing inflationary food costs, leading to more consistent food prices.[13]

Unintended consequences & barriers to implementation

- Limited land space leads Singapore to depend on imported goods and emphasize seafood production.[13]
- Specific growing conditions could limit the variety of locally grown crops.
- Singapore's tropical climate exposes crops to extreme weather and pests, necessitating flexible farming practices.[14]

How does the 30/30 plan target production of UMPs?

- The plan primarily targets production of minimally processed foods (MPF) is **by prioritizing the development of infrastructure capable of sustaining large-scale food production**. This is achieved through various measures such as hydroponic and vertical farming.

► Homegrown School Feeding Pilot – Vietnam

- Implemented from 2017 to 2020 by the Vietnamese Government in association with the Medical Committee Netherlands-Vietnam as a way **to improve food access and prevent stunting caused by undernutrition for children under the age of 5.**[8]
- This initiative was part of a multi-stage Nutrition-Sensitive Agriculture (NSA) plan that placed agriculture as the main-focus for intervention.[8]
- The 4-year NSA plan began in the Phu Mo commune, one of the most remote and economically disadvantaged within Vietnam.[8]

Impacts

- **Diversity of school meals increased**, with 3–4 different food groups being present during lunch and 2-3 being present during breakfast, overall improving nutrient intake of the children.[8]
- The school feeding pilot, part of a larger initiative, included programs educating students on hygiene, agricultural practices, food safety, and security. [12]
- The pilot observed increased school attendance and meal frequency that allowed for more equal participation in education .[8]
  - Community meetings that were held to discuss the pilot offered parents and opportunity to learn more about and support the intervention through financial means.[8]
  - Knowledge of childcare and nutrition was shared among parents and offered for more growth and initiative to prevent malnutrition.[8]
  - The food system shifted from being reliant on cash-crops and external sourcing to having more foods be grown and purchased within the community.[8]
  - The job market grew more opportunities for cooks and food preparers to take part in the school-feeding program.
  - Surplus foods grown through the program were sold and created an increase in income for approximately 15% of households in the area.[8]

Unintended consequences & barriers to implementation

- Not every area is suitable for agriculture, making it an issue for this program to be implemented or produce results in some locations.[8]
- The program does have some financial burden, making it inaccessible to households with severe financial disadvantages.[8]
- Changes in the economy and food supply caused by world-events, such as COVID-19, can cause these programs to shut down indefinitely.[8]

How does this program target the production of UMPs?

- The Home-Grown Feeding Pilot focuses on producing UMPs by **developing a self-sufficient food system that reduces dependence on external sourcing**. It promotes local agriculture within the communities where the pilot is implemented, aiming to increase local food production and improve food supply without extensive processing.

► Agriculture Promotion Policy — Nigeria

- The Agriculture Promotion Policy (APP) was implemented in Nigeria from 2016 to 2020 to address critical issues such as food security, job creation, and growth within the agriculture industry.[15] Objectives of APP include:
  - **Promote Responsible Use of Land and Natural Resources:** Encourage sustainable practices to preserve and optimize agricultural resources
  - **Improve Governance of Agriculture:** Strengthen oversight and efficiency of agricultural institutions.
  - **Increase Earnings from Exports:** Boost the country's revenue through enhanced export strategies.
  - **Enhance Job Security:** Create stable employment opportunities within the agriculture sector

- The APP is organized around three key themes. The first theme, productivity element, focused on improving access to land, inputs, production management, soil fertility, and processing. The second theme, crowding in private sector investment, addressed the need for better access to finance for agricultural stakeholders. The third theme, institutional realignment, emphasized the development and upgrading of infrastructure and the promotion of research and development to drive agricultural innovation. [15]

Impacts

- APP has been found to improve productivity among farmers through adapting to new technologies which has resulted in a higher yield of palm oil and rice. [16,17]
- It was shown that the income for farmers has increased by 56.9%.[16]

Unintended Consequences/barriers to implementation

- APP doesn't provide efficient training for farmers therefore there is a lack of skill when using the agricultural technology.[16]
- APP doesn't provide adequate water supply, therefore farmers depend on the rain-fed agriculture not only to grow crops, but also for soil fertility.[18]
- Compared to younger farmers, older farmers aren't as likely to adapt to new technologies which decreases productivity rates.[19]

How does APP target the production of UMPs?

