

January 2021

# Final Report

IFC Consultancy for Developing a Business  
Model for a School Milk Program for Pakistan

*Conducted by the Global Child Nutrition Foundation*





## About the Global Child Nutrition Foundation

The Global Child Nutrition Foundation (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. To do this, we:

- **Build capacity** of governments to implement national school meal programs
- **Share best practices and tools** to support the creation, expansion, and improvement of national school meal programs
- **Engage civil society and businesses** to strengthen supply chains and increase political will for school meal programs
- **Coordinate with others in the field** – nonprofits, schools, and researchers – to raise awareness and ensure strong support and resourcing for school meal programs

## Our Mission

We expand opportunities for the world's children to receive adequate nutrition for learning and achieving their potential.

## Our Vision

We envision a future where school meals sustainably nourish all children and help them, their families, communities, and nations to thrive.

# Table of Contents

## GCNF Final Report to IFC regarding Pakistan School Milk Program

- The Consultancy
  - The GCNF and Its Consultancy Team
- Implementation of the Consultancy
  - Review of Past Models
  - Model Development
  - Stakeholder Consultations
  - Workshop
  - Consultancy Budget Overview
- Conclusion and Recommendations
- Appendix:
  - Appendix A: FAO Key Documents
  - Appendix B: IDF 2019 Survey results
  - Appendix C: Tetra Pak country examples and data
  - Appendix D: GCNF resources, Global Survey Country Report
  - Appendix E: Land O' Lakes Report for 2003 to 2009 program
  - Appendix F: GCNF-identified relevant documents
  - Appendix G: Proposed Terms of Reference for the Program Supervisory Board
  - Appendix H: 17 June 2020 COVID Impact presentation
  - Appendix I: Lactose Intolerance and proposed remedies presentation
  - Appendix J: First 8000 Days information as provided to World Bank and IFC
  - Appendix K: GCNF responses to questions raised on 24 September 2020 meeting
  - Appendix L: Final Joint Workshop presentation 28-Oct



## THE CONSULTANCY

On 15 December 2019, the Global Child Nutrition Foundation (GCNF) submitted an Expression of Interest to IFC via the World Bank Group online submission platform (WBG eConsultant2) for Consultancy 1265293 / Pakistan School Milk Program. Accepted to submit a full proposal, for which the due date for submission was set as 17 February 2020, GCNF submitted its full proposal to IFC on February 14.

On 17 March 2020 GCNF was informed that it was awarded IFC Contract #7195419 for the consultancy. It called for GCNF to take the following actions:

- 1) Prepare a presentation outlining possible School Milk Program (SMP) models, including funding mechanisms, based on successfully implemented examples from other countries.
- 2) Analyze and evaluate the models proposed by the local industry stakeholders;
- 3) a) Present SMP models, which have been successfully implemented in other countries,  
b) Discuss the design of proposed SMPs for Pakistan with dairy industry representatives and with the government at a workshop to be organized by IFC;
- 4) Hold follow-up meetings with Ultra High Temperature (UHT) milk industry stakeholders (including the Pakistan Dairy Association, Friesland Campina, Nestle and Tetra Pak) and with the government in order to develop the detailed design of a model for a school milk program with a credible milk quality assurance system and with a credible system for ensuring that the milk would be provided to and consumed by schoolchildren on a daily basis;
- 5) Work with the relevant government institutions and with the industry in order to identify the regions, the schools, the required financing sources, the participants, and their roles and responsibilities for implementing the proposed pilot SMP;
- 6) Collect qualitative feedback from the parents, teachers, and community leaders on the SMP and develop the criteria on what data should be collected to monitor the overall progress of the SMP, including its impact on enrollment, drop-out rates and the health parameters of the children taking part in the pilot SMP;
- 7) Collect and analyze information about Friesland Campina's and Nestle's milk supply chains in order to develop criteria and methodology for monitoring the program's impact on smallholder farmers' incomes and livelihoods;
- 8) Prepare a detailed description of the required infrastructure (including the regulatory and the legal infrastructure) and the capacity for the implementation of the School Milk Program;



- 9) Develop a detailed implementation plan for the pilot SMP, including the Monitoring and Evaluation (M&E) framework for documenting and measuring the program’s impact and for collecting the data required to validate the program benefit along the value chain; and
- 10) Conduct a workshop with the dairy industry stakeholders and with the government during which the final design of the program would be agreed upon and approved by the dairy industry and by the government.

GCNF’s February proposal outlined four phases to the consultancy

	PHASE 1: INSIGHTS, INPUTS, ANALYSIS February 15 - March 14	PHASE 2: CONCEPT PRESENTATION March 15- March 31	PHASE 3: IMPLEMENTATION PLAN PREPARATION April 1 - July 14	PHASE 4: FINAL PRESENTATION July 15 - August 15
IFC	Communicate project kick off to stakeholders	Input on workshop agenda Host Workshop	Input on draft pilot plan Preapprove final pilot plan presentation	Approve workshop agenda, materials Attend workshop
Consultants	Collect & review international models, data, insights Identify stakeholders/project planning - Govt, PDA, local admin, regulator, legal, etc. Sensitivity check of model concepts with stakeholders	Organize Workshop - Draft agenda/participants - Invite/follow up participants Event management Present workshop content	Qualitative study of community Stakeholder meetings: gather data, input on project design, align roles and responsibilities in pilot program Prepare draft pilot implementation plan Prepare final pilot plan presentation	Organize Workshop - Brief to PR agency - Draft agenda/participant list - Develop media, workshop material - Invite/Follow up with participants Event management Present workshop content Arrange agreements with stakeholders

The following deliverables related to those actions were agreed between GCNF and IFC on 31 March, and the work commenced immediately thereafter.

#	Description of the Deliverables	The Timeline
1.	A presentation about proposed possible SMP models and an evaluation report of the SMPs which were designed by the dairy industry stakeholders	June 2020
2.	A successfully conducted initial workshop with the government and with the dairy industry to present international experience and best practices on conducting SMPs and to discuss the design of a pilot SMP for Pakistan	July 2020
3.	A developed business model for the SMP in Pakistan (including its operational model, its financial model, its implementation plan, its monitoring and evaluation framework)	August 2020
4.	A successfully conducted workshop with the government and with the dairy industry during which the proposed SMP model was discussed and approved by the government and the dairy industry for implementation	September 2020

This report will be organized according to these lines of action (although not in the order presented in the Terms of Reference) and will discuss the results against each of the deliverables. The appendices contain significant documents related to the project.

### THE GCNF AND ITS CONSULTANCY TEAM

GCNF is a non-profit entity incorporated in the United States in 2006. GCNF served as the management entity for the consultancy.

The GCNF Executive Director, **Arlene Mitchell** led the effort. She is a globally recognized thought leader regarding school meal programs and related matters, with over twenty years of experience in international school feeding programs, and related food, agriculture, and nutrition topics. GCNF Program Officer **Ryan Kennedy** conducted research and provided much of the data regarding other countries' experiences with school milk programs. GCNF's Administration and Finance Coordinator **Cierra Schneider** managed administrative and financial aspects of the program, including maintaining financial records and establishing contracts with, and processing payments to the in-country team members.

GCNF sub-contracted with a core "Local Team" of four experts in Pakistan:

**Memosh Khawaja**, coordinated in-country activities on behalf of GCNF and provided expert input regarding dairy business value chain aspects of the project, including financial and data aspects, ensuring that the Pakistan pilot program's school milk value chain meets international standards for safety, and that the overall pilot program is geared toward success and sustainability.

In addition to coordinating in-country team activities and communicating frequently with GCNF headquarters and IFC, Memosh negotiated with Pakistan Dairy Association members to gain key dairy business data for the project and to assess their commitment to the pilot program; with Tetra Pak regarding their interest and potential contribution to the program; and with the United Nations World Food Programme (WFP) regarding their work in Pakistan, the WFP's own proposal for school feeding in Punjab province, and their interest in managing the pilot program. He also provided quality control for the in-country team's work, and managed recording and providing reports from most of the in-country consultations held.

Memosh has over twenty-five years of relevant business experience. His most recent experience prior to the consultancy was with the dairy industry in Pakistan, where he worked with the Pakistan Dairy Association and Haleeb Foods, Ltd.

**Kashif Hussain Bhatti** also provided expert input regarding execution of pilot SMP on ground at school level, as well as about business, particularly from the processors and farmers' perspective, and the gender, food safety, and packaging aspects. Kashif conducted much of the in-country program research, gathering relevant data from the government and

other sources regarding the demographics of potential target districts; school infrastructure, enrolment, and attendance; nutrition; processing facilities and their collection and distribution points, and more. Kashif also drafted much of the pilot program design, including the rationale for the target districts and the key performance indicators.

Kashif has over twenty years of relevant business and dairy experience in Pakistan and in the Greater Middle East, much of it with Tetra Pak. In 2003, he was involved with the Land O'Lakes and Tetra Pak Pakistan's school milk project in the Ghotki District in rural Sindh. He has also worked extensively with the Pakistan Dairy Association.

**Ali Mehdi** focused primarily on the government relations aspects of the pilot project, setting up key meetings with provincial officials in Punjab, as well as some key government officials at the national level. He also assisted with the design of the program design, particularly vis-à-vis the governance structure and the terms of reference for the program board.

Ali is a specialist in finance, strategy, and government relations, with experience in banking, global financial markets, and corporate finance in emerging markets. Ali has been a consultant for Royal Friesland Campina in Pakistan, where he was involved in developing a five-year strategy for government relations and corporate social responsibility and worked towards Minimum Pasteurization Law for the dairy industry in Pakistan.

**Dr. Fauzia Waqar** provided input relevant to the health and nutrition aspects of the project, as well as gender and monitoring and evaluation. When issues were raised regarding plain milk versus flavored milk, lactose intolerance, and consuming milk on an empty stomach, Dr. Waqar did much of the needed research and recommended a way forward.

Dr. Waqar has a post-graduate degree in Public Health from the University of Cambridge in the UK, and her experience includes program development, proposal writing, policy evaluation and management for health, nutrition, and environmental matters. She has worked with governments at both the national and provincial levels in Pakistan, and with a wide variety of organizations, including the UN World Health Organization and World Food Programme, the World Bank, the Asian Development Bank, and the Global Alliance for International Nutrition (GAIN), as well as with international non-governmental organizations.

In addition to these key players, the GCNF proposal called for funds to cover the costs of three other local entities: 1) A local research firm to gain insights from local players, including farmers, student, families, and school personnel; 2) A law firm to review any proposed legal or regulatory implications of the proposed pilot program; and 3) A communications company to assist in publicizing the pilot program and gaining public support for its implementation.

## IMPLEMENTATION OF THE CONSULTANCY

### REVIEW OF PAST MODELS

Relevant action items:

- #2) Analyze and evaluate the models proposed by the local industry stakeholders.
- #3a) a) Present SMP models, which have been successfully implemented in other countries,

To address action item #2, GCNF reviewed a 2018 proposal by the Pakistan Dairy Association. Although it was not initiated by industry stakeholders, GCNF also reviewed aspects of a proposal developed by the United Nations World Food Programme (WFP) in 2017 that included a dairy option.

To address action item #3a, GCNF turned to five key sources:

1. GCNF consulted with the Food and Agriculture Organization of the United Nations (FAO), which is the lead within the United Nations for agriculture, including livestock and dairy issues. FAO also shares responsibilities with other agencies for nutrition. FAO provided some key documents and examples and suggested additional resources (Appendix A).
2. The International Dairy Federation (IDF), which provided GCNF with a wealth of information, most particularly the results of its 2019 survey (Appendix B).
3. Tetra Laval/Tetra Pak's Food for Development office, which also provided numerous country examples and data (Appendix C).
4. GCNF's own resources, particularly the preliminary analysis of its 2019 Global Survey of School Meal Programs© (Appendix D).
5. Reports from the Land O'Lakes school meal program implemented between 2003 and 2009 in Pakistan (Appendix E).

In addition to these sources, GCNF identified a number of other relevant documents through online research and personal contacts. A full bibliography for the referenced papers can be found in Appendix F.

### MODEL DEVELOPMENT

Relevant action items:

#1) Prepare a presentation outlining possible SMP models, including funding mechanisms, based on successfully implemented examples from other countries.

#3a) Present SMP models which have been successfully implemented in other countries.

#5) Work with the relevant government institutions and with the industry in order to identify the regions, the schools, the required financing sources, the participants, and their roles and responsibilities for implementing the proposed pilot SMP.

#9) Develop a detailed implementation plan for the pilot SMP, including the M&E framework for documenting and measuring the program’s impact and for collecting the data required to validate the program benefit along the value chain.

## Global Context

To provide a contextual framework for the development of a model pilot program for the Punjab Province of Pakistan, GCNF’s Arlene Mitchell provided highlights of the value of school meal programs globally, evidence that milk is a healthy, nutritious option, and an analysis of how school meal programs contribute to the achievement of multiple Sustainable Development Goals (SDGs). This work is described below.

### EVIDENCE SHOWS\* THAT HOME-GROWN SCHOOL MEAL PROGRAMS ARE POWERFUL

#### THE POWER OF SCHOOL FOOD PROGRAMS COMES FROM THE ENTIRETY OF THE BENEFITS:

- Integration of education, health/nutrition, & agriculture—the 3 pillars of development in one program
- The anchoring of the programs in schools
- The involvement of all levels of society
- The intergenerational impact

#### SCHOOL FEEDING WORKS:

- To reduce short-term hunger
- For improving school enrolment, attendance and retention, and for reducing school dropout rates
- To improve family food security and reduce poverty
- For cognitive functioning, education, and learning

\*GCNF 2017 :  
<https://gcnf.org/wp-content/uploads/2017/09/Evidence-based-Support-for-School-Meal-Programs-GCNF-August-15-2017.pdf>



## EVIDENCE\* SHOWS THAT MILK IS A NUTRITIOUS OPTION

- Milk is nutrient dense, a major source of dietary energy, high-quality protein and fat in an easily absorbed form
- Milk can help to meet required nutrient intakes of calcium, magnesium, selenium, riboflavin, vitamin B12 and pantothenic acid.
- Bioavailability of some nutrients in milk (e.g., calcium) is high compared with that in other foods in the diet
- Milk components thought to be most important for child growth are protein, minerals and lactose.
- Milk-based food products have also been used successfully in the treatment of moderate and severe malnutrition in children.

**“The private sector now leads the dairy sector... It has the potential to make a social contribution by using its considerable advertising ability to campaign for healthy diets and using its market reach and infrastructure to put milk and dairy products that boost nutrition within reach of low-income populations”**

\*FAO: “Milk and Dairy Products in Human Nutrition- Questions and Answers”

## SCHOOL MEAL/MILK PROGRAMS CONTRIBUTE TO SDG ATTAINMENT



- Income transfer to households with schoolchildren
- A predictable demand for farmers' produce
- Contribute to education and thus to productivity and intergenerational welfare improvements



- Provide a daily nutritious meal for students
- Reduce psychological stress of food insecurity/short-term hunger
- Contribute to education
- Supportive to complementary interventions (deworming, health education, etc.)



- Reduce short-term hunger for school goers
- Incentivize farmers to produce
- Reduce post-harvest food loss
- Contribute to education and thus to intergenerational welfare improvements



- Improve cognitive functioning
- Improve enrolment, attendance, and retention; encourage out-of-schoolers to attend
- Improve classroom behavior and attention



- Incentive for out-of-schoolers to attend/their parents to support
- Empower parents—especially mothers—to become involved in schools, school committees
- Most school meal cooks are women
- Supports better school performance, especially for the most food insecure



- Create jobs and training opportunities all along the value chains (especially for women & youth, even if low-skilled)
- Create demand for farmers' produce
- Contribute to local economies and future workforce



- Stimulate demand for clean water and sanitation facilities
- Partner well with deworming and hygiene education
- Can contribute to forming good habits (e.g., handwashing before and after eating)



- Create demand for local processing, transport, storage
- Stimulate infrastructure investments (e.g., classrooms, kitchens, sanitary facilities)
- Embrace innovations (e.g., biometrics, internet/phone-based reporting, improved food safety & quality measures)



- Provide education and opportunity for vulnerable children
- Transfer resources to needy families
- Improve gender parity at school
- Create jobs and training opportunities, even for low-skilled, women, and youth



- Can lead to behavior change, improved nutrition and eating habits
- Stimulate demand for increased production of nutritious foods
- Create demand for food safety and quality standards and measures
- Lead to improved food preservation and processing; reduction of losses



- Strengthen community engagement (in schools and value chains)
- Contribute to the education and productivity of citizens
- Involve all levels of society, public and private
- Create local jobs and profits
- Have intergenerational impact



- Require intersectoral collaboration/partnerships
- Involve public and private sectors, working together
- Link pillars of development in one program (education, health/nutrition, agriculture, economic development)

## SCHOOL MEAL/MILK PROGRAMS CONTRIBUTE TO PEACE, JUSTICE, AND STRONG INSTITUTIONS



Investment in healthy and nourished, educated and productive citizens is an investment in

- Justice
- Strong institutions
- Peace

**“Peace begins when the hungry are fed, and the future begins when the hungry are educated.”**

--Gene White, co-founder of GCNF, 2008

### Analysis of school milk experience globally

GCNF’s Ryan Kennedy researched school milk programs around the world. The most comprehensive cross-country descriptions specific to school milk programs came from the International Dairy Federation (IDF); IDF’s 2019 Global Survey of School Milk Programs was used as the primary source for GCNF’s examination of global experience. This was supplemented, when relevant, with information gleaned from several single-program or single-country examples, from the preliminary results of GCNF’s own 2019 Global Survey of School Meal Programs®, and from individuals familiar with specific programs.

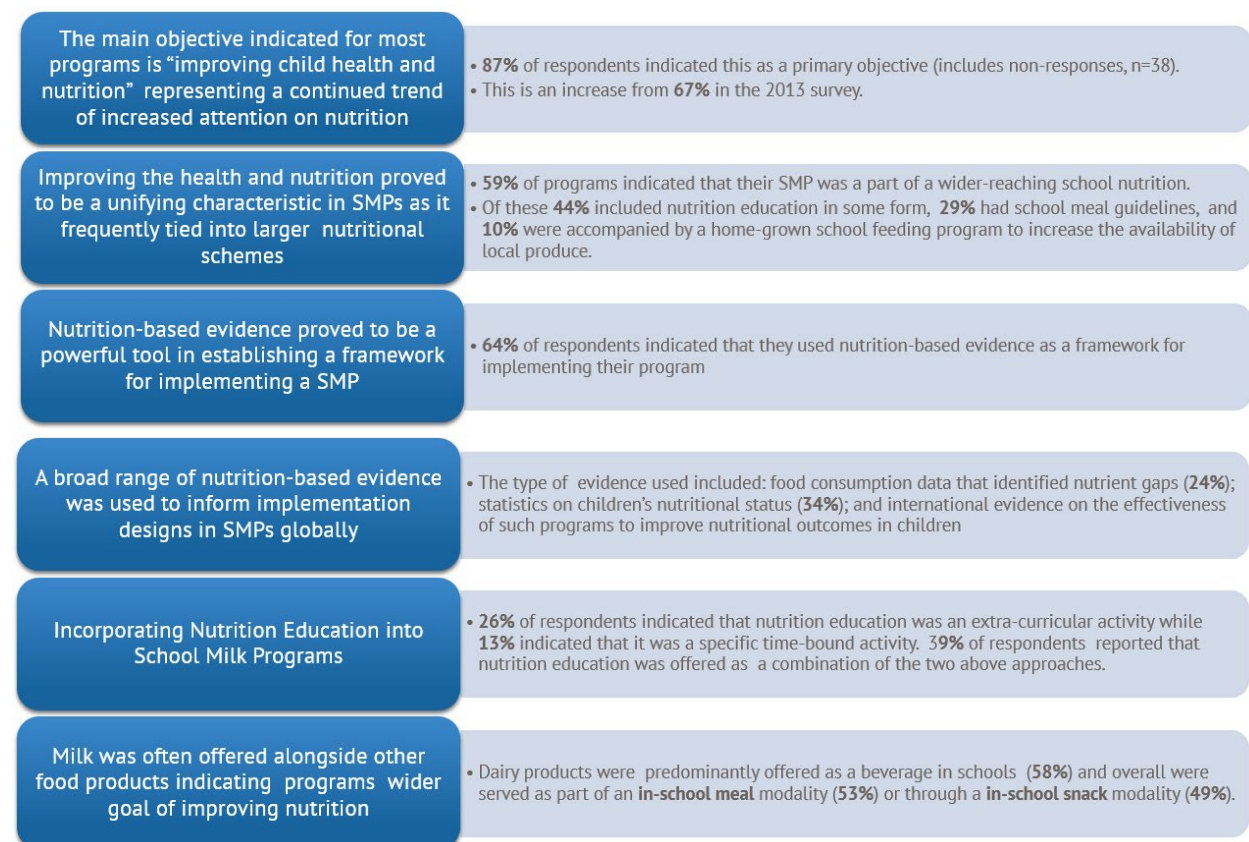
The core analysis was conducted against a dataset of 38 different programs serving milk to children (school milk programs or school feeding programs) from 35 countries around the world that participated in the IDF 2019 survey. The analysis considered aspects of program objectives and design, management and implementation, economics, capacity, and smallholder involvement. In cases where a country did not respond to a question being analyzed, they were dropped from

that calculation. In instances when multiple responses were received from a single country, the more complete overall response was retained, and the additional response was treated as null.

As an example, responses of respondents that opted to complete the full IDF survey were considered in the analysis of program objectives. The respondents denoted which of the following objectives were found within their School Milk Program (SMP) or School Feeding Program (SFP). In cases in which they had multiple objectives they were asked to rank them from most important to least important.

- Promoting local production of milk;
- Serving as an avenue for surplus milk supply;
- Improving Child Health and Nutrition;
- Improving scholastic performance;
- Attracting children to school (increased enrollment);
- To provide milk to schools in the absence of government subsidy or intervention;
- Any other objective.

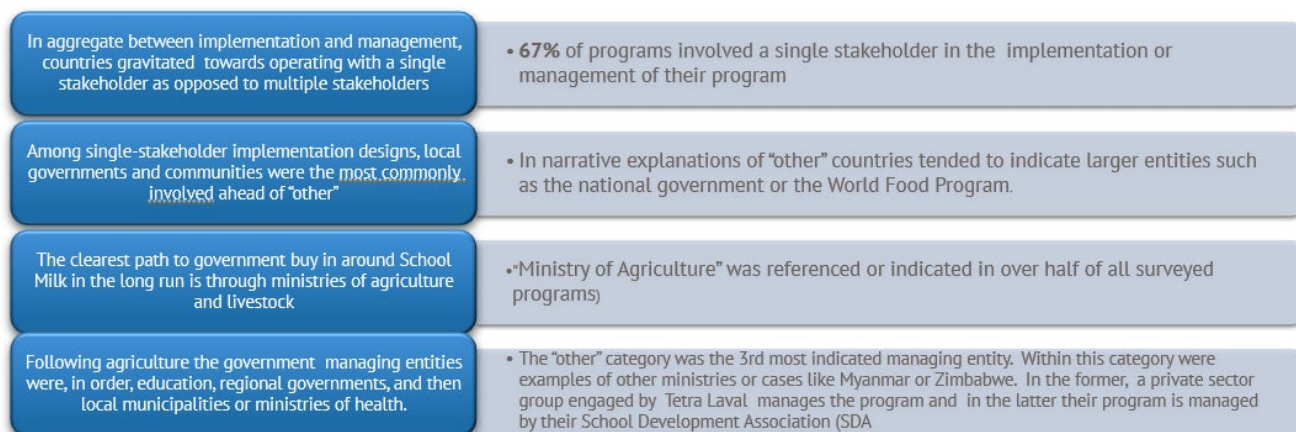
The lessons resulting from the analysis of objectives and design elements were as follows:



Examination of school milk program management and implementation aspects included the following considerations:

- Respondents that opted to complete the full IDF survey were asked to indicate who implements the program in their country and--if the government is involved--who manages the program. Respondents were permitted to select more than one in both cases.
- Among implementers, the options were: Schools; Communities; Local Governments; Dairies; Distributors; National Dairy Council (or Equivalent); or Other
- For program management, the options were: Ministry of Agriculture or Livestock; Ministry of Education; Ministry of Health; Municipality; Regional Government; or Other

The resulting lessons from analyzing the responses to management and implementation questions were as follows:



As for program economics, the analysis considered:

- Country respondents that opted to complete the full IDF survey were asked to indicate what cost model was used to make milk and milk products available to recipients at schools in their SMP or SFP; what products were subsidized through their program; and, if the information was available, what was the average cost to the recipient and the funder in their program.
- Cost model options were:
  - Free of Charge
  - At a subsidized cost
  - Mixed by sliding scale
  - At full cost
  - Don't know
  - Other
- Subsidized product options were:
  - Whole Milk (white)
  - Semi-skimmed/low-fat milk (white)
  - Flavored Milk
  - Yoghurt



- Cheese
- Fermented Milk
- Other

This analysis showed that subsidized and free milk programs together made up the majority of cost-models, and that in programs that offered whole milk, the average serving size was 319 ml. Adjusting for a standard serving size of 200 ml, the average cost to the funder was \$0.27 USD per serving. In addition, the analysis showed that:

Plain whole milk was the most frequently subsidized product across sampled school meal programs followed by plain skim milk

- IDF notes that this reflects guidelines from the World Health Organization (WHO) which recommend whole milk for children under 5 years and semi-skimmed milk for children older than 5 years.

Flavored milk is offered at a relatively infrequent rate at the global level

- Flavoring is only used in 25% of program examples and in nearly every case a complementary product was also offered (only 1 example of a program only serving flavored milk) which was always at least whole or low-fat milk sometimes accompanied by other dairy products.
- When controlling for High Income Countries as defined by the World Bank, only 3 countries offered flavored milk.

Examination of responses from country respondents who were asked to indicate what percentage of the milk used in the program is mandatory to be sourced locally and how much of their country's total milk sales are represented by a school program provided the following insights.

Programs overwhelmingly prioritize local purchase

- Of the sampled group (n=37), 70% had requirements in place for local purchase
- Nearly 2/3 of those that had a requirement of local purchase placed their requirement at greater than 50% with 14 countries requiring 100% local purchase

School Milk Programs can prove to be a beneficial and stable market

- From the sampled group (n=37), 13 countries were able to provide a response to the percentage of sales that are represented by their program
- Responses ranged from 1% to 97% of total milk sales with an average of 12% across respondents.

According to the IDF survey, school meal programs gravitated towards a single avenue for milk procurement and the most common mode was through direct negotiation with suppliers (at 43 percent); the second most common was to procure through a centralized structure such as an organization or government body (19 percent of programs citing purchases through a centralized organization, and 17 percent of programs indicating purchases via a centralized government body).

The review of other sources and questions that developed over the course of the consultancy led to GCNF referring repeatedly to the following streamlined description of five programs in Asia that



were selected because they had used some form of measurement and reported results for relevant aspects of the programs.

	Bangladesh	China	Indonesia	Iran	Thailand
Year	2002 – 2014*	2000 onwards	2000 onwards	2013 – 2017*	1992 onwards
Product	Flavored Milk	White Milk & Flavored Milk	Chocolate Milk	Fortified Milk	White Milk
Serving size	200ml	125,200 & 250 ml	200 ml	250ml	200ml
Reach	262,900	11,270,000	423,000	14,500,000	5,200,000
Funding	USDA	Parents & Government	USDA	Government	Government
Results	<b>Attendance:</b> Up by 95% <b>Enrolment:</b> Increased by ~34% Academic: Concentration and Learning ability increased <b>Dairy Industry:</b> 500 new jobs created along with 3 UHT processors	<b>Height:</b> +0.6% <b>Weight:</b> +2.9% <b>Bone Mineral Content</b> / Density: +1.2% / +3.2% <b>Dairy Industry:</b> +500% UHT milk production <b>Dairy farmers income:</b> From \$2.15 Bio to \$3.24 Bio	<b>Empowerment:</b> Parent/Teacher Association assumed responsibility of implementation in their schools <b>Product Development:</b> 7 new fortified products developed <b>Milk Consumption:</b> Tripled	Multiple waves run in Iran  <b>Verifiable performance against KPIs not available</b>	<b>Height:</b> +3cm/year <b>Malnutrition:</b> Reduced from 19% to 5% <b>Dairy Industry:</b> ~+500% growth since the inception of the program <b>Dairy Cooperatives:</b> From 62 to 117

GCNF extracted the following relevant facts and observations from its reviews and analyses and used these in most stakeholder consultations as well:

- At least 68 countries were implementing a school milk program or a school feeding program that serves milk when surveyed by IDF (source: IDF)
- School milk programs reach large numbers of children. About 160 million children in total were benefiting from school milk worldwide at the time of the IDF survey (source: IDF)
- 39 countries have made official national recommendations for milk consumption for children (source: Tetra Pak)
- Improving child health and nutrition is a primary program objective for school milk programs, and a majority use a nutrition-based rationale to establish their program frameworks (source: IDF)
- The average lifespan of school milk programs is 31 years (estimate based on GCNF's analysis of data from various sources)
- School milk programs provide local economic benefits. A majority of the countries surveyed require local purchase of at least half of the dairy products used in their programs (source: IDF).
- Milk is provided free or at a subsidized price in a majority of programs, so even the poorest children can benefit (source: IDF)
- School milk integrates well with other programs: 59% of programs indicated that their school milk program was a part of a wider-reaching school nutrition plan (source: IDF)
- School milk programs provide a predictable, long-term market for farmers and processors, thereby supporting productivity gains and private sector development. (source: GCNF analysis)

One area with which GCNF struggled to find reliable data relates to funding sources and amounts. Although GCNF was able to identify who funded a few school milk programs, in general, funding aspects were extremely difficult to identify from the available sources. Even in cases where some funding information was provided, it was not presented in a standard, comparable way, and was

thus unusable. We note that this challenge of ascertaining accurate financial information in a clear and standard form is well known to GCNF as it has consistently been an issue in GCNF's global experience. GCNF is taking steps to address this problem through its periodic Global Survey of School Meal Programs®, the first of which was administered in 2019, but it is understood that it will take time and a great deal of diligence before country governments and stakeholders report funding information more transparently and in a format that allows for comparisons.

### **Program Design: Goals and Objectives**

With the global experience as a guide, the GCNF team discussed and determined the overarching goal of a school milk program for the Punjab Province: **To achieve socio-economic improvement in the targeted districts, both in the short term and in the long term.**

The team also set out five objectives for the program, those being to:

1. Improve the nutrition of school-going children,
2. Improve the educational performance of school-going children,
3. Provide sustained economic development for the dairy processing industry, allied industries, and locals linked to the school milk program,
4. Provide a safety net and financial offset for poor households with school-going children, and
5. Develop a productive future work force.

The team also considered government and stakeholder engagement as critical to a successful pilot program. Global experience with school feeding programs has demonstrated that such programs are doomed if they are entirely dependent on external parties and do not have government support in the form of funding and leadership involvement from the outset. The experience of the prior Land O'Lakes program in Pakistan which ceased operations when donor funding was no longer available is a case in point.

Government support does not mean full funding from the outset, but there needs to be enough of an investment to provide an avenue for government involvement in decisions affecting the program's design and implementation, and to signal the government's intentions to sustain the program—if successful—over the long term. Similarly, key local stakeholders should be involved from the outset of any program and should have some say in its design and implementation decisions.

With these goals and objectives in mind, the team began to design the pilot program, building component part after component part, beginning with its core—the milk itself.

### **Program Design: Milk Component**

Led by Dr. Fauzia Waqar, the team deliberated on the nutritional needs in Pakistan. The 2011 National Nutrition Survey reported that 43.7 percent of Pakistan's children under age five were

stunted (low height for age); 15.1 percent were wasted (low weight for height) and that these percentages had grown by 7 percent and 3 percent, respectively, since 1994. The survey also reported that 31.5 percent of children under age five were underweight (low weight for age).

Specific nutritional deficiencies in Pakistan were estimated to be Calcium (at 55 percent), Protein (17 percent), Iron (37 percent), Vitamin D (54 percent), and Vitamin A (55 percent).

In 2018, the Planning Commission of Pakistan and the United Nations World Food Programme estimated that poor nutrition costs Pakistan an estimated USD 7.6 Billion annually.

More specifically to Punjab Province, the 2011 National Nutrition Survey showed that key micronutrient deficiencies in Punjab are Vitamin D (42 percent deficiency), Zinc (35 percent), and Iron (48 percent).

The Punjab Multiple Indicator Cluster Survey in 2017-18 reported that 31.5 percent of Punjab's children were stunted; 7.5 percent were wasted, and 21.2 percent were underweight.

These data factored into the team's consideration of the type, quantity, and fortification of the milk to be recommended for the pilot program. Taste, safety, shelf life, packaging options, cost, and current capacities of farmers and processors were also factors the team considered.

Flavored milk was considered in the context of its taste perhaps being preferred by children. The team ruled it out, however, based on sugar content and additional cost implications. Unflavored white milk was determined to be the recommended option.

Safety concerns drove the team's decisions that the milk had to be processed; Ultra High Temperature pasteurized milk was determined to be preferable to milk pasteurized at lower temperature both due to the longer shelf life of UHT milk (months versus days) and because UHT milk does not require cold chain storage and handling conditions.

Also due to safety concerns, high-quality packaging was deemed necessary.

Reviewing these factors, global standards, and industry capacity, the team's deliberations resulted in GCNF recommending that the pilot program should focus on white, unflavored, UHT-processed, milk in high-quality packs; 200 ml per package, with fat content of 3.5 percent and Solid Not Fat (SNF) of 8.9 percent; fortified as follows:

Values	Reference Daily Intake (RDI)	Product (25% of RDI)
Calories level (Kcal)	1800	450
Protein (g)	19	4.75
Calcium (mg)	1000	250
Iron (mg)	8	2
Vitamin A(mcg)	600	150
Vitamin D (mcg)	10	2.5
Zinc(mg)	7	1.75

Source: Dietary guidelines 2015 -2020, United States Department of Agriculture

Based on this configuration, and with data provided by key industry stakeholders, GCNF was able to determine a base cost of each pack of milk produced in the province to be 26.99 Pakistan Rupees, (about 17 US cents), broken down as follows:

Plain UHT Milk ( Fortified, Fat 3.5%, SNF=8.9%) As per PSQCA Standards	
Key Cost Elements (in PKR)	PKR
Raw milk	16.90
Food grade additives	0.26
Fortification	0.50
Processing Cost/Utilities	1.46
Packaging	5.87
Transportation to Distributor warehouse	1.00
Distribution to schools & warehousing	1.00
<b>Total Cost / Pack (200 ml with attached straw)</b>	<b>26.99</b>

### Program Design: Geographical Targeting

Kashif Hussain Bhatti led much of the work to identify where within the Province of Punjab to target the program. The core criteria used to identify target districts for the pilot program and the main sources of information used to examine these criteria are as follows:

- Incidence of malnutrition  
*Government of Pakistan (Planning Commission) National Nutrition Survey (NNS) 2011;*  
*Planning Commission of Pakistan and the UN World Food Programme, 2018;*  
*Multiple Indicator Cluster Survey 2017-18*
- Incidence of poverty  
*Planning Commission, Government of Pakistan*  
<https://ophi.org.uk/multidimensional-poverty-index/>  
*Chapter-2 Punjab Poverty Profiling 2018*
- Literacy rate

Supplementary criteria used were:

- Livestock/Number of milking animals  
*Punjab Livestock Census, 2018*
- Number of small holder farmers  
*Calculated from data collected as explained in the Size and Scope section below*
- Number of primary schools (girls and boys)  
*Punjab Education Department–School Census 2018*

Confirmatory criteria included:

- Population density  
*Pakistan's 2017 Census*
- Dairy processor milk collection network availability  
*From dairy processor-provided data*
- Processor distribution and warehousing availability  
*From dairy processor-provided data*
- Accessible (road, mobile, and internet) infrastructure  
*From various sources, including dairy processors*
- Human resource availability (NGO networks, etc.)  
*From various sources, including from dairy processors*

Applying the core criteria, it was clear that South Punjab is the area of greatest need. Based on the analysis of the supplementary and confirmatory criteria, the following districts were ranked as the top three options for targeting the pilot program:

1. Muzaffar Garh
2. Bahawalpur
3. Rahim Yar Khan

Based on subsequent stakeholder consultations, GCNF further narrowed the list and determined that the pilot should be concentrated in Muzaffar Garh.

### **Program Design: Size and Scope**

The following considerations factored into the team's determination of the appropriate size and scope of the program to propose, in terms of the number of schools and school milk recipients, and, in turn, the amount of milk this would entail and the number of farmers that would be involved:

- The pilot should have impact on a sizable population of children
- It should be able to demonstrate significant health and education impact
- It should support processor efficiency and support them to achieve market gains
- It should sufficiently engage the targeted and relevant community



Based on these criteria, it was decided that the program should cover:

- About 80% of the public primary schools in the target district (1400 of the 1717 schools, quite evenly split between boys' and girls' schools);
- About 191,500 of the 239,268 children enrolled in the district's public primary schools;
- A potential 10 percent increase in enrollment of currently out-of-school children due to the incentive that the school milk will provide;
- All teachers in the targeted schools, to ensure their participation and support;
- Quarterly provision of milk packs to students' parents (to ensure their involvement in, understanding of, and support for the program);
- One 200 ml pack of milk per day per person, five days per week for the full school year (208 feeding days) with the exception of parents, for whom GCNF recommended one pack each, four times per year.

This sizing exercise resulted in an estimated program need of approximately 47 million packs of milk for the school year, allowing a reasonable margin for wastage or damage as well as having sufficient buffer stocks to ensure steady supplies.

Because GCNF recommends that all the milk for the pilot program be collected from farmers within the district if possible, and given that milk collection would not be limited to school days (milk collection would need to be consistent throughout the year), this size of program would require 26,166 liters of milk to be collected. This will constitute a 31.5% increase in processor collection in the district, where current collection totals 83,000 liters.

At a raw milk price calculated to be 64 Pakistan Rupees per liter, this would mean involved farmers would experience an increase of 558 Million Pakistan Rupees (almost USD 3.5 Million) per year in milk sales.

The average yield per day per farmer in Punjab is very low, at 3 liters. Based on the quantity of milk needed for the program and this average per farmer yield, GCNF estimated that milk from about 8,700 farmers would be needed to meet program requirements.

### **Program Design: Key Performance Indicators**

Before establishing the specific Key Performance Indicators (KPIs), the GCNF team collectively determined that the program KPIs should be:

- Built on global experience and good practice;
- Rigorous and credible;
- Practical to implement in the Punjab context; and
- Inclusive (e.g., ensuring that all stakeholder interests are represented; and that small-scale milk producers can participate).

In addition, the team felt that the KPIs should:

- Produce results that will be convincing to all major stakeholders.

Using these criteria, the team produced the following KPI plan:

EDUCATION				
	Indicators	Description of Indicators	Source	Timing
1	Enrollment (number)	Number of new admissions in the sampled school before and after SMP	Historic data + register and data from sampled schools	Baseline, annually thereafter until endline
2	Estimated attendance rate	Ratio of students present in school on a given number of days during the year (determined by head counts) to the number of children enrolled		
3	Drop-out rate	Percentage of children enrolled in a given year who do not finish the school year.		
4	Promotion rate	Percentage of children enrolled in a given year who are promoted to the next grade at the end of the year		
5	Involvement of parents in activities at schools	Change in parents' level of involvement in children's schooling	Qualitative Research with parents, teachers and students	Baseline, midline and endline
6	Students' academic ability	Change in students' academic performance		

HEALTH AND NUTRITION				
	Indicators	Description of Indicators	Source	Timing
1	Height	Height according to age, measured with stadiometer or measuring tape	Primary data from children of sampled school	Baseline, Midline, Endline
2	Weight	Weight according to the age, measured with weighing scale		
3	Body Mass Index	Approximate measure of over- or under- weight, calculated by dividing the weight in kilograms by the square of their height in meters		
4	Mid-Upper Arm Circumference (MUAC)	Circumference of left upper arm mid-point between the tip of the shoulder and the tip of the elbow. Used to assess nutritional status.		
5	Iron Deficient Anemia	Caused by a lack of iron, leading to low levels of hemoglobin	Blood laboratory test*	
6	Vitamin D deficiency	Vitamin D is essential for strong bones: It helps the body use calcium from the diet		
7	General Health	Incidence of general illnesses	School absences and # of hospital visits	
8	Student reaction to the intervention	Student reaction to the milk delivered; its frequency, amount, quality and taste	Qualitative Research with students, parents, teachers	Month 1
9	Student behaviors	Any significant change in student behaviors (alertness, fatigue, focus, physical activity, anger, emotional disturbance etc)		Midline, endline

\* Blood testing viability to be checked. In case of any issue, its intended outcome will be measured via qualitative research

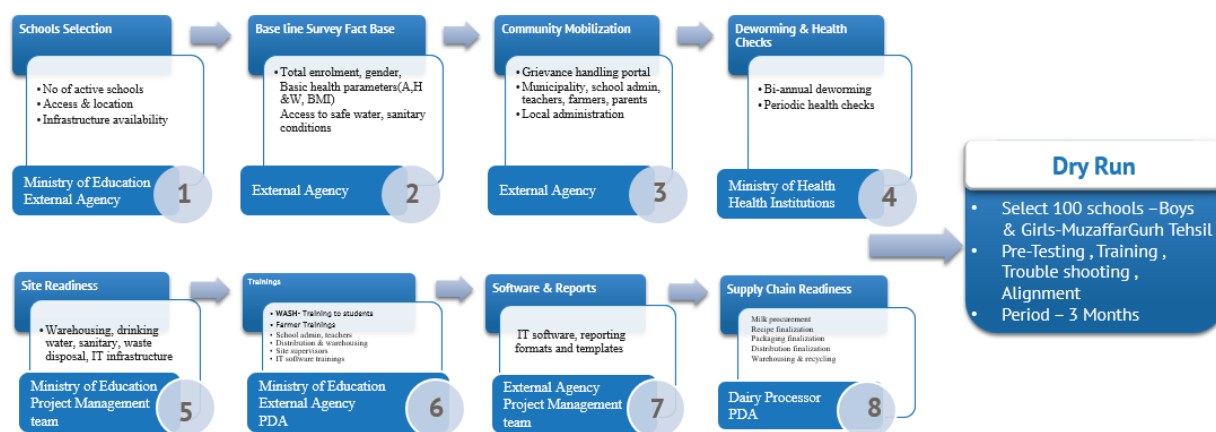
## ECONOMIC DEVELOPMENT

	Indicator	Description of Indicators	Source	Timing
1	New safe packaged milk market	Number of packs delivered to schools	Milk dispatch/received data	Monthly
		Increase in liters of milk collected	Milk collection data	Baseline, monthly
		Increase in size of safe packed milk market in pilot area	Data from processors	Bi-Annually
2	Farmer engagement	Number of farmers engaged with the SMP	Data from milk collection	Monthly
		Incremental value of milk procurement from the pilot area paid to the farmers	Milk collection data	Annually
3	Employment	Increase in employment related to the SMP – Processors, milk collectors, distributors, and project management	Data from processors value chain & project team	Baseline, midline, endline
4	Impact on farmers	Income stability, improved farming practices (via processors' efforts), sense of contribution, perception about children's schooling	Qualitative Research with farmer households	Baseline, midline, endline

### Program Design: Implementation

The team then addressed the questions of the preparation work that would be needed to set up the pilot program, as well as its staffing and budgetary requirements.

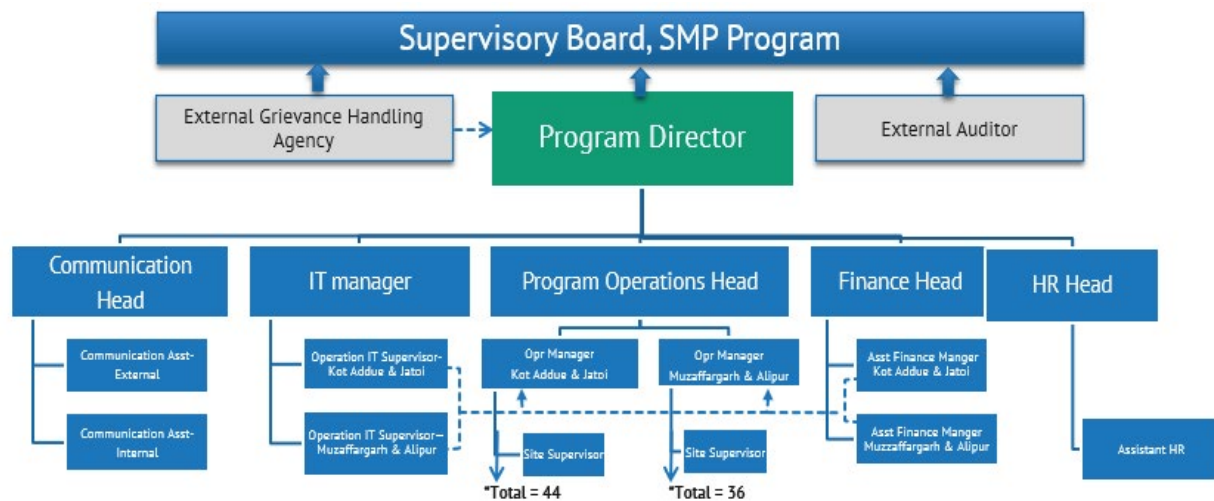
In terms of preparing for a successful start-up, GCNF defined both key actions to take prior to program implementation and what entity might logically be responsible for each as outlined below. This process is estimated to take about three months, after which GCNF recommends that the program be tested out via a “dry run” in a limited number of schools as the pilot starts, to work out any issues prior to scaling up to reach all the targeted schools.



In defining execution processes and roles, the GCNF model defined the following categories, actions, and responsible parties:

- For value chain processes, material procurement, production of the fortified milk packs, distribution and warehousing to be handled by the processors; the actual feeding of the milk to the schools to be managed by Ministry of Education, and waste management to be handled by the Pakistan Dairy Association (PDA).
- Stakeholders, including the PDA, the Ministry of Health, the program management team, and related external partners throughout the process would be responsible for quality control of the product and site hygiene at each relevant location.
- The program management team would be responsible for managing the demand for product, order processing, inventory management, payments, and administration.
- Multiple stakeholders would be responsible for impact measurement, surveys, health tests, and data recording, including the PDA, the Ministry of Health, the program management team, and related external agencies.
- An objective external agency would be responsible for receiving and reporting grievances and monitoring and reporting their resolution, soliciting suggestions and feedback from program participants and beneficiaries, and alerting appropriate stakeholders to any crisis that might arise. The program management team would be responsible for addressing and resolving grievances, considering and implementing modifications based on suggestions and feedback, and ensuring timely and appropriate response to any crisis.
- Finally, the program management team would be responsible for overall program management, administration, and financial reporting.

The management structure that GCNF recommended for the pilot program consists of 93 positions: 83 in operations; 2 in human resources, 3 in information technology (IT), 1 in finance, 3 in communications, and 1 program director, as shown below.



## Program Design: Finance

The cost of the program was originally estimated to be USD 9.5 Million in the first year (about USD 6785 per school in the first year) increasing annually to a fifth-year high of USD 19.3 Million. This original breakdown, based on the quantity and cost of the milk packs (including incremental increases to account for the program attracting an estimated 10 percent more out-of-school children to attend each year) and an overall program management cost of 20 percent, increasing annually by a 10 percent rate of inflation, is shown below.

### BUDGET FOR PILOT PROGRAM

	Year -1	Year -2	Year-3	Year-4	Year-5
Product Cost (PKR)	27.0	29.7	32.7	35.9	39.5
Total Packs Required (M) +10% increased enrolment	47.0	51.7	56.9	62.6	68.8
Annual Product Cost (PKR M)	1269.0	1535.5	1857.9	2248.1	2720.2
Program Management Cost @20% of Annual Cost + 10% subsequent Inflationary increase (PKR M)	253.8	279.2	307.1	337.8	371.6
Total Program Cost ( PKR M)	1522.8	1814.7	2165.0	2585.9	3091.8
Total Program Cost ( USD M)	<b>9.5</b>	<b>11.3</b>	<b>13.5</b>	<b>16.2</b>	<b>19.3</b>
Cost Per School (USD)	6,785	8,101	9,665	11,544	13,803

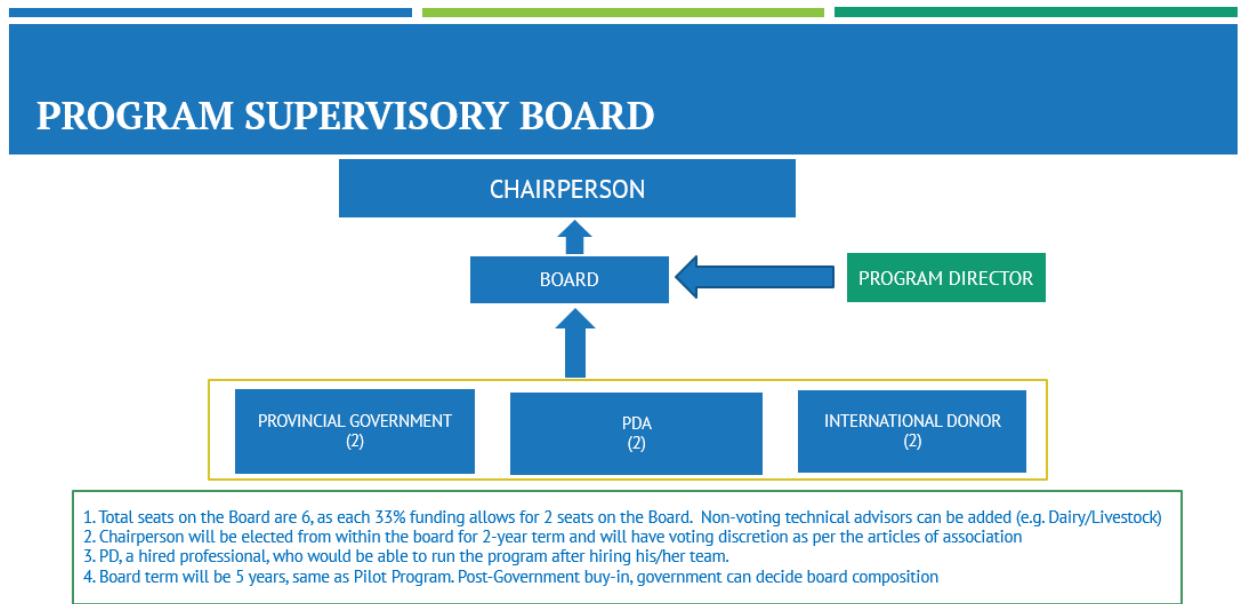
- \* Yearly inflation kept constant @ 10%
- \* 10% increase in enrollment assumed from year 1
- \* USD to PKR conversion kept constant @ 160 PKR

GCNF recommended that the costs of the five-year pilot be shared between three primary stakeholders. First, because long-term sustainability requires governmental support from the outset, GCNF recommended that the Government of Punjab provide up to one third during the first two to three years, and based on demonstrated success, phasing up its commitment after that period until Government support would cover the full cost of the project by the end of the pilot. The remaining two thirds in the initial years were proposed to come from an international donor and the Pakistan Dairy Association, with reliance on their financial support reducing as Government support increases.

## Program Design: Governance

The recommended governance structure would include a supervisory board consisting of two members each from the three envisioned primary stakeholders: the Provincial Government, the Pakistan Dairy Association, and an international donor. A Chairperson would be elected every two years, ensuring representation from each of the stakeholders on rotational basis. The Program Director would report to the Board, and technical advisors (e.g., dairy or livestock experts) could be

invited to serve in non-voting roles. The proposed Terms of Reference for the Board can be found in Appendix G.



### Program Design: Additional Comments

This concluded the core design of the pilot program recommended by GCNF, based on a five-year pilot program providing school milk for 208 school days per year to 191,500 students in 1400 schools in Muzaffar Garh, as outlined above.

A base presentation was developed on 19 June 2020 that included all of these components and recommendations. This base presentation served as the core resource for shorter presentations tailored to specific stakeholders in the consultations outlined in the next section. While the base remained essentially the same throughout the consultancy, the discussions with IFC and the stakeholder consultations led to various modifications as is also discussed in the next section.

By 17 June 2020, the severity of the COVID-19 pandemic was clear, and the Government of Punjab announced that schools would be closed indefinitely. This induced IFC to ask GCNF to provide insight into how other countries were handling school meal programs when schools were closed and recommend whether to propose the pilot school milk be implemented in the province if schools remained closed. GCNF’s presentation on the topic can be found in Appendix H. Discussion of the findings resulted in the agreement between GCNF and IFC that the pilot program should only be implemented in Punjab Province if schools were open.

### STAKEHOLDER CONSULTATIONS

Relevant action items:

# 3b) Discuss the design of proposed SMPs for Pakistan with dairy industry representatives and with the Government at a workshop to be organized by IFC.

# 4) Hold follow-up meetings with UHT milk industry stakeholders (including the Pakistan Dairy Association, Friesland Campina, Nestle and Tetra Pak) and with the Government in order to develop the detailed design of a model for a school milk program with a credible milk quality assurance system and with a credible system for ensuring that the milk would be provided to and consumed by schoolchildren on a daily basis.

# 6) Collect qualitative feedback from the parents, teachers and community leaders on the SMP and develop the criteria on what data should be collected to monitor the overall progress of the SMP, including its impact on enrollment, drop-out rates and the health parameters of the children taking part in the pilot SMP;

#7) Collect and analyze information about Friesland Campina's and Nestle's milk supply chains in order to develop criteria and methodology for monitoring the program's impact on smallholder farmers' incomes and livelihoods;

#8) Prepare a detailed description of the required infrastructure (including the regulatory and the legal infrastructure) and the capacity for the implementation of the School Milk Program

The COVID-19 pandemic precluded GCNF contracting with a local research institution as planned, to collect qualitative feedback from the parents, teachers, and community leaders on the proposed pilot school milk program.

Key stakeholder consultations took place throughout the consultancy, but not quite as planned, primarily due to the pandemic. GCNF began to advise the primary potential stakeholders of the purpose of the consultancy in April. In June, once the results of the global analysis and pilot School Milk Program design were drafted and approved for use by IFC, formal consultations began. Stakeholder consultations continued throughout the remaining consultancy period; nearly all were held remotely, via Zoom and telephone. The dates of each formal meeting and summaries of the discussions are provided in this section, in chronological order. When relevant, follow-up actions are also noted.

### **26 June Meeting - Tetra Pak**

Agenda: Share and discuss the preliminary GCNF proposal for a pilot School Milk Program and gain feedback from Tetra Pak

Summary of Key Points/Discussion:

The Tetra Pak team appreciated the proposal, in particular the KPI detailing and the pilot area selection. They noted that the financing situation might change depending on a number of factors, including potential information technology investors and fortification partners, and suggested DSM as a potential partner. They noted that government procurement generally requires a tendering process, which could be a complicating factor.

Tetra Pak suggested that the proposed pilot program begin with a test run to identify and address issues before full implementation. They also proposed the use of an exclusive bar code and special design elements on product packaging to avoid commercial selling of the product. The IFC team further suggested highlighting fortification additions on the packs.

The group discussed the current Government term in office and suggested strong social mobilization and ensuring that SMP-specific legislation is adopted to help to ensure program sustainability.

#### Follow-up Actions:

- GCNF contacted fortificant-provider DSM (a member of GCNF's Business Network), provided them with an overview of the consultancy, and inquired about their level of interest. DSM informed GCNF that they were already active in Pakistan through their partnership with the World Food Programme and asked to be kept informed of progress regarding the proposed pilot School Milk Program.
- GCNF briefed Tetra Laval's (global) Director of Food for Development, based at their headquarters in Sweden.

#### **29 June Meeting – Nestlé**

Agenda: Share and discuss the preliminary GCNF proposal for a pilot School Milk Program and gain feedback from Nestlé

#### Summary of Key points/Discussion:

The Nestlé Pakistan team asked for clarification on the financial contribution requirement from an involved processor in terms of absolute value and in terms of the cost per milk pack, inquired as to the scope of marketing leverage for processors in return for financial participation, suggested to develop a marketing framework for the program, and to clarify to what extent other stakeholders will contribute financially and facilitate execution.

The Nestlé Pakistan team shared suggestions on the design of the milk packs, suggested to get early confirmation from the Government and international donor on willingness to contribute financially, and to ascertain whether processor participation will go through a bidding process as per typical Government protocols.



## **01 July Meeting – Pakistan Dairy Association (PDA)**

Agenda: Share and discuss the GCNF pilot School Milk Program proposal and gain PDA feedback

Summary of Key points/Discussion:

The PDA team sought clarification on aspects of the proposed partnerships, particularly as relates to branding opportunities and procurement options, in view of Pakistan’s Public Procurement Regulatory Authority (PPRA). Clarification was also sought as to what entity or entities would have responsibility for distribution and collection of the milk packs in the program.

The PDA members raised questions and concerns related to the pilot location and milk sourcing locations. These issues were addressed and aligned.

The main concern shown by PDA members was related to the Government’s financial participation, how supplier payments could be ensured, and its full support and ownership during the scale-up phase. The PDA also showed interest in managing administrative elements of the program.

Several good suggestions were put forward by PDA members: Digitalization of the monitoring and evaluation component; ensuring proximity of the program management team to the program sites and to one another; and the need for a media strategy to build community support and for a Government champion to build support for sustaining the program. Other suggestions included the need for breed improvement training (to improve per animal milk production), and the recommendation that nutrition and hygiene education for communities be included in the program.

The PDA chairman stated that the PDA must be a part of the program for its success; it was agreed that the PDA would meet internally to consider the proposal, particularly the proposed role for PDA and its financial contribution.

## **11 July Meeting - Government of Punjab**

Agenda: Share and discuss the GCNF pilot School Milk Program proposal and gain feedback from the Government of Punjab

Summary of Key points/Discussion:

The Government officials sought clarification on program design elements related to the possibility of considering Non-Formal Basic Education schools, supply of safe and clean milk, program management responsibility, and the robustness of program impact measurement. Clarification was also sought on scope of IFC’s role with respect to technical and financial support.

The Additional Secretary – School Education highlighted that a school feeding proposal prepared with the help of World Food Programme had already been approved by the Planning and Development department which should be considered by GCNF for its design. He also put a special emphasis on the use of indigenous food for program sustainability.

The Secretary Primary Health was positive in his feedback on the proposal, confirming full support of the health department in assigned roles. He suggested adding private schools to the scope and asked the GCNF team to consider engaging the Punjab Food Authority to approve the customized product for the pilot, and for making it available in schools.

The Additional Secretary – Literacy and Non-Formal Basic Education apprised the GCNF team of their schools in the targeted districts and recommended their inclusion in the pilot.

The Member Education - Planning and Development apprised the team that a Health & Nutrition cell already exists within the department, and that a malnutrition program is already in execution in the Southern Punjab province. He further commented that if the GCNF proposal is evaluated as reasonable it could be considered for Punjab's Annual Development Plan.

The workshop concluded with assurance of support from all Government departments in further evaluation and refinement of the GCNF proposal: The Additional Secretary Education agreed to share the approved WFP school feeding program concept with GCNF, and the Member Education advised that the GCNF proposal would be discussed in an internal multi-department meeting and joint feedback would be shared with GCNF.

#### **24 July Meeting - World Bank**

Agenda: Share & Discuss the GCNF Pilot School Milk Program Proposal

Summary of Key points/Discussion:

GCNF was asked whether technology (MIS) is incorporated in the program design to induce donor confidence and to ensure milk actually goes to school children with transparency and traceability. GCNF responded that the proposal does include biometrics, unique and traceable package identification and labeling, and a helpline for parents and others to report issues.

GCNF was asked about learnings from the previous SMP in Pakistan. Why there was no traction/continuation if it was successful? GCNF responded that the program results were impressive, but as far as GCNF can ascertain, the program ended after the external funding ended. [N.B. GCNF has since been advised by a person involved with the program that the government continued the program for some time beyond the period funded by an external donor, but it was apparently terminated due to issues of mismanagement.]

GCNF was queried regarding the assumption of a 10 percent inflation, especially with exchange rate parity which might offset some of the cost.

The group discussed local purchase of milk—core to the GCNF proposal—as a sustainability issue, and GCNF mentioned the Government of Punjab's emphasis on indigenous milk production. Additionally, the Government has banned soda and other beverages over health concerns because of sugar. They have been looking for a healthy alternative and SMP might cover that gap. Various laws in the past few years have discouraged use of powdered milk and Government has asked for

indigenous development. GCNF agreed to explore the possibility of making local milk purchase a requirement.

Regarding health aspects, there was a discussion of the first 1000 days of children being extremely important for nutritional benefit, and GCNF was asked if there was any plan or thoughts to reach pre-school children. GCNF responded that brain and physical development continues until age 21, and new literature and thinking suggests that the first 8000 days are important for nutritional benefit for children. Improved education outcomes, particularly for adolescent girls, helps students to become healthier, more productive adults with healthier, better educated children. There is also the issue of efficiency. A large number of children can be reached cheaply when they are at school, while reaching age 2 to 5 years old children is a challenge for most countries because there is no institutional way of reaching them. So, the challenge is known, but a practical, affordable solution has not been fully defined. It is understood, though, that school meal programs help pre-school children, since the programs impact overall household food security. When school-going children are fed at school, it leaves more resources for the rest of the family.

GCNF also noted that school feeding programs and programs targeting children's first 1000 days are not in competition. They complement each other. In addition, and specifically in the case of Pakistan, if the dairy value chain is improved and the milk is safer, it benefits the whole community, and if the School Milk Program succeeds in the way it is envisioned, all children will benefit eventually.

GCNF noted that Dr. Donald Bundy at London School of Tropical Hygiene and Medicine is a leading expert on the importance of first 8000 days of a child's life in determining his or her long-term health and productivity, and offered to provide more information on the first 8000 days.

GCNF was asked if lactose free and flavored milk options were considered. GCNF responded that lactose issue for Pakistan would be looked into as Asians are known to have lactose issues. Flavored milk was ruled out as a healthy choice because of high sugar content.

GCNF was asked about cold chain, storage, etc., and whether these costs were built into the program. GCNF responded that all these factors were considered, and also served as criteria in site selection: The shortlisted site has enough milk availability, collection by dairy processors in cold chain vehicles is already happening, nearby processing facilities and the distribution network is also available and appropriate. For the pilot, it is not believed to be a big financial or logistical constraint for processors as the costs are not too high. It is felt as well that if and when the program is scaled up, the dairy processors should be willing to invest, as the benefits to the industry will increase.

A new World Bank human capital project for Punjab is already approved and implementation in some of the districts is about to start. Thus, the new World Bank teams might be in a position to help with the program. GCNF was asked if the pilot school milk program could start in the August/September time frame for school starts. GCNF responded that even if all agreements were in place, some on-ground work will still be required before the milk actually can be delivered to

children. Also, GCNF proposed that the program be piloted in some select schools to work out any issues before scaling to all the 1400 schools proposed for the pilot.

There was discussion of four key areas in which World Bank's support would benefit the program

- The Bank could assist with the human capital setup, its funding and support.
- The Bank's interface with high levels of Government can be very useful too.
- Help with bringing funding sources (Government, World Bank, external donors) on board would be beneficial.
- The World Bank has technical resources that could be used to advocate for the program, and--when the project is running--to help ensure that it is staying on track.

The World Bank shared there is a need to better understand and absorb the information provided in order to identify the concrete steps that the Bank team can do, noting that funding would be the toughest, but all the other items should be possible.

In response to a question regarding which larger dairy processors are to be engaged in the program, GCNF replied that there are only 3 or 4 large processors operating in Punjab with the capacities needed for the program. The Pakistan Dairy Association is engaged in the discussions, and GCNF has not indicated any preference for a particular processor. As for large international processors, Nestle and Campina are the only two operating in the country.

In response to a comment that the idea of financial support being evenly split between key stakeholder might need to be modified, with a larger portion coming from donors, GCNF said that it certainly can be modified, but the key is for the Government to have a clear stake in the program.

Follow-up actions:

- GCNF and IFC reviewed and clarified the financials, reflected in subsequent documents and presentations.
- GCNF conducted research into the issue of lactose intolerance and proposed remedies if encountered in the pilot program. See Appendix I.
- GCNF provided the World Bank and IFC with additional information about the importance of the first 8000 days of a child's life. See Appendix J.
- World Bank representatives were invited to subsequent meetings as proposed.

### **19 August Meeting – World Food Programme (WFP) – Pakistan Country Office & Bangkok Regional Bureau**

Agenda: Share and discuss the GCNF pilot School Milk Program proposal, gain WFP feedback; learn more about the earlier WFP proposal for school feeding activities in Punjab Province.

Summary of Key points/Discussion:

WFP sought clarification on the profile of target beneficiaries, product formulation, product pilferage controls and water, sanitation and hygiene conditions, which were addressed.

Smallholder farmer capacity with respect to milk supply was discussed in the context of meeting food safety requirements and driving economic development; the WFP regional team commented on the importance of preparing a food safety management system and a feedback mechanism for incident management.

The WFP team suggested that GCNF consider reducing the size and duration of the pilot program in order to more easily find funding.

Lactose intolerance was discussed, and WFP suggested inclusion of a snack in addition to milk as part of the meal package, and that the proposal include specifics for tackling the potential lactose intolerance issue.

WFP presented a short update on the history and status of its proposed school meal program with the Punjab Government. Key points from the WFP presentation and discussion:

- WFP has also identified South Punjab as the region for conducting the program in its proposal.
- WFP suggested three feeding models to the Punjab Government, one of which is comprised of UHT milk along with fortified biscuits.
- WFP has helped the Punjab Government prepare a PC-11 (a proforma for surveys and feasibility studies related to development projects in Pakistan) for the school meal program but, there had been no further activity on the proposal since the start of 2020.
- WFP prepared its research and school feeding proposal on the direction of Punjab Government and the program proposed was to be funded by the Punjab Government.
- WFP pointed out that the Pakistan Prime Minister has announced an anti-stunting program with funding from BISP (the Benazir Income Support Programme, Pakistan's national safety net program) in which WFP will participate. The program aims at a scope of 500,000 beneficiaries including mothers and infants in 10 districts.

Next Steps: Both WFP and GCNF/IFC agreed to review internally the potential for collaboration and revert back with possibility of a working group to align a collaborative proposal. Both teams also aimed to gain clarity regarding the Punjab Government's position on timing, budget, and the preferred feeding model.

### **27 August Meeting with Planning Commission of Pakistan**

Agenda: Share & discuss the evolving GCNF pilot School Milk Program proposal with the Planning Commission of Pakistan

Summary of Key points/Discussion:

The Government officials sought and received clarification on program design elements related to the target age group, supply of safe and clean milk, product storage and waste disposal.

The issue of site selection was raised, with the Government highlighting that according to the Benazir Income Support Program (BISP) data Sindh and Baluchistan were priority areas. It was clarified that the mandate of current project is limited to province of Punjab.

The Government suggested that the program include other food items—eggs or fortified biscuits—in addition to milk.

The Government noted that a long-term food security policy is being designed in which addressing stunting is a priority, discussed how project proposals are elevated to the Federal level, and explained the project approval process and advised the GCNF team to coordinate with the Nutrition Cell if required going forward.

### **07 September Workshop - Government of Punjab**

Agenda: Share & discuss the evolving GCNF pilot School Milk Program proposal with the Government of Punjab

Summary of Key points/Discussion:

The Advisor to Chief Minister Punjab, Economic Affairs, Planning & Development chaired the meeting. The Special Monitoring Unit (SMU) reports directly to the Chief Minister Punjab as does the Advisor. The Advisor showed interest in the program spanning 365 days, rather than the 208-day school year, and for it to be scaled up to cover the whole province. He stated that the proposed program could be a flagship program for the Government and offered his full support.

The Advisor asked GCNF to find ways to make the program as efficient as possible; to consider the cost/child/month, compare the program's milk pack product cost to shelf prices, evaluate economies of scale of bulk volume, and consider re-evaluating and reducing the program management cost, both in the pilot phase and in scale-up.

The Advisor also suggested that duration of the pilot phase should be shortened, and that the program be scaled up faster. He asked GCNF to review other programs in place in Punjab as well, and to consider incorporating the Government's existing technology and nutrition offerings to support and institutionalize scale-up.

The Advisor urged GCNF to come back with revisions quickly, and stated a willingness work with private sector, donors, and non-governmental organizations to ensure the success of the program.

The Member Health, Planning and Development expressed concern about serving milk to children with empty stomachs and stressed the need to address the lactose intolerance issue. He suggested that the School Milk Program should not be misused, with milk intended for schoolchildren being provided to infants, and suggested that GCNF take additional indicators, such as dental health, into account.

The Program Director – PSPU Health stated that data (attendance, drop-outs, health & nutrition status) is available with the Government through a school health and nutrition program already in place in Punjab. She stated that deworming, health check-ups and WASH (water, sanitation and hygiene) trainings are already a part of the program and substantial human resources and administrative support are already in place under Government administration to manage such a program. She offered to collaborate to consider how they could be into the proposed program to optimize efficiency and reduce costs.

The Chief Planning & Evaluation, Agriculture, suggested that smallholder dairy farmers should be stakeholders too and they can be engaged via the Ministry of Livestock, saying that the program's buying from small dairy farmers should result in increased productivity.

Next Steps: GCNF agreed to meet with relevant players to learn more about Government resources and programs to determine whether and how they might be integrated into the proposed school milk program, and to revert with responses to the Advisor's requests.

### **07 September – Communication to GCNF from Social Services Division, Special Monitoring Unit, Government of Punjab**

GCNF was asked to address the following questions, in addition to those posed in the 07 September meeting:

- What type of schools are being targeted i.e., Primary, Middle, Secondary or Higher Secondary?
- Have you taken into account the new Local Government Act while designing the execution process?
- Alternative methods of delivery like ration cards have been considered or not?
- There was a similar nutrition program piloted in 2017(?), where public school students were provided with milk and biscuits. However, it wasn't much of a success. Did you go through it by any chance?
- Punjab Food Authority is now able to test milk in 2 minutes, have you taken that in account for the provision of open milk to students?

Follow-up Actions: GCNF sought meetings with the relevant Health and Education officials. While successful in meeting with Program Director, PSPU, Health on 09 September (documented below), efforts to meet with Education officials were not successful and delayed GCNF's response. GCNF submitted responses to the questions raised on 24 September. The two documents submitted can be found in Appendix K.

### **09 September Meeting with Health Department, Government of Punjab**

Agenda: To discuss the support of the Government in order to reduce the implementation cost of the proposed School Milk Program

Summary of Key points/Discussion:



The PD-PSPU apprised the GCNF team on the current operation in place in Punjab districts as follows:

- The Government School Health & Nutrition Program (SH&NP) is run under Basic Health Units. Their job is to screen primary and middle school children for detection of common health problems through general physical examinations, gather biometric data, and enter required information in the SH&NP database.
- They also do capacity building of schoolteachers for the promotion of hygiene education among the school children, identification of abnormalities in children's health and general condition, and to appropriately report cases to the Health Department
- Education-related data is already being gathered from the Government schools by PSPU. Health check data is being added to it and is being shared back with Education department.

Existing and planned activities that might be leveraged for the proposed School Milk Program according to the PD-PSPU include: SH&NP data that could serve as a baseline (A study planned by Agha Khan University and the Government was recommended instead, however, as it should produce more robust data.); SH&NP staff can measure height, weight, mid-upper arm circumference (MUAC), and body mass index (BMI) for evaluating program impact.

The PD-PSPU and GCNF team also clarified that responsibility for Iron and Vitamin D levels through blood testing does not come under SH&NP, hence separate sampling was suggested; the PD-PSPU does not view lactose intolerance as a major concern; a deworming initiative for schools is planned but not yet implemented at scale; and the Government has not anticipated paying for materials that would be necessary for program-based activities in the Government budget.

It was suggested that the Agha Khan University team would be a good source for more guidance regarding lactose intolerance and Vitamin D, at least.

Potential issues and aspects of how the SMP program could incorporate Government staff included the potential for existing SH&NP field staff to learn and handle stock management and ordering, if given proper training and incentives; the fact that teacher could also be considered for some program tasks (again, depending on training and incentives); the potential for officers in district development health centers (DHDC) to supervise aspects of the program; Government resources in IT, Finance, and Human Resource could be integrated if the Secretary of Health and Education were in agreement and there is adequate capacity.

The GCNF team shared details of the proposed processes, organization, and related program management costs for the program, and highlighted the importance of cost effectiveness, strong controls, and ensuring that staff profiles match the work to which they are assigned. The PD-PSPU agreed to provide specific feedback and to recommend an optimal organization and activity structure, incorporating current Government employees, but noted that they do not encourage a matrix organization structure with dual reporting.

**Note: GCNF attempts to schedule a meeting with Education officials in the Government of Punjab were unsuccessful.**

#### **24 September – Revised submission to the Special Management Unit, Government of Punjab**

GCNF submitted to the Special Management Unit a revised presentation addressing the questions raised in the 07 September meeting with the Government of Punjab as well as detailed calculations used to determine the program management costs. As stated in the 07 September section above, these can be found in Appendix K.

#### **07 October – Meeting in the Office of the Chief Minister Punjab**

In this meeting at the Office of Chief Minister Punjab regarding the development needs of Punjab (not specifically about the proposed School Milk Program), there was a follow-up discussion with the GCNF regarding the request to lower the costs and to increase the scale of the program, as well as the importance of Government leadership for the next stages to succeed. Initial plans were made for the final workshop to be held (observing COVID-19 protocols) in person, at the Office of the Chief Minister (observing COVID-19 protocols) the week of 19-23 October.

Follow-up actions:

On 27 October, the requested information, in the form of the GCNF presentation, was sent to all invitees to the final workshop. The presentation can be found in Appendix L.

#### **14 October Meeting – Pakistan Dairy Association & FrieslandCampina**

Agenda: Alignment on key points before joint workshop with the Government of Punjab

Summary of Key points/Discussion:

The PDA team shared 3 main observations and concerns regarding the Government's proposal for a much larger-scale (Punjab-wide) program than originally proposed: 1. The volume required would create pressure on supply and therefore on market prices. 2. It would also require investment and time to gear up; this would be challenging for the industry, especially without a firm commitment from the Government and a donor. 3. Experience indicates that critical components should not be compromised for the sake of limiting costs, a situation seen as a potential danger if the management of the program was left to the Government.

GCNF indicated that it was recommending the program scale be limited to South Punjab rather than covering all of Punjab, and that milk sourcing could either be extended beyond the South Punjab districts to ensure management of supply and prices, or that the program be implemented in conjunction with Government-initiated dairy development projects to improve the supply issues. There was also discussion of a possible 'minimum pasteurization act' as a pilot for the targeted districts (in line with Punjab act effective 2022.)

GCNF explained the plans for the hybrid Government and independent program management, proposed in order to balance cost and controls, and explained that the revised program proposal calls for the protection of critical activities, and their independent management.

Distribution to the targeted schools was a topic, with clarification that the proposed budget includes support for the cost of distributing the milk from the local distributor to schools (including the possibility of local warehousing), and the fact that execution responsibility can be negotiated with either the distributor or through an independent party.

Preparation and plans for the final workshop were discussed, including who would be attending from the PDA.

### **20 October – Key updates regarding unfortunate occurrences affecting the final workshop**

GCNF learned that three Government ministers had contracted COVID-19; some of the Government's work had come to a halt; and that the in-person workshop would most likely be converted to a Zoom meeting.

### **WORKSHOP**

Relevant action item:

- 10) Conduct a workshop with the dairy industry stakeholders and with the government during which the final design of the program would be agreed upon and approved by the dairy industry and by the government.

### **22 October Message from Special Monitoring Unit Social Services**

The Special Monitoring Unit shared minutes of the last meeting, referred to its invitation to the final workshop, and indicated that the Government was looking forward to finalizing key details that would lead to the launch of the School Milk Program in Punjab.

### **28 October Final Joint Workshop**

Agenda: Final consultancy workshop with key stakeholders to present and discuss the status of the GCNF proposal for a pilot School Milk Program in Southern Punjab Province and stakeholder positions vis-a-vis their potential involvement (The presentation can be found in Appendix L.)

Summary of Key points/Discussion

The GCNF team presented a summary of the changes to the program design, highlighting the changes proposed by the Government of Punjab in the 07 September meeting and thereafter, and

their recommendations in response to specific suggestions the Government had made. Most relevant are the following:

- Regarding the request to consider scaling the program to be province-wide, GCNF recommended limiting the program to the poorest districts in South Punjab, to target to the areas of greatest needs and to make the program more affordable.
- To ensure the milk supply, GCNF recommended that the Government negotiate a supply agreement with the dairy industry.
- To enlist needed expertise and reduce implementation costs, GCNF recommended that the Government consider enlisting the assistance of the World Food Programme, which has extensive experience with implementing school feeding programs.
- To gain the funding needed to implement the program, GCNF recommended that the Government include School Milk Program in the next Annual Development Plan and approach international donors to assist with funding. GCNF shared a list of potential donors prepared for this purpose, which can be found in Appendix L.

The PDA Chairman explained that the price of the program is a moving target, given the financial pressures the industry is experiencing. He also expressed concern that processors would have difficulty accessing adequate supply of milk if required to buy within the target districts. He cited the high price of sourcing milk from farmers and current difficulties the industry is encountering in obtaining adequate supplies.

The Secretary of Non-Formal Education sought clarification regarding the extent to which financing for the program was covered. GCNF explained the significant cost reductions it could now propose, including reducing program implementation costs and the cost of the milk packs, compared to the costs previously reported to the Government.

The Advisor to the Chief Minister asked about the financing proposal and the time required to kick off the program. GCNF explained the original proposal of equally-shared contributions coming from the three major stakeholders: Industry, Government, and an international donor. Given the contribution level achieved from industry, and because the program was not yet included in the Government budget, GCNF said, the bulk of the funding of a program to be implemented in the near term would need to come from external donors.

The Advisor proposed that an international donor should lead the pilot while the Government would provide administrative support in order to implement the program at the earliest. He indicated that taking the program through the Government approval process would be a very long process.

The GCNF concluded the workshop by thanking all participants, clarifying that the consultancy with IFC would end soon, that any potential external donor will look for evidence that the Government of Punjab supports the program, that the children of Pakistan need support, and that GCNF hopes that they will get much-needed nutritional support through a Government-initiated program.

**05 November – Communication from the Special Monitoring Unit**

The government requested additional information regarding a way forward, and all the relevant documents related to the program and its design “for future project designs and implementation”.

### **06 November – Communication from Special Monitoring Unit**

The communication referred to a new initiative in Punjab’s School Education Department in collaboration with the Allah Wallay Trust for providing free meals to primary school children in about 100 schools. The communication indicated that the Government was seeking such initiatives, that GCNF might learn from that program, and stating that the proposed School Milk Program Pilot “is in line with (the Government’s) socio-economic welfare and child nutrition priorities for the province”.

### **07 November – GCNF Response to the Special Monitoring Unit**

GCNF conveyed its gratitude to the Government of Punjab for its support and interest in the pilot School Milk Program, referred to the 31 October 2020 end date of its work with IFC, indicated that the proposed pilot requires Government and donor support and that the ownership should reside in those parties, and said that GCNF will share the documents once the final report is agreed with IFC.

## **CONSULTANCY BUDGET OVERVIEW**

As noted in previous sections of this document, the pandemic required GCNF and IFC to reconsider and agree on changes in planned activities and scheduling. GCNF requested, and IFC approved the following modifications:

1. To change the payout periods for the consultancy to allow for an upfront payment of 10 percent of the overall contract.
2. Extension of the consultancy period by an additional month.
3. To reprogram the funds involving travel, meetings, in-person workshop-related costs, and legal fees to cover additional GCNF staff and consultant costs.

In addition to the reprogrammed funding, the changes—particularly the cancellation of the planned research and public relations activities—resulted in overall budgetary savings.