- The policy's first theme, productivity element, specifically addressed processing by focusing on improving access to land, inputs, production management, soil fertility, and processing techniques. This approach aimed to enhance agricultural productivity and efficiency, ultimately increasing the availability and quality of minimally processed foods. The policy also promoted sustainable practices to optimize agricultural resources and ensure long-term food security.

Policies & programs that support the distribution of UMPs

► PNAE-Brazil

Brazil's Programa Nacional de Alimentação Escolar (PNAE), also known as the National School Feeding Program, serves students across all basic education levels. It ensures that meals provided meet at **least 15% of a student's nutritional needs**. The fundamental concept behind this program is to promote home-grown feeding solutions.[20,21] Overseen by the National Fund for Development of Education (FNDE), the PNAE sets rules and standards for school feeding. In 2009, significant changes were made through a collaborative process with stakeholders, including a mandate that at least 30% of school meals come from family farmers.[20] The program, a targeted initiative, aims to address undernutrition and education levels by meeting students' nutritional needs and promoting healthy habits.[22] The program is implemented in 5,568 municipalities in Brazil, reaching 44 billion students per year.[20]

Impacts

In Brazil, the number of people in food insecurity and poverty has decreased because of committed public policies. The percentage of households living in food insecurity fell from 34.8 % in 2004 to 30.5% in 2009[20] PNAE school meals, when consumed in high quantities, **are linked to better diet quality** and **healthier food consumption** among Brazilian adolescents, and less consumption of unhealthy foods.[23] While there are no specific guidelines for a UPF limit, PNAE guidelines are as follows:

- A minimum of three portions of fruit and vegetables per week (200g/student/week) must be provided.
- Fresh fruits cannot be replaced by fruit-based beverages.
- Energy composition should be: 10% from added simple sugar, 15-30% from total fats, 10% from saturated fat, and 1% from trans fats.
- Sodium content should be: 400 mg per capita for part-time with one meal, 600 mg per capita for part-time with two meals, and 1,400 mg per capita for full-time with three or more meals.
- Sweets and sweet preparations should be limited to two servings per week, each equivalent to 110 kcal.[24]
- In an assessment that examined purchases from local farms, 83.06% was minimally processed.[25]
- By prioritizing purchase of regional foods, particularly fruits and vegetables, **PNAE not only improves the nutritional quality of school meals but also fosters healthier eating habits among students**.[23]
- The PNAE aids student achievement by meeting school-hour nutritional needs, thereby reducing educational disparities through improved cognitive development and academic performance.
- Ensures equal access to nutritious school meals, tailors to individual needs, and prioritizes socially vulnerable students, promoting health equity.[21]
- The PNAE, through the Food Acquisition Program (PAA), enhances food quality and availability, reduces meal costs, stimulates the local economy, and promotes the purchase of regional foods in schools and social institutions.

Unintended consequences & barriers to implementation

- One significant barrier to implementation involves challenges in evaluating school feeding programs, particularly regarding attribution issues and the multiple dimensions they encompass. The 2009 resolution **lacks guidance on the specific utilization and evaluation criteria for these measures**.[20]
- Municipal governments face barriers in implementing farm purchases due to supply capacity, delivery logistics, and budgetary and procurement processes.
- Political resistance from previous suppliers and economic interests of agri-business and food industry pose additional challenges to including fresh produce from family farms in school menus.[22]

How does PNAE support the distribution of UMPs?

PNAE supports the distribution of UMPs by encouraging inclusion of these foods in school meals. They have established partnerships with local farmers and food producers to ensure a steady supply of UMPs and have set guidelines for procurement and distribution of these foods to schools across the country**, including a mandate that at least 30% of school meals come from family farmers.**

Policies & programs that target the availability of UMPs

► Unprocessed Pantry Project (UP3)

- The UP3 framework categorizes food for low-income and food-insecure populations at into unprocessed and ultra-processed groups, aiding food pantry staff and consumers in identifying ultra-processed items **while promoting varied unprocessed options and reducing their consumption**.[26] This framework also involves nutrition education to increase knowledge and promote better attitudes about consuming more UMPs and less UPFs.[27]
- The UP3 framework was applied in two rural Montana food pantries. Pantry 1, located near a food bank, received a diverse range of foods including fresh options. Pantry 2 used donated funds to purchase items from all food groups, focusing on low-sodium and low-added-sugar options. Daily food deliveries were made to both pantries.[28]

Impacts

- Studies show the UP3 framework enhances dietary quality. Participants' HEI scores rose for fresh foods but fell for processed ones.[28,29]
- Using the UPF framework, pantries enhanced access to fresh foods, improved perceptions, and increased knowledge about food processing among participants, influencing home cooking style.[29]

Unintended consequences/barriers to implementation

- Food pantries didn't account for allergies, like peanut butter, which contributed to the top source of food servings distributed.[28]
- The supply of food was not always consistent which reduces the availability and variability of nutritious foods for consumers.[29]
- Despite efficient supply and UPF framework application, only 33% of food in pantries were fresh. The majority was processed, with legumes making up 70% of vegetable servings.[28]

How does UP3 target availability of UMPs?