## **CONCLUSION AND RECOMMENDATIONS**

As reported in considerable detail in this document, this consultancy produced the design for a pilot School Milk Program that was well-received by all of the key stakeholders, despite three significant obstacles:

- The coronavirus, which was just entering the world stage in November 2019 when IFC announced the consultancy and called for Expressions of Interest, had caused a full-blown

pandemic by the time the consultancy contract was awarded. It caused school closures and uncertainty about their reopening as well as illness and absences in key Government offices. The pandemic required GCNF to cancel all travel planned and otherwise changed how GCNF and all stakeholders could conduct meetings and workshops. It also forced GCNF to cancel planned in-person research work. In short, while it significantly changed the context of the work, it did not stop GCNF from completing nearly all aspects originally requested by IFC.

- The lack of a known or likely source of funding for the pilot program was a significant impediment as well. Despite their enthusiasm for the program design; the lower per-pack milk costs and reduction of management costs that GCNF was able to negotiate; and the national and provincial Governments' clear recognition of the need for such a program, each stakeholder in turn asked how the program would be funded. GCNF's position throughout was, and remains, that to be sustainable, a program requires support from the local or national government from the very outset, as well as a good design, and an identified and competent implementation team. GCNF therefore concentrated its efforts on the design and interactions with the key stakeholders in preparation for the Government to approach potential donors; this did not satisfy the stakeholders, however, as was made clear in the final workshop.
- Staffing changes in the ranks of key stakeholders particularly affected the later stages of the consultancy. The Chairmanship of the PDA changed hands during the consultancy. The lead World Bank contact identified had not yet taken up residence in Pakistan when IFC arranged the first meeting with him to discuss the program. He was quite positive in that discussion; he was on leave at another point when GCNF requested a meeting; the team did not succeed in meeting with him a second time before the consultancy ended. The World Food Programme had indicated quite positive interest in the pilot program in early discussions with GCNF and was deemed by GCNF to be a strong candidate to assist with the implementation of the pilot program. On 09 October GCNF met with the WFP team to brief them in preparation for the final workshop and learned that two international staff had been newly reassigned to the WFP Pakistan Office and that they felt they needed a bit of time to become familiar with Pakistan and with how the pilot School Milk Program might fit with the WFP portfolio and priorities. There were changes in Government offices during the consultancy period as well, affecting the Ministry of Agriculture at the national level, for example, and Livestock at the provincial level.

While these challenges were impactful, GCNF completed nearly all of the original requirements of the consultancy, as summarized below and reviewed and agreed between GCNF and IFC on 18 November.

1. Prepare a presentation outlining possible SMP models, including funding mechanisms, based on successfully implemented examples from other countries: **Completed.**
2. Analyze and evaluate the models proposed by the local industry stakeholders: **Completed.**
3. a) Present SMP models, which have been successfully implemented in other countries: **Completed.**

- b) Discuss the design of proposed SMPs for Pakistan with dairy industry representatives and with the government at a workshop to be organized by IFC: **Completed.**
4. Hold follow-up meetings with UHT milk industry stakeholders (including the Pakistan Dairy Association, Friesland Campina, Nestle and Tetra Pak) and with the government in order to develop the detailed design of a model for a school milk program with a credible milk quality assurance system and with a credible system for ensuring that the milk would be provided to and consumed by schoolchildren on a daily basis: **Completed.**
  5. Work with the relevant government institutions and with the industry in order to identify the regions, the schools, the required financing sources, the participants, and their roles and responsibilities for implementing the proposed pilot SMP: **Completed.**
  6. Collect qualitative feedback from the parents, teachers and community leaders on the SMP: **Not completed, primarily due to the COVID-19 pandemic. Savings accounted for.** ...and develop the criteria on what data should be collected to monitor the overall progress of the SMP, including its impact on enrollment, drop-out rates and the health parameters of the children taking part in the pilot SMP: **Completed.**
  7. Collect and analyze information about Friesland Campina's and Nestle's milk supply chains in order to develop criteria and methodology for monitoring the program's impact on smallholder farmers' incomes and livelihoods: **Completed.**
  8. Prepare a detailed description of the required infrastructure (including the regulatory and the legal infrastructure) and the capacity for the implementation of the School Milk Program: **Completed.**
  9. Develop a detailed implementation plan for the pilot SMP, including the M&E framework for documenting and measuring the program's impact and for collecting the data required to validate the program benefit along the value chain: **Completed.**
  10. Conduct a workshop with the dairy industry stakeholders and with the government: **Completed...** during which the final design of the program would be agreed upon and approved by the dairy industry and by the government: **Basic agreement achieved on the design; program financing not yet available.**

GCNF leaves this consultancy convinced of the value of the proposed School Milk Program, and recommends that IFC consider taking the following actions to build on the investments made to date:

1. Renew the dialogue with Lire Ersado and other World Bank colleagues, regarding potential collaboration, particularly as discussed on 24 July.
2. Confirm the support of the Pakistan Dairy Association, FrieslandCampina, and Tetra Pak for the program, and if they are as supportive as they have previously indicated to GCNF, encourage them to invite the same Government players, especially Dr. Salman Shah and Capt. Saqib Zafar, Secretary Livestock to pursue the funding needed for the program.
3. Consult the World Food Programme's Pakistan staff in early 2021 to assess their appetite for continuing the dialogue with the Government and the most enthusiastic of the industry stakeholders.
4. Monitor national and provincial developments over the coming months as relate to resources and programs for addressing nutrition, the livestock and dairy industry, and



primary education, remaining alert to potential funding options, champions, and other resources for supporting the proposed School Milk Program.

5. Provide advice and guidance (directly or through one or more intermediaries/stakeholders) to the Government of Punjab for identifying and convincing a potential donor to invest in the pilot School Milk Program. Some proposed actions are:
  - a. The Government should take steps to budget for the program in its normal budgeting process. This will demonstrate to an external donor that the Government is serious and planning to invest its own resources in the program.
    - i. If a standalone budget for the SMP pilot is not possible, the Government might consider combining specific amounts from each of the key ministries/sectors involved (e.g., Education, Health and Nutrition, and Agriculture) to meet the Government’s share of the program cost.
  - b. The Government or any of the key stakeholders should confer with the Pakistan-based representatives of the organizations in the list of potential donors provided by GCNF (ref the donors section of Appendix L) to ascertain their interest in the program, identify any requirements that would need to be met, and—if relevant—determine if there are any opportunities for jointly funding the program with another donor.
    - i. The Government and/or stakeholder(s) should prioritize the list based on its knowledge of and prior experience with each of the potential donors and on the links between the donors’ stated objectives and the SMP objectives and design.
    - ii. Once the list is prioritized, the approach to each of the donors should be tailored specifically to what is known about their organization and its objectives and should explicitly address those. In that context, it is wise to focus on each donor’s priorities within the SDGs. (Example: If the potential donor clearly prioritizes SDG 2, then the approach should focus on how the SMP addresses hunger, food security, and nutrition.)
    - iii. Consideration should be given to donors that focus/will focus on the impact of COVID-19 on school enrollment and attendance. It is highly likely that international donors will place a high priority on this once it is deemed safe for schools to be open and for teachers and children to attend. [N.B., Even where schools are not closed, COVID-19 has caused a drop in school attendance.) School nutrition programs have proven very effective at attracting children to school in “normal times”, to support them to come back to school after a crisis.
    - iv. The strongest approaches to donors are likely to be those that involve at least the Government and one or two stakeholders, in this case industry (PDA, a large processor, or Tetra Pak), and/or an implementing partner (such as very credible large NGO, WFP, or another managing entity) who is ready to serve as the independent manager/honest broker who handles aspects of to handle the aspects of the program that are critical for food safety and honest and effective administration. This implementing partner is likely to be extremely important for the program’s credibility with donors and other stakeholders.

- c. Expanding on #3, above, the Government itself is in a position to re-open discussions with WFP to move forward with either the SMP as proposed, or a hybrid (milk with some indigenous food) program, and work with WFP and WFP's donors to gain the needed resources. This would also likely work best if done in conjunction with the PDA or other industry stakeholders and presumes that WFP would be the main implementing partner as described in item b.iv., above.

# **Final Report: Pakistan School Milk Program**

## Appendix A: Key Documents from FAO



## MILK AND DAIRY PRODUCTS IN HUMAN NUTRITION QUESTIONS AND ANSWERS

### What nutrients does milk provide?

Milk is a major source of dietary energy, high-quality protein and fat. It can make a significant contribution to meeting the required nutrient intakes of calcium, magnesium, selenium, riboflavin, vitamin B12 and pantothenic acid. Milk from some animal species can also be a source of zinc and vitamins A, C, D and B6. Bioavailability of some nutrients in milk, for example calcium, is high compared with that in other foods in the diet.

### Should milk and dairy be included in the diet?

Milk and dairy products can be important in diversifying the diet. They are nutrient dense and provide high quality protein and micronutrients in an easily absorbed form that can benefit both nutritionally vulnerable people and healthy people when consumed in appropriate amounts. It is important to recognise that a combination of food is necessary for a healthy diet and that milk and dairy products are not the only sources of essential nutrients.

### What nutritional role does milk and dairy play in the treatment and prevention of malnutrition?

The critical window for adequate child growth and cognitive development is between conception and 24 months of age and hence many recent international nutrition initiatives focus on the first 1000 days. The components of milk that are thought to be particularly important to supporting child growth are protein, minerals and lactose. Milk-based food products have also been used successfully in the treatment of moderate and severe malnutrition in children. Milk fat contributes about half of the energy in whole milk. For this reason, animal milk can play an important role in the diets of infants and young children in populations with a very low fat intake, where the availability of other animal-source foods is limited. Skimmed milk is not recommended as a major food source during the first two years of life because it does not contain essential fatty acids and lacks fat-soluble vitamins.

### Why shouldn't infants (<1yr. age) drink cow milk?

Cow milk does not contain sufficient iron and folate to meet requirements, and animal milks are not recommended for infants younger than 12 months. Consumption of fresh, unheated cow milk by infants prior to 12 months of age is associated with faecal blood loss and lower iron status. Following the World Health Organization (WHO) guidelines on breastfeeding, most national policies recommend exclusive breastfeeding up to six months of age.

### What quantity of milk and dairy is recommended?

There are no global recommendations for milk or dairy consumption. Many countries have developed national dietary guidelines that are based on local food availability, cost, nutritional status, consumption patterns and food habits. Because of differences in these factors, recommendations vary widely. Most countries recommend at least one serving of milk daily, with some countries recommending up to three servings per day. Currently, many national and international bodies recommend consumption of lower-fat dairy foods for developed/high income countries to address problems of overweight and obesity. For the dietary guidelines of various countries see <http://www.fao.org/ag/humannutrition/nutritioneducation/49741/en/>.

### **Is there a link between milk and dairy and obesity?**

The role of milk and dairy products in human health has been increasingly debated in recent years, both in the scientific literature and in popular science literature. Evidence from observational studies does not support the hypothesis that dairy fat contributes to obesity. However, weight gain results from consuming more calories than one expends and consumers should only consume milk and dairy as part of a healthy, balanced diet

### **Is there a link between milk and dairy and non-communicable diseases?**

Although dairy foods contribute to saturated fatty acid content of the diet, other components in milk such as calcium and polyunsaturated fatty acids may reduce risk factors for coronary heart disease (CHD). The majority of review studies conducting meta-analyses of prospective studies conclude that low-fat milk and total dairy product consumption is generally not associated with CVD, and may actually contribute to a reduction of CVD. Results for full-fat dairy and CVD risk are mixed. The evidence regarding ruminant trans fats and CVD risk is inconclusive. There is moderate evidence showing an association between milk and dairy product consumption and lower incidence of Type 2 Diabetes in adults. Some components in milk and dairy products such as calcium, vitamin D (fortified milk) and milk proteins may be protective against cancer. Several studies suggest that milk may offer protection against colorectal cancer and possibly bladder cancer, although limited evidence suggests that high consumption of milk and dairy products is a cause of prostate cancer.

### **Is raw milk safe to consume?**

Raw milk and raw milk products can lead to food-borne illness in humans. Given that these products are not pasteurized/ treated, alternative safety controls are required to ensure that they do not pose a public health risk.

### **Besides cows, what animals produce milk that is suitable for human consumption?**

A range of animal species produce milk that is consumed. The nutrient composition of milk from minor dairy animals i.e. animals other than cows, buffalo, goats and sheep, has to date received little research attention. This is unfortunate as some of the minor animals, such as donkey, reindeer, yak, Bactrian camel, moose, musk ox, llama, alpaca and mithun, are underutilized. In other words, the production of milk from these minor species has the potential to contribute to food security, health and nutrition and income generation.

### **What are the nutritional variations between milks from different dairy species?**

Milk from dairy species is generally a good source of protein and is either high in or a source of calcium. Sheep, mare and donkey milks can be considered sources of vitamin C. Sheep, goat, buffalo and Bactrian camel milks are high in or a source of riboflavin. Buffalo milk is high in vitamin B6, while buffalo, Bactrian camel and goat milks can be sources of vitamin A. Bactrian camel milk is high in vitamin D. There are large interspecies differences in nutrient composition. The two extremities are cervid (e.g. reindeer and moose) milks (high in protein and fat, low in lactose) and equine milks (low in protein and fat, high in lactose). Milk fatty acid composition also vary with species. While most milks contain large amounts of saturated fatty acids, horse, donkey and Bactrian camel milks have been reported to contain less. Equine milks resemble human milk in their relatively low content of caseins (type of milk protein). The individual proteins also vary, making camel milks and equine milks possibly more suitable for people who are allergic to cow milk.

### **What are some of the challenges and emerging issues concerning milk production?**

The rapid rise in aggregate consumption of meat and milk is propelled by increasing numbers of people with rising incomes changing from primarily starch-based diets to diets containing growing

amounts of dairy products and meat. The underlying forces driving this trend – primarily population and income growth and urbanization – are set to continue, and the potential for increased demand remains vast in large parts of the developing world. Consumption of moderate amounts of dairy and other livestock products has important nutritional benefits, but the rapid growth in production and consumption of livestock products also has a number of possible harmful effects:

- The expansion of livestock production increases demand for feed, increasing pressures on the land and water resources, in particular, and increases the livestock sector’s impact on climate change through greenhouse gas (GHG) emissions.
- The increasing number and concentration of animals in more intensive production system increases contact between people and animals, increasing the risk of spreading diseases and the passage of disease agents between animal species and from livestock to humans.
- Intensification of livestock production may marginalize smallholders still further, with serious social implications.

### **Is consuming milk and dairy environmentally sustainable?**

Producing, processing and distributing milk and dairy products, like other foods, affects the planet. Dairy production systems are important and complex sources of GHG emissions, notably of methane (CH<sub>4</sub>), nitrous oxide (N<sub>2</sub>O) and carbon dioxide (CO<sub>2</sub>). Globally, the dairy sector [accounts for around four percent](#) of all anthropogenic GHG emissions, of which milk production, processing and transportation account for 2.7 percent. Dairy production systems also contribute to other environmental issues, notably water resource management, through withdrawals, modification of runoff and release of pollutants. Growing and providing food does entail some environmental effects and efforts are ongoing in the dairy sector to reduce the intensity of emissions. Popular interest in these issues is high and is obliging governments and the international community to examine how we can balance our food choices in view of the benefits as well as the risks that they entail – not only for people’s health but also for the sustainability of our environment, and the planet at large. This means that both consumers and producers along the food chain will need to work together to make our food safer, healthier and more environmentally sustainable.

### **In what way can dairy production programmes affect nutrition?**

Nutrition is most likely to be affected by dairy production programming via two pathways: increased milk availability from production leading to increased direct consumption; and improved access to higher-quality foods as a result of increased income. Whether diet improves as a result of increases in income depends on the recipient’s understanding the need for good nutrition; if they do not, the additional income may be used to buy more of the same foods or foods of lesser quality. Dairy production programmes tend to be more effective than traditional agriculture production interventions if strategies included: targeting inputs to women; the introduction of small livestock; and communication about the nutritional value of milk.

### **How is it possible to rebuild links between dairy development and nutrition?**

Governments, development agencies and the private sector all have roles to play. Nutrition-sensitive dairy-industry development is likely to be more effective if it is applied in an environment where there is high-level political commitment and improved nutrition is generally promoted. In developing countries, governments may have a strong role to play by:

- Identifying national nutritional challenges, promoting measurement of nutritional status and providing dietary guidelines. If a strong national nutrition strategy exists, this provides a framework onto which to add a dairy programme.

- Providing policies, laws and regulations that support nutrition-sensitive dairy-industry development and the provision of safe milk and dairy products.
- Investing or promoting investment in basic infrastructure. Roads, electricity and water supplies limit the practical scope of a dairy programme.
- Promoting collaboration between the government agencies responsible for livestock industry development and those responsible for human health and social welfare.
- Promoting investment from both public and private sectors in sustainable and inclusive dairy-industry development programmes.

The private sector now leads the dairy sector in the developed world and is putting investment into developing countries. It has the potential to make a social contribution by using its considerable advertising ability to campaign for healthy diets and using its market reach and infrastructure to put milk and dairy products that boost nutrition within reach of low-income populations.

From: **DeBesi, Giacomo (AGAG)** <[Giacomo.DeBesi@fao.org](mailto:Giacomo.DeBesi@fao.org)>  
Date: Wed, Jan 29, 2020 at 6:37 AM  
Subject: RE: Queries related to proposed school milk program in Pakistan  
To: Arlene Mitchell <[arlene@gcnf.org](mailto:arlene@gcnf.org)>  
Cc: IslasRamos, Ana (ESN) <[Ana.IslasRamos@fao.org](mailto:Ana.IslasRamos@fao.org)>, Battaglia, Daniela (AGAG) <[Daniela.Battaglia@fao.org](mailto:Daniela.Battaglia@fao.org)>

As for relevant publications, we would suggest you to consult the following documents:

- [Dairy development in Pakistan](#)
- [Outlook of buffalo dairy farms in Pakistan](#)



# Final Report: Pakistan School Milk Program

## Appendix B: IDF 2019 Survey Results



### **Bulletin of the IDF N° 505/ 2020: The contribution of school milk...**

Results of the survey are included in Excel tables for your uses

 IDF Publications Catalogue / Nadine Ka...

[View the survey results at this link.](#)



# **Final Report: Pakistan School Milk Program**

## Appendix C: Tetra Laval/ Tetra Pak Country Examples and Resources

[Download the resources at this link](#)



## Final Report: Pakistan School Milk Program

Appendix D:  
GCNF Resources, including  
Data from 2019 Global Survey  
of School Meal Programs (c)



[View additional GCNF Global  
Survey Country Reports at  
survey.gcnf.org.](http://survey.gcnf.org)



## SCHOOL MEAL/FEEDING PROGRAM(S)

Most recently completed school year:  
September 2017 - July 2018 (180 school days)

- National School Feeding Program (Programme National d'Alimentation Scolaire)

Lead Agency: National Directorate of School Canteens (Direction Nationale des Cantines Scolaires, Ministère de l'Education)

## NATIONAL LAWS, POLICIES, AND STANDARDS

- National school feeding policy
- Nutrition
- Food safety
- Agriculture
- Private sector involvement

Line item in the national budget...  Yes  No  NR

### BUDGET

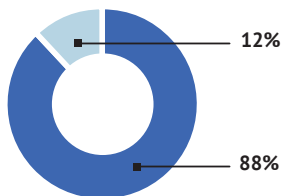
Total:  
USD 20,000,000

National government:  
USD 2,400,000

International donors\*:  
USD 17,600,000

Private sector: USD 0

Other donors: USD 0



\*Contributions by United Nations agencies or non-governmental organizations often represent funding from multiple donors.

## INFRASTRUCTURE

School meals are prepared on-site in open cooking areas with charcoal or wood stoves. All schools have latrines, some schools have clean water, few have electricity, and very few— if any—have dedicated spaces for meals.

## SPECIAL NOTES

Some UNESCO data was used to complete this report.

NR = No Response

## MEALS/SNACKS/MODALITY

- Breakfast
- Lunch
- Dinner
- Snacks
- Take-home rations
- Conditional cash transfer

- Grains/cereals
- Roots, tubers
- Legumes and nuts
- Dairy products
- Eggs
- Meat
- Poultry
- Fish
- Green, leafy vegetables
- Other vegetables
- Fruits
- Oil
- Salt
- Sugar

Prohibited food items: None

## FOOD SOURCES

- Purchased (domestic)
- Purchased (foreign)
- In-kind (domestic)
- In-kind (foreign)

## COMPLEMENTARY ACTIVITIES

- Handwashing with soap
- Height measurement
- Weight measurement
- Deworming treatment
- Eye testing/eyeglasses
- Hearing testing/treatment
- Dental cleaning/testing
- Menstrual hygiene
- Drinking water
- Water purification

## COMPLEMENTARY EDUCATION PROGRAMS

### EDUCATION

- Nutrition
- Health
- Food and agriculture
- Reproductive health
- Hygiene
- HIV prevention

### OTHER

- School gardens
- Physical education

= mandatory

The checked and highlighted items are reported as required, though they may not be uniformly implemented.



GCNF is a non-political, non-profit entity incorporated in 2006. Funding for this survey and a follow-up survey in 2021 is being provided, in part, by the United States Department of Agriculture under agreement number FX18TA-10960G002.

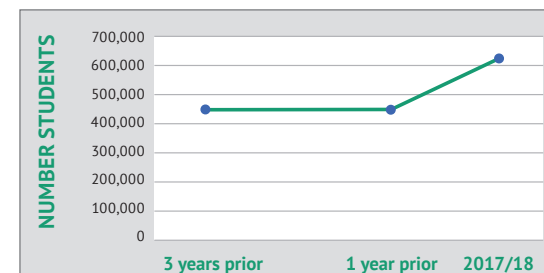
# REPUBLIC OF Burundi



## SCHOOL MEAL PROGRAMS

### CHILDREN RECEIVING FOOD, 2017-18

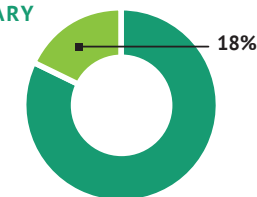
School level	Total #	# Enrolled	# Receiving Food
Primary school	2,171,381	2,126,173	614,475
Secondary school	1,238,410	665,116	N/A
<b>Total</b>	<b>3,409,791</b>	<b>2,791,289</b>	<b>614,475</b>



### COVERAGE: PRIMARY AND SECONDARY SCHOOL-AGE CHILDREN

Total number primary and secondary school-age children: 3,409,791

Receiving school food:  
 614,475



Food was also provided to some students in  
 Pre-schools  Vocational/trade schools  
 University/higher education  Other

## NUTRITION

School feeding program(s) include/involve the following:

- Fortified foods**
- Bio-fortified foods
- Micronutrient supplements
- Nutritionists involved**
- Special training for cooks/caterers in nutrition**
- Objective to meet nutritional goals**
- Objective to reduce obesity

### Food items fortified:

Grains/cereal, oil, salt, dairy

### Micronutrients added to fortified foods:

Iron, Vitamin A, Iodine, Zinc, Folate, Vitamin C, E, B1, B2, B6, B9, B12, D3, Selenium

---

## ADDITIONAL INFORMATION

World Food Program nutritionists provide technical support in terms of analysis of the food basket and have given guidance on the introduction of moringa as green leaves. They have played a critical part in advocating for the fortification policy. Training is provided to cooks in menu planning and food quality.

## AGRICULTURE, EMPLOYMENT, AND COMMUNITY PARTICIPATION

### Jobs created by school feeding programs

- NR Cooks and food preparers
- Yes** Transporters
- Yes** Off-site processors
- Yes** Food packagers and handlers
- NR Monitoring
- NR Food service management
- NR Safety and quality inspectors
- NR Other

### Farmers were involved with the school feeding program(s)...

- Yes  No  NR

### Other private sector (for profit) actors were involved...

- Yes  No  NR

### There was a focus on creating jobs or leadership or income-generating opportunities for...

- Women**
- Youth
  - Other groups

### There was community engagement (by parents or others) in the school feeding program(s)

- Yes  No  NR

---

## ADDITIONAL INFORMATION

Local purchase through cooperatives for cereals and pulses comprise 30% of the food commodities used in the program. Women comprise 60% of the cooperatives, and gender balance on the cooperatives' boards is a requirement. Small-scale farmers are engaged in the school feeding program and are supported with agricultural subsidies, agricultural extension, and training related to the program. Medium- and large-scale farms are also offered forward contracts (purchase agreements set prior to harvest). Private companies are involved in food processing, transport, and the provision of supplies (e.g., utensils).

---

## CONTACTS: BURUNDI

**Agency:** National Directorate of School Canteens (Direction Nationale des Cantines Scolaires, Ministère de l'Éducation)

**Address:** BP 1990 Bujumbura

## SUCCESSES AND CHALLENGES

Burundi reports the following recent **successes** linked to their school meal program:

- Introduction of farm-sourced dairy, launched by the President of the Republic
- Government endorsement of the national policy of school feeding
- The annual financial contribution to the program has increased by 71%
- Increasing commitment of communities to support the program
- Stronger involvement of the private sector
  - Construction of fuel-efficient stoves
  - Food fortification
- Local purchase of food commodities through smallholder farmers

### Challenges reported by Burundi include:

- Only 25% of enrolled school children are fed
- Difficulty in finding clean energy to cook the food
- Inadequate infrastructure in schools (e.g., cafeterias or storage areas)
- Despite a zero tolerance policy, there have been cases of theft.

### Other

- Burundi has a zero-tolerance policy related to fraud in the Ministry of Education

---

## STUDIES CONDUCTED

A SABER exercise was done in 2016

---

## RESEARCH NEEDED

Cost-benefit analysis of the program (being planned with MasterCard this year)

## NATIONAL SCHOOL FEEDING PROGRAM PROGRAMME NATIONAL D'ALIMENTATION SCOLAIRE

**Lead implementer(s):** Ministry of Education and Technical and Professional Training, *Ministère de l'Éducation Nationale, de l'Enseignement Technique et de la Formation Professionnelle*

### OBJECTIVES:

- To meet educational goals
- To provide a social safety net
- To meet nutritional and/or health goals
- To meet agricultural goals

### MODALITIES OF PROVIDING STUDENTS WITH FOOD:

- In-school meals
- Five days per week during the school year

### TARGETING:

Geographic

### HOW MANY STUDENTS RECEIVED SCHOOL FOOD IN 2017-18 SCHOOL YEAR?

School level	# Students	% Girls	% Boys
Pre-school	11,657	–	–
Primary school	614,475	50%	50%
Secondary school	N/A		
<b>Total</b>	<b>626,132</b>	–	–

### FOOD ITEMS:

Grains/cereals*	Dairy products*	Salt*
Legumes and nuts	Other vegetables	Oil*

\* fortified

### FOOD SOURCES:

<b>95% Purchased (domestic)</b>	<b>5% In-kind (domestic)</b>
0% Purchased (foreign)	0% In-kind (foreign)

### NOTES:

The World Food Program supported the program, with funding from SRAC Multilateral Funds, the Dutch Kingdom, the Monaco Principality, and the European Union. Unfortunately, of the 2,400,000 enrolled students targeted, only 25% received food due to the lack of financial resources. Schools not supported by the program saw decreased enrollment and students shifting to enroll in schools that were supported by the program. In 2016, facilities reducing firewood needs by 40% were introduced in 267 schools.



## SCHOOL MEAL/FEEDING PROGRAM(S)

Most recently completed school year:

January 2018 – November 2018

(195 days for day school; 273 for boarding)

- Home Grown School Feeding Program in primary schools (with WFP support)
- School Feeding Program in secondary schools
- One Cup of Milk per Child

Lead Agency:

Districts / Ministry of Education / World Food Program

## NATIONAL LAWS, POLICIES, AND STANDARDS

- National school feeding policy
- Nutrition
- Food safety
- Agriculture
- Private sector involvement

Line item in the national budget...  Yes  No  NR

### BUDGET

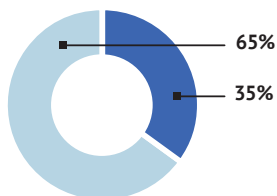
Total:  
USD 15,630,315

National government:  
USD 10,227,534

International donors\*:  
USD 5,402,781

Private sector: N/A

Other donors: N/A



\*Contributions by United Nations agencies or non-governmental organizations often represent funding from multiple donors.

## INFRASTRUCTURE

All meals are prepared on site in closed cooking areas using charcoal or wood stoves. Cooking utensils and storage facilities are available in all schools, as are gender-private latrines. Most schools have electricity, clean water, and kitchens; some have piped water and dedicated eating spaces. Very few schools have flush toilets.

## SPECIAL NOTES

The Government of Rwanda's 2019 Statistical Yearbook was the source of some (2017/18 school year) data used to complete this report.

NR = No Response

## MEALS/SNACKS/MODALITY

- Breakfast
- Lunch
- Dinner
- Snacks
- Take-home rations
- Conditional cash transfer

- Grains/cereals
- Roots, tubers
- Legumes and nuts
- Dairy products
- Eggs
- Meat
- Poultry
- Fish
- Green, leafy vegetables
- Other vegetables
- Fruits
- Oil
- Salt
- Sugar

Prohibited food items: None

## FOOD SOURCES

- Purchased (domestic)
- Purchased (foreign)
- In-kind (domestic)
- In-kind (foreign)

## COMPLEMENTARY ACTIVITIES

- Handwashing with soap
- Height measurement
- Weight measurement
- Deworming treatment
- Eye testing/eyeglasses
- Hearing testing/treatment
- Dental cleaning/testing
- Menstrual hygiene
- Drinking water
- Water purification

## COMPLEMENTARY EDUCATION PROGRAMS

### EDUCATION

- Nutrition
- Health
- Food and agriculture
- Reproductive health
- Hygiene
- HIV prevention

### OTHER

- School gardens
- Physical education

= mandatory

The checked and highlighted items are reported as required, though they may not be uniformly implemented.



The Global Survey of School Meal Programs is the property of GCNF and is protected by copyright. It may not be reproduced or distributed without prior written consent. Contact: info@gcnf.org ©2019. The Global Child Nutrition Foundation. All rights reserved.

GCNF is a non-political, non-profit entity. Funding for this survey and a follow-up survey in 2021 is provided, in part, by the United States Department of Agriculture; agreement number FX18TA-10960G002.

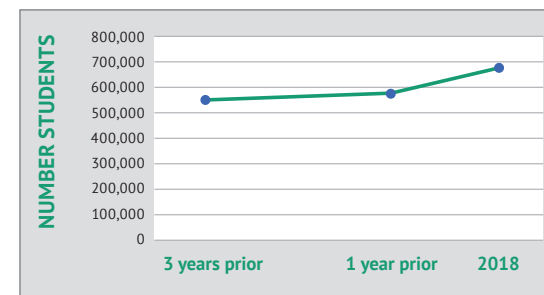
# REPUBLIC OF Rwanda



## SCHOOL MEAL PROGRAMS

### CHILDREN RECEIVING FOOD, 2018

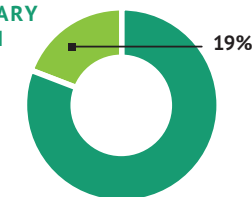
School level	Total #	# Enrolled	# Receiving Food
Primary school	1,820,362	1,789,921	183,857
Secondary school	1,660,932	658,285	490,801
<b>Total</b>	<b>3,481,294</b>	<b>2,448,206</b>	<b>674,658</b>



### COVERAGE: PRIMARY AND SECONDARY SCHOOL-AGE CHILDREN

Total number primary and secondary school-age children: 3,481,294

Receiving school food: 674,658



Food was also provided to some students in:

- Pre-schools
- Vocational/trade schools
- University/higher education
- Other

## NUTRITION

School feeding program(s) include/involve the following:

- Fortified foods**
- Bio-fortified foods
- Micronutrient supplements
- Nutritionists involved
- Special training for cooks/caterers in nutrition**
- Objective to meet nutritional goals**
- Objective to reduce obesity

### Food items fortified:

Grains/cereals (including Corn-Soy Blend) and Oil

### Micronutrients added to fortified foods:

Vitamins A, B1, B2, B3, B6, B12, C, D3, E, and K; Iron, Niacin, Iodine, Zinc, Calcium, Folate, Folic Acid, Selenium, Potassium, and Phosphorus

## ADDITIONAL INFORMATION

Nutrition education and physical education are incorporated into the school feeding programs to prevent and mitigate overweight and obesity. Cooks and caterers for the Home-Grown School Feeding Program receive training in nutrition, portions/measurements, menu planning, and food safety/hygiene.

## AGRICULTURE, EMPLOYMENT, AND COMMUNITY PARTICIPATION

### Jobs created by school feeding programs

<b>5,447</b>	Cooks and food preparers
<b>180</b>	Transporters
<b>3,499</b>	Off-site processors
N/A	Food packagers and handlers
N/A	Monitoring
N/A	Food service management
N/A	Safety and quality inspectors
NR	Other

### Farmers were involved with the school feeding program(s)...

- Yes  No  NR

### Other private sector (for profit) actors were involved...

- Yes  No  NR

### There was a focus on creating jobs or leadership or income-generating opportunities for...

- Women
- Youth
- Other groups

### There was community engagement (by parents or others) in the school feeding program(s)

- Yes  No  NR

## ADDITIONAL INFORMATION

Farmers are involved directly in the Home Grown School Feeding Program and are assisted with subsidies, agricultural extension, and training specific to school feeding programs. Forward contracts are offered to large food suppliers.

Among the food items that are purchased for school feeding programs in Rwanda, 97% are procured locally. Local foods on the school meal menu include beans, maize meal, and milk. Sugar and salt are purchased from elsewhere.

The community is encouraged to participate in school feeding activities in Rwanda through the construction of basic infrastructure (e.g., kitchens and storage areas) and by working in school gardens, and voluntarily contributing (e.g., providing fuel, cooking, or paying for meals for secondary school students from vulnerable families).

## SUCCESSSES AND CHALLENGES

School feeding programs in Rwanda are characterized by several strengths/achievements, including the improved nutritional status of students from vulnerable families, higher attendance and retention rates of students, and rising agricultural production associated with the Home Grown School Feeding Program. Recent positive developments include the provision of school lunches in the most vulnerable areas and the provision of meals for secondary school students who study from morning to evening.

Challenges associated with school feeding in Rwanda include inadequate infrastructure, a low level of community participation, and the use of firewood for cooking, which has a negative impact on the surrounding environment. There are also concerns related to cooks preparing an insufficient quantity of food for the students.

## STUDIES CONDUCTED

None specified

## RESEARCH NEEDED

Impact of school feeding on educational achievement

## CONTACTS: REPUBLIC OF RWANDA

**Agency:** Ministry of Education

**Email:** info@mineduc.gov.rw



## HOME GROWN SCHOOL FEEDING PROGRAM IN PRIMARY SCHOOLS

**Lead implementer(s):** Ministry of Education / World Food Program

### OBJECTIVES:

- To meet educational goals
- To provide a social safety net
- To meet nutritional and/or health goals
- To meet agricultural goals

### MODALITIES OF PROVIDING STUDENTS WITH FOOD:

- In-school meals

### TARGETING:

Geographic, targeted toward food-insecure areas

### HOW MANY STUDENTS RECEIVED SCHOOL FOOD IN 2018 SCHOOL YEAR?

School level	# Students	% Girls	% Boys
Pre-school	NR		
Primary school	81,250	–	–
Secondary school	NR		
<b>Total</b>	<b>81,250</b>	–	–

### FOOD ITEMS:

Grains/cereals*	Green, leafy vegetables	Salt
Legumes and nuts	Other vegetables	Sugar
Roots/tubers	Oil*	

\* fortified

### FOOD SOURCES:

NR Purchased (domestic)	NR In-kind (domestic)
NR Purchased (foreign)	NR In-kind (foreign)

### NOTES:

The Home Grown School Feeding Program began operating in primary schools in 2016.



## MINEDUC SECONDARY SCHOOL FEEDING PROGRAM

**Lead implementer(s):** Ministry of Education

### OBJECTIVES:

- To meet educational goals
- To provide a social safety net
- To meet nutritional and/or health goals
- To meet agricultural goals

### MODALITIES OF PROVIDING STUDENTS WITH FOOD:

- In-school meals

### TARGETING:

Geographic, targeted toward food-insecure areas

### HOW MANY STUDENTS RECEIVED SCHOOL FOOD IN 2018 SCHOOL YEAR?

School level	# Students	% Girls	% Boys
Pre-school	NR		
Primary school	0	–	–
Secondary school	490,801	–	–
<b>Total</b>	<b>490,801</b>	–	–

### FOOD ITEMS:

Grains/cereals*	Green, leafy vegetables
Legumes and nuts	Other vegetables
Roots/tubers	Oil*

\* fortified

### FOOD SOURCES:

NR Purchased (domestic)	NR In-kind (domestic)
NR Purchased (foreign)	NR In-kind (foreign)

### NOTES:

School feeding programs in Rwanda have been operational in secondary boarding schools for many decades. School feeding was introduced into secondary day schools in 2014.

## ONE CUP OF MILK PER CHILD

Lead implementer(s): NR

### OBJECTIVES:

NR

### MODALITIES OF PROVIDING STUDENTS WITH FOOD:

- In-school snack

### TARGETING:

NR

### HOW MANY STUDENTS RECEIVED SCHOOL FOOD IN 2018 SCHOOL YEAR?

School level	# Students	% Girls	% Boys
Pre-school	N/A		
Primary school	NR		
Secondary school	NR		
<b>Total</b>	<b>NR</b>		

### FOOD ITEMS:

Milk  
\* fortified

### FOOD SOURCES:

NR Purchased (domestic)      NR In-kind (domestic)  
NR Purchased (foreign)      NR In-kind (foreign)

### NOTES:

Milk is purchased locally. Schools are responsible for storing and distributing the milk to students.



# **Final Report: Pakistan School Milk Program**

## Appendix E: Land O' Lakes SMP Report (2003 to 2009)



 **LAND O' LAKES, INC.**  
growingtogether



 PURINA





# Background of SNP

In early 2003 rural Sindh was selected in Pakistan, for this United States Department of Agriculture (USDA) funded project, as the program area because in 2003 it had the country's lowest level of girls' enrolment at the primary school level. Ghotki District had been targeted for this intervention in rural Sindh because at that time it was at the bottom of the list in terms of percentage of girls attending primary schools. The incentive in the SNP comprised free issue to all children studying in government primary schools of Ghotki District a pack each of 250 ml UHT milk and 40-gram fortified biscuits on all school working days. Because of the School Nutrition Program (SNP), which started on 14 April 2003, in Ghotki girls' participation in the primary education has risen from only 19 percent in 2003 to 60 percent in 2009. At the conclusion of the program in March 2009, the SNP was feeding 202,383 children studying in 2,052 government primary schools on all school working days – a number up from 92,000 students studying in 1,529 schools in 2003. There has been a net increase of 200 percent in girls' enrolment in primary schools.



Because of this program, 523 new schools were opened while 183 closed down schools re-opened. In addition to attaining a high female enrolment, the program has also positively impacted the health and personal hygiene of children. The UN Office for the Coordination of Humanitarian Affairs commended the positive influence Land O'Lakes has had on female education in Ghotki District in a May 31, 2007 article entitled "Pakistan: Moves Afoot to Boost Girls' Elementary School Attendance." The Internet link to this article is <http://www.irinnews.org/Report.aspx?ReportId=72482> (one has to copy this address and paste it into internet explorer for view)



# Programme Objectives

## Principal

- Maximize enrollment and attendance of little children in government primary schools, with a special focus on female students
- Bridge the nutrition gap in the health of pre-teen school children by adequately meeting their diet deficiencies, with pure milk and fortified biscuits

## Allied

- De-worm all beneficiary children semi-annually
- Educate children on personal health & hygiene
- Encourage children to participate in extra curricular activities including sports
- Create awareness on environmental improvement among children and community
- Ensure proper waste management and recycling of empty milk packs
- Measure the degree of success in improving the health and hygiene of children
- Impart training to teachers and staff with the aim of their capacity building
- Encourage education staff to provide quality education to children
- Constantly urge volunteer and school management committees in villages / towns on promoting education, particularly in girls
- Assist District Government of Ghotki in identifying and reporting to them the deficiencies and weaknesses in the teaching staff and facilities





# Pakistan SNP

District: Ghotki, Province: Sindh

Beneficiaries: All Government Primary School Children & Teachers

## Programme Overview

Donor:



Implementer:  **LAND O'LAKES, INC.**  
INTERNATIONAL DEVELOPMENT  
Innovative Solutions for Global Prosperity

Commodity Donated By USDA: NFDM	SNP I – (April 2003 - May 2004)	SNP II – (Jan 2005 - March 2009)	Total	Incentive	No. of Primary Schools	No. of Beneficiaries (206,383)			Qty & Value of Food Items Already Distributed	
						Boys	Girls	Teachers	Qty	Value (Rs)
Value of snacks	2,918,000	11,327,791	14,245,791	A pack each of 200ml UHT milk and 40-gram fortified biscuits	2,052	131,255	71,128	4,000	80 million packs each of milk & biscuits	800 million
Implementing costs	1,054,000	3,202,343	4,256,343							
<b>Total value of project</b>	<b>3,972,000</b>	<b>14,530,134</b>	<b>18,502,134</b>							

**Legend**

Qty NFDM

Quantity Non Fat Dry Milk







# Stakeholders



Provincial Government of Sindh  
District Government of Ghotki  
Education / Teaching Staff  
Primary School Children  
Parents  
Community



M&E- Local Partner NGO – Sewai Foundation

IT & Surveys – Local Partner NGO - Kyanat Foundation

Warehousing and Distribution – Khan Distribution Services

Processors – Haleeb Foods & Vita Pakistan Ltd

Misc. Vendors







# Programme Supporters

- Government of Pakistan (GOP)
- Ministry of Social Welfare & Special Education, GOP
- Department of Education, Government of Sindh (GOS)
- Chairman Planning and Development, GOS
- District Government Ghotki
- Ex. District Nazim Khairpur
- Department of Education, Government of Punjab
- Agricultural Counselor for Pakistan, US Embassy, Islamabad
- Tetra Pak Pakistan Limited







# Cost of Food Items – Basic & Landed

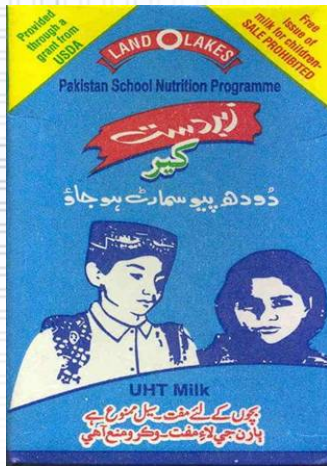
1 US\$ = 60-70 Pak rupee (PKR)

## Basic Cost

- Milk: PKR 7.669 (US\$ 0.126) per pack of UHT milk (200ml)
- Biscuits: PKR 2.348 (US\$ 0.038) per packet of four fortified biscuits

## Landed Cost in Schools

- Milk: PKR 8.359 (US\$ 0.138) per pack of UHT milk (200ml)
- Biscuits: PKR 2.518 (US\$ 0.041) per packet of four fortified biscuits





# Volume and Cost of Food Items Distributed

(quantities and value in million)

Year	UHT Milk Packs (200 ML)			Fortified Biscuits Packs (40 Grams)		
	Quantity	Value		Quantity	Value	
		PKR	US \$		PKR	US \$
2003-04	14.500	133.875	2.250	14.500	39.746	0.668
2005	19.162	184.759	3.054	19.005	36.618	0.605
2006-07	19.105	172.396	2.845	18.736	40.905	0.675
2007-08	19.101	146.989	2.410	16.889	39.664	0.650
2008-09	5.539	60.325	0.804	5.539	21.438	0.285
<b>Total</b>	77.407	698.27	11.362	74.669	178.371	2.883







# Distribution Management & Monitoring System

(Contd)

## DMMS Inputs:



Land O' Lakes Pakistan Foundation

File Transaction Report Setup Window Exit Help

- Stock Receiving in Warehouse Ctrl+W
- Inter Warehouse Transfer of Commodities
- Attendance
- School Stock Register Ctrl+R
- Delivery Order Ctrl+O
- Warehouse Inventory Reconciliation/Adjustment
- School Stock Return

**Distribution Management & Monitoring System**

© Copyright 1997-2002 EfroTech Services® and its licensors, all rights reserved.

User : ALI Login Time : 8:56:24 PM



## DMMS Outputs:

**Land O' Lakes Pakistan Foundation**

File Transaction Report Setup Window Exit Help

- Check List
  - Province
  - District
  - Taluka (Sub District)
  - Union Council
  - School
- Audit Trail
  - Ware House
    - Ware House Detail
    - Ware House Summary
    - Stock Receiving (Warehouse)
  - Source
  - Distributor
- Warehouse Wise Unions, Schools & Students
- Weekly Stock Report
- Item Stock Register
- Item Issue Register
- Item Receiving Register
- Consumption Report
- Distributor Delivery Vs. School Receipt
- Meal Schedule
- Warehouse Stock Ledger
- Enrollment Variance
- Enrollment And Attendance
- Attendance Summary
- Consumption over Attendance Summary
- Attendance over Enrollment Summary
- Consumption over Attendance
- Month Report on Increase in Enrollment and Attendance
- Enrollment and Attendance Summary
- Beneficiaries Information
- Attendance Detail With Graph
- Schools And Students Status
- Schools Information
  - Schools List
  - Taluka Wise Summary
  - U.C Wise Summary
  - School Profile
  - Consolidated Schools Summary Report
  - Class Wise Enrollment Summary
  - Construction Wise Schools Summary
  - Additional Requirement Of Facility

© Copyright 1997-2002 EfrogTech Services® and its licensors, all rights reserved.

User : ALI Login Time : 8:56:24 PM







# Capacity Building

## Teachers

(Contd)

During the entire length of the program run in the government primary schools of Ghotki District, i.e. between April 2003-March 2009, Land O'Lakes regularly conducted training sessions for capacity building – both for teachers as well as for staff of local NGOs and Distributor(s).

For teachers, such sessions were aimed at coaching them on correctly filling and effective use of MIS formats designed to capture enrollment/attendance of students and distribution of food items to them. The correct filling of these forms by the teachers enabled the program implementers to exercise strict controls and effectively apply program monitoring and evaluation techniques. The teachers were also exposed to subjects handling, storage safety and quality check of milk. An exposure on subjects of geography, general knowledge, health & hygiene, discipline and management of school committees was also a part of teacher-training.





These training sessions left positive impacts on teachers who became more disciplined and responsible in their duties and transferred their acquired knowledge – particularly the one on health & hygiene, to students. Yet another impact of the teacher-training was the activation of dormant School Management Committees which started playing meaningful role in the better management of schools. All in all 4,000 government primary school teachers were trained in Ghotki during the program run.







## Partner NGOs' Field Staff

(Contd)

Mindful of the fact that Ghotki was one of the backward districts of the country, where female education was a taboo and where quality of education at all levels was not satisfactory, Land O'Lakes undertook the challenge of extensively training the staff of its partner NGOs.

Such training sessions were aimed at capacity building of the local staff for their own benefit as well as for the benefit of program.

These training and refresher courses were a regular affair and covered all tiers of staff of the partner NGOs – a strength of 100+. These sessions covered staff engaged in M & E, IT and warehousing/distribution functions. Before starting training sessions, Land O'Lakes had developed procedures manuals and training modules for all program activities. Job Descriptions had been created for all functions and flow charts were developed for all activities. These documents helped in imparting effective training to the staff.

Apart from teaching professional subjects to the staff, such as M & E, logistics, FBI, controlled destruction of bad milk, community mobilization, management of teacher-parent school committees, baseline and follow-up surveys etc, they were also exposed to subjects of business english, human resource management, general knowledge, history and geography etc. These training sessions were conducted with the help of multimedia projector, using audio as well as video means. At the end of every training session, staff underwent written tests to determine their retention levels. Those securing good marks in the tests were suitably rewarded.







Following were the impacts of training imparted to the field staff:-

- It made the staff confident in carrying out their duties and gave them self belief and self esteem.
- It raised their motivation level and degree of commitment towards the program.
- It developed a competitive spirit in staff.
- It prepared and polished them to take on bigger responsibilities in future; there were numerous examples of field supervisors for M & E functions ending up as field managers and, similarly, delivery men graduating to the position of incharge warehouses.
- It enabled them to think logically, plan their activities in advance and execute their work systematically.
- It helped them to become analytical and creative; equipped with these faculties, they made valuable contributions towards the improvement of the program.
- No case of FBI occurred.
- As the program ended, these boys and girls moved on to comfortably secure better jobs in private as well as public sector.





# Land O'Lakes Technical Assistance (TA) in Dairy Sector

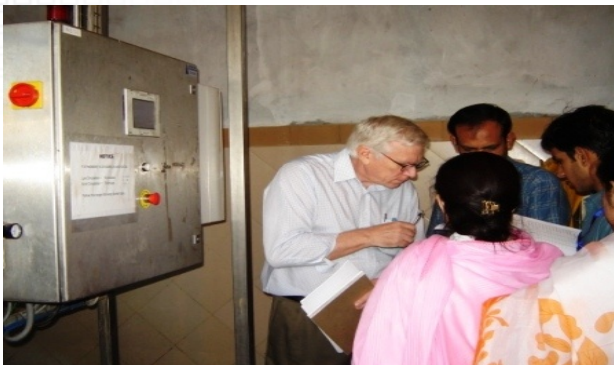
(Contd)

In 1990s, Land O'Lakes gathered over 100 government and dairy industry leaders in Pakistan and kicked off a series of training programs which provided hands-on training in dairy science, marketing, plant maintenance, dairy production, milk quality and good dairy management practices; more than two dozen individuals were also trained at Land O'Lakes HQ in USA. All these programs were funded by USAID

As part of the school nutrition programme of Ghotki District, and based on an understanding with the donor i.e. United States Department of Agriculture (USDA), Land O'Lakes has been providing technical assistance (TA) to local dairy producers and processors since 2003. For this purpose a dairy consultant visits Pakistan every year from USA.

Between 2003 and 2009, six consultants on dairy industry have visited Pakistan from USA and trained 300 people working in 10 processing plants on HACCP, GMP, FBI and SSOP. The visiting consultants have also trained 500 small dairy farmers and producers during their visits on good farm management practices to obtain quality milk from their livestock.

Milk plants that have benefited from this training are Engro Foods, Haleeb Foods, Nirala Milk, Shakarganj Food Products, Noon Pakistan Ltd, Royal Dairy, Vita Pakistan, KNN Foods, Millac Pakistan Ltd and Idara-e-Kissan.



75





(Contd)

The second last visit of the dairy consultant Dr. Bill Coleman to Pakistan was in November-December 08. After the consultant's visits and training sessions in several milk processing plants, a "Dairy Development Workshop" was organized by Land O'Lakes in Lahore on 06 December, 08 which was a part of the on-going TA activity aimed at dairy industry capacity building and farmer skill-set improvement. Apart from participation from stakeholders in public and private sectors of the country, the workshop was also attended by major foreign donors and UN organizations.





The last time around, an animal breed specialist from USA visited Pakistan in March-April 09, to further the cause of Land O'Lakes to actively participate in the development of livestock and dairy sector of the country. After the consultant, Dr. Martin Sieber, had imparted training to small farmers on breed improvement skills in the field, Land O'Lakes organized a "Seminar on Cattle Breed Improvement" in Lahore on 09 April, 09, which was widely attended by key stakeholders in the dairy sector of the country.







# Sports Activities

(Contd)

To promote sports activities, as a complement to the school nutrition program, Land O'Lakes Pakistan introduced partnering agreements with Bata Pakistan, the country's leading footwear manufacturing company, and with national sports bodies such as the Pakistan Football (Soccer) Federation and the Pakistan Badminton Federation. These groups donated shoes, soccer balls, and badminton equipment in 100 schools. A trainer from the Pakistan Football Federation kept traveling to schools to give basic lessons on soccer. All that generated healthy sports activity among the girls and boys with spin-off benefits such as improved eagerness to play, discipline, and healthy competition.









# Annual Events Organized in Programme District

- International Literacy Day : September 8
- World School Milk Day : September 24
- World Teachers Day : October 5
- Global Hand Washing Day : October 15
- International Students Day : November 17





# Programme Impact on Education

April 2003 – March 2009

- Ghotki became number one district in Sindh Province in overall enrollment growth rate at the elementary level, which included girls
- During the six years of the program, elementary enrollment in district Ghotki grew by 60%, while it grew by only 24% in overall Sindh Province during the same period
- Girls' elementary level enrollment grew by 200% in district Ghotki during these six years, while it grew by only 29% in overall Sindh Province during the same period
- Boys' elementary level enrollment grew by 100% during the program run
- School attendance went up from 45% to 90%
- Almost zero drop-outs from elementary schools
- All girls completing elementary education entered into middle and high schools
- During the six years of the program, five hundred and twenty three (523) new schools came up, while one hundred and eighty three (183) closed-down schools got re-opened
- Activation of 1,000 teacher-parent school management committees







# Programme Impact on Health & Hygiene

April 2003 – March 2009

## Highlights of Follow-Up Survey-2009

- **Height** – From Baseline to Follow-Up, while increase in height of children in Intervention schools was 13.2 cm, the increase in control schools was 10.1 cm. The differences in these values were found to be statistically significant.
- **Weight** - From Baseline to Follow-Up, while children in Intervention schools gained 5.9 Kg, children in Control schools gained 3.9 Kg. The differences in these values were found to be statistically significant.
- **Stunting - (HAZ: Height-for-Age)** – Prevalence of students with the childhood nutrition deficiency classification of stunting decreased from baseline to follow-up from 2.2% to 0.6%.
- **BMI Underweight - (WAZ: Weight-for-Age)** – Prevalence of students with the childhood nutrition deficiency classification of underweight decreased from baseline to follow-up from 8.2% to 6.1%. At the same time, underweight (WAZ: weight-for-Age) decreased from 0.1% to 0%.
- **Wasting - (WHZ: Weight-for-Height)** – Prevalence of students with the childhood nutrition deficiency classification of wasting decreased from baseline to follow-up from 1.5% to 0.7%.

While there were reductions for all four scores, only stunting showed a statistically significant decrease.

- **General Appearance, Condition of Skin & Teeth, Dress, Shoes etc.** – During Follow-up, these indicators were found to be 'satisfactory' among 97% of children in intervention schools, a statistically significant increase from 57% at baseline. Among control schoolchildren, there was a smaller increase to 67% from 53% found to be 'satisfactory' at baseline.





# Other Programme Impacts

April 2003 – March 2009

With only its 19% of female participation in elementary schools – a percentage lowest in the country, Ghotki had been chosen as program district in 2003 to focus on girls education. Here was a district in which female education was considered a taboo. The fact that girls participation in elementary schools grew by 200% in Ghotki, the program changed the mindset of the people. These results were achieved through community mobilization and activation of teacher-parent school management committees.

- Training more than 4,000 teachers and school supervisors on the handling, storage safety and quality check of milk and on several other subjects.
- Yearly training and refresher courses of 100+ staff on monitoring and evaluation, warehousing and distribution, field surveys, community mobilization, activation of teacher-parent school management committees and on several other subjects.
- Through partnerships developed locally, children in 100 schools were issued canvas shoes, footballs (soccer balls) and badminton rackets to promote sports activities.
- De-worming (semiannually) of all beneficiary children (ages 5–10 years).
- Socioeconomic benefits, including the creation of more than 175 direct jobs.
- Waste management and recycling of empty milk packs in 500 schools, leading to community awareness of the environment and the importance of recycling of empty milk packs.
- The TA component of the program benefited ten milk processing plants and 500 small dairy producers.





# Status of Government Primary Schools & Students

Situation at Close-out in March 2009

S.N	Name of Taluka (Sub District)	No. of Schools		No. of Students									Attendance %			Status of Schools		
				Program Starting Figure			Program Closing Figure											
		Past Figure	Program Closing Figure (includes new schools)	B	G	Total	B	G	Total	% of Increase in Enrollment			Re-opened During Program	Open Schools at Program Closing	Closed Schools at Program Closing			
										B	G	Total				B	G	Total
1	Khangarh	139	139+66= 205	8,289	828	9,117	10,904	6,352	17,256	31.54	667.41	89.27	86.76	93.25	86.22	26	183	22
2	Ubauro	284	284+111 = 395	11,809	4,329	16,138	30,266	14,355	44621	156.29	231.15	176.49	78.41	91.91	82.76	32	363	32
3	Dharki	286	286+174 = 460	13,017	4,011	17,028	25,757	13,125	38,882	97.87	227.22	128.34	93.38	78.23	88.40	44	403	57
4	MirPur Mathelo	386	386+80= 466	17,370	6,719	24,089	26,268	14,328	40,596	51.22	113.24	68.52	82.52	76.89	80.53	42	424	42
5	Ghotki	434	434+92 = 526	18,361	7,928	26,289	38,060	22,968	61,028	107.28	189.70	132.14	82.50	79.70	81.46	39	451	75
Total or Average, as applicable		1,529	1,529 + 523= 2,052	68,846	23,815	92,661	131,255	71,128	202,383	90.5	198.66	118.41	83.60	82.66	83.27	183	1,824	228





# What the Project Means to the Country and People

In order to promote female education at the elementary level, WFP has been distributing USDA donated edible oil in girls schools in several districts of Pakistan since 1994. Land O'Lakes school nutrition program of milk and cookies in Ghotki District is the first of its kind in the country. Although Land O'Lakes program covered girls as well as boys at the elementary level in Ghotki, its primary focus has been to maximize female participation in schools, in which it has succeeded.

The program has changed the mindset of the people in remote and rural areas of Ghotki in restricting girls to their homes and brought about a cultural change in a conservative society where female started getting themselves enrolled even in boys schools.

The success of the program has convinced the people and the government that such projects can be replicated in other districts as well, provided capable management can be put in place. The Federal Government is already implementing this program in six districts of the country while Provincial Government of Sindh is to start this kind of program in seven districts of the province.





# Sustainability of SNP

The Government of Pakistan (GOP) having examined the efficacy and effectiveness of Land O'Lakes school nutrition program running in Ghotki District of Sindh, since April 2003, have replicated our program design by starting, in March 2007, a pre-test project (Tawana Pakistan: School Nutrition Package for Girls) in girls primary schools in six districts of the country – feeding 115,000 school girls on a given day. The President and the Prime Minister of Pakistan, along with Federal Minister for Social Welfare, inaugurated this program in the Gawadar District of Balochistan Province on 20 March, 2007. Land O'Lakes provided technical assistance to GOP in the program design. This program is at present at halt and is undergoing re-design at the federal government level.



The Sindh Government announced on 4 July, 09 to launch SNP in seven districts of the province, including Ghotki. The program is in design stage and Land O'Lakes is providing all the necessary technical assistance to the provincial government of Sindh which is likely to start the project early 2010.





Thank You! 



# Final Report: Pakistan School Milk Program

## Appendix F: Additional Relevant Research Documents

- Kanemasu, Yoko. “THAILAND: A Desk Review of the School Feeding Programmes”. World Food Programme’s Home Grown School Feeding Project. Cardiff University, School of City and Regional Planning, UK. July, 2007.
- Jabbar, Mohammad & Ahuja, Vinod. (2011). Linking school milk with smallholder dairy development strategy: Thai experience and design considerations for a pilot project in Bangladesh.
- “School Feeding in APEC Economies”. APEC Subcommittee on Standards and Conformance. July, 2012. APEC Project CTI 24/2011A. Produced by the Ministry of Agriculture, Russia. Social and Industrial Food Service Institute, Russia. Produced for the Asia Pacific Economic Cooperation Secretariat.
- Dr. Issara Suwanabol. “School Milk Programme in Thailand”.
- Kim, So Young, et al. “Dietary Habits Are Associated with School Performance in Adolescents.” *Medicine*, vol. 95, no. 12, Mar. 2016, doi:10.1097/md.0000000000003096.

[Download the resources at this link.](#)



# **School Milk Programme in Thailand**

**By Dr. Issara Suwanabol**

## **History of the School Milk Programme in Thailand**



The establishment of the National Milk Drinking Campaign Board (NMDCB) by the Cabinet decision in 1985 stems from the farmers protests of 1984 on unsold milk. A pilot programme was implemented in selected areas of Bangkok and Chiangmai for parents to purchase milk at 25% less the normal priced milk through monthly coupons for their children in Primary and Kindergarten schools. This programme was the origin of the national School Milk Programme of Thailand. Over the years, the programme was

later expanded and today all school children in public schools are provided with 200ml of free milk.

## **School Milk in the Thai Context**

The principle objective of the National School Milk Programme is to support the Thai dairy industry, by providing an outlet for locally produced milk. By providing milk to the young at an early stage, will also through time developed a taste for milk and hence a market for the future. Statistic has shown that while the milk per capita milk consumption of Thailand was a low of 2 litres in 1984, a year, but risen to as a high of 23 litres in 2002. The dairy market has also raised from a 290 million litres a year business in the early 90's to an 1146 million litres market by 2003. Local herd size has growth from 132,000 in 1989 to 412,000 in 2003.



School Milk is a vital part of the Thai dairy market, so much so that it accounts for more than 30% of the total liquid milk market. As a result school milk days has been expanded from the 200 days school calendar to 230 feeding days, with an extra 30 days of milk for consumption in the holidays. Milk is distributed in long life (UHT) packs for parents to pick up from schools.

Today, the operation of the Thai school milk is carried out by the Ministry of Agriculture, Livestock Bureau. As per the cabinet consensus in 2003, only plain milk in both UHT and pasteurised format are provided. For administration purposes, the whole country is divided into three-school milk zone, labeled as zone, 1,2 and 3. The principle is that the consumers and the suppliers of milk must be within the same zone, such that raw milk in zone 1 must be processed by a dairy in zone 1 and be consumed by schools in zone1. This zoning is to provide a balance of supply and demand and support a more equal allocation of resource. Dairy wishing to be a school milk supplier by first be certified by

the Ministry of Industry, in possession of a valid food safety certificate from the Thai FDA and have a long term contract to buy local raw milk. All school milk must be made from liquid raw milk and not from powder. By 2004 all school milk supplier must be HACCP certified. The bureau of budget controls the school milk budget and the whole thing is then reporting to the National Milk Policy Committee under the office of the Prime Minister.



### **Conclusion**

The success of school milk in Thailand stems is not just measured in terms of nutritional benefits, a subject I have touch on in previous International FAO sponsored school milk conferences. The economic benefits and the support in national development is less known. Without school milk to provide a stable platform by which to support the growth of the Thai dairy industry, the Thai dairy will definitely not have experience such growth.

**THAILAND**  
**A Desk Review of the School Feeding Programmes**

World Food Programme's Home Grown School Feeding Project

**Yoko Kanemasu**  
**School of City and Regional Planning**  
**Cardiff University**  
**Glamorgan Building**  
**King Edward VII Avenue**  
**Cardiff CF10 3WA**  
**UK**

July 2007

[KanemasuY@Cardiff.ac.uk](mailto:KanemasuY@Cardiff.ac.uk)

# Table of Contents

<b>1. INTRODUCTION.....</b>	<b>6</b>
1.1. PROFILE: THAILAND .....	6
1.2. ADMINISTRATION .....	7
1.3. ECONOMY .....	8
1.4. EDUCATION.....	8
1.5. NUTRITION.....	9
1.6. RECENT EVENTS .....	11
2004 Asian Tsunami.....	11
2006 Coup.....	11
<b>2. HISTORICAL DEVELOPMENT OF SCHOOL FEEDING .....</b>	<b>12</b>
2.1. EARLY LOCAL GOVERNMENT INITIATIVE: BMA.....	12
2.2. EARLY CENTRAL GOVERNMENT INITIATIVE: NATIONAL PRIMARY EDUCATION AUTHORITY .....	12
<b>3. SCHOOL LUNCH PROGRAMME (SLP).....</b>	<b>13</b>
3.1. CONTEXT AND AIMS.....	13
3.2. TARGET BENEFICIARIES .....	14
3.3. FUNDING.....	15
3.4. GOVERNANCE.....	18
3.5. PROCUREMENT .....	19
3.6. IMPACT.....	20
3.7. RECENT INITIATIVES AND IMPROVEMENTS TO THE PROGRAMME .....	21
Meal quality and nutritional content .....	21
School agriculture.....	22
Nutritional education .....	23
Community involvement .....	23
Rice consumption.....	23
<b>4. SCHOOL MILK PROGRAMME (SMP) .....</b>	<b>24</b>
4.1. CONTEXT AND AIMS.....	24
4.2. FUNDING AND GOVERNANCE.....	26
4.3. PROCUREMENT .....	27
4.4. IMPACT.....	28
<b>5. HRH PRINCESS MAHA CHAKRI SIRINDHORN'S AGRICULTURE FOR SCHOOL LUNCH PROJECT .....</b>	<b>29</b>
5.1. PROJECT SUMMARY .....	29
<b>6. CONCLUSION.....</b>	<b>31</b>
6.1. FROM QUANTITY TO QUALITY .....	32
6.2. LOCAL PROCUREMENT AND RURAL DEVELOPMENT .....	33
6.3. BUDGETARY AND POLICY ISSUES.....	33
6.4. SCHOOL MILK AND LOCAL PROCUREMENT .....	34
6.5. SCARCITY OF DATA: CHALLENGE FOR FUTURE RESEARCH.....	34
<b>7. BIBLIOGRAPHY.....</b>	<b>36</b>
<b>8. LIST OF CONTACTS.....</b>	<b>41</b>



## Acknowledgements

This case study was made possible by the generous assistance of a number of Thai experts. I would like to thank especially:

- Dr. Darunee Jumpatong, Educator, the Ministry of Education, Thailand;
- Dr. Nantaporn Viravat, the Institute of Nutrition, Mahidol University, Thailand;
- Dr. Uraiporn Chittchang, the Institute of Nutrition, Mahidol University, Thailand; and
- Dr. Emorn Wasantwisut, the Institute of Nutrition, Mahidol University, Thailand.

## List of Acronyms

ADB	Asian Development Bank
BMA	Bangkok Metropolitan Administration
BPP	Border Patrol Police
CIA	Central Intelligence Agency
CRC	Committee on the Rights of the Child
FAO	Food and Agriculture Organisation
LAO	Local Administration Organisation
NESDP	National and Economic Social Development Plan
NFNP	National Food and Nutrition Plan
APHCA	Animal Production and Health Commission for Asia and the Pacific
SLP	School Lunch Programme
SMP	School Milk Programme
SRC	Sub-committee on the Rights of the Child
UNESCO	United Nations Educational, Scientific and Cultural Organization

WFP World Food Programme

## 1. Introduction

### 1.1. Profile: Thailand

The Kingdom of Thailand is situated in Southeast Asia and has a population of 64 million (in 2005, estimated 65 million in 2007) (CIA 2007). According to the United Nations Thailand (2007), the middle-income country now has a Human Development Rating of 0.768 and is set to achieve most, if not all, of the global Millennium Development Goals well in advance of 2015. It reduced the poverty rate from 27% in 1990 to 9.8% in 2002, and the proportion of underweight children also fell by nearly half in the same period (UN Thailand 2007). The table below gives a snapshot of the country's development profile.

#### Thailand: Some Basic Facts and Development Indicators

Population	65 million (2007 est.)
Annual population growth rate	0.663% (2007 est.)
Population in urban areas	32.0% (2005)
Ethnic groups	Thai 75%, Chinese 14%, other 11% (2000 census)
Religions	Buddhist 94-95%, Muslim 4-5%, Christian, Hindu, Brahmin, other (2000 census)
GDP per capita (PPP)	US\$9,100 (2006 est.)
GDP real growth rate	4.8% (2006 est.)
Labour force	36.41 million (2006 est.)
Labour force by occupation	Agriculture: 49%, industry: 14%, services: 37% (2000 est.)
Unemployment rate	2.1% (2006 est.)
Poverty (national poverty line)	9.8 % (2002)
Industries	Tourism, textiles, garments, agricultural processing, cement, integrated circuits,

	jewellery, electronics, and auto assembly
Human development index rank	0.768 (2004)
Adult literacy	92.6 % (2004)
Children under five years of age stunted for age	15.5% (2006)
Children under five years of age underweight for age	7.3% (2006)
Children under five years of age overweight for age	10.4% (2006)

(Sources: CIA 2007, UN Thailand 2007, Bureau of East Asian and Pacific Affairs US Department of State 2007)

## **1.2. Administration**

Thailand is a constitutional monarchy. King Bhumibol Adulyadej, the chief of state, the Prime Minister, the head of government, and the Council of Ministers (Cabinet) make up the Executive branch. Prior to the military coup d'etat led by General Sonthi Boonyaratglin in September 2006, the bicameral National Assembly or Rathasapha consisted of the Senate or Wuthisapha (200 seats, elected by popular vote for a 6-year term) and the House of Representatives or Sapha Phuthaen Ratsadon (500 seats, elected by popular vote for a four-year term). Following the coup, an interim Prime Minister, Cabinet and 250-member National Assembly (acting as Senate and House of Representatives) were appointed. The Judicial is composed of the Constitutional Tribunal, the Courts of Justice, and the Administrative Courts. The country is currently under an interim constitution issued by the coup leaders, according to which a new constitution will be written and ratified by the end of 2007 to replace the 1997 constitution. The administrative subdivisions consist of 76 provinces (including Metropolitan Bangkok), subdivided into 796 districts, 81 subdistricts, 7,255 tambon administrations, and 74,435 villages (Bureau of East Asian and Pacific Affairs, US Department of State 2007; CIA 2007).



### **1.3. Economy**

Thailand has enjoyed rapid economic growth in the past several decades. It recorded an average annual GNP growth rate of 6.7% over the period 1968-1986 and was the fastest growing economy in the world over the years 1987-1996 (Warr 2007: 139). Since the 1997-1998 financial crisis, Thailand has made a remarkable, though initially slow, recovery, which was made possible by strong exports and growth in private consumption (World Bank 2007a). The real GDP growth rate since the crisis has been moderate, at 5 % (Warr 2007: 140). The Economist Intelligence Unit (2007) predicts the growth rate to be 4-5% over the years 2007-2011.

Today, Thailand is an export-dependent economy led by industry, which accounts for 44.6% of GDP and includes manufacturing of computers/electronics, garments/footwear, furniture, wood products, canned food, toys, plastic products, gems, jewellery as well as high-technology products. Tourism also contributes significantly to the economy, totalling about 6% of GDP (Economist Intelligence Unit 2007; Bureau of East Asian and Pacific Affairs, US Department of State 2007; World Bank 2007a; Hoontrakul and Ryan 2004). While the manufacturing and service sectors have boomed, agriculture, the traditional backbone of the economy, has decreased in importance. Its contribution to GDP, along with forestry and fishing, is estimated to be about 10.7% (Bureau of East Asian and Pacific Affairs, US Department of State 2007.; see also Winichagoon *et al.*, n.d.). Despite its decline, however, about 40% of the labour force continues to be employed in agriculture (Ibid.), and the country ranks among the top exporters of rice, sugar and chicken in the world (Zamroni 2006: 57).

While the recovery from the financial crisis and the continued growth have resulted in lower incidence of poverty (World Bank 2007a), some regions and vulnerable groups have been left behind and inequality has widened. These groups include the people living in poverty in rural areas and employed in agriculture as well as children in the Northeast, the North and the deep South, where more than one million suffer from malnutrition (UN Thailand 2005: 1; Warr 2007: 153-4).

### **1.4. Education**

The current Thai educational system is based on 9-year compulsory education, with 12-year free basic education guaranteed by the constitution (Ministry of Education n.d.; CRC 2004: 110). In 2005, 14.4 million students were enrolled in the age group 3-21. Eighty-two percent of educational

institutions are public and 18% private. In Bangkok, the figure is 70% public and 30% private (Ministry of Education, n.d.).

### Current Thai Educational System

APPROXIMATE AGE	GRADE	EDUCATIONAL LEVEL/2005STUDENT NUMBER/ GER (GROSS ENROLMENT RATE)
Age 3-5	NA	Pre-primary (1.8 million students, GER 75%)
Age 6-11	Grade 1-6	Primary (5.8 million students, GER 104%)
Age 12-14	Grade 7-9	Lower secondary (2.7 million students, GER 95%)
Age 15-17	Grade 10-12	Upper secondary (1.1million students, GER 63%)
Age 18-21	Grade 13-16	Undergraduate (1.9 million students, GER 56%)
Age 22 and over	Grade 17-18	Graduate (179,191 students)

(Source: Ministry of Education, Thailand, n.d.)

### **1.5. Nutrition**

Thailand's national food and nutrition activities date back to the establishment in 1926 of the Nutrition Section in the Department of Public Health (Kachonam *et al.* 1992). The first National Food and Nutrition Plan (NFNP) was implemented in 1977 as part of the fourth National and Economic Social Development Plan (NESDP). Malnutrition (especially protein-energy malnutrition), among pregnant and lactating women and preschool and school-age children, was (and to some extent continues to be) identified as the principal nutritional problem of the nation (Ibid.; Tontisirin *et al.* 1995; FAO 1996: 30; Winichagoon *et al.* n.d). While malnutrition was

regarded in these early years primarily as a health problem with a top-down approach, the second NFNP (years 1982-1986) may be seen as a turning point in the government's nutrition policy in that, firstly, it linked malnutrition to poverty alleviation and rural development, and secondly, it incorporated the primary health care approach, with greater emphasis on community participation. Among the community nutrition programmes under this NFNP was the provision of subsidies for school lunch in rural primary schools (Kachonam *et al.* 1992; Tontisirin *et al.* 1995; Heaver and Kachondam 2002: 5; Winichagoon *et al.* n.d).

Thailand was one of the first countries to implement the concept of primary care (Heaver and Kachondam 2002: 4), which established a tradition of volunteerism and community participation, making its community nutrition programmes among the most successful in Asia (Ibid.; see also Onis *et al.* 2000: 1231; Winichagoon *et al.* n.d). By 1989, midway through the sixth NESDP, more than half a million volunteers had been trained, giving the Plan almost universal outreach in rural areas (Tontisirin *et al.* 1995; Kachondham *et al.* 1992; Heaver and Kachondam 2002: iii). High literacy levels and a cultural tradition of community service and mutual help, as well as political commitment and favourable economic growth, have been cited as the key success factors (Heaver and Kachondam 2002: 19; see also FAO 1996: 29-32).

Thus, the years 1975-1990 recorded a drastic reduction in child malnutrition from 36% to 18%, followed by a further reduction from 18% to 8.42% during the period 1992-2005<sup>1</sup> (Jumpatong 2007: 5). However, micronutrient deficiency remains a persisting national public health problem (e.g. the iodine deficiency rate was 2-6.8% in 1995) (Jumpatong 2007: 5; see also SRC 2000: 21; Kosulwat 2002), and child malnutrition, especially in remote rural areas, continues to be a major concern. Since the third NFNP (under the sixth NESDP), the concept of quality of life has been translated into the "basic minimum needs" approach with eight categories of indicators for problem identification, progress monitoring and evaluation (Kachondham *et al.* 1992; Winichagoon *et al.* n.d.). The seventh to the current tenth NESDPs have focused on poverty alleviation

---

<sup>1</sup> These figures are based on the data reported by the Ministry of Public Health and the Ministry of Education, which use the Thai growth standard. According to Heaver and Kachondam (2002: 2), there has been some confusion over the reduction of protein-energy malnutrition and iodine/vitamin A deficiency in Thailand due to erroneous presentation of the Ministry of Public Health data and/or unqualified presentation of sample survey data using the Thai national reference standard. The same authors, using independent survey data, estimate that Thailand reduced moderate malnutrition in the under-five population from about 25% in 1986 to about 15% in 1995, almost eliminating protein-energy malnutrition as a national public health problem.

and improved quality of life by ensuring household food and nutrition security. Thailand's national School Lunch Programme (SLP) was shaped in the context of these nutritional concerns and initiatives.

Whilst Thailand continues to tackle the problems of malnutrition and micronutrient deficiencies, a shift in the food intake and lifestyle patterns in the recent decades has also resulted in a dramatic rise of overweight and obesity among children and adolescents, especially in affluent urban populations<sup>2</sup> (Kosulwat 2002; Kantachuvesiri 2005). Hence it may be said that recent social and economic transitions have created a situation where nutrition-related health threats such as malnutrition and micronutrient deficiencies have come to coexist with "the diseases of affluence" in Thailand (Kosulwat 2002: 186).

### **1.6. Recent events**

#### *2004 Asian Tsunami*

The December 2004 tsunami, the worst natural disaster to strike Thailand, caused 5,395 deaths and resulted in 2,817 missing persons and 1,480 orphaned children (loss of one or both parents), as well as massive destruction of property and the environment with serious consequences on the livelihoods of thousands who depend on the fishing and tourism industries (UN Thailand 2007b).

#### *2006 Coup*

As noted earlier, following the September 2006 military takeover, the coup leaders put in place an interim constitution and appointed a National Legislative Assembly. General Sonthi Boonyaratglin took power as head of an interim Council for Democratic Reform (now called the Council for National Security) run by the military. The Council named former Privy Councillor Surayud Chulanont as interim prime minister to govern until the elections scheduled for late 2007. A National Counter-Corruption Commission was also appointed to investigate corruption allegations against the former premier (Asia Media 2007; Fry 2007).

---

<sup>2</sup> As Kosulwat (2002: 186) notes, surveys in greater Bangkok demonstrated that, in 1992, the prevalence of overweight and obesity among 6–12 year-old children in middle- to high-income families was between 25.7% and 27.4%, while it was 11.2% among those from middle- to low-income families. In 1994, the rate increased to 28.1%, 32.3% and 14.6%, respectively.

## **2. Historical Development of School Feeding**

While Thailand's national School Lunch Programme (SLP) was not enshrined in law until 1992, there seem to have been a number of precursors in the previous years. Two such earlier initiatives – one by a Local Administration Organisation (LAO) and another by the central government – are briefly summarised below.

### **2.1. Early Local Government Initiative: BMA**

The Bangkok Metropolitan Administration (BMA) started a school lunch programme in 1977, targeting children from the city's lower income households. The funding for this programme was partially government provision and partially donations from the private sector and individuals. Of 427 schools, 402 requested help for 40,879 children in 1991, with the budget of 1.85 baht per head per day. The programme was administered by school committees, with teachers responsible for the menu and preparation of the meals (Kachondham *et al.* 1992). With the enforcement of the 1992 Act (see below), all BMA schools came under the national SLP (Jumpatong 2007, personal interview).

### **2.2. Early Central Government Initiative: National Primary Education Authority**

Although the early history of school feeding in Thailand is scarcely documented, it is known that the earliest origin of national-level school feeding can be traced back to the 1950s (Jumpatong 2007: 2). The Ministry of Education recognised the problem of child malnutrition and campaigned for a school lunch programme in 1952 (WFP 2007).

More recently, in 1987, the National Primary Education Authority (the current Office of Basic Education Commission), under the Ministry of Education, directed every school to implement a free school lunch programme for all students. Though impeded by insufficient funding, this initiative promoted public recognition of the importance of school feeding and eventually led to the establishment of the current national programme (Jumpatong 2007: 2). Under this initiative, the Authority provided assistance to schools in deprived rural communities where agricultural production was low or not feasible and students were unable to afford to buy lunch (Kachondham *et al.* 1992). In 1990, 31,349 schools and approximately 6.7 million children benefited from the scheme. Schools adopted varying modalities of operation, depending on the availability of human resources, funding, community support, and



individual teachers' enthusiasm: some schools were able to provide lunch every day, others every other day, and yet others provided soy milk during afternoon breaks as supplementary food (Ibid.; UNESCO Bangkok, n.d.: 54). However, in addition to the inadequacy of funding, the scheme was hampered by the absence of appropriate management guidelines and technical expertise. In the 1980s, a student received an average of only 10 baht per year. Kachondham *et al.* (1992) thus commented in 1992: "the disparity between primary school students in Bangkok and in rural areas regarding the budget for the school lunch programme is quite conspicuous. Therefore, despite the fact that the school lunch programme is not new, its success has been rather modest." The introduction of the 1992 Act brought about a significant change to this state of affairs.