- The Unprocessed Food Pantry Project (UP3) **targets the availability of UMP foods in the supply chain through a multifaceted approach.** UP3 allows for pantries to collaborate with local farmers and producers to source fresh UMP foods, with the goal of reducing heavy reliance on traditional chains that primarily provide more UPFs. Additionally, the nutrition education component of this framework provides guidance for consumers about the nutritional benefits of UMPs. With the support from the community advisory book, UP3 could invest in cold storage facilities for food pantries to keep UMPs fresh and last longer.

► Mexico's National Crusade Against Hunger- SinHambre

- Implemented in Mexico on January 21st, 2013, by President Enrique Peña Nieto to combat food insecurity and poverty by improving nutrition, healthcare, and social services to its citizens.[30]
  - A specific focus was placed on reducing UPF intake in favor of UMP intake and increasing the supply of local and minimally processed foods.
- The policy provided a portion of the nation's GDP to 30 different programs, with the main programs including:
  - Post-Harvest training to farmers to reduce losses caused by storage, transportation, and commercialization.[31]
  - Establishment of family gardens and offered financial support to individuals engaged in agricultural, aquaculture, and fishing pursuits.[31]
  - Provided free meals in school settings.[31]
  - Provided monetary assistance to local farmers.[31]

Impacts

- Procurement of domestic food items increased the diversity of individual diets and included more opportunity to fulfill dietary requirements.[32]
- PAL SinHambre, prepaid debit cards designed to purchase foods from grocery store, provided an allocated amount of purchasing power that could be used to purchase fresh produce, whole grains, and other products that did not contain any additives.[7,33]
- Access to minimally processed foods caused food insecurity in urban and rural regions of Mexico to decrease from 67% and 80.8% in 2012 to 51.1% and 69.7% in 2018 respectively.[33]
- Approximately 3 million people were covered by programs implemented by SinHambre in its early implementation, and was able to expand to over 600 municipalities by 2017.[31]
- Procurement of foods by the government increased almost 1400% from 2013 to 2017, providing a much better supply of food for vulnerable populations.[33]
- A new network of food items and procurement options provided easier access to minimally processed foods.[33]

Unintended consequences & barriers to implementation

- There was some money allocated to public procurement and smallholder farming, but this amount was insufficient for the amount necessary to induce change.[33]
- Food contracts with shareholders were unregulated, causing certain food service providers to have more influence on the food market than others.[33]
- SinHambre targeted hunger in terms of caloric intake, but did not account for empty calories and the nutritional value of foods.[33]

How does this program target the availability of UMPs?

The SinHambre program made significant efforts to ensure that municipalities across Mexico could benefit from its initiatives, with each rollout reaching a broader segment of the population. This enabled individuals to access need-based benefits such as PAL SinHambre, which expanded opportunities to purchase UMPS. Additionally, the government's increased procurement of foods made UMPS more accessible to vulnerable populations nationwide.

What can we fix about these policies and programs?

- **Invest in Local Food Management Systems:** Allocate resources towards enhancing systems that manage the supply of local foods. This could include improving logistics, storage facilities, and distribution networks.
- **Secure Adequate Funding for Management:** Address the current shortfall in management funding. It's crucial to explore alternative funding sources, as the current approach relies heavily on contributions from low-income individuals. This could involve seeking grants, partnerships, or government subsidies to ensure sustainable operations.
- **Tailor Programs to Regional Needs:** Recognize that a one-size-fits-all approach may not work for every region.
- **Safeguard Against Monopolies:** Implement measures to prevent monopolistic practices that protect local farmers.
- **Improve Evaluation Processes:** Establish standard evaluation processes and allocate resources effectively for coordination.
- **Build Climate-Resilient Infrastructure:** Plan flexibly to account for climate change and ensure infrastructure resilience.

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