### 3. School Lunch Programme (SLP)

#### 3.1. Context and Aims

The Fund for School Lunch of Primary School Act B.E. 2535 was enacted in 1992, securing annual central government funding for the national School Lunch Programme (WFP 2007; Jumpatong 2007: 2). The Act states the aim of the programme as the alleviation of nutritional problems among school children. The key concern, especially in the early years, was malnutrition (underweight). Other aims, as identified by Jumpatong (2007: 1; see also Chittchang 2005), include:

- Enhancing food security;
- Promoting desirable eating habits; and
- Promoting full growth and development of children.



In addition, there are a number of roles that the SLP may potentially play and are beginning to attract greater attention. For instance, the Ministry of Education today acknowledges the importance of food education and agricultural activities, which are being integrated into the programme (see

below). There is also growing recognition of the importance of school lunch in enhancing rice consumption, with both health/nutritional and socio-cultural benefits (see below) (Jumpatong 2007, personal interview).

### 3.2. Target Beneficiaries

The programme is implemented in all public primary schools (Grade 1-6) (approx. 30,000 schools) and kindergartens. It targets children suffering from malnutrition, and to a lesser extent, children living in poverty in remote rural areas. The free school lunch entitlement criteria are specified as follows:

- All malnourished children in the schools operating under the Ministry of Education;
- All students at the Border Patrol Police (BPP) schools operating under the BPP Bureau, the Royal Thai Police (which are located in harsher rural conditions with inadequate facilities);

- All students at the Royal-Public Welfare schools; and
- Economically disadvantaged students (Not all of these children are covered. See below.) (Chittchang 2005).

#### SLP Beneficiaries

	OCT 97- MAR 98	MAY-SEP 98	OCT 98- MAR 99	MAY- SEP 99	OCT 99- MAR 2000
Kindergarten	642,628	844,302	687,940	687,943	738,542
Primary school	1,539,235	2,024,565	1,680,793	1,885,864	1,848,662

(Source: SRC *et al.* 2000: 142)

About 1.8 million primary school children and nearly 700,000 kindergarten children currently benefit from the programme annually – equivalent to about 30% of all school children, covering all malnourished school children and about half (48.81% in 1998) of the school children living in poverty (Jumpatong 2007: 2). The government grant is used by individual schools either to purchase foodstuffs, which are cooked at school facilities by teachers, students and community volunteers (especially mothers) taking turns (due to the absence of kitchen staff in schools), or to engage private catering services.



Higher grade students often take turns to assist in food preparation, serving, and cleaning (Ibid.: 6). Jumpatong (Ibid.: 4) identifies four modalities of school feeding in the country, three of which involve the SLP funding:

Source: Sriwittayapaknam School (2005) *What is Your Favourite School Lunch?*

- Lunch is provided entirely on the basis of family funding (i.e. Students can afford to buy lunch): relatively privileged schools in urban areas;
- Free lunch is provided to poor or underweight children and sold to others: schools in suburban or middle-income communities;
- Free lunch is provided to poor or underweight children. Additional food is given to those who bring only rice from home and sold to those who can afford it: schools in semi-rural areas; and
- Free lunch is provided to all students: common in schools in remote areas.

### 3.3. Funding

Under the 1992 Act, the central government was required to provide 500 million baht each year to the Fund for School Lunch of Primary School until a total funding of 6,000 million baht was reached. The programme was to be operated on the Fund's interest, and the target of 6,000 million baht was reached in 2000. However, due to the lower interest rate and fluctuations in the national economy, an additional budget of about 2,000-3,000 million baht has been allocated annually by the government (Chittchang 2005; Jumpatong 2007: 2). In a personal interview, Jumpatong (2007) estimated the current additional funding to be around 5,000 million baht per year.

The government provided initially 5 baht per child per day throughout the 200 days of the school year. This amount was increased, following the recommendations of an evaluation study conducted by Mahidol University in 1995 (Chittchang 2005), first to 6 baht in 1999 (SRC *et al.* 2000: 142; CRC 2004: 115), and then to 10 baht in 2004 (Chittchang 2005; Jumpatong 2007: 2, WFP 2007). In 2007, a budget of over 5,143 million baht has been allocated for the programme. The annual programme budget from 1992 (inception year) to the present is shown in the table below:

**Annual Budget for the SLP (baht)**

<b>YEAR</b>	<b>KINDERGARTEN</b>	<b>PRIMARY</b>	<b>TOTAL</b>
1992	-	30,000,000	30,000,000
1993	100,000,000	120,000,000	220,000,000
1994	332,800,000	1,000,000,000	1,332,800,000
1995	262,116,500	797,587,500	2,146,600,000
1995	262,483,500	824,412,500	-
1996	287,500,000	823,685,500	2,285,689,200
1996	287,500,000	887,003,700	-
1997	287,500,000	883,851,500	2,411,954,000
1997	324,454,000	916,148,500	-
1998	321,309,000	769,617,500	2,525,360,000
1998	422,151,000	1,012,282,500	-
1999	412,764,000	1,008,475,800	2,965,524,000
1999	412,765,800	1,131,518,400	-
2000	443,125,200	1,103,197,200	3,212,506,200
2000	443,125,200	1,223,058,600	-
2001	494,344,800	1,268,105,400	3,272,054,400
2001	406,015,200	1,103,589,000	-
2002	871,540,800	2,207,146,800	3,078,687,600
2003	N/A	2,556,091,200	2,556,091,200
2004	N/A	3,394,436,600	3,394,436,600
2005	N/A	5,004,598,000	5,004,598,000
2006	N/A	5,279,190,000	5,279,190,000

2007	N/A	5,143,944,200	5,143,944,200
Total	-	-	44,859,435,400

Note: The Thai fiscal year is from 1 October to 30 September. The budget is allocated twice a year: hence two entries for years 1995 onwards.

(Source: Ministry of Education, Thailand, 2007)

The budgetary allocation – first to LAOs (such as municipalities and tambon administrative organisations) and then to schools – is determined on the basis of the number of children with malnutrition, which in turn is determined by a national growth monitoring system. Teachers in all primary schools since 1986 have carried out weight-for-age growth monitoring (using the Thai standard), and children found to be malnourished by this procedure are entitled to free school lunch (Kachondham *et al.* 1992). Until around 2003, the provincial primary education supervisor<sup>3</sup> used these growth monitoring data for resource allocation to individual schools. Following the decentralisation of education management, schools currently submit these growth monitoring results in an annual report to LAOs, which then report directly to the central government for budgetary allocation (Ibid.; Jumpatong 2007, personal interview and communication).

As for economically disadvantaged children, the central government provides funding to the most deprived provinces on the basis of the provincial poverty index, and hence it does not reach all children in need. As in the case of malnutrition, teachers at each school compile the number of children in need of free school lunch for financial reasons, which is reported to LAOs in an annual report, which is in turn reported to the central government for budgetary allocation. Thus the system is today considerably localised: the government funding bypasses provincial governments and is allocated directly to LAOs and then to schools. Notably, the system relies primarily on local knowledge: individual teachers' personal knowledge of their students and their needs rather than official surveys (Jumpatong 2007, personal interview). According to Jumpatong (Ibid.), this system rests on the fact that most teachers are residents of local communities and that community members enjoy close relations and personal knowledge of each other. While

---

<sup>3</sup> Provincial education offices have since been replaced by Local Education Areas, as part of the education reform of 2004, which has decentralised education management to improve outcomes through increased community participation (Jumpatong 2007 personal interview; ADB 2007).



significantly different from formal procedures characteristic of Western bureaucratic systems, this has proven to be suitable and accurate in the Thai context (Ibid.).

Although the central government subsidy does not reach all economically disadvantaged children, LAOs at the local level provide supplementary funding to cater for those who are not covered. Consequently, 95% of all school children (including those who can afford to pay and do not receive free lunch) currently have access to lunch every day at school (Jumpatong 2007: 4). The remaining 5% may receive free lunch a few days a week, which is due not necessarily to financial constraints but to the problems of access: most of these children are located in remote, hard-to-reach areas, which creates logistical problems for meal provision (Jumpatong 2007, personal interview). This suggests significant progress since 1995, when the Mahidol University evaluation study found that the funding was insufficient and that some schools had to discontinue the service whenever the funding ran out (Chittchang 2005).

### 3.4. Governance

The programme has been implemented under the initiative of the Ministry of Education. Since 2001, the Ministry of Interior, which is in charge of provincial and local government, has also been involved, as part of the wider decentralisation process.<sup>4</sup> The Ministry of Education manages the interest from the Fund for School Lunch of Primary School, whereas LAOs, under the



Source: Barrow (2005a) *Eating Lunch in a Thai School*

Ministry of Interior, manage the additional central government funding as well as provide supplementary funding of its own for the cost of free lunch for economically disadvantaged children. At the school level, individual schools exercise authority over the actual usage of the grant and the implementation of the

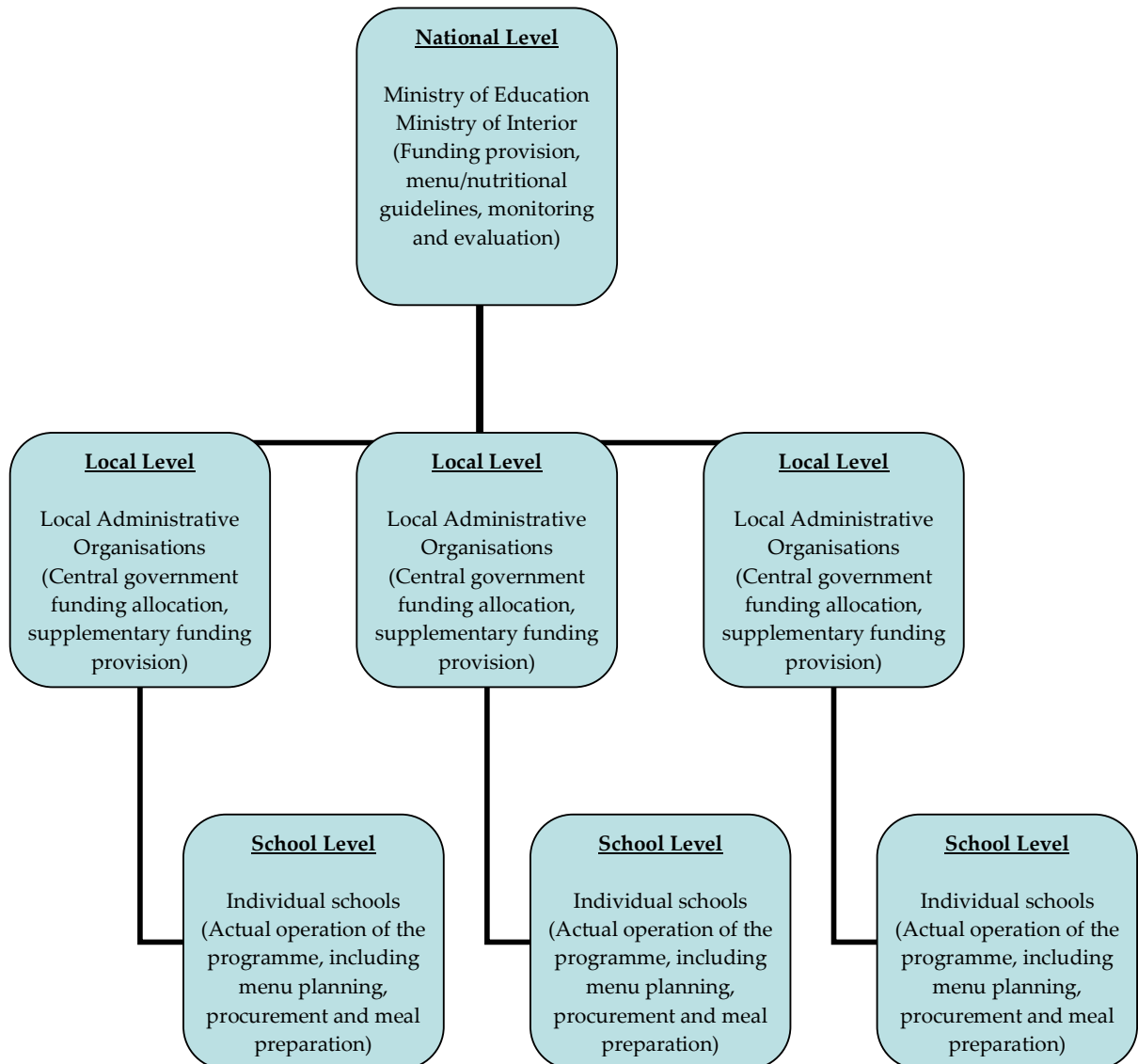
programme. Matters relating to the sourcing, cooking and serving of food are

---

<sup>4</sup> Thailand has undergone some decentralisation of power to local governments, which began with the seventh NESDP (1991-1996) and was formally enshrined in the 1997 constitution (World Bank 2007b; Wegelin 2002: 2).

left entirely to individual school policies and initiatives (Jumpatong 2007, personal interview).

### SLP Governance Structure



(Source: Jumpatong 2007, personal interview and communication)

### **3.5. Procurement**

The procurement mechanism of the programme has not been documented in detail to date. As noted above, the SLP today operates under a decentralised

system whereby individual schools are given the authority to determine the usage of the subsidy including the procurement method – where the food is produced, whom to buy it from, how the food is cooked and served, etc. (Ibid.). The purchasing process is informal and does not involve public tenders. There is therefore no formal procurement mechanism or emphasis to promote local sourcing. However, despite this absence of formal policy, local



Source: Barrow (2005b) *Top 10 Thai School Lunches*

sourcing is a very common practice under the programme. Most (estimated to be around 90%) schools purchase perishable food items (such as fresh vegetables and meat) from local producers, often via local markets. A small minority (estimated to be less than 10%), mainly in urban areas, engage the services of private catering companies (Ibid.). While local procurement (especially market purchase) may be distinguished from procurement of locally produced food, Jumpatong (2007, personal

interview) estimates most of the food thus procured to be of local provenance. It may be speculated therefore that schools customarily purchase local produce on a regular basis. The programme is in this sense implicitly and potentially largely “home grown.” Jumpatong (Ibid.) explains that local sourcing is a “normal” practice in Thailand, where the use of imported/transported food in school lunch is almost unheard of, given its higher price and the availability of cheaper and fresh local food. Schools may also complement purchased food with student agricultural activities (see below). Consequently only sauces and seasonings are normally obtained from large manufacturers (Ibid.).

### 3.6. Impact

The 1995 evaluation suggested a generally positive impact of the programme on the nutritional status of school children. There was a sharp decline in the prevalence of malnutrition among school children from 1993 to 1994, which corresponds to the period of the programme budget increase (Chittchang 2005). The rate remained relatively steady thereafter, although there was a slight increase after the 1997-1998 financial



Source: Barrow (2007) *Thai School Lunches*

crisis. Overall, the child malnutrition rate decreased from 18% in 1992, the inception year of the programme, to 8.42% in 2005 (Jumpatong 2007: 5). The impact seemed to be particularly significant among BPP school students, all of whom are entitled to free lunch. A sharp decline in the malnutrition rate among BPP school students, from 26.2% to 13.9%, was recorded in 1994, the first year of the significant budget increase (Chittchang 2005).

At the same time, the study highlighted some deficiencies of the programme, such as insufficient funding and nutritional concerns, and made a number of recommendations, which lead to recent initiatives and improvements as discussed below. No other comprehensive evaluation study by an independent body has been undertaken.

### **3.7. Recent Initiatives and Improvements to the Programme**

In addition to the increased budget, the programme has undergone a number of improvements since its inception in the areas of nutrition, meal quality, education, and programme implementation in general. While the initial aim of the programme was to simply feed the target group, it has since broadened the scope of operation, encompassing such issues as the improvement of the meal quality, school agriculture, food education, and community involvement.

#### *Meal quality and nutritional content*

Jumpatong (2007: 6) notes that, while the programme objective in the past was “quantitative” in nature, now that it has been more or less achieved, the next stage of the implementation will focus on the “quality” of school lunch. The findings of the 1995 evaluation seem to have played a role in this new emphasis. The study found that there was no nutritionist assigned to schools and that very few schools used standard menus or were concerned about the nutritional content of the meal. Similarly, there was no menu planning and no mechanism or guideline in place to control the quality/quantity of the food served or sanitation. The meals were found to provide about 70% of the recommended target energy intake (one third of the Thai Recommended Daily Allowance).<sup>5</sup> With no nutritional standards in place, components such as calcium, vitamin A, B1 and B2 were



Source: Barrow (2005b) *Top 10 Thai School Lunches*

---

<sup>5</sup> The study however found that by combining school lunch and school milk (see below), both the recommended quality and quantity were met (Chittchang 2005).

inadequate. There was also urban-rural disparity in that half of rural schools did not provide meals with four food groups, whereas more than 80% of urban schools could do so. In short, as Chittchang (2005) summarises, there was a lack of strategy for quality control and development, recommended food standards, quality monitoring systems, and personnel training.

On the basis of the recommendations of the study, the programme has introduced the following initiatives:

- Training support for menu planning;
- Training support for growth monitoring;
- SLP nutrient requirements;
- Recommended recipes (in the form of a handbook of school lunch recipes);<sup>6</sup>
- Support for an iodized salt test kit; and
- Support for a food safety test kit (i.e. undesirable food additive tests) (Ibid.).

### *School agriculture*

To complement the foodstuffs purchased with the government grant, the programme promotes food production activities at school, such as fruit and vegetable cultivation, and poultry, livestock (pigs and cows) and fish farming. Some schools may also cultivate rice in the school or community fields. Food thus produced is used to prepare school meals or sold for a profit. These activities are often supported by Agriculture Colleges and private enterprises in the area. Although yet to have a significant impact, these activities not only complements purchased food but provide students with an opportunity to acquire agricultural skills, especially in rural areas (Jumpatong 2007: 3). In many BPP schools in remote rural areas, the SLP is implemented in conjunction with the Princess Maha Chakri Sirindhorn's Agriculture for School Lunch Project (see below) to promote the two combined goals of nutrition and education.

---

<sup>6</sup> The programme has launched a guideline for effective meal preparation, with a collection of over 100 recipes favoured by students in a national survey. The guideline recommends:

- That hygienic standards are maintained in food preparation;
- That all recipes be served with rice, dessert, fruits and milk;
- That rice be provided at least 4 or 5 days a week for sufficient nutrient and energy intake; and
- That the lunch guarantee 600-640 calories and provide 40% of recommended daily energy intake (Jumpatong 2007: 4-5).



### *Nutritional education*

Nutrition classes are today conducted as part of Health Science, requiring students to acquire knowledge/skills of food selection for consumption in primary schools and to analyse nutritional effects on health problems in secondary schools (Ibid.: 5).

### *Community involvement*

Due to continuing budgetary constraints, the Ministry of Education has called for improved management of the programme and greater local community involvement. In addition to their role in food preparation, community members may contribute to the programme by raising additional funds and food resources to complement the government grant (Ibid.: 4).

As discussed earlier, Thailand has a history of successful volunteerism in nutrition programmes. Community volunteers have been mobilised on a large scale to cut costs, empower local people, and promote effective communication with target groups (Heaver and Kachondam 2002: iii; see also Tontisirin *et al.* 1995). While this is already a key element of the Princess' Agriculture for School Lunch Project (see below), it is expected to grow in importance in the SLP as well.

### *Rice consumption*

The drastic decline in rice consumption in Thailand and in Asia as a whole has been regarded by many as an issue of concern. In Thailand, rice is not only a staple food but central to the cultural heritage of the nation because of its close linkage with the language, customs, dress, art, and religion, as well as traditional cuisines. In this context, Jumpatong (2007: 6-7) argues, the SLP has significant potential to promote rice consumption, and, by extension, the traditional diet and culture.

Related to this is the growing influence of western diet, which has resulted in the recent rise of various chronic diseases such as the heart disease and child obesity in the country. Rice-based school lunch has an important role to play in the promotion of healthy eating, especially the traditional Asian dietary patterns in which rice and vegetables constitute the main component with a moderate intake of animal food. In view of this, the current SLP guideline recommends that all recipes be served with rice (Ibid.: 5-7). Jumpatong (Ibid.)

suggests that rice-based school meals may be extended to school breakfast, snack and/or dessert in the future.

#### 4. School Milk Programme (SMP)

##### 4.1. Context and Aims

The significance of the School Milk Programme (SMP) needs to be understood in the context of dairy farming in Thailand. The systematic development of the industry began in the 1960s with royal patronage and government support (FAO and APAHCA 2002; Delgado *et al.* 2003; Itsaranuwat and Robinson 2003; Garcia *et al.* 2005). The central government, with the aim of developing small-scale production, has been largely instrumental in the growth of the industry, by facilitating the imports of breeding stocks, providing production subsidies and tariff/quota protection, and playing a coordinating role between dairy producer cooperatives and dairy processing companies. The Department of Livestock Development and the state enterprise Dairy Farming Promotion Organisation have played a particularly prominent role (*Ibid.*). Shielded from international competition and supported with production subsidises, milk production began to boom in the



Source: Ministry of Agriculture and Cooperatives, Thailand (n.d.) *Thailand Country Report*

early 1980s (Itsaranuwat and Robinson 2003: 6-7). Dairy farmers – mostly rural small-holders who require assistance in organised milk collection/delivery/processing and technical services – have historically been aggregated into cooperatives, which are today organised under the Ministry of Agriculture and Cooperatives, totalling 114 units in 2001 (*Ibid.*: 8). About 95 % of the raw milk

produced by small dairy farmers is collected by these local cooperatives and sold directly to the market or to the state-owned and/or private dairy processing companies<sup>7</sup> (Delgado *et al.* 2003; FAO and APAHCA 2002; Itsaranuwat and Robinson 2003: 6-8; Garcia *et al.* 2005). Notably, the government efforts have been aimed at not only milk production but also consumption. Since 1985, the National Milk Drink Campaign Board and the

---

<sup>7</sup> The other 5 percent is sold to local middlemen who tend to offer slightly higher prices (Delgado *et al.* 2003).

National Youth Bureau have carried out a campaign which, with private sector funding, publicised the dietary value of milk under the slogan recognised throughout the country today: "Have you had your milk today?" (Itsaranuwat and Robinson 2003: 7). The introduction of the SMP, which specifies the subsidised milk to be sourced only from domestic production with full contents of Thai raw milk, may be seen as part of this ongoing dairy farming promotion policy of the Thai government.

The National Milk Drinking Campaign Board was established in 1985, following farmers' protests over unsold milk. A pilot programme was implemented under its initiative in selected areas of Bangkok and Chiangmai, where the parents of primary school and kindergarten children purchased milk at 25% less the normal price through monthly coupons. Suwanabol (n.d.) notes this as the origin of the national SMP. The programme officially started in 1992 to provide 200ml of free milk to all first-year kindergarten children (Chittchang 2005; Suwanabol n.d). In 1995, it was expanded to cover all children up to Grade 1 in public schools. As of 2005, free 200ml milk, costing 5 baht, is provided in the morning to all public kindergarten children and up to Grade 4 students in all public primary schools throughout the 200-250 days of the school year (Chittchang 2005; UNESCO Bangkok n.d.; SRC *et al.* 2000: 143; Jumpatong 2007, personal communication). The programme is expected to cover up to Grade 6 eventually. As of 2005, 6.09 million benefited from the programme (see table below).<sup>8</sup>

The available information suggests that the SMP has two key aims. First, like the SLP, the programme promotes healthy growth of young children, and milk was selected as a supplementary drink for its dietary value (Chittchang 2005; Jumpatong 2007, personal interview and communication). As a related goal, the programme is also intended to improve school attendance with the offer of free milk (Itsaranuwat and Robinson 2003: 7; Jumpatong 2007, personal interviews and communication). On the other hand, the programme has a key function of supporting the dairy industry and the livelihoods of dairy farmers.



Source: Suwanabol (n.d.) *School Milk Programme in Thailand*

---

<sup>8</sup> Supplementary milk is also provided by other government agencies such as the BMA, the Department of Local Administration, BPP Command and young child development centres under the Department of Community Development (SRC *et al.* 2000: 143).

It provides an outlet for the produce and further contributes to the creation of the future market by encouraging children to develop a taste for milk from an early age (Suwanabol n.d.; FAO and APHCA 2002; Delgado *et al.* 2003). Recently, the programme has specifically sought to maximise the involvement of local farmers' cooperatives, thereby enhancing its rural development potential. Hence one may say that the SMP operates under a twin goal of promoting nutrition/health and dairy farming/rural development.

#### **4.2. Funding and Governance**

The programme was initially implemented by the Ministry of Education, but has since been decentralised and administered by LAOs under the Ministry of Interior (Jumpatong 2007, personal interview). The central government budget is directly allocated, though LAOs, to individual schools which purchase their own milk (see below). The Ministry of Education continues to monitor the programme implementation, whereas the Ministry of Agriculture and Cooperatives oversees the milk supply (Ibid.). The annual budget, beneficiaries, Grades and the number of school days covered by the programme from its inception (1992) to 2003 are shown in the table below:

**SMP Annual Budget, Beneficiaries, Grades and  
Number of School Days Covered**

<b>FISCAL YEAR</b>	<b>GRADE</b>	<b>NO. OF STUDENTS</b>	<b>NO. OF DAYS PROVIDED</b>	<b>BUDGET (MILLION BAHT)</b>
1992	Kindergarten	696,625	120	278.60
1993	Kindergarten	1,267,199	120	423.80
1994	Kindergarten	1,623,683	200	1,207.60
1995	K – Grade1	2,802,612	200	1,715.00
1996	K – Grade 2	3,518,192	200	2,213.20
1997	K – Grade 3	5,010,776	200	4,334.77
1998	K – Grade 4	5,389,842	200	5,323.75

1999	K – Grade 4	5,841,732	200	5,356.43
2000	K – Grade 4	5,905,000	200	5,981.35
2001	K – Grade 4	6,224,752	200	6,070.19
2002	K – Grade 4	5,836,286	230	6,752.35
2003	K – Grade 4	5,961,373	230	6,819.03

Note: In 2001, Grade 5 and 6 students with malnutrition problems were included.

(Source: Jumpatong 2007, personal communication)

### **4.3. Procurement**

The procurement mechanism of the programme, like that of the SLP, is scarcely documented. Nevertheless, it appears that it has undergone some significant changes in the recent years (Ibid.). In the last decade, purchasing of school milk was administered at the provincial level, by the provincial educational office. Due to the lack of efficiency and accountability in this system, the procurement policy was subsequently changed to allow individual schools to take responsibility for purchasing milk for themselves according to the programme guidelines. These guidelines required schools to purchase milk from the nearest producers, whether or not they were situated in the same province, and to give priority to local farmers' cooperatives or Agricultural Colleges. This policy has since been further refined in order to prevent intense competition where large cooperatives and companies tend to have a significant advantage over small cooperatives. Under the current system, the country is divided into three school milk zones. The consumers (i.e. children) and the suppliers of milk must be within the same zone, so that raw milk in zone 1 must be processed by a dairy in zone 1 and be consumed by schools in zone 1. This zoning is intended to ensure a balance of supply and demand as well as a more equitable allocation of resources. Dairies wishing to be a school milk supplier must first be certified by the Ministry of Industry, possess a valid food safety certificate from the Thai Food and Drug Administration, and have a long-term contract to buy local raw milk. By 2004, all school milk suppliers must be HACCP (Hazard Analysis and Critical Control Points) certified. All school milk must be made from liquid raw milk and not from powder (Suwanabol n.d.; Jumpatong 2007 personal interview and communication).



Hence in contrast to the SLP, the programme has an explicit emphasis not only on local procurement but also more specifically on procurement of local produce. If the SLP is an implicitly “home grown” programme with informal procurement practices, the SMP may be described as an explicitly “home grown” programme supported with a formal procurement mechanism and policy. Such an explicit emphasis on local sourcing may not have been a feature of the programme in the past, as at least one writer commented in 2003 that local dairy cooperatives played a minimum role in the SMP as most of the milk was procured from “the politically-based business firms in Bangkok” (Delgado *et al* 2003).

#### **4.4. Impact**

The impact of the SMP on the national milk consumption and production is worthy of note. The annual per capita milk consumption increased from 2 litres in 1984 to 23 litres in 2002, with the dairy market similarly expanding from 290 million litres a year in the early 1990’s to 1146 million litres by 2003. Local herd size also grew from 132,000 in 1989 to 412,000 in 2003 (Suwanabol n.d.; see also Garcia *et al* 2005: 1). Delgado *et al* (2003) suggests that the growth of the industry between 1993 and 1995 is largely attributable to the programme. School milk accounted for more than 30% of the total liquid milk market around 2003, and the share has since further grown to about 50% (Ibid.; Suwanabol n.d). In short, as Itsaranuwat and Robinson (2003: 7) note, the SMP has “played a key part in promoting milk consumption across the whole country.” This implies positive implications for the livelihoods of small-holder farmers, who make up the majority of the milk producers in Thailand, especially under the current procurement policy favouring local cooperatives. Although no empirical data are available to demonstrate the scale of the impact, a Ministry of Education official confirms that farmers’ cooperatives currently constitute the largest proportion of the school milk suppliers (Jumpatong 2007, personal interview).

As for the nutritional impact, the 1995 Mahidol University evaluation study acknowledged the importance of school milk as a supplementary drink in meeting the nutritional requirements of school feeding (Chittchang 2005). A positive impact on school attendance has also been observed (but not documented) (Jumpatong 2007, personal communication).

## 5. HRH Princess Maha Chakri Sirindhorn's Agriculture for School Lunch Project

Thailand currently operates one other major school feeding programme. Although it is more or less supplementary in nature, it has a longer history and is implemented in conjunction with the SLP and the SMP in many remote rural schools. Its contribution hence warrants brief attention.

### 5.1. Project Summary

In 1980, Her Royal Highness Princess Maha Chakri Sirindhorn initiated the Agriculture for School Lunch Project with the aim of alleviating food insecurity and malnutrition among school children in remote rural areas. The project has been implemented in almost every BPP school in combination with the SLP and the SMP. In 2004, it was extended to secondary schools, and today, it targets a total of 478 schools (WFP 2007).

#### Number of participants in 2004

TODDLER	436
Preschool	17,130
Primary	44,853
Secondary	5,970
Islam	888
Novice	1,720
Total	70,997

(Source: WFP 2007)

The project encourages school agriculture in order to improve the quality and frequency of school lunch in remote rural areas. Under the project, HRH provides agricultural materials/tools, plant seeds, animal breeds, cooking utensils, technical training, budgetary assistance, etc. to facilitate and promote agricultural activities (crop and animal husbandry) by students as part of the curriculum (Ibid.).<sup>9</sup> The project is not only a food security measure but also

---

<sup>9</sup> In some cases in which agricultural activities are not possible, for instance in Child Development Centres and Monastic schools, the Princess provides funding for purchasing

has an educational emphasis, as it aims to equip students with agricultural skills and knowledge to be transferred to their families as well as used in their future career. Most BPP school students come from remote, farming communities, for which such training is likely to be of value (Viravat 2007, personal interview).

The produce of students' agricultural activities is sold to the school cooperative shop and then cooked by parents, students and teachers according to the nutritional guidelines of the project (WFP 2007). The school cooperative purchases the food with the 10 baht-per-child grant available from the SLP. The grant is thus operated as a kind of revolving fund and circulates in the school, with an additional benefit of giving students an opportunity for training in convening cooperative committees, debate and book-keeping. If schools do not produce sufficient food, additional foodstuffs are obtained through community donation or market purchase. Prior to 1992, BPP schools received assistance only from this project. With the introduction of the national SLP and SMP, however, the combination of the three programmes has served to guarantee good quality meals for school children in remote rural areas (Ibid.; Viravat 2007, personal interview).

Community participation is a key element of the project. Children, teachers, parents and other community members cooperate in agricultural activities and meal preparation, which serves to strengthen community networks and cohesion. Schools are envisaged as "learning centres," where community members, along with students and teachers, acquire new agricultural and hygienic skills and knowledge (Ibid.).

The key activity components of the project include:

- School agriculture by using integrated agricultural techniques;
- Meal preparation with the assistance of mothers and community members taking turns under teachers' supervision;
- Promotion of food preservation;
- Provision of iodised drinking water;
- Periodical nutritional surveillance (weight/height measurement and goitre examination);

---

foodstuffs and powered cow milk or powered soy bean milk as supplementary food (WFP 2007).

- Deworming;
- Teacher training in agriculture and nutrition;
- Student training in agricultural techniques, meal preparation, healthy eating, sanitation, etc.; and
- Continuous monitoring and evaluation by concerned agencies.

Despite its longer history, the project covers limited areas and schools in comparison with the SLP and the SMP and plays a more or less supplementary role. From a point of view of local procurement, its scope is rather limited so far as the food used to prepare the meals is produced by students themselves. When additional foodstuffs are purchased, they are usually sourced from markets in towns, some distance away from the BPP schools that are mostly located in remote, mountainous areas (Viravat 2007, personal interview). The significance of the project lies primarily in its nutritional/food security and educational benefits to rural school children rather than immediate socio-economic benefits to local farmers.

## 6. Conclusion

On the basis of the limited information available for this case study (collected by means of desk research and telephone interviews), it is possible to make the following observations on the potential of and challenges for the SLP and the SMP, especially in relation to their “home grown” elements.

1. The SLP was established and has thus far been implemented with specifically health- and nutrition-related aims. Its scope is expected to broaden and diversify in the future, as the emphasis shifts towards “quality” as well as the wider educational and socio-cultural potential of school feeding;
2. Despite the absence of a clear procurement policy/mechanism, the SLP is (possibly largely) “home grown” in practice, which implies both potential for strengthening/improving current practice and a challenge to facilitate this through appropriate institutional, technical and policy support;
3. Although it has undergone significant improvement, the SLP, as a considerably localised programme, continues to face budgetary

restriction as well as a need for appropriate infrastructural, technical and personnel support and clear national/local government policy;

4. The SMP, in contrast to the SLP, has operated with a twin objective of promoting health/nutrition and supporting dairy farming. Although the available information suggests that the emphasis until recently was on the procurement of national, rather than specifically local, produce, the current policy indicates a clear intention to encourage greater involvement of local milk producers, implying significant “home grown” elements;
5. Despite such existing and potential home-grown elements, the scarcity of empirical data does not permit a valid understanding or measurement of the precise impact of the SLP and the SMP on small-scale local producers. A better understanding of the actual procurement practices and their impact on local producers and rural economies requires further research, especially substantial field work.

### **6.1. From Quantity to Quality**

It seems that the main challenge for the SLP in the future lies in achieving, and further going beyond, the initial aim “just to meet the fundamental concept of having ‘lunch’ in terms of ‘quantity’ through the slogan of ‘everyone – everyday’” (Jumpatong 2007: 2). The programme started with the reduction of child malnutrition as its main objective, in the context of the nation’s ongoing health and nutrition concerns and initiatives. As the central government, LAOs and schools seek variously to cater for all children in need of school lunch to tackle malnutrition, the emphasis thus far has necessarily been on simply ensuring to feed. Since this objective has been more or less achieved, the programme is beginning to widen its scope and explore other potential of school feeding – meal quality (nutritional/hygienic standards), education (nutritional education, agricultural education/training), and socio-cultural benefits (promotion of rice-based culinary culture, strengthening community involvement, etc.) (Jumpatong 2007: 5-6, personal interview). This widening of the scope, nevertheless, is yet to extend to formal recognition of or emphasis on local procurement, as discussed below.

*In short, the SLP is a primarily health/nutrition driven programme with a broadening scope.*



## **6.2. Local Procurement and Rural Development**

In contrast to the health and nutritional issues which have guided the SLP from its inception, procurement is an issue that is largely left to individual school initiatives and does not receive sufficient policy attention. It has been noted above that despite the absence of formal mechanisms, local sourcing is a common feature of the programme. Nevertheless, while the programme is thus (potentially largely) “home-grown” in practice (out of convenience), the social, economic and environmental implications of procurement practices are not fully recognised. The rural development potential of local sourcing, especially its potential benefits to local/small-holder farmers, is not a priority pursued by the existing programme. The same may be said of the environmental benefits of the procurement of fresh local food (as against processed food, imported food, or food that travels a long distance). This is most likely due to the fact that it is normal practice that serves practical purposes, rather than a novel policy measure, for Thai schools to source fresh local food and cook it on site instead of purchasing imported/processed food. At the same time, it should be noted that the socio-cultural, as well as nutritional, significance of local food consumption is beginning to receive greater attention, as indicated by Jumpatong (2007)’s discussion of the role of rice-based school lunch in the promotion of cultural heritage and healthy eating. Thus, one of the challenges for the future seems to be to have appropriate policies and administrative mechanisms in place to ensure that the SLP realises the full potential and benefits of local food procurement and consumption, for instance, by maximising the participation of local farmers, as has been attempted in the SMP.

*The SLP is a primarily health/nutrition driven programme with potentially significant, yet undocumented and perhaps unintended, “home grown” elements.*

## **6.3. Budgetary and Policy issues**

While it has largely achieved its initial goal, with 95% of school children having lunch every day, the SLP continues to face a number of programme implementation challenges. Jumpatong (2007: 3) points out that in many schools, children only receive coupons to purchase food outside the school, and consequently that the school loses all control over the nutritional quality and quantity of the food served to children, as well as the opportunity for food education. This seems to indicate that due to the budgetary constraints and the lack of facilities, equipment and personnel, as well as the absence of clear procurement mechanisms and policy at national/local government levels, individual schools are left with much of the pressure of feeding children in

need within the confines of whatever human, physical and financial resources available to them. While school agricultural activities and community participation play an important supplementary role, achieving the wider programme goals requires greater budgetary, infrastructural, technical and personnel support and clear national/local government policy.

*The SLP is a state-subsidised programme with localised implementation in need of increased funding as well as a supportive institutional/policy framework.*

#### **6.4. School Milk and Local Procurement**

The SMP appears to differ significantly from the SLP in its focus on – initially national, and more recently local – procurement. The programme originally specified the subsidised school milk to be sourced only from domestic production, whether the suppliers were large state-owned/private dairy companies based in urban areas or local farmers’ cooperatives. This policy was subsequently revised with a more specific emphasis on milk of local provenance and the involvement of local farmers’ cooperatives. Thus the programme currently operates under a clear local procurement policy and a supporting administrative system. In addition to the supplementary nutritional value of fresh milk, the programme has had significant economic benefits; it has greatly contributed to the development of the national dairy industry as a whole, and more recently, to the creation/sustenance of milk markets and income generation opportunities for local farmers and cooperatives. Jumpatong (2007, personal interview) endorses the positive impact of the programme on local small-holder farmers’ livelihoods, although such impact has not been formally studied to date

*The SMP, in contrast to the SLP, is guided by a double emphasis on promoting both health/nutrition and dairy farming. Its current local procurement policy implies significant “home grown” elements and rural development potential.*

#### **6.5. Scarcity of Data: Challenge for Future Research**

The available information suggests that both the SLP and the SMP are “home grown” to a considerable extent and may have significant positive impact on rural economies in general and the livelihoods of small-holder farmers in particular (although the “home grown” elements of the former are unintended). However, the scale and details of such impact remain unknown due to the unavailability of information and the absence of previous research. An appropriate understanding of both programmes (as well as the

supplementary importance of the Agriculture for School Lunch Project) can only be obtained with comprehensive further research, especially a review of Thai literature (since much information is available only in Thai) and field research. In addition to updating the nutritional impact of the SLP and the SMP, future research may focus on, among other things:

- The evolution of the governance and procurement mechanisms;
- The details of actual procurement practices and budgetary, infrastructural, technical and personnel support;
- The extent of the involvement of, and the socio-economic benefits to, local small-holder farmers and cooperatives;
- The wider rural development impacts (such as the impact on agricultural/dairy production at local/regional levels); and
- The educational and socio-cultural impacts.

## 7. Bibliography

Asia Media (2007) *First Coup in 15 Years Shakes Up the Country's Political, Media Landscape*, Media News Daily website, 19 February 2007, retrieved 3 July [http://www.asiamedia.ucla.edu/06thailandcoup/].

Asian Development Bank (ADB) *Country Assistance Plans*, ADB website, retrieved 16 July 2007 [http://www.adb.org/documents/caps/THA/0100.asp].

Barrow, R. (2005a) *Eating Lunch in a Thai School*, Thai-blogs.com website, retrieved 25 July 2007, [http://www.thai-blogs.com/index.php?p=626&more=1&c=1&tb=1&pb=1]

Barrow, R. (2005b) *Top 10 Thai School Lunches*, Thai-blogs.com website, retrieved 25 July 2007, [http://www.thai-blogs.com/index.php?blog=5&title=top\_10\_thai\_school\_lunches&more=1&c=1&tb=1&pb=1].

Barrow, R. (2007) *Thai School Lunches*, Enjoy Thai Food website, retrieved 22 July 2007, [http://www.enjoythaifood.com/schoollunches.php].

Bureau of East Asian and Pacific Affairs, the United States Department of State (2007) *Background Note: Thailand*, retrieved 24 June 2007 [http://www.state.gov/r/pa/ei/bgn/2814.htm#econ].

Central Intelligence Agency (CIA) (2007) *The World Factbook: Thailand*, updated 19 June 2007, CIA website, retrieved 2 July 2007 [https://www.cia.gov/library/publications/the-world-factbook/geos/th.html]

Chittchang, U. (2005) "National School Lunch Programme in Thailand," a paper presented at Consumers' International Regional Workshop on Children and Food Security: Nutrition in Schools, 22 June 2005, Kuala Lumpur, Malaysia.

Committee on the Rights of the Child (CRC), United Nations (2004) *Consideration of Reports Submitted by States Parties under Article 44 of the*

*Convention: Second Periodic Report of States Parties Due in 1999, Thailand, 7 June 2004, n. p.*

Delgado, C. L., Narrod, C. A. and Tiongco, M. M (2003) *Project on Livestock Industrialization, Trade and Social-Health-Environment Impacts in Developing Countries*, FAO Corporate Document Repository, retrieved 3 July 2007, [<http://www.fao.org/wairdocs/lead/x6170e/x6170e00.HTM>].

Economist Intelligence Unit (2007) *Economic Data, Thailand*, Economist website, retrieved 10 July 2007 [<http://www.economist.com/countries/Thailand/profile.cfm?folder=Profile-Economic%20Data>].

Food and Agriculture Organisation (FAO) of the United Nations (1996) *World Food Summit 13-17 November 1996, Rome, Italy: Volume 1 Technical Background Documents 1-5*, Rome.

Food and Agriculture Organisation (FAO) of the United Nations and Animal Production and Health Commission for Asia and the Pacific (APHCA) (2002) *The Livestock Industries of Thailand*, Corporate Document Repository, FAO website, retrieved 3 July 2007, [<http://www.fao.org/docrep/004/AC797E/ac797e00.HTM>].

Fry, G. (2007) "The Military Coup of September 2006: Weakening or Deepening Thai Democracy?" *Harvard International Review*, 15 June 2007, retrieved 2 July 2007 [<http://hir.harvard.edu/articles/1587/1/>].

Garcia, O., Hemme, T., Rojanasthien, S., and Younggad, J. (2005) *The Economics of Milk Production in Chiang Mai, Thailand, with Particular Emphasis on Small-Scale Producers*, PPLPI working paper no. 20, FAO website, retrieved 3 July 2007, [<http://www.fao.org/docs/eims/upload/189090/wp20.pdf>]

Heaver, R. and Kachondam, Y. (2002) *Thailand's National Nutrition Program: Lessons in Management and Capacity Development*, a discussion paper prepared for the Health, Nutrition and Population, Human Development Network, World Bank, January 2002.

Hoontrakul, P. and Ryan, P. (2004) *Value Enhancement in the Thai Tourism Industry-Implications of the Online Travel Business*, Social Science Research Network website, retrieved 12 July 2007  
[[http://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=488464](http://papers.ssrn.com/sol3/papers.cfm?abstract_id=488464)].

Itsaranuwat, P., and Robinson, R. K. (2003) "Production and Use of Dairy Products in Thailand," *International Journal of Dairy Technology*, 56 (1): 6-11.

Jumpatong, D. (2007) "School Lunch Programme in Thailand," unpublished paper prepared by the Office of Basic Education Commission, Ministry of Education, Government of Thailand.

Kachondham, Y., Winichagoon, P. and Tontisirin, K. (1992) *Nutrition and Health in Thailand: Trends and Actions*, n.p.: Institute of Nutrition Mahidol University, retrieved 8 March 2007,  
[<http://www.unsystem.org/SCN/archives/thailand/begin.htm#Contents>].

Kantachuversiri, A. (2005) "Obesity in Thailand," *J Med Assoc Thai*, 88 (4): 554-562, retrieved 7 July 2007,  
[[www.medassocthai.org/journal/files/Vol88\\_No4\\_554.pdf](http://www.medassocthai.org/journal/files/Vol88_No4_554.pdf)].

Kosulwat, V. (2002) "The Nutrition and Health Transition in Thailand," *Public Health Nutrition*, 5 (1A): 183-189.

Ministry of Agriculture and Cooperatives, Government of Thailand (n.d.) *Thailand Country Report*, Ministry of Agriculture and Cooperatives website, retrieved 14 July 2007,  
[[www.moac.go.th/builder/water/images/Dairy%20Project.pdf](http://www.moac.go.th/builder/water/images/Dairy%20Project.pdf)].

Ministry of Education, Government of Thailand (n.d.) *Towards a Learning Society in Thailand: The Educational System in Thailand*, n.p. retrieved 6 March 2007,  
[[http://www.bic.moe.go.th/fileadmin/BIC\\_Document/book/MOEleaflet/Thai-ed-system.pdf](http://www.bic.moe.go.th/fileadmin/BIC_Document/book/MOEleaflet/Thai-ed-system.pdf)].



Onis, M. de, Frongillo, E. A. and Blössner, M. (2000) "Is Malnutrition Declining? An Analysis of Changes in Levels of Child Malnutrition Since 1980," *Bulletin of the World Health Organization*, 2000, 78 (10): 1222-1233.

Oxford Business Group (n.d.) "Thailand: Country Profile," Oxford Business Group website, retrieved 8 July 2007  
[<http://www.oxfordbusinessgroup.com/country.asp?country=43>].

Pongsapich, Amara (n.d.) *Part Two: Social Safety Nets in Thailand: Analysis and Prospects*, study prepared for ESCAP, n.p. retrieved on 6 March 2007,  
[<http://www.unescap.org/esid/psis/publications/spps/08/part2.pdf>].

Sriwittayapaknam School (2005) *What is Your Favourite School Lunch?*  
Sriwittayapaknam School website, retrieved 20 July 2007,  
[<http://www.abnongphai.ac.th/%E1%CB%C5%E8%A7%A4%C7%D2%C1%C3%D9%E9/%C8%C3%D5%C7%D4%B7%C2%D2%BB%D2%A1%B9%E9%D3/index.php-blog=1&page=1&disp=posts&paged=3.htm>].

Sub-committee on the Rights of the Child (SRC), the National Youth Commission, the Office of Welfare Promotion, Protection and Empowerment of Vulnerable Groups, Ministry of Social Development and Human Security Contents (2000) *Thailand's Second Report on the Implementation of the Convention on the Rights of the Child Submitted to the United Nations Committee on the Rights of the Child*, retrieved 6 March 2007,  
[<http://www.ibiblio.org/obl/docs/Thailand2nd.pdf>].

Suwanabol, I. (n.d.) *School Milk Programme in Thailand*, FAO website *Trade and Markets*, retrieved 7 March 2007,  
[[http://www.fao.org/es/esc/common/ecg/47674\\_en\\_School\\_Milk\\_Programme\\_in\\_Thailand.pdf](http://www.fao.org/es/esc/common/ecg/47674_en_School_Milk_Programme_in_Thailand.pdf)].

Tontisirin, K., Attig, G. A. and Winichagoon, P. (1995) "An Eight-Stage Process for National Nutrition Development," *Food and Nutrition Bulletin*, 16 (1): n.p.

United Nations Educational, Scientific and Cultural Organization (UNESCO) Bangkok (n.d.) *Sharing Experiences of EFA in Thailand*, UNESCO Bangkok

website, retrieved 6 March 2007,  
[[http://www.unescobkk.org/fileadmin/user\\_upload/efa/EFA\\_News/EFA\\_News2006/SharingExperiencesEFAnThai2.pdf](http://www.unescobkk.org/fileadmin/user_upload/efa/EFA_News/EFA_News2006/SharingExperiencesEFAnThai2.pdf)].

United Nations Thailand (2005) *Thailand Common Country Assessment*, retrieved 8 July 2007,  
[<http://www.un.or.th/documents/ThailandCommonAss.pdf>].

United Nations Thailand (2007a) *Thailand Info*, retrieved 21 June 2007,  
[<http://www.un.or.th/thailand/index.html>].

United Nations Thailand (2007b) *Tsunami 2004 and Its Impact*, retrieved 3 July 2007,  
[<http://www.un.or.th/tsunamiinthailand/Tsunami2004anditsimpact.html>].

Warr, P. (2007) "Long-term Economic Performance in Thailand," *ASEAN Economic Bulletin*, 24 (1): 138-163.

Wegelin, E. A. (2002) *Thailand: Decentralisation Capacity Assessment, Findings and Recommendations*, Capacity Building Project, Office of The Decentralization to Local Government Organization Committee and the World Bank, retrieved 20 July 2007,  
[[www1.worldbank.org/wbiep/decentralization/eaplib/wegelin.pdf](http://www1.worldbank.org/wbiep/decentralization/eaplib/wegelin.pdf)].

Winichagoon, P. Yhoun-aree, J. and Pongchareon, T. (n.d.) "The Current Situation and Status of Micronutrient Policies and Programs in Thailand," *International Nutrition Foundation* website, retrieved 7 July 2007,  
[<http://www.inffoundation.org/pdf/Thailand.pdf>].

World Bank (2007a) *Ten Years on and Beyond: Remembering the 1997 Asian Crisis*, World Bank website, retrieved 10 July 2007,  
[<http://www.worldbank.or.th/WBSITE/EXTERNAL/COUNTRIES/EASTASIA/PACIFICEXT/THAILANDEXTN/0,,contentMDK:21396508~menuPK:333302~pagePK:2865066~piPK:2865079~theSitePK:333296,00.html>].

World Bank (2007b) *East Asia Decentralizes – Thailand: Making Local Government Work in East Asia*, World Bank website, retrieved 11 July 2007,

[<http://www.worldbank.or.th/WBSITE/EXTERNAL/COUNTRIES/EASTASIA/PACIFICEXT/THAILANDEXTN/0,,contentMDK:20538141~menuPK:333327~pagePK:1497618~piPK:217854~theSitePK:333296,00.html>].

World Food Programme (WFP) (2007) "Her Royal Highness Princess Maha Chakri Sirindhorn and School Feeding in Thailand," document provided by WFP, Rome.

WFP (2006) *Global School Feeding Report 2006*

WFP (2007a), Thailand, "HRH Princess Maha Chakri Sirindhorn's Child Nutrition Projects," document prepared by World Food Programme, obtained in May 2007.

WFP (2007b), "School Lunch Programme – Success Stories in Thailand," document prepared by World Food Programme, obtained in May 2007.

Zamroni (2006) "Thailand's Agricultural Sector and Free Trade Agreements," *Asia-Pacific Trade and Investment Review*, 2: (2): 51-70, retrieved 7 July 2007, [[http://www.unescap.org/tid/publication/aptir2436\\_zamroni.pdf](http://www.unescap.org/tid/publication/aptir2436_zamroni.pdf)].

#### Personal communication

Chittchang, U., Institute of Nutrition, Mahidol University, Thailand, 2007

Jumpatong, D., Ministry of Education, Government of Thailand, 2007

Viravat, N., Institute of Nutrition, Mahidol University, Thailand, 2007.

## **8. List of Contacts**

- Dr. Uraiporn Chittchang, the Institute of Nutrition, Mahidol University, Thailand (nuucc@mahidol.ac.th)

- Dr. Darunee Jumpatong, Educator, the Ministry of Education, Thailand (dajumpa@hotmail.com)
- Dr. Nantaporn Viravat, the Institute of Nutrition, Mahidol University, Thailand (ntporn@hotmail.com)
- Dr. Emorn Wasantwisut, the Institute of Nutrition, Mahidol University, Thailand (numdk@mahidol.ac.th)

# **Final Report: Pakistan School Milk Program**

## Appendix G: Proposed Terms of Reference for the Program Supervisory Board



## **Terms of Reference – School Milk Program Board (Draft)**

### **COMPOSITION**

- 1.1 The Board is constituted for a term of five (5) years; and will include the Secretaries of Education & Health, (2) from the Government of Punjab, two (2) members nominated by the PDA, Pakistan Dairy Association, from their Executive Committee and two (2) members nominated by the International Donor; hence a total of six members forming the SMP Board.
- 1.2 In case of resignation of a member, the casual vacancy shall be filled by the Board.
- 1.3 A non- voting member for Technical Assistance can be nominated to the Board by the mutual consent of the Board and will be subject to all rules, regulations and fee as per the Board Members of SMP.
- 1.4 The Chairman of the Board shall be either appointed by the Board or elected by the members amongst themselves for a period of two (2) years. In the absence of the Chairman of the Board in any meeting, the members present in the meeting may choose another member, present in person, to chair the meeting.
- 1.5 The Board shall appoint the Secretary to the Committee. This can be the Project Director of the SMP, who will represent the Management in the meetings and will also be entrusted to take minutes and distribute them accordingly after every Board meeting.

### **2. MEETINGS**

- 2.1 The quorum for any meeting shall be 1/3<sup>rd</sup> of the members of the Board for the transaction of any business. The members may participate in the meetings in person or through video conferencing.
- 2.2 The Board shall meet on regular basis i.e., at least once in each month of the financial year, or otherwise as and when required. In year two (2) onwards it will be one (1) meeting per quarter. Meetings of the Committee shall be called by the SMP Secretary, on the direction of the Chairman of the Board, subject to availability of majority of the members.
- 2.3 Unless otherwise agreed, notice of each scheduled meeting confirming the venue, date and time together with an agenda of items to be discussed and supporting papers (where appropriate) shall be forwarded to each member of the Committee, and to each other person invited to attend (as appropriate), not less than seven (7) working days prior to the date of the meeting. However, this requirement will not be relevant, in case of any emergent meeting.
- 2.4 All the matters shall be decided by the affirmative vote of majority of members present in the meeting. In the event of equality of votes, the Chairman of the Board shall have a casting vote.
- 2.5 The members of the Board shall be entitled to receive the meeting fee, as may be determined by the Board from time to time. Suggested meeting fee is Rs 15000/- per meeting subject to 20% Government Withholding Tax.



### **3. DUTIES AND RESPONSIBILITIES**

3.1 The primary functions of the SMP Board are:

- i) Project Implementation Review & Compliance of Policies and Procedures.
- ii) Recruitment, Selection & Evaluation of desired Human Resources.
- iii) Project Progress; KPI Tracking and Evaluation, Timelines and Goals.
- iv) Audit and Accounts Review and Approvals.
- v) Timely updates to the International Donor.

3.2 Individual members of the Board must pay particular attention to avoid conflicts/potential conflicts of interests. Should a conflict arise, the Chairman of the Board should be informed and the concerned member shall abstain from voting in that matter.

3.3 The Board will engage / hire an External Auditor of repute, who will present the Audited Financials every Quarter to the Board; thereby presenting their suggestions / objections / recommendations to the Board viz a viz the Project Implementation.

### **4. REVIEW AND AMENDMENT IN TOR**

4.1 The Board shall review its Terms of Reference on an annual basis. Any amendment in the Terms of Reference shall be made with the approval of the Board Members of the SMP.

### **5. CONFIDENTIALITY**

5.1 The nature and subject of discussions and deliberations on matters before the Board shall remain confidential until such time as an item is approved by the Board and is allowed to be released publicly.

---

# **Final Report: Pakistan School Milk Program**

## Appendix H: GCNF Presentation on COVID-19 Impact on SMP 17 June 2020





# DISCUSSION SCHOOL MILK DURING SCHOOL CLOSURES

JUNE 2020

# THE IMPACT OF COVID-19 GLOBALLY

- Globally, about 1.2 billion schoolchildren – 70 per cent of the world’s students – are currently affected by school closures. (UNICEF EduView, 15 June 2020)
- The situation varies dramatically from country to country (various)

**Child nutrition is  
a vital concern**



**368.5 million children  
across 143 countries**



**who normally rely on school meals for a reliable  
source of daily nutrition must now look to other  
sources**

Source: World Food Programme, 2020

(WFP via UNICEF  
EduView, June 2020)

# BEFORE COVID-10 MALNUTRITION IMPACTED MILLIONS IN PAKISTAN



**↑** Since 1994 stunting & wasting increased by 7% & 3% respectively

**43.7%  
STUNTED**

**15.1%  
WASTED**

**31.5%  
UNDERWEIGHT**

## WHY?



Unsafe food, jeopardized by adulterants /contaminants in milk



Mothers in poor condition; lack of a healthy source of animal food, including milk



Poor sanitation and hygiene

Nutrient	Approx. Deficiency Overall
Calcium	55%
Protein	17%
Iron	37%
Vitamin D	54%
Vitamin A	55%

\*Source: Government of Pakistan (Planning Commission) National Nutrition Survey (NNS) 2011

# THE SITUATION IN PUNJAB PROVINCE PRE-COVID-19

Before COVID-19, the situation was already bad in Punjab COVID-19 (and students did not receive food or milk at school). Net enrollment was as low as 50% in some districts; child nutrition was a significant challenge.

NET ENROLLMENT RATE AT THE PRIMARY LEVEL (AGE 6-10) BY DISTRICT

	URBAN			RURAL			TOTAL			RANK
	Male	Female	Total	Male	Female	Total	Male	Female	Total	
Punjab	81	79	80	70	62	66	73	67	70	
Islamabad	84	92	87	93	95	94	87	93	90	
Attock	86	88	87	87	84	85	87	85	86	4
Rawalpindi	83	83	83	69	76	73	76	80	78	10
Jhelum	91	87	89	96	87	92	94	87	91	1
Chakwal	82	87	84	93	87	90	91	87	89	2
Sargodha	72	75	73	75	65	70	74	68	71	19
Bhakhar	83	74	78	69	68	69	71	69	70	21
Khushab	81	60	71	71	67	69	74	65	70	23
Mianwali	84	80	82	76	61	68	77	64	70	20
Faisalabad	84	87	86	72	72	72	77	78	78	11
Chiniot	77	79	78	65	63	64	68	68	68	28
Jhang	82	81	81	70	61	65	72	65	69	26
Toba Tek Singh	83	86	84	75	74	74	76	76	76	13
Gujranwala	79	81	80	68	72	70	74	76	75	15
Hafizabad	68	83	75	70	66	68	70	71	70	22
Gujrat	83	90	86	83	71	78	83	77	80	9
Mandi Bahauddin	96	87	91	76	82	79	79	83	81	7
Sialkot	91	88	89	83	83	83	85	84	85	5
Narowal	92	87	89	78	83	80	80	84	82	6
Lahore	85	70	77	85	55	71	85	67	76	14
Kasur	75	77	76	62	69	66	65	71	68	27
Sheikhupura	81	74	78	75	69	72	77	70	74	16
Nankana Sahib	78	80	79	77	74	76	77	76	77	12
Okara	74	89	81	87	75	81	84	78	81	8
Sahiwal	91	82	86	75	68	71	77	70	73	17
Pakpattan	86	78	84	77	65	71	79	66	73	18
Vehari	56	78	70	76	62	69	73	65	69	24
Multan	74	81	77	66	57	62	68	64	66	29
Lodhran	77	73	75	62	52	57	64	55	60	32 ✓
Khaneewat	84	82	83	71	61	66	73	65	69	25
D.G.khan	90	83	87	71	51	62	73	54	64	30 ✓
Rajanpur	80	87	83	52	40	47	56	47	52	34
Layyah	85	92	89	90	85	87	89	86	87	3
Muzaffar Garh	79	90	84	69	48	58	70	51	61	31 ✓
Bahawalpur	73	74	74	47	40	44	52	48	50	35 ✓
Bahawalnagar	66	69	68	64	48	57	64	53	59	33 ✓
Rahim Yar Khan	77	69	73	50	41	46	53	46	50	36 ✓

Source: PSLM\_2014-15  
National-Provincial-  
District\_report

Under-nutrition status: Punjab		%age
Source: Punjab Multiple Indicator Cluster Survey 2017-18		
Stunted ( low height for age)		31.5
Wasted (low weight for height)		7.5
Underweight (low weight for age)		21.2
Micronutrient deficiency status: Punjab		%age
Source: National Nutrition survey, 2011		
Vitamin D		42
Zinc		35
Iron		48



# PUNJAB PROVINCE SITUATION IN TARGET DISTRICTS

- The situation was bad for Primary school children before COVID-19: In the Pilot SMP target districts. For example, 28% of primary school-age children were out of school, and as many as 47% of children under five were stunted.

Total # of children of eligible age group	392,078
Total # of out-of-school children*	152,910

Education Source:

PSLM\_2014-15\_National-Provincial-District\_report

Nutrition Source:

Multiple Indicator Cluster Survey 2017-18

Percentage of children under age 5 by nutritional status according to three anthropometric indices: weight for age, height for age, and weight for height, Punjab, 2017-18						
	Weight for Age - Underweight		Height for Age - Stunted		Weight for Height - Wasted	
Punjab	21.2		31.5		7.5	
District						
Bahawalpur	26.6	✓	36.8	✓	8.6	✓
Bahawalnagar	26.8	✓	39.4	✓	7.4	
RY Khan	33.3	✓	46.1	✓	8.6	✓
DG Khan	32.0	✓	46.4	✓	8.9	✓
Layyah	16.7		29.6		7.0	
Muzaffargarh	24.4		39.2	✓	6.1	
Rajanpur	33.6	✓	47.4	✓	8.7	✓

- Now, schools in Punjab are closed indefinitely, including Primary and Non-Formal Basic Education schools in both rural and urban areas (GCNF local consultant team June 17)

# NORMAL CHALLENGES ARE WORSENERED BY COVID-19

## Existing infrastructure challenges in SFP Covid-19 highlights need for increased food safety

- ▶ Lack of access to electricity or inconsistent supply
- ▶ No kitchens to prepare school meals
- ▶ Lack of potable water
- ▶ Deficient infrastructure of schools
- ▶ Lack of roads require other means of delivery
- ▶ Flooding during the rainy season
- ▶ Covid-19 adds new challenge



**Tetra Laval**

# GLOBAL 'SCHOOL MEAL' RESPONSES TO COVID-19

## Alternative measures to school meals

- **16 countries** are implementing **take home rations**.  
(Cambodia and Liberia 1 month rations, Gambia 2 month rations, Congo and Chad 3 months)
- **24 countries** are identifying right **alternative mechanism**
- **5 countries** are channelling stocks through **social protection systems** targeting the same vulnerable families  
(Jordan, Kenya, Syria, guinea, CAR)
- **7 countries** are keeping food stock **until schools re-open**  
(Nepal, Bolivia, Iraq, etc)

(WFP presentation in GCNF webinar, May 7, 2020)





# AT LEAST 10 COUNTRIES ARE PROVIDING MILK: 6 EXAMPLES

## China

### School milk distribution modalities during COVID-19

- ▶ MoE, Dairy Association of China, suppliers working in coordination
- ▶ Parents pick-up milk at school
- ▶ On-line orders and non-contact delivery to facilitate the ordering and distribution of school milk to students' homes.
- ▶ Student info used: ID, school, class, and parents' contact number
- ▶ Delivery to storage cabinets providing a password by mobile



Source: Tetra Pak China

## Dominican Republic

### Food pick-up at schools during COVID-19

- ▶ Parents pick-up UHT milk and biscuits at their childrens' schools
- ▶ Specific pick-up time assigned by school and grade
- ▶ Maximum 40 parents per school at a time
- ▶ Social distancing with lines no more than 10 people
- ▶ Schools cleaned and hygiene protocols established

#### MINERD e INABIE elaboran protocolo para distribuir alimentos a estudiantes



Santo Domingo, RD. El Ministerio de Educación informó este miércoles que en coordinación con el Instituto Nacional de Alimentos (INABIE) y los áreas técnicas pedagógicas y de control de este ministerio, elaboró los protocolos que serán implementados para distribuir los alimentos a los estudiantes y así mantener la asistencia escolar en modalidad no presencial, acorde al periodo en que estará suspendida la matrícula en los centros escolares, como prevención ante la situación actual del desarrollo de la enfermedad.

Dijo que los protocolos están siendo elaborados respecto las acciones de la Organización Mundial de la Salud (OMS) y los protocolos presentados en materia de alimentos para proteger a la población.



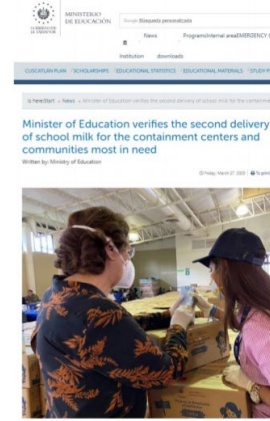
Source: <https://toda.com.do/2020/03/13/minerd-e-inabie-elaboran-protocolo-para-distribuir-alimentos-a-estudiantes>

Tetra Laval presentation in GCNF webinar, May 7, 2020

## El Salvador

### School milk distribution through containment centers

- ▶ Ministry of Education is overseeing the delivery of UHT milk, rice, beans and cereal
- ▶ Food deliveries are being prioritized to vulnerable communities through containment centers
- ▶ Hygiene protocols and verification process of recipients established



## New Zealand

### Weekly home deliveries of school lunches

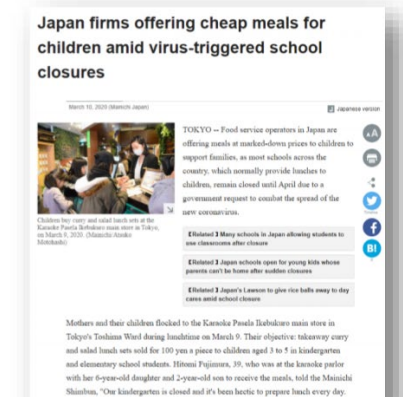
- ▶ *Eat my Lunch* provides home deliveries including a box of food items
- ▶ Weekly deliveries
- ▶ UHT milk, vegetables, bread, fruit, canned ham, and tuna
- ▶ Scaling up depends on funding as the “buy one, give one” model is no longer in place



## Japan

### Take-away meals provided by food service operators

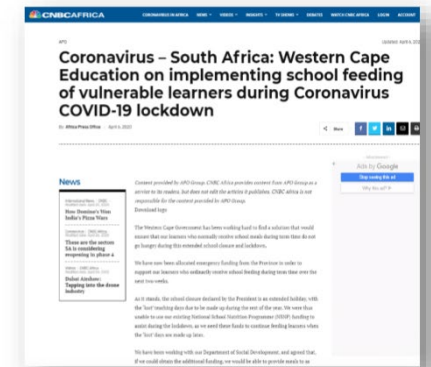
- ▶ SFP food service operators are offering “take-away” meals
- ▶ Marked-down prices to support families
- ▶ Parents can pick-up the meals
- ▶ Typical lunches include milk, rice, vegetables, and curry



## South Africa

### Delivering food via provincial nutrition centers

- ▶ Department of Nutrition is coordinating with the Department of Disaster Relief
- ▶ Take-away food parcels
- ▶ Districts communicate scheduled distribution days
- ▶ Permits provided for volunteers and school staff to mobilize and manage the process



# IS MILK FOR SCHOOL-AGE CHILDREN IN TARGET DISTRICTS AN OPTION DURING SCHOOL CLOSURES DUE TO COVID-19?

## PROS

- The need exists
- Milk and dairy processors are available
- SMP pilot planning is already underway and most of the work done to date applies
- Data is available re schoolchildren so targeting and monitoring is possible
- Some forms of food support are already being implemented in Punjab; potential for milk “piggybacking” on those
- Could be a strong incentive to entice children back to school when schools re-open
- Link to COVID-19 might open new sources of funding
- GCNF team is already being asked “What happens to your pilot idea if schools are closed?”
- Flexibility to provide milk whether or not there are school closures may be important for ‘saving’ the pilot SMP in the event schools remain closed

## CONS

- There is not an operational school milk program up and running that can pivot to reach out-of-school children
- Complicates the planning process
- While nutrition goals objectives could still be addressed, it would be very challenging to link to educational objectives, since virtual education doesn’t currently exist in Punjab
- Question of whether Education and Health ministries be logical for leading the effort if not-school based
- Delivery process likely to be much more complicated if distribution is not located in schools
- Likely to be more costly due to additional complications
- May be hard to match school data for targeting when schools are closed
- Has not been fully vetted within the GCNF team
- Not envisioned in the IFC Consultancy; contract might require re-negotiation



# Final Report: Pakistan School Milk Program

## Appendix I: GCNF Research on Lactose Intolerance and Proposed Remedies

- Hafsa Ahmed Khan and Muhammad Mustafa. “Lactose Intolerance – a normal abnormality”. Forman Christian College University, Lahore Pakistan. September, 2019.
- Nizami, S. Q., et al. “Efficacy of Traditional Rice-Lentil-Yogurt Diet, Lactose Free Milk Protein-Based Formula and Soy Protein Formula in Management of Secondary Lactose Intolerance with Acute Childhood Diarrhoea.” Journal of Tropical Pediatrics, vol. 42, no. 3, 1996, pp. 133–137., doi:10.1093/tropej/42.3.133.
- Kanth, Neel, et al. “Prevalence of Lactose Intolerance and Its Association with Malnutrition in Children.” National Journal of Health Sciences, vol. 4, no. 3, 2019, pp. 103–109., doi:10.21089/njhs.43.0103.
- Szilagyi, Andrew, and Norma Ishayek. “Lactose Intolerance, Dairy Avoidance, and Treatment Options.” Nutrients, vol. 10, no. 12, 2018, p. 1994., doi:10.3390/nu10121994.

[Download the resources at this link.](#)



# MANAGING RISKS WITH MILK FEEDING

Excerpt from GCNF's final Joint Presentation outlining closing recommendations on how Lactose Intolerance ought to be addressed within the scope of the project

## Lactose Intolerance

### Pre-feeding strategy

1. History of the parents/children during research phase (being a genetic disorder)
2. Awareness sessions with parents/ teachers regarding the issue and its management
3. Development of IEC (Information, Education, and Communication) materials for parents/teachers

## Drinking Milk Empty Stomach

### Pre-feeding strategy

- Avoid giving milk empty stomach;  
Recommended to take during school lunch break

## Drinking Spoilt Milk

### Containment strategy

1. Stop the feeding process
2. Isolate the suspected batch
3. Inform site supervisor
4. Contact hotline for reporting
5. In case of reaction, contact closest doctor

### Post-feeding strategy

1. Simple observation of foul/rotten egg smell after taking milk
2. Avoid large servings of milk; project has recommended 200ml of milk
3. Frequent use of traditional diet rice lentils and yogurt\*
4. Directions should be written on the box to discontinue in case of diarrhea/bloating
5. In case of severe reaction, visit doctor

### Escalation Process & Crisis Management

1. Site supervisor to contact Program Director and Communication in-charge
2. Program Director to contact all other site supervisors to isolate the suspected batch immediately
3. Program Director to immediately involve supplier responsible for investigation.
4. Parents should be engaged through School Admin
5. Local Health Department should be engaged immediately
6. Board should be updated and a holding statement of the issue should be released

# Lactose Intolerance – a normal abnormality

August 9, 2019September 11, 2019 Muhammad Mustafa

Can you imagine a life without your favorite dairy products? Coming home on a hot summer day and not being able to enjoy ice-cream or a glass of shake sounds pretty bad.



What is even grimmer is having to eat pizza without cheese!! These are just some diet restrictions that people with lactose intolerance have to observe. Lactose intolerance is a condition in which the individual experiences gastrointestinal symptoms such as abdominal pain, bloating, diarrhea, excessive flatulence and in severe cases, cramps and nausea.

Lactose maldigestion or hypolactasia can appear either as a result of genetic makeup or due to an infection resulting in severe damage to intestinal mucosa. Since lactose is a common [disaccharide](#) and a part of many foods of daily consumption, it is of utmost importance that a person showing sensitivity to lactose be well aware of his specific body needs.

Some lactose intolerant individuals can consume milk and dairy products without developing the symptoms, others however need some kind of lactose restriction. The nature of symptoms and severity is purely personal and changes with age and various physiological conditions.

Despite of the fact that lactose is the most important source of energy for an infant, providing more than half of the total energy requirement, yet it has no special nutritional importance for adults.

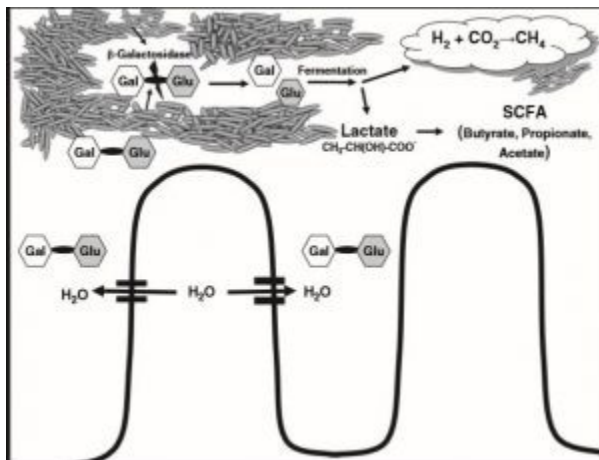
This disaccharide is extensively used in food industry for instance in various sweets, confectionery, bread and sausages because of its property to bind with water and give the specific food a good texture and color. Fun fact that as far as sweetness is concerned, lactose is one third as sweet as saccharose and less than half as sweet as glucose.

## How does lactose sensitivity work?

Lactase enzyme present in the microvilli of small intestine is responsible for splitting and hydrolyzing the lactose taken through diet into glucose and galactose. These monosaccharides are then assimilated into the body. Improper absorption of lactose can take place due to two reasons: either complete absence of lactase termed as Alactasia or deficiency of lactase termed as Hypolactasia.

This can result in increased influx of fluids into the bowel resulting in diarrhea like conditions, as shown in the figure 1. Furthermore, the lactose is acted upon by **bacteria** present in the colon. This fermentation results in cleavage of lactose into monosaccharides which also draws more fluids into the bowel along with the release of gaseous by-products.

**Figure 1**



The presence of disaccharides in the jejunum causes influx of water and fluids leading to diarrhoea like conditions. Fermentation of lactose results in production of fatty acids and gases like carbon dioxide (CO<sub>2</sub>), hydrogen (H<sub>2</sub>) and methane (CH<sub>4</sub>).

## What are the different types of lactose sensitivities?

There are generally three basic types of hypolactasia; primary, secondary and the extremely rare congenital Alactasia. Primary adult hypolactasia is the most prevalent. It is characterized by presence

of relatively low levels of Lactase and develops during childhood at various ages. Secondary Lactase deficiency results from infection or injury to bowel mucosa.

There can be many reasons for that, such as acute gastroenteritis, persistent diarrhea, small bowel overgrowth, cancer chemotherapy etc. congenital alactasia is a rare autosomal recessive enzyme defect in which the infant has no expression of Lactase from birth and therefore cannot digest breast milk.

With the development of soybean derived infant formulas and lactose free dairy products in the 20<sup>th</sup> century, the survival rate of infants born with congenital alactasia increased. There is also a newly defined type of hypolactasia known as developmental Lactase deficiency. In this type, the symptoms are observed in preterm infants of less than 34 weeks of gestation.

## What are the trends?

A normal individual loses 90 to 95 percent of birth Lactase levels by early childhood and the levels continue to decline throughout life. As a result of surveys conducted to find the prevalence of hypolactasia in different ethnic groups, a range of results were obtained. It was found that only 2% North Europeans have this condition while nearly 100% adult Asians and American Indians are prone to be lactose intolerant.

The ethnic groups with African roots had a prevalence of 60 to 80% while Latinos showed 50 to 80% positive results. Due to the presence of such a huge number of people experiencing poor digestion of lactose and lactose containing foods, it is often argued that lactose sensitivity is a “natural” or “normal” phenomenon that occurs with age.

## How can it be diagnosed?

There are two main methods by which lactose intolerant individuals can be screened; direct and indirect. The direct methods include measuring the levels of mucosal disaccharides in the intestines. Indirect methods include various breath tests like the breath hydrogen test, the measurement of breath  $^{13}\text{CO}_2$  after consumption of  $^{13}\text{C}$ -lactose and checking breath radioactivity after  $^{14}\text{C}$ -Lactose ingestion.

Hydrogen, methane and carbon dioxide is produced when intestinal bacteria consume lactose and break it down to fatty acids and gaseous by-products (**Figure 1**). Urine tests which measure levels of galactose using an enzyme strip are also employed for the diagnosis of hypolactasia.

Measuring stool pH and paper chromatographic tests for recording sugar levels in the faeces are less reliable tests and are not recommended. Lastly, a good clinical history may prove to be very important in linking the symptoms with presence of this condition.

## How can it be managed?

Being lactose intolerant doesn't mean that the individual is allergic to milk. Milk sensitivity in fact arises when the body reacts towards the proteins present in the milk. The degree of lactose sensitivity differs in each individual and is very personal.

That is why the diet restrictions that should be observed in order to avoid symptoms should be based on the individual's experience and clinical history. Most patients do not require a totally lactose free diet and it is in their best interest too. Why? Because dairy products are the key source of calcium (75%), vitamin A and D, riboflavin and phosphorus in our diet.

It is recommended to the adult patients to keep a regular intake of calcium supplements ranging from 1200 to 1500 mg per day. Milk consumption is commonly limited to about 250 to 373 mL per day.

Using lactose reduced milk, soy milk or rice milk and avoiding medications that use lactose as a filler are also helpful ways in which we can avoid the development of symptoms. Individuals with hypolactasia should be educated regarding their sensitivity.

Workplaces and restaurants or common food places should be made user friendly for patients following a strictly restricted diet. Gastrointestinal symptoms due to milk are very common and quite often may occur regardless of any sensitivity to lactose. It is very important to carefully diagnose hypolactasia before any diet restrictive steps are taken.

Several authors consider the condition to be overrated or hyped up due to the varying amounts of the degree of symptoms that occur in patients. This range of symptoms however does not imply that people experiencing poor lactose digestion should be overlooked, because for them the symptoms are painful and exhausting. Research has been done and is still being continued in this field to find better diagnostic methods that we can use in our routine life.

Although hypolactasia rarely leads to life threatening symptoms, it is still responsible for a great deal of discomfort for the patients. Disrupted quality life, loss of attendance, leisure, sports activities and work time can be a major cause of annoyance for patients.

Therefore it is important to address the symptoms from an early age. We should provide not only the appropriate education to the masses regarding the condition but also encourage them to be supportive and cooperative towards such individuals.

*Authors: Hafsa Ahmed Khan and Muhammad Mustafa*



Muhammad Mustafa

Assistant Professor  
Forman Christian College University, Lahore Pakistan



# Lactose Intolerance in Persistent Diarrhoea During Childhood: The Role of A Traditional Rice-Lentil (Khitchri) and Yogurt Diet in Nutritional Management

Pages with reference to book, From 20 To 24

Zulfiqar A. Bhutia, S.Q. Nizami ( Department of Paediatrics, The Aga Khan University, Karachi. )  
Zeenat Isani ( The National Institute of Child Health, Karachi. )

## Abstract

Lactose intolerance is frequently encountered in children with persistent diarrhoea (PD). Selection of an appropriate milk-based formulation is a major management problem in the developing world. In a consecutive series of studies, we evaluated the role of feeding a traditional rice-lentil (khitchri) diet alone (KY) or in combination with either soy formula (KY-Soy) a dilute buffalo milk (KY-B), in children (age 6 months-3years) with PD. Serial observations of stool output, caloric intake and weight gain of these children over a 14 day period indicated satisfactory tolerance of the KY diet with adequate weight gain. The weight gain and stool output was however higher in lactose intolerant children, with the worst results seen with K-Y and buffalo milk combination, While lactose intolerant children with PD do have higher. rates of therapeutic failure, our data indicates that a traditional diet and yogurt combination can be used satisfactorily for nutritional rehabilitation in over 80% of such children (JPMA 47:20, 1997).

## Introduction

Persistent diarrhoea is widely recognized as a leading cause of diarrhoea associated mortality in childhood<sup>1</sup> and appropriate nutritional rehabilitation is considered a cornerstone of management<sup>2,3</sup>. A large proportion of children with PD are seen in the wake of lactation failure and following the introduction of animal milk feeds<sup>4</sup>. The selection of a suitable diet for rehabilitation is thus crucial. Although cow's milk protein intolerance has also been suggested as of major etiological importance in PD. the most common clinical problem encountered in dietary selection is one of possible lactose intolerance.

Intestinal lactase is one of the most vulnerable disaccharidase enzymes in the intestine and can be adversely effected by infectious diarrhoea<sup>6,7</sup>. The consequence of lactose malabsorption and continued milk feeding include osmotic diarrhoea and increased stool output. While several studies have failed to find a clear correlation between intestinal mucosal histopathological findings and disaccharidase levels<sup>8,9</sup>, Nichols et al have demonstrated a close relationship between enterocyte damage and lactase/isomaltase activity<sup>10</sup>. Malnourished children may have a comparative higher incidence of lactase deficiency and although satisfactory tolerance of milk containing feeds has been shown in several feeding regimens<sup>12,13</sup>, such malnourished children with PD may behave differently. Although potential lactose intolerance in children with chronic diarrhoea has been recognized for a long time<sup>14</sup>. definitive evidence of adverse effects of lactose or milk feeding in PD has only been shown relatively recently<sup>15,16</sup>. In a randomized controlled trial of administering lactose containing feeds or hydrolysed lactose to well nourished children with PD. Penny et al demonstrated an increased stool output and faecal carbohydrate excretion<sup>15</sup>. Current recommendations of feeding children with PD thus suggests a reduction of lactose intake<sup>17</sup>.

Such reduction of lactose intake in children with PD who are not receiving significant amounts of breast milk, creates considerable practical problems in the developing world. Special lactose-reduced or soy-based formulas are not only prohibitively expensive, but also not freely available. Alternative dietary regimens not containing sufficient amounts of milk or milk-substitutes, are frequently unpalatable and not consumed in sufficient quantities by young infants. The challenge is therefore, to identify a suitable milk-based dietary regimen for malnourished children with PD which are well tolerated and nutritionally adequate. In a consecutive series of studies between 1987 and 1991, we evaluated the role of a traditional rice-lentil (Khitchri) diet and yogurt (KY) in feeding malnourished children with PD and found it to be well tolerated<sup>18-19</sup>. While the overall efficacy of this form of dietary intervention in PD is well established, the role of the KY diet and its various combinations in lactose intolerant children is unknown. In this report, we present an evaluation of this dietary regimen in children with PD and varying degrees of lactose-intolerance based on a reanalysis of data from the aforementioned two studies.

## **Patients and Methods**

In two consecutive randomized controlled trials, malnourished children with PD were allocated to receive the KY diet, either singly, or in combination with isocaloric amounts of soy formula (KY-S) or dilute buffalo milk (KY-B) and compared with a control diet of standard soy formula. The overall study design, nutritional and diarrheal outcome have been previously described<sup>18-19</sup>. Briefly, malnourished children with PD (diarrhoea lasting >14 days with growth faltering), were recruited from outpatient services at the National Institute of Child Health and admitted to the Diarrhoea Research Ward. Following stabilization and informed consent, these children were allocated to their respective dietary regimen with constant monitoring and documentation of caloric intake, stool and urinary output for 14 days. During this period these children were constantly attended by a research medical officer and nurse, with continuous monitoring of clinical status, weight gain and anthropometric status. In all cases the dietary protocol was standardized to provide a minimum of 100 kcal/kg/day by day 3 of therapy. In addition, breath hydrogen concentrations were measured in the subset of children receiving KY and buffalo milk at admission and days 7 and 14 of dietary therapy. Expired breath samples were obtained via a sealed face mask, collected and sealed in disposable syringes and analyzed on a Quintron breath hydrogen analyzer (Quintron Ltd. USA) for quantification of breath hydrogen content<sup>20</sup>. Metabolic balance studies were also performed on a subset of these children using modified metabolic cots<sup>21</sup>. Protein and fat content of diet, stool and urine were measured by the microkjeldahl method<sup>22</sup> and Van de Kamer procedure<sup>23</sup>, respectively. Total metabolizable energy of dietary intake and excreta was estimated by a diabatic bomb calorimetry. The fecal carbohydrate content was estimated by subtracting energy content due to protein and fat from total metabolizable energy. Lactose intolerance was defined as the presence of > 0.5% reducing substances in the stools on testing with Benedict's reagent, along with a stool pH <5 during the first 72 hours after initiation of dietary therapy. Several outcome variables were evaluated, including caloric intake, stool volume, frequency as well as the average daily weight gain over the two weeks of rehabilitation. Success of therapy was defined as reduction in stool volume and frequency to less than 50% of admission values along with documentation of weight gain for at least three consecutive days. The data was analyzed for comparison of outcome by univariate analysis of dichotomous variables and analysis of variance for continuous data. Significance was set at 0.05.

## **Results**

A total of 126 children were consecutively selected for the study on the traditional KY diet, either singly or in combination with equal volumes of soy formula or dilute (50%) buffalo milk. Of these, 16 were prematurely removed by the parents for inability to stay for the entire 14 days of therapy and 14 dropped out for reason of intercurrent infections. There were 4 deaths and thus overall 92 (73%) of the children randomized to therapy, were able to complete 14 days of nutritional rehabilitation. The KY diet was found to be satisfactorily tolerated in the vast majority of children with a comparable<sup>19</sup> or better<sup>18</sup> nutritional outcome to the soy formula. The overall results of feeding the soy formula have been described previously<sup>18,9</sup> In order to evaluate the role of the traditional KY diet in relation to lactose intolerance, the main focus was on children with PD placed on the KY diet or its combinations during the course of the study.

**Table I. Composition of study diets.**  
(Estimated on feeding a 10 kg child at 100 kcal/kg/day)

Diets	Amount (g)	Protein (g)	Carbohydrate (g)	Fat (g)
KY	1000	34	133	37
KY-B	1000	35	88	56
KY-S	1000	32	116	46

KY Rice-lentil and yogurt diet

KY-B Rice-lentil+yogurt+dilute buffalo milk diet

KY-S Rice-lentil+yogurt+isocaloric Soy formula.

Table I indicates the composition of various diets for these children, The estimated daily lactose intake on these dietary combinations was 1.3,3.4 and 1.3 g/kg/day respectively.

**Table II. Comparison of clinical characteristics on admission.**

	KY	KY-Soy (KY-S)	KY-Buffero (KY-B)
Number	51	49	26
Age (mths)	17.2±7.8	11.9±5.8	13.7±5.8
Weight (kg)	7.34±1.78	6.53±1.47	6.02±1.14
Wt z-score	-3.3±1.4	-3.1±1.1	-3.9±0.8
Height z-score	-2.2±1.6	-1.9±1.2	-2.9±1.1
Diarrhoea duration (days)	44.3±44.6	57.3±58.9	75.6±86.6
Stool frequency (n/day)	10.2±5.1	9.5±3.7	8.1±2.5
Admission Hb (g/dl)	9.4±1.9	9.8±1.9	8.8±1.4

All differences are non-significant.

between the groups for any admission parameters. The overall caloric intake, stool output and nutritional outcome for these therapeutic groups is given in Table III.

Table III. Comparison of overall outcome of feeding groups completing study protocol for 14 days.

	KY	KY-Soy (KY-S)	KY-Bufferalo milk (KY-B)
Number	37	36	22
Caloric intake (kcal/kg/day)	114.2±21.5	120.5±25.3	136.1±26.4
Stool frequency (n/day)	3.9±1.8	5.9±3.2	6.0±3.9
Stool volume (g/kg/day)	40.1±16.6	56.9±60.7	61.3±48.0
Overall weight gain (g/kg/day)	6.9±5.1	7.6±5.7	3.9±5.9
Success of therapy	34 (92%)	31 (86%)	17 (77%)
Deaths	1 (3%)	-	3 (14%)

Systematic tests for analysis of variance did not suggest any major differences between the therapeutic groups for overall nutritional and diarrhoeal outcome. While the differences did not reach significance, there was a trend towards lower weight gain in the group receiving the KY-B combination.

In all 32 (25%) children were found to have evidence of lactose intolerance on the basis of stool pH and reducing substances. No correlation could be demonstrated between stool reducing substances or pH and breath hydrogen excretion (BH).

## BREATH HYDROGEN EXCRETION SEVERE PEM WITH PERSISTENT DIARRHEA

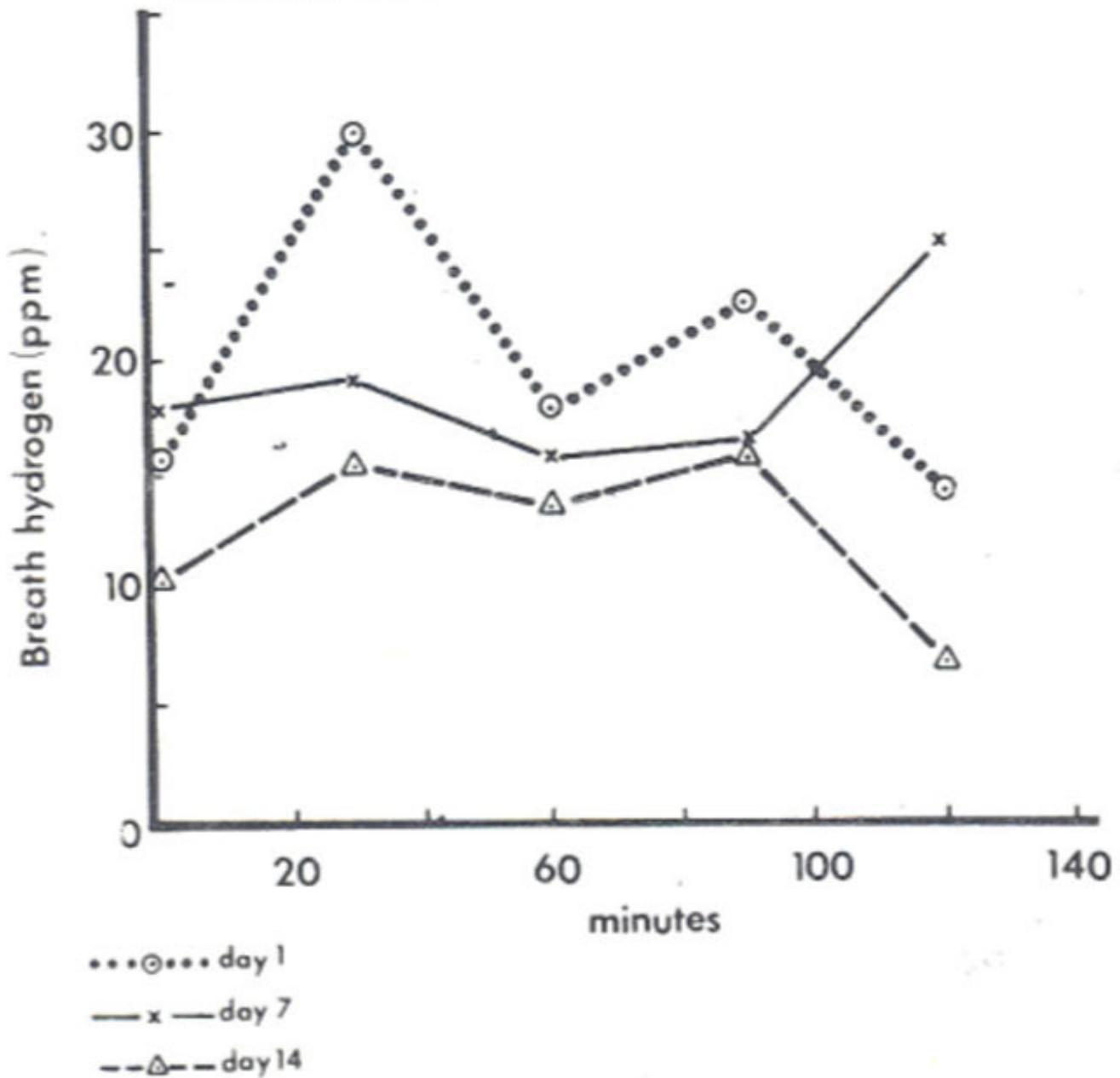


Figure 1. Sequential breath hydrogen excretion values on KY- Buffalo milk feeds.

Figure 1 shows the sequential BH excretion for the study cohort. While a delayed peak was observed in 5 (19%) children, only 6 (21%) demonstrated a classical early peak of breath hydrogen excretion in excess of 20 ppm.

Table IV presents the comparison of the dietary groups and outcome according to the presence or absence of lactose intolerance. The highest rates of stool output were seen in lactose intolerant children receiving the KY-B and KY-S diet.

The lowest weight gain was seen in the lactose-intolerant group receiving the KY-B combination, whereas, lactose-intolerant children on the KY diet tolerated it well and exhibited satisfactory weight

gain.

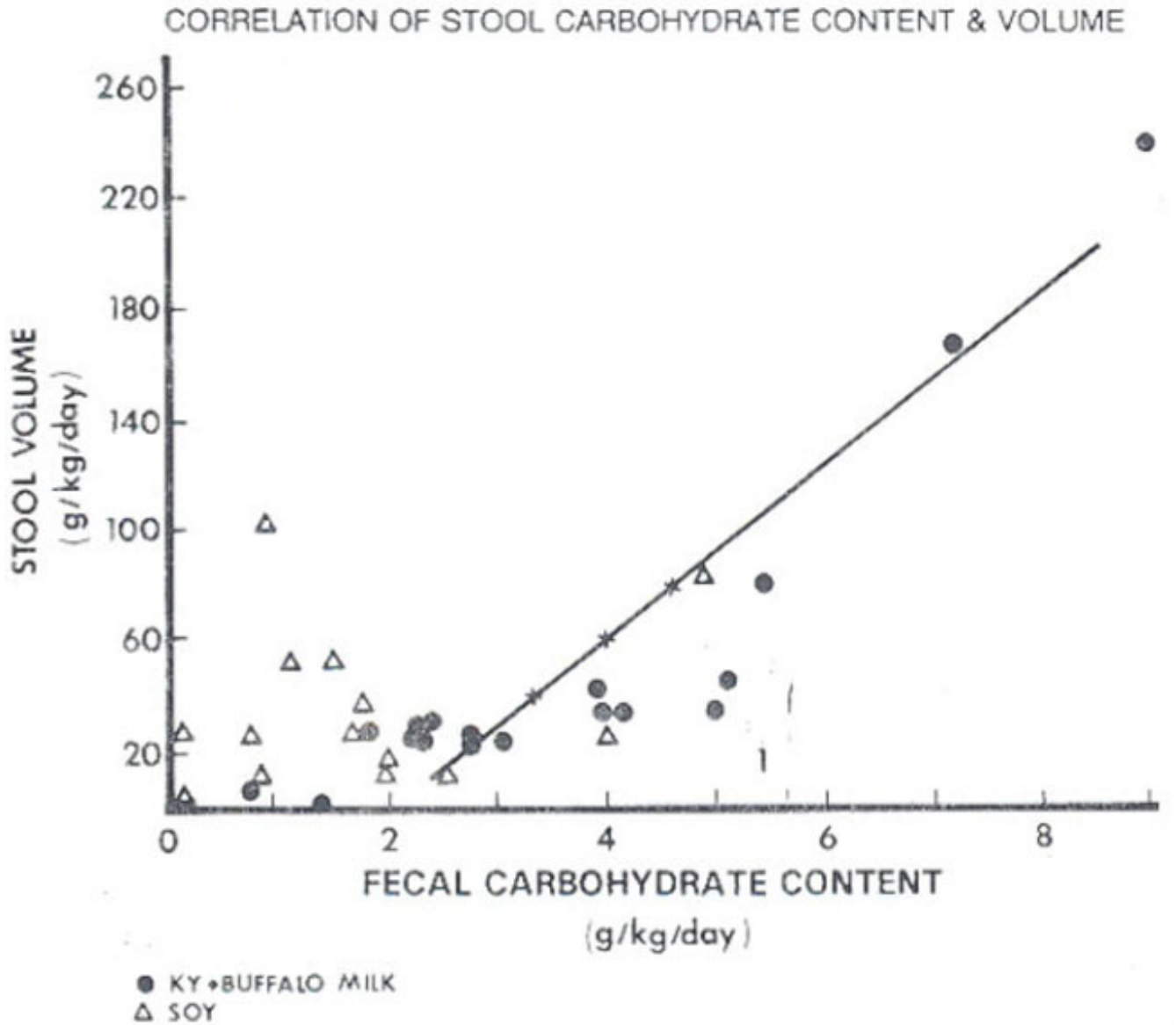


Figure 2. Relationship of stool carbohydrate content and volume.

Figure 2 shows the correlation of stool carbohydrate content and volume in the group of children receiving the KY-B diet who underwent metabolic balance studies, in comparison corresponding values for children receiving a lactose-free soy formula.

### Discussion

The 25% incidence of lactose intolerance as assessed by stool reducing substances and pH, found in this group of children is consistent with currently held views on the prevalence of lactose intolerance in PD<sup>15,16</sup>. Baseline investigations of lactose intolerance including stool reducing substances and pH, failed to identify most of the children who subsequently failed dietary therapy. There was very poor correlation between breath hydrogen excretion rates and clinical or stool evidence of lactose intolerance. Such findings have also been reported by Penny et al<sup>15</sup> and Lifschitz et al<sup>9</sup> and may reflect greater colonic salvage of carbohydrate in this group of infants.



While several definitions of lactose intolerance have been proposed<sup>24</sup>, it is also recognized that several such “lactose-intolerant” malnourished children<sup>25</sup> or those following diarrhoea<sup>26</sup>, may tolerate physiological amounts of milk. Brown et al studied the nutritional outcome of lactose malabsorbing children in Bangladesh on low dose milk supplements and found that most children gained more weight with improved nitrogen retention on milk-containing diets<sup>23,25</sup>. While similar intact cow’s milk feeding to malnourished Guatemalan children resulted in higher rates of diarrhoea, the rates of nutritional recovery was comparable to those receiving hydrolyzed-lactose feeds<sup>27</sup>. It seems however, that children with persistent diarrhoea may behave differently with higher rates of lactose intolerance, although other complex carbohydrate intolerance are possible<sup>27</sup>. Most feeding regimens, therefore, recommend a reduction in lactose and carbohydrate intake<sup>29</sup>. This is an extremely difficult proposition however, in deprived populations as young infants and children deriving a major proportion of their daily energy intake from milk<sup>4</sup>. Given the unacceptable risk of malnutrition with milk removal or dilution, it is recommended that milk-cereal mixtures<sup>30</sup> or fermented milk products be used<sup>31,32</sup>. The most widely used fermented milk preparation is yogurt. Live yogurt is widely used in most parts of South Asia and is recognized to contain an autodigestible form of lactose due to the  $\beta$ -galactosidase activity of *Lactobacillus bulgaricus* and *Streptococcus thermophilus*<sup>33</sup>. The lactase activity of yogurt has been shown to be preserved in the small intestine due to the relatively high local pH as well as slow orocaecal transit time<sup>34</sup>. Several studies of feeding yogurt to children with diarrhoea<sup>35</sup> and giardiasis<sup>36</sup> have shown significant clinical benefit of doing so. Our analysis reveals that although lactose intolerance is seen in a significant number of children with PD, most are able to tolerate up to 2 g/kg/day lactose in the form of yogurt. However, the addition of even half-strength buffalo milk and a daily intake of nearly 3.5-4 g/kg/day lactose in these children resulted in persistently high stool output as well as a poor weight gain. While the contribution of milk protein allergy to the adverse outcome observed on the KY-B diet, is uncertain, the strong correlation between faecal carbohydrate content and volume suggests that carbohydrate, most likely lactose intolerance, was an important factor. No significant benefit was observed with the addition of soy milk to the KY diet and the overall weight gain was comparable to that observed with KY feeds alone. Quite interestingly, the failure rate of therapy was highest among lactose-intolerant children receiving the KY-S combination. Similar findings of poor clinical outcome with soy feeds, have been observed in our studies of feeding lactose-intolerant children with acute diarrhoea on either soy formula or KY diet. We believe that given the satisfactory nutritional response and tolerance of the KY diet in children with PD, that this inexpensive and culturally acceptable dietary combination can be used safely in such children irrespective of lactose intolerance.

## References

1. Anonymous Persistent diarrhoea in children in developing countries: Memorandum from a meeting. Bull. WHO, 1988;66:709-17.
2. Lo, CW. and Walker, WVA Chronic protracted diarrhoea of infancy: A nutritional disease. Pediatrics, 1983;72:786-800.
3. Bhutta, Z.A. and Hendricks, K.H. Nutritional management of persistent diarrhoea: A perspective from the developing world. J. Pediatr. Gastroenterol. Nutr., 1996;22: 17-37.
4. Badruddin, S.H., Islam, A., Hendricks, K.M. et al. Dietary risk factors for acute and persistent diarrhoea in Karachi, Pakistan. Am. J. Clin. Nutr. 1991 ;54:745-9.
5. Walker-Smith, J.A. Cow’s milk intolerance as a cause of postenteritis diarrhoea. J. Pediatr. Gastroenterol. Nutr., 1982;1:163-73.
6. Davidson, OP., Goodwin, D. and Robb, T.A. Incidence and duration of lactose malabsorption in

- children hospitalized with acute enteritis: study in a well nourished urban population. *J. Pediatr.*, 1984;105:587-90.
7. Brown. K.H., Black, R.E. and Parry, L. The effect of diarrhoea on incidence of lactose malabsorption among Bangladeshi children, *Am. J. Clin. Nutr.*, 1980;33 :2226-7.
  8. Calvin, R.T, Klish, WJ. and Nichols, B.L. Disaccharidase activities, jejunal morphology and carbohydrate intolerance in children with chronic diarrhoea. *J. Pediatr. Gastroenterol. Nutr.*, 1985;4:949-53.
  9. Lifschitz, C.H., Bautista, A., Gopalakrishna, G.S et al. Absorption and tolerance of lactose in infants recovering from severe diarrhoea. *J. Pediatr. Gastroenterol Nutr*, 1985;4:942-8.
  10. Nichols, B.L., Carrazza, F., Nichols, V.N. et al. Mosaic expression of brush-border enzymes in infants with chronic diarrhoea and malnutrition. *J. Paediatr. Gastroenterol. Nutr.*, 1992; 14:371-9.
  11. Prinsloo, J.O., Wittmann, W., Kruger, H. et al. Lactose absorption and mucosal disaccharidases in convalescent pellagra and kwashiorkor children. *Arch. Dis. Child.*, 1971 ;46:474-8.
  12. Torun, B., Solomons, N.W., Caballero, B. et al. The effect of dietary lactose on the early recovery from protein-energy malnutrition. 11. Indices of nutrient absorption. *Am. J. Clin. Nutr.*. 1984;40:601-10.
  13. Tolboom, J.J.M., Ralitapole-Maruping, A.P., Mothebe, M. Carbohydrate malabsorption in children with severe protein energy malnutrition. *Trop. Geogr. Med.*, 1984;36:355-65.
  14. Chandra, R.K., Pawa, R.R. and Ghai, O.P. Disaccharide intolerance in the aetiology of chronic and/or recurrent diarrhoea in young children. *Indian J. Med. Res.*, 1969;57:713-7.
  15. Penny, M.E., Paredes, P. and Brown, K.H. Clinical and nutritional consequences of lactose feeding during persistent postenteritis diarrhoea. *Pediatrics*, 1989;84:835-44.
  16. Brown. K. H. and Lake, A. Appropriate use of human and non-human milk for the dietary management of children with diarrhoea. *J. Diarrhoea! Dis. Res.*, 1991 ;9:168-85.
  17. Penny, M.E. and Brown, K.H. Lactose feeding during persistent diarrhoea *Acta Paediatr. Scand.*, 1992; Suppl 381:133-8.
  18. Bhutta, Z.A., Molla, A.M., Issani, Z. et al. Dietary management of persistent diarrhoea: Comparison of a traditional rice-lentil based diet with soy formula. *Pediatrics*, 1991;88:1010-18.
  19. Bhutta, Z.A., Molla, A.M., Issani, Z. et al. Nutrient absorption and weight gain in persistent diarrhoea: Comparison of a rice- lentil/yogurt/milk diet with soy formula. *J. Pediatr. Gastroenterol. Nutr.*, 1994; 18:45-52.
  20. King, C.E. and Toskes, P.P. The use of breath tests in the study of malabsorption. *Clin. Gastroenterol.*, 1993;12:591-610.
  21. Molla, A., Molla, A.M., Sarker, S.A. et al. Effects of acute diarrhoea on absorption of macronutrients during disease and after recovery. In: Chen L C. Scrimshaw, N.S., Eds, *Diarrhoea and Malnutrition*. New York, Plenum, 1983. pp. 143-54.
  22. Horowitz, W. Official methods of analysis of the Association of Official Analytical Chemists. 12th ed., Washington D.C., Association of Analytical Chemists, 1975.
  23. Van-de Kamer, J.H., Huinink, B. and Weyers, A. Rapid method of determination of fat in faeces. *J. Biol. Chem.*, 1949;177:347-55.
  24. Walker, S.J. Diseases of the small intestine in childhood. 3rd Edition. London, Butterworth, 1988.p. 298.
  25. Brown, K H., Khatun, N, Parry, L. et al. Nutritional consequences of low dose milk supplements consumed by lactose- malabsorbing children. *Am. J. Clin. Nutr.*, 1980;33: 1054-63.
  26. Soenarto, Y., Suprpto-Sutrisno, D.S., Sebodo, T. et al. Milk lactose; The amount tolerated in post diarrhoeal children, *Trop. Pediatr. Environ. Child Health*, 1979,25:104-6.
  27. Solomons, N.W., Torun, B., Caballero, B. et al. The effects of dietary lactose on the early recovery from protein-energy malnutrition. I Clinical and anthropometric indices. *Am. J. Clin. Nutr.*. 1984,40.591-600.

28. Lloyd-Still, S.D., Listemick. R. and Buentello. G. Complex carbohydrate intolerance; Diagnostic pitfalls and approach to management. *J. Pediatr.*, 1988,112:709-13.
29. Lifschitz, C.H. and Carrazza, F. Effect of formula carbohydrate concentration on tolerance and macronutrient absorption in infants with severe, chronic diarrhoea. *S. Pediatr.*, 1990; 117:378-83.
30. Brown, K.H., Perez, F. and Gaetanaduy, AS. Clinical trial of modified whole milk lactose-hydrolyzed whole milk, or cereal-milk mixtures for the dietary management of acute childhood diarrhoea. *S. Pediatr. Gastroenterol. Nutr.*, 1991;12; 340-50.
31. Lèmbcke, J L. and Brown, K.H. Effect of milk-containing diets on the severity and duration of childhood diarrhoea. *Acts Paediatr.*, 1992;Suppl 381:87-92.
32. Gendrel, D., Dupont, C., Richard-Lenoble. D. et al. Feeding lactose-intolerant children with a powdered fermented milk. *J. Pediatr. Gastroenterol. Nutr.*, 1990,10;44-6.
33. Kolars. J.C., Levitt, M.D., Savaino, D.A. et al. Yogurt, an autodigesting source of lactose. *N. Engl J. Med.*, 1984;310:1-3.
34. Marteau, P., Flourie, B., Pochart, P. et al. Effect of the microbial lactase (EC 3,2 1 23) activity in yogurt on the intestinal absorption of lactose; an in vivo study in lactase- deficient humans. *Br. J. Nutr.*, 1990;64:71-9.
35. Dewit, O., Boudraa, O., Touhami, M. et al. Breath hydrogen test and stool characteristics after ingestion of milk and yogurt in malnourished children with chronic diarrhoea and lactase deficiency. *J. Trop. Pediatr.*, 1987;33: 177- 80.
36. Manlovani, M.P, Guandalini, S., Ecuba, P. et al. Lactose malabsorption in children with symptomatic *Giardia lamblia* infection; Feasibility of yogurt supplementation *J. Pediatr. Gastroenterol. Nutr.*, 1989;9;295-300.

# **Final Report: Pakistan School Milk Program**

## Appendix J: Information about Dr. Donald Bundy and the First 8000 Days



Nutrition Live Online 2020  
American Society for Nutrition  
May-June 2020

Authors: Donald A.P. Bundy,  
London School of Hygiene and Tropical Medicine  
Mutinta Hambayi, Maree Bouterakos and Michele  
Doura, United Nations World Food Programme



## Why Nutrition in School Age Children Is Important, and Even More Important as a Consequence of COVID?

---

# Learning objectives

---

## **A life cycle approach - 1000 days + 7000 days:**



Describe the role of nutrition interventions in supporting the health and development of children, not only during the first 1000 days, but as part of a continuum of care that extends throughout the 8000 days from conception to adulthood, as part of a lifecycle approach, which contributes to the creation of human capital

## **The neglect of health and nutrition in middle childhood:**



Discuss how health and nutrition during middle childhood (5-9 years of age) has been particularly neglected, yet is a crucially important phase in development for current and future educational achievement, physical and intellectual growth and the establishment of life-long healthy diets and behaviours

## **The school as a platform:**



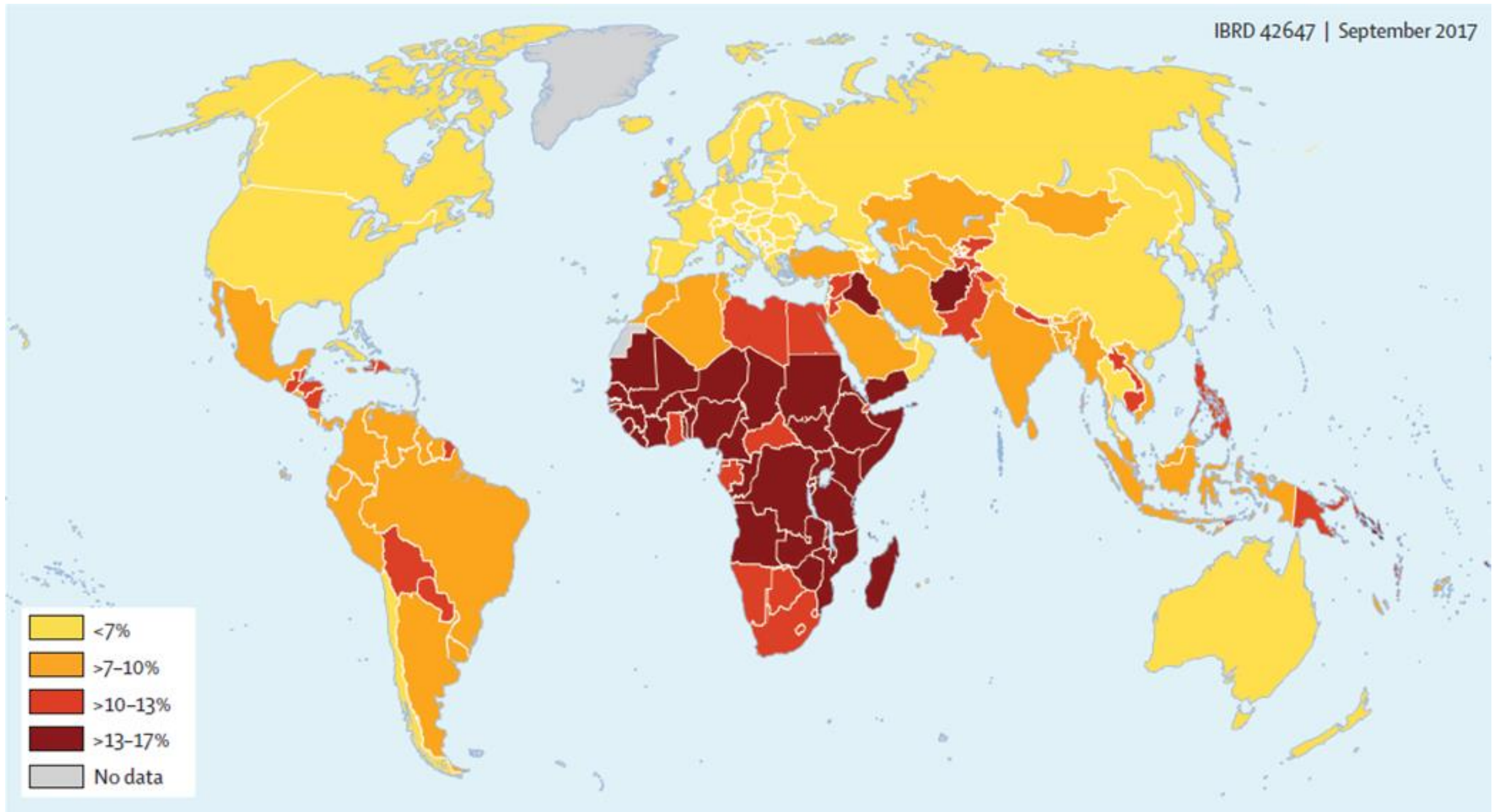
Examine how the school itself can provide an exceptionally cost-effective and timely platform to deliver health and nutrition interventions during middle childhood

## **COVID-19 and school closures:**

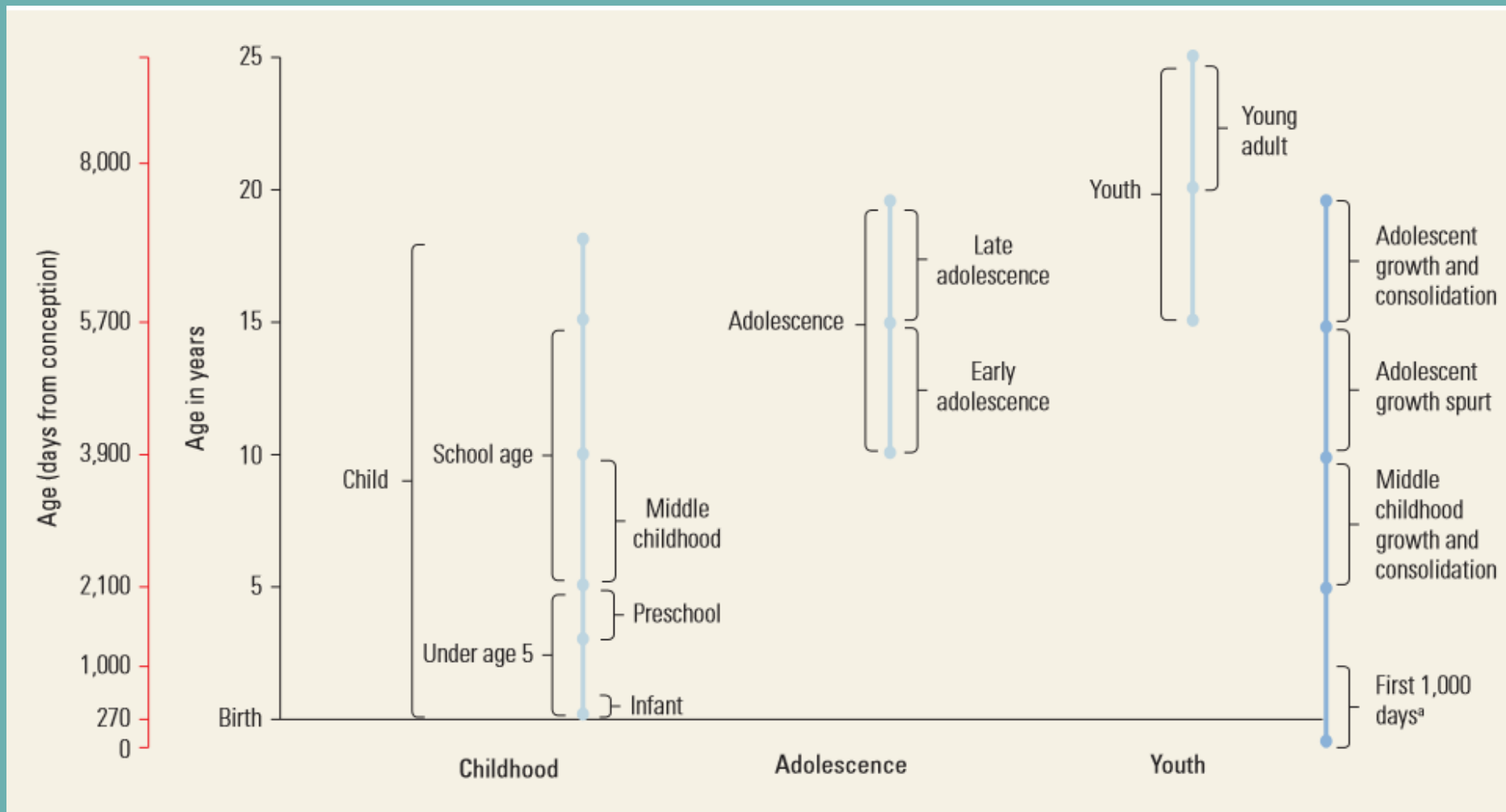


Explore how school closures following the COVID-19 pandemic have excluded children from educational, health and nutrition opportunities, and how school based health and nutrition programmes, especially school feeding can provide a major incentive for the "back to school movement"



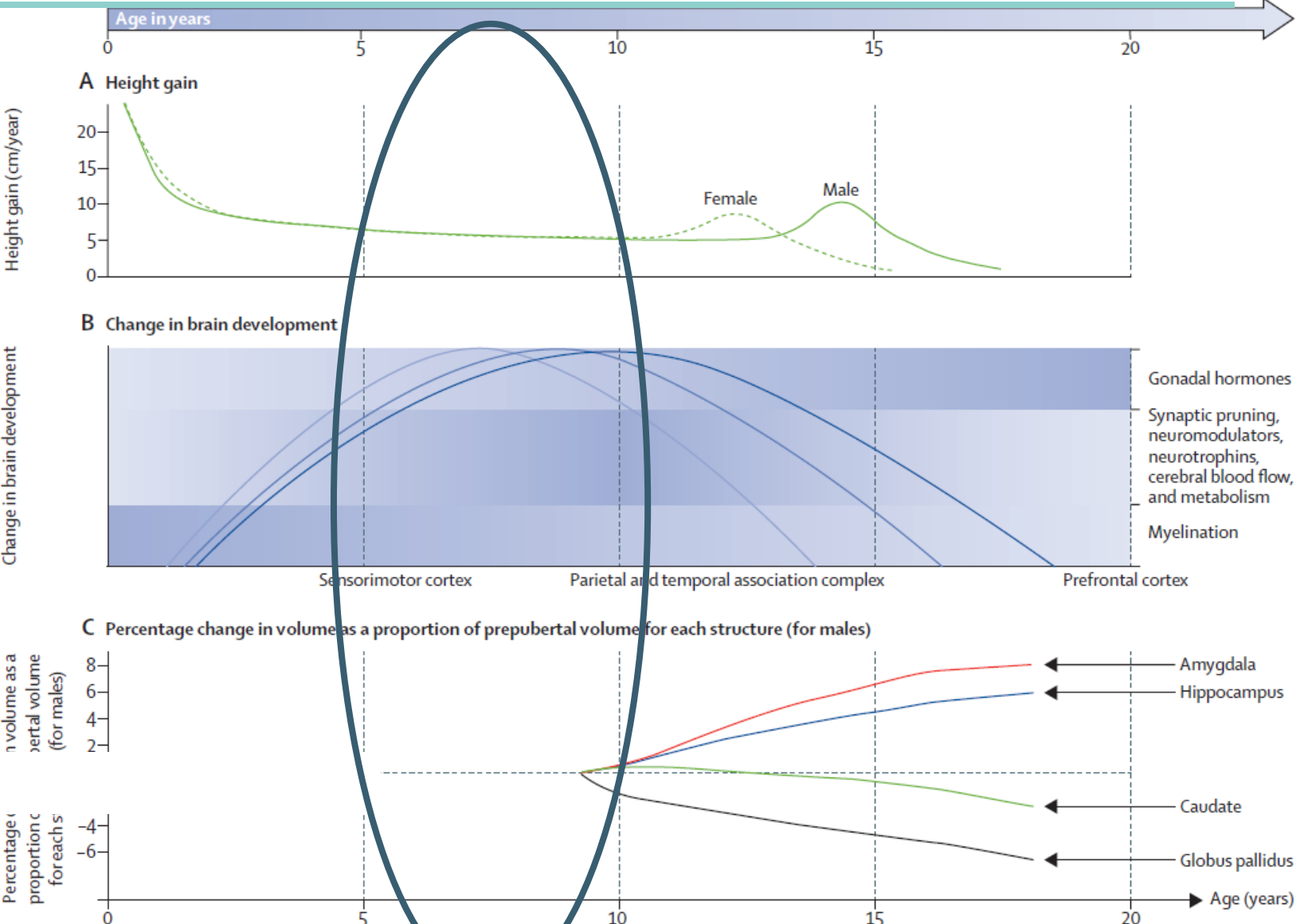


## Proportion of country population in middle childhood



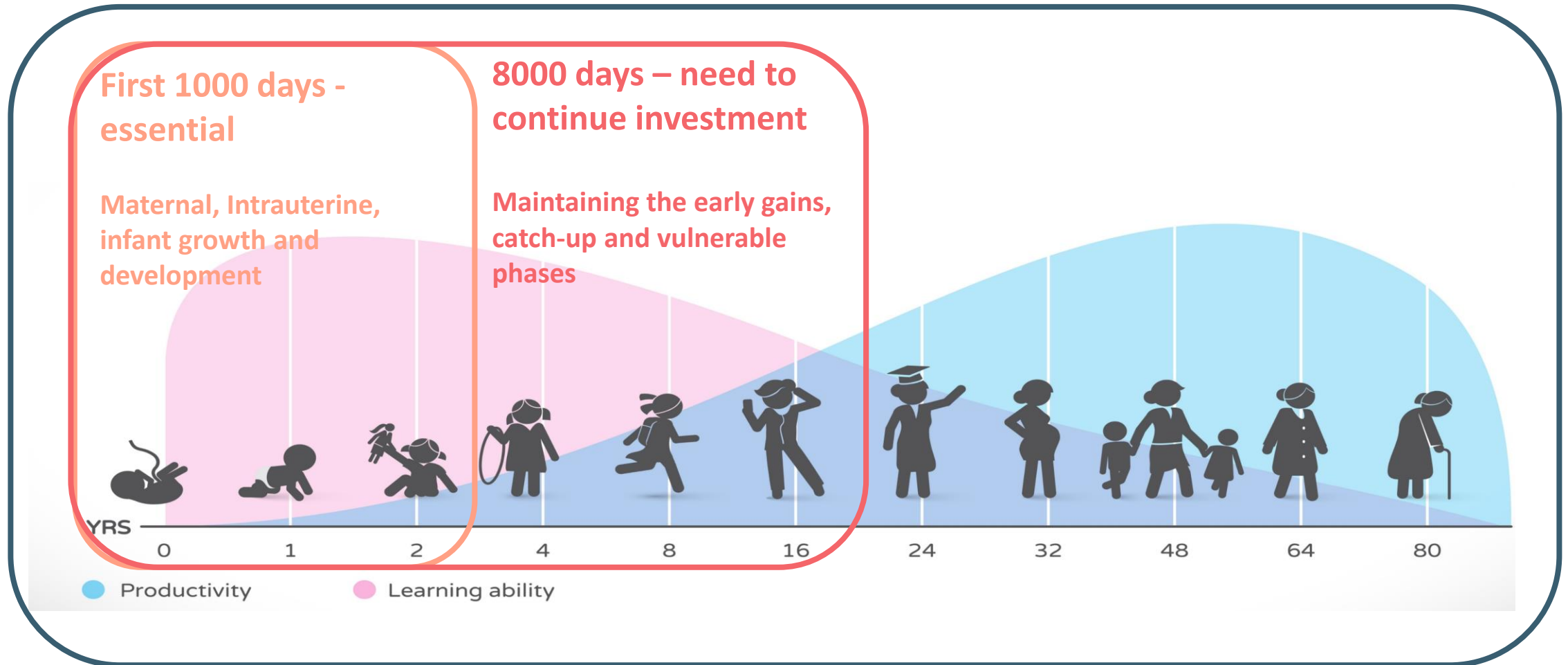
## Middle childhood: a nomenclature

# Human development to 20 years of age



Source: Bundy, D. A. P., N. de Silva, S. Horton, D. T. Jamison, and G. C. Patton, editors. 2017. Child and Adolescent Health and Development. Disease Control Priorities (third edition), Volume 8. Washington, DC: World Bank. doi:10.1596/978-1-4648-0423-6 License: Creative Commons Attribution CC BY 3.0 IGO

# A journey along the life cycle - the importance of promoting healthy growth throughout the first 8,000 days of life



# The 8,000 days: a new paradigm



Focus on the first 1000 days is an essential but insufficient investment



Broadening of investments in human development to include scalable interventions during the 7,000 days can be achieved cost-effectively



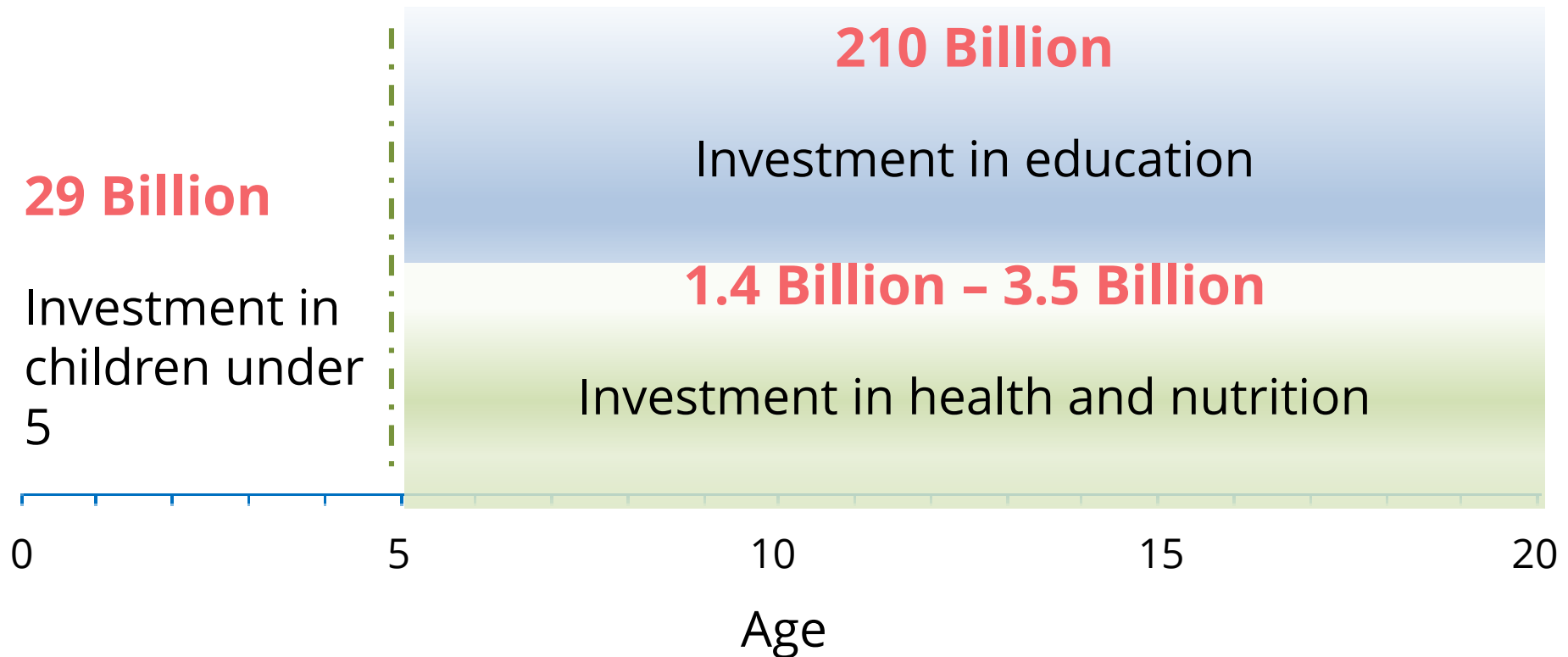
Well-designed health interventions in middle childhood and adolescence can leverage current substantial investments

Bundy, D. A. P., N de Silva, S Horton, D T Jamison, G C Patton. 2017. *Child and Adolescent Health and Development* (with a Foreword by Gordon Brown). Volume 8: in *Disease Control Priorities* (third edition): edited by Jamison D T, R Nugent, H Gelband, S Horton, P Jha, R Laxminarayan, C Mock. Washington, DC: The World Bank

# We are investing in the learning but not in the learner

---

Estimates of public spending on children and adolescents in LLMICs (US\$ billion per year)

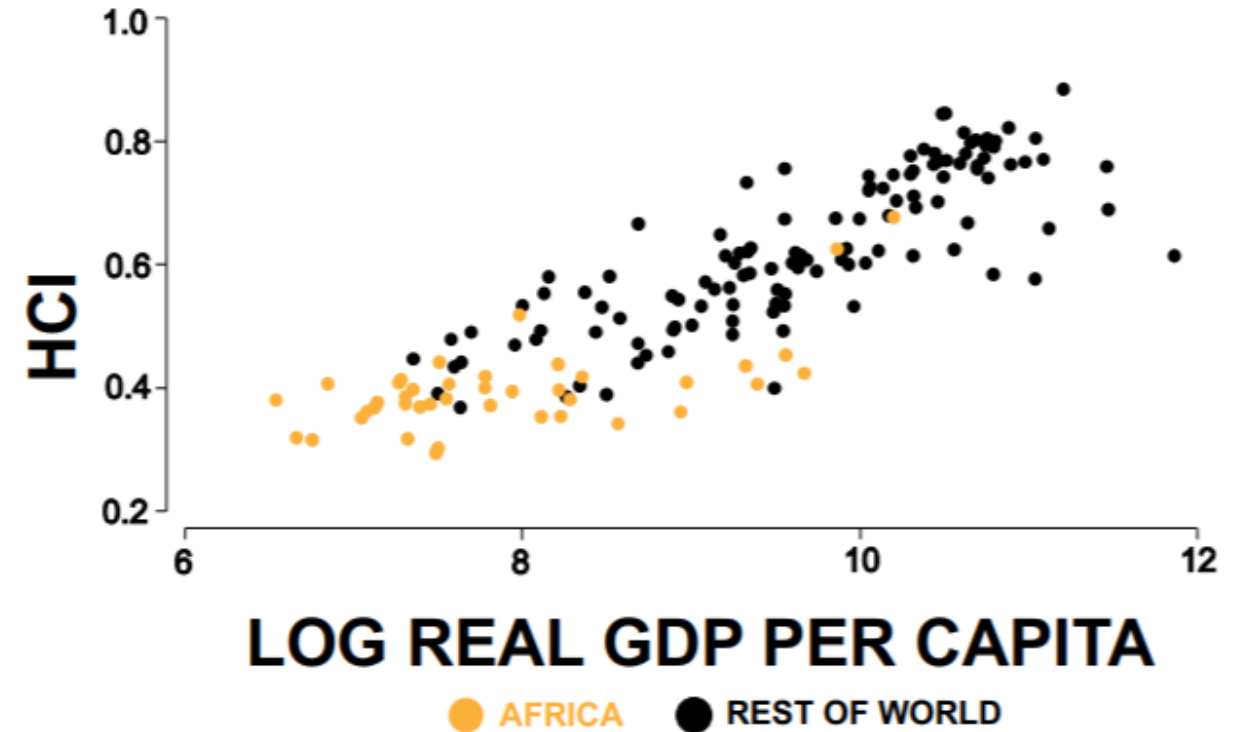




## HUMAN CAPITAL INDEX IS LOWEST IN AFRICA

### Human Capital Index (HCI)

- Human capital is defined **as the sum of a population's health, skills, knowledge, experience, and habits** and seeks to quantify scale of human capital in all countries
- Human capital - largest component of global wealth, but its contribution to wealth in rich countries (70%) far exceeds that in poorer countries (41%)



# **What are the Consequences of neglecting school children?**

---

## Ill-health and malnutrition continue to be a challenge in school-age children


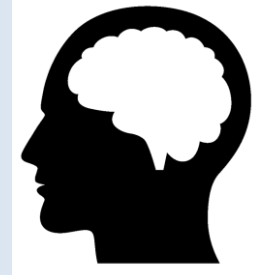

**Survival** remains a concern, due to the high prevalence of infectious diseases, including pneumonia, diarrhea and malaria

**Childhood overweight and obesity** is an escalating epidemic of global proportions

In several low-income countries, overall prevalence of both **stunting and underweight** continues to be high, in both girls and boys

**Iron deficiency anemia** remains a significant concern and increases susceptibility to infection, impairs mental development and learning ability

# Consequences of ill health and malnutrition on children

	<ul style="list-style-type: none"><li>• Impairs the immune system and increases the production of stress hormones</li><li>• Increases the risk of morbidity</li><li>• Higher risk of developing non-communicable diseases</li></ul>
	<ul style="list-style-type: none"><li>• Psychologic stress</li><li>• Stigmatization, bullying and low self-esteem</li><li>• Impairs cognition</li></ul>
	<ul style="list-style-type: none"><li>• Childhood malnutrition leads to increased risk of malnutrition and risk of ill-health and premature mortality that carries through adult life</li></ul>



- Poor school performance
- School absence



**Negative impact on future potential and human capital growth**

# **Middle Childhood: The Cross-Roads of Life-Long Behaviours**

---

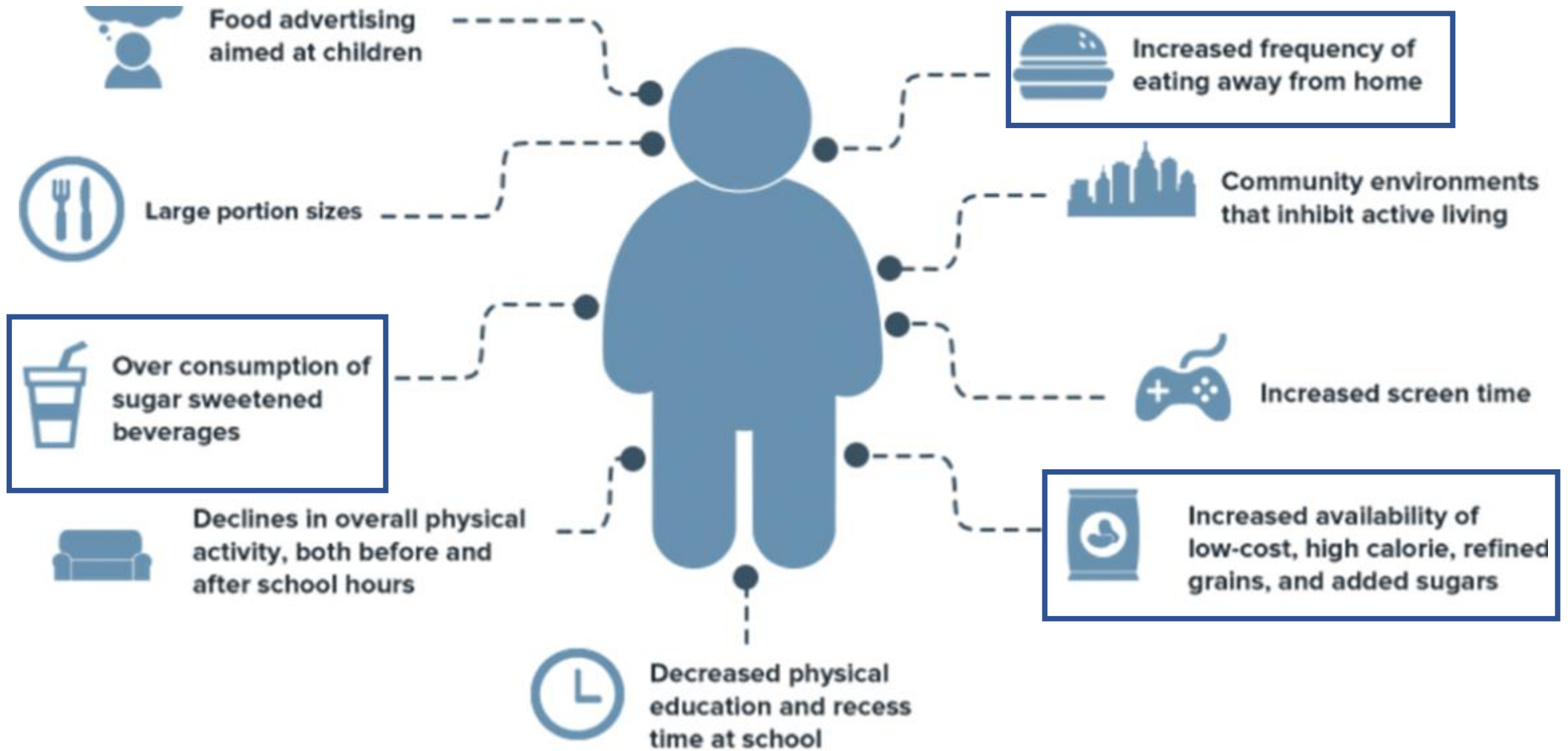




# NUTRITION TRANSITION





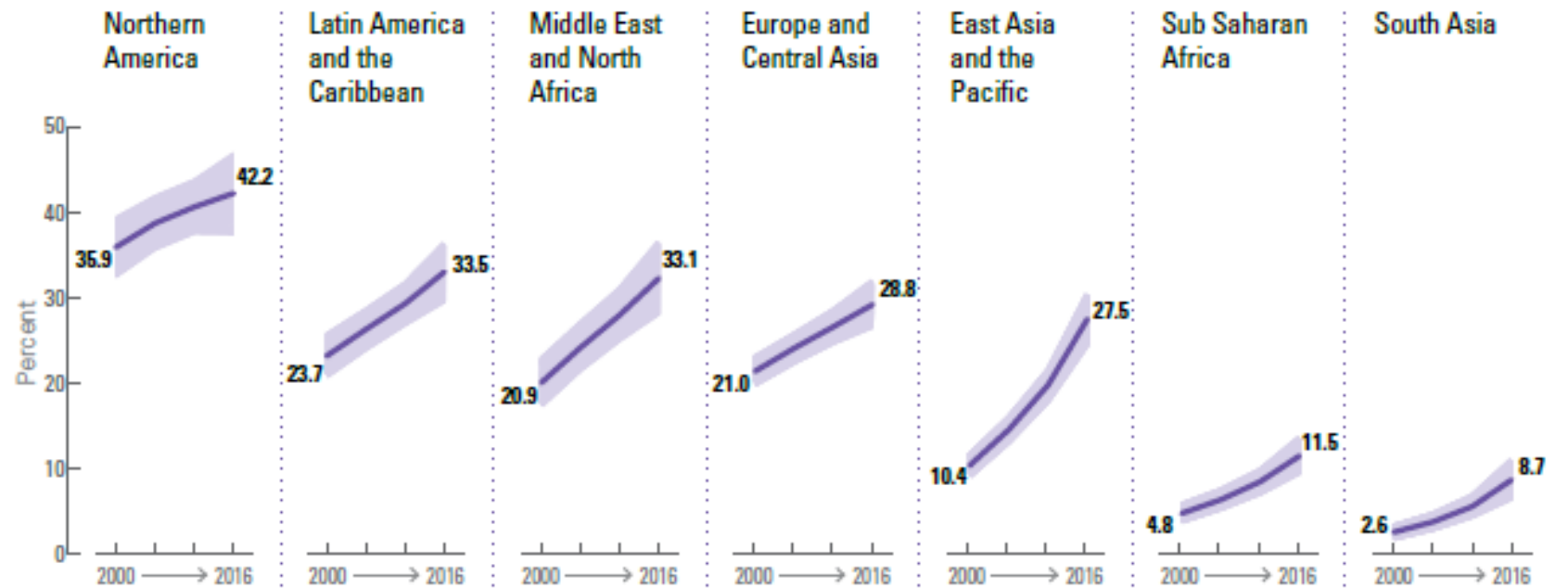


# Overweight prevalence continues to increase in all regions



Of the **638 million** school-age children globally, a total of **131 million** are affected by overweight or 20.6%.

## School-age children (5–9 years)



# Why the school platform

---

# Why Schools?

---



## **Good for Access**

- Already existing platforms
- Important social safety net
- Opportunity to reach children across the lifecycle- ECD, primary, secondary

## **Good for health and nutrition**

- Rural/poor areas more likely to have schools than health centres
- Wide reach: Ratio of primary teachers to community health workers between 20:1 to 65:1

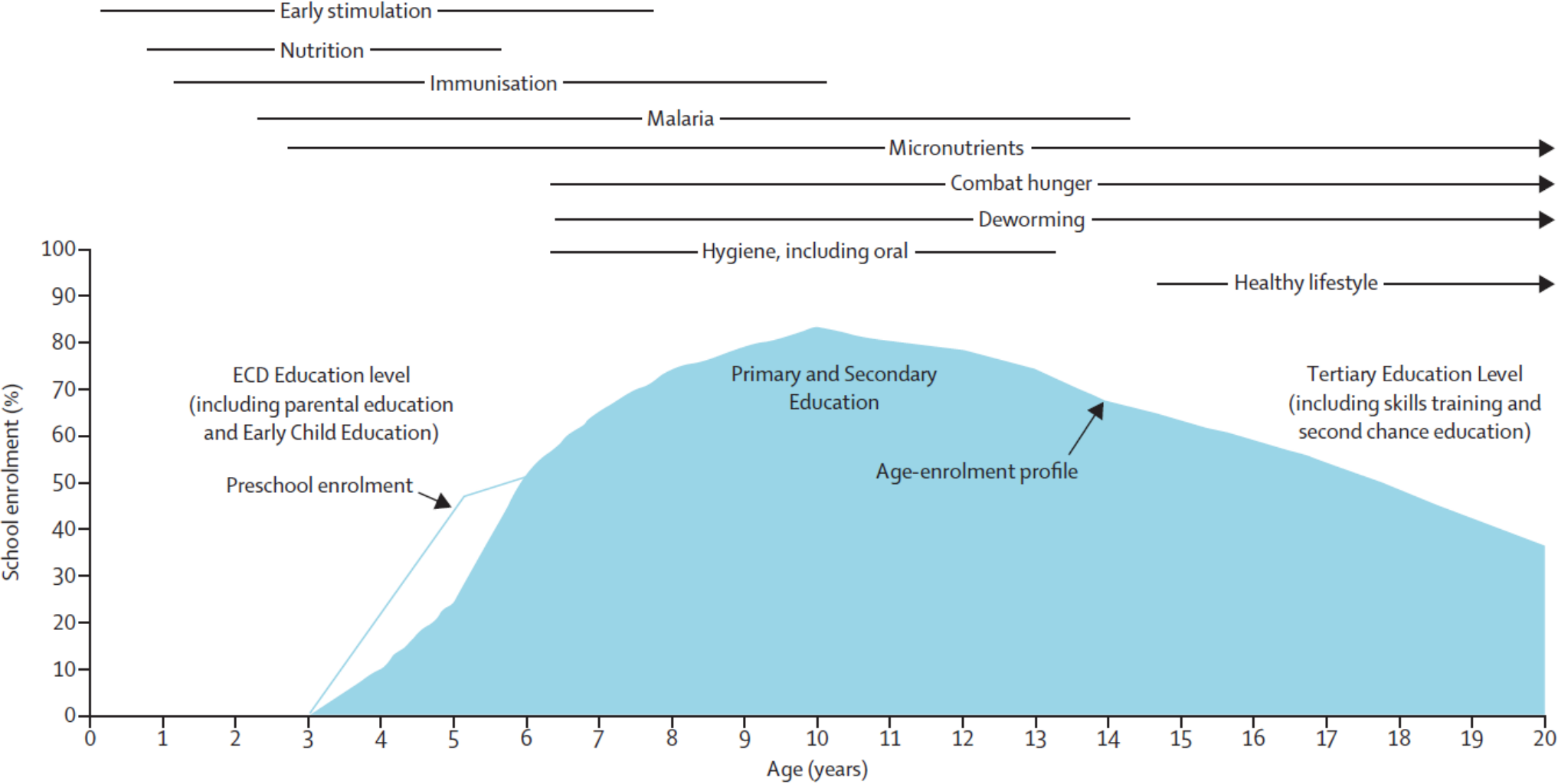
## **Good for education**

- Engaging parents & community members
- Leverage education investment
- Improve education access and outcomes

## **But Beware!!**

- Don't become a tax on teachers and teaching!

# Indicative rate of school enrollment in low-and lower-middle-income countries

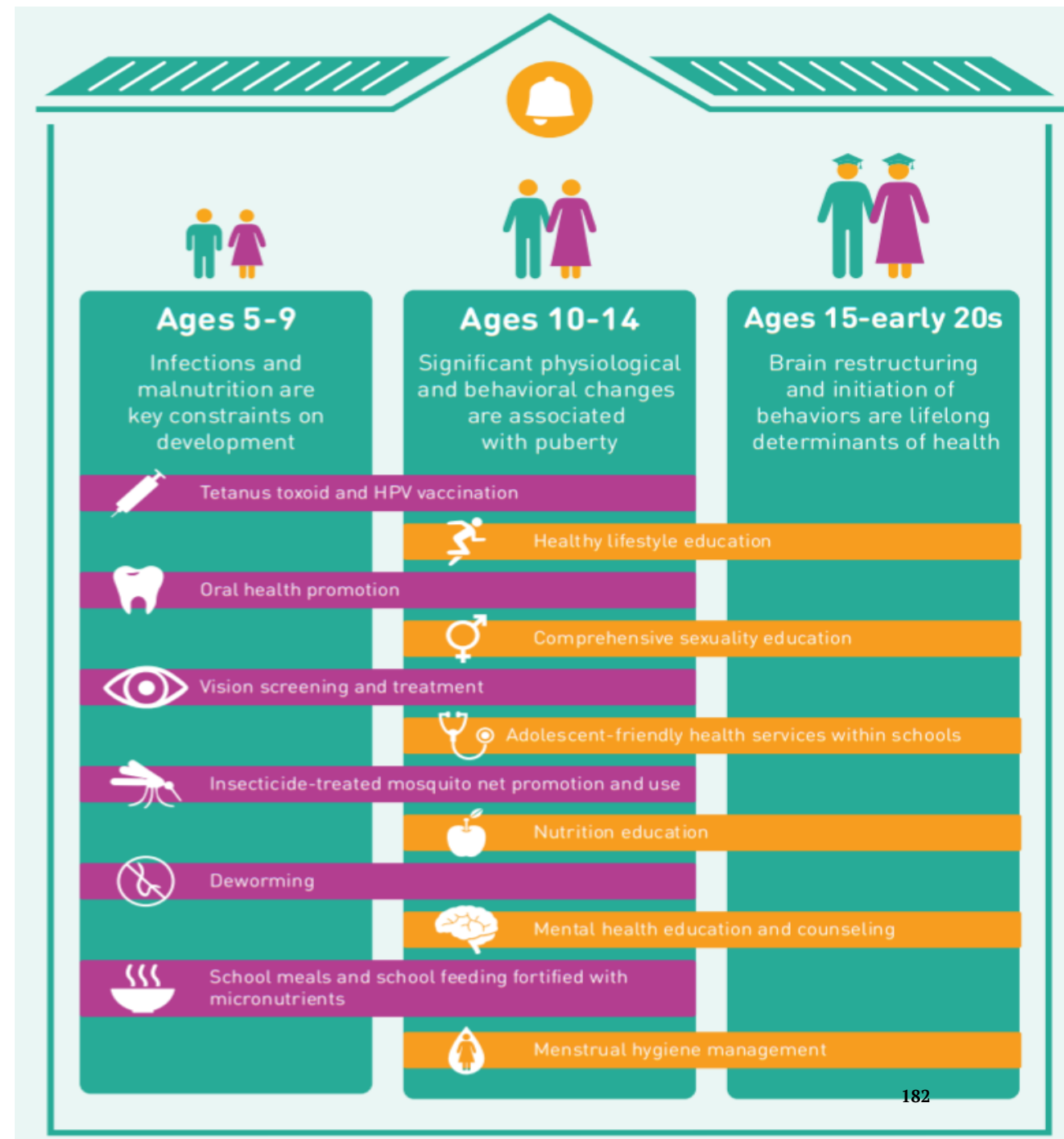
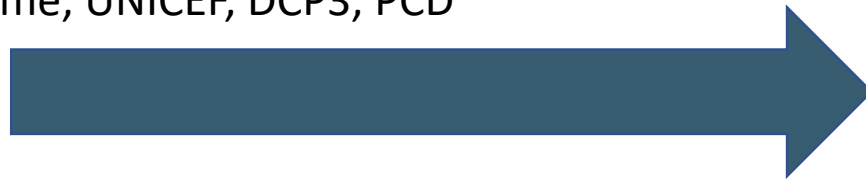


# Promoting an integrated health and nutrition package in schools

Phase-specific support across the life cycle to:

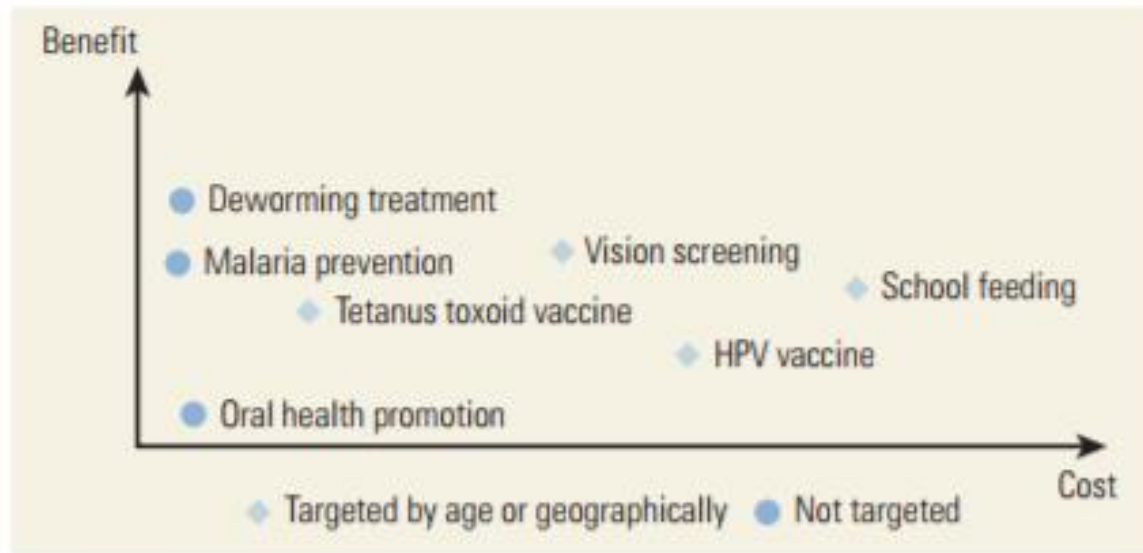
- secure gains of investment in the first 1,000 days
- enable substantial catch-up from early growth failure, and
- leverage improved learning from concomitant education investments

Global Partnership for Education, World Food Programme, UNICEF, DCP3, PCD



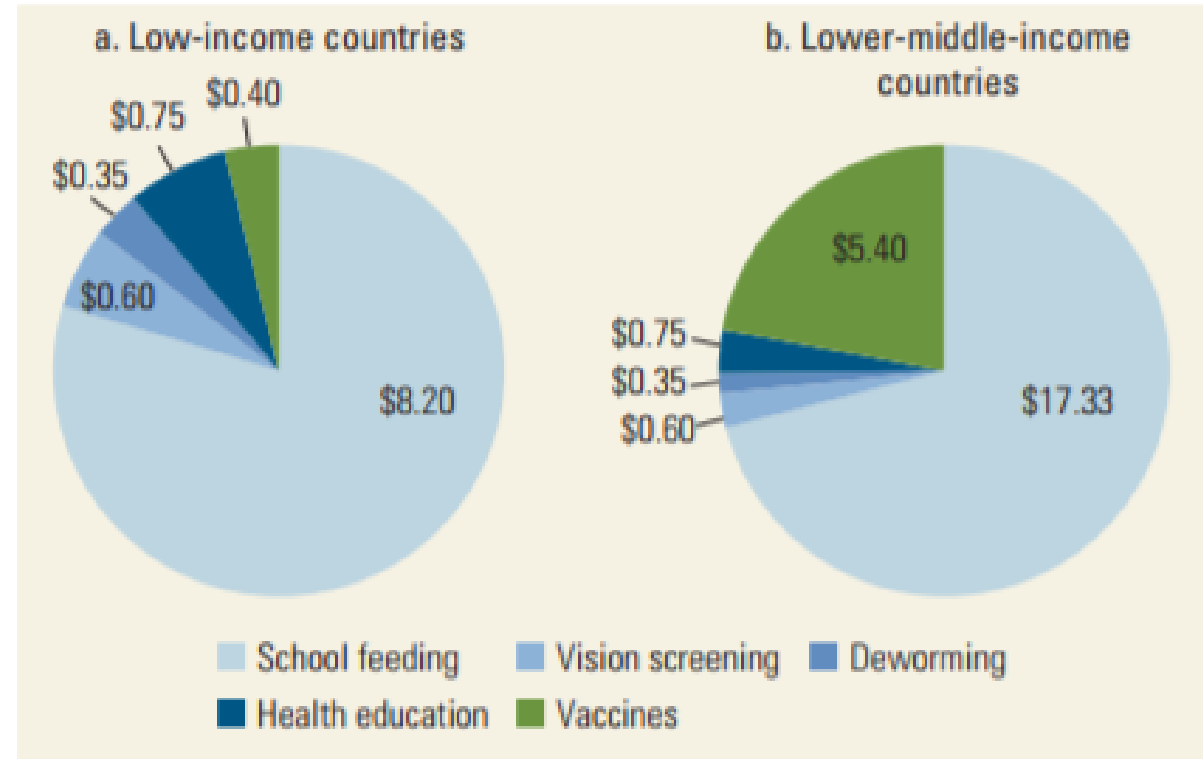


**Figure 25.2** Indicative Mapping of Benefits and Costs of Essential Package Interventions



Note: HPV = human papillomavirus.

**Figure 25.3** Cost Shares of the Essential Package, by Country Income Level  
U.S. dollars



**Social Protection**  
Social Safety Nets  
\*\*\*\*\*

**Human Capital Development:  
Health and Education**  
\*\*\*



**Rural Economies**  
Small-holder Agriculture  
\*\*\*\*

**Peace Building**  
Stability and growth  
\*\*\*\*



## National Home-Grown School Feeding Program – Brazil example

---

**Universal coverage: over 40 million students fed everyday with a healthy meal**

- Launched in the 1950's
- 27 states, 5 570 municipalities
- More than 162 000 schools
- USD \$ 985 M from Federal Budget (2018)

**Operationalizing Home-Grown School Feeding: 30% of food coming from smallholder farmers**

**Nutritionists acting as compliance actors on nutrient content**

- Food menus adjusted for feeding habits, cultural preferences and traditions
- States and municipalities responsible for food procurement

# Nutrition sensitive programming in Kyrgyz Republic

## quality diet and social and behaviour change communication

Support the government to develop key policy and regulatory documents;

Technical support to schools, including engineering advice and equipment;

Nutrition enhancement, and fortified wheat flour within school feeding programmes

### Success factors

High level of government ownership and community engagement, including parents and local authorities;

Support from district-level stakeholders, have made this effort a successful example of **nutrition-sensitive programming** with stable **Social and behavior change communications (SBCC)**



Children now consume foods from **9 food groups**

*Prior to the programme children consumed foods from only 3 food groups*



**98% of schools** now provide fruit juice instead of black tea\*

*Black tea is a known inhibitor of iron absorption*



School meals cover **139%** of the MoH recommendations for iron and **95%** for protein



**100% of schools** provide freshly-baked pastries every day \*\*



**>538 kcal**

**93% of schools** meet the MoH recommendations for energy value

\*Fruit juice is freshly squeezed (not a packaged juice or concentrate)

\*\* Include vegetables

# Partnerships in School Health and Nutrition

---



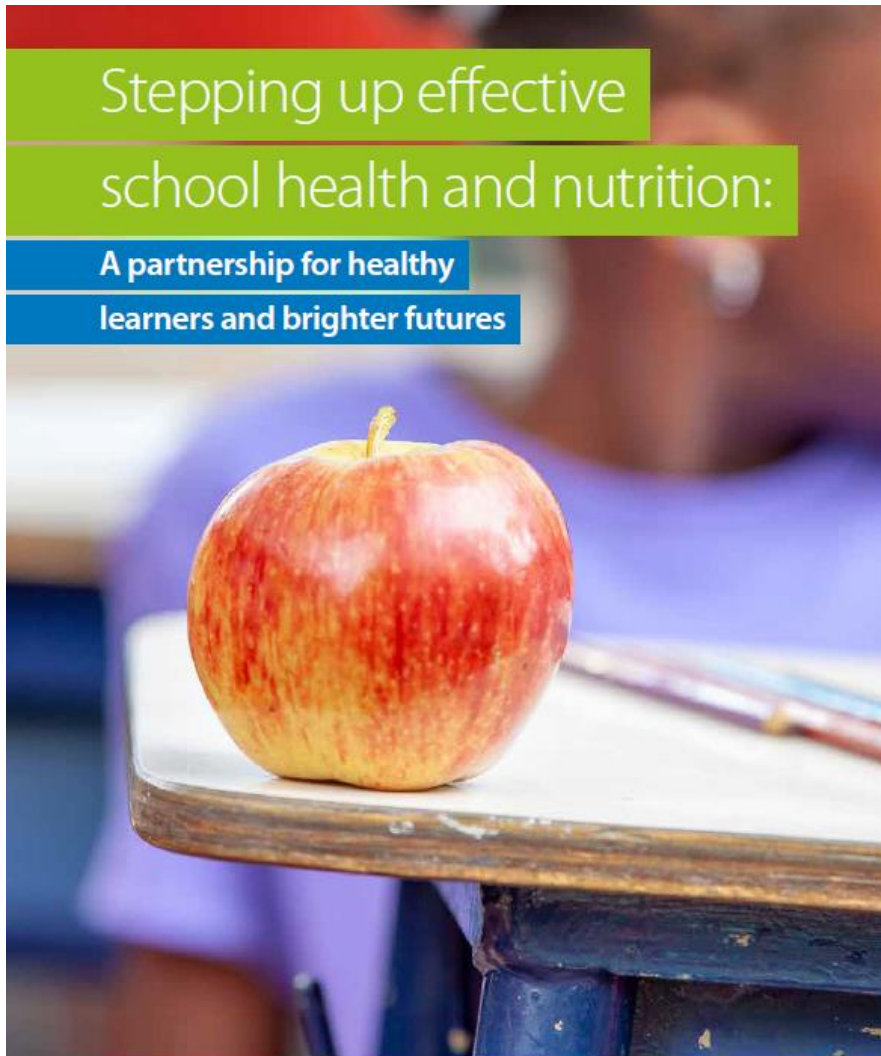


**FRESH (2000)**  
 (Focusing  
 Resources on  
 Effective  
 School Health)

**UNESCO,  
 UNICEF,  
 WHO, WORLD  
 BANK**



# Stepping-up effective School Health and Nutrition





- A renewed and collective commitment to advance effective integrated school health and nutrition programmes, to ensure children and young people are ready to learn and thrive and can contribute meaningfully to the future of their communities and countries
- Joint partnership between  
FAO, GPE, UNESCO, UNICEF, UNSCN,  
World Bank, WFP, WHO


# Supporting School Health and Nutrition across the world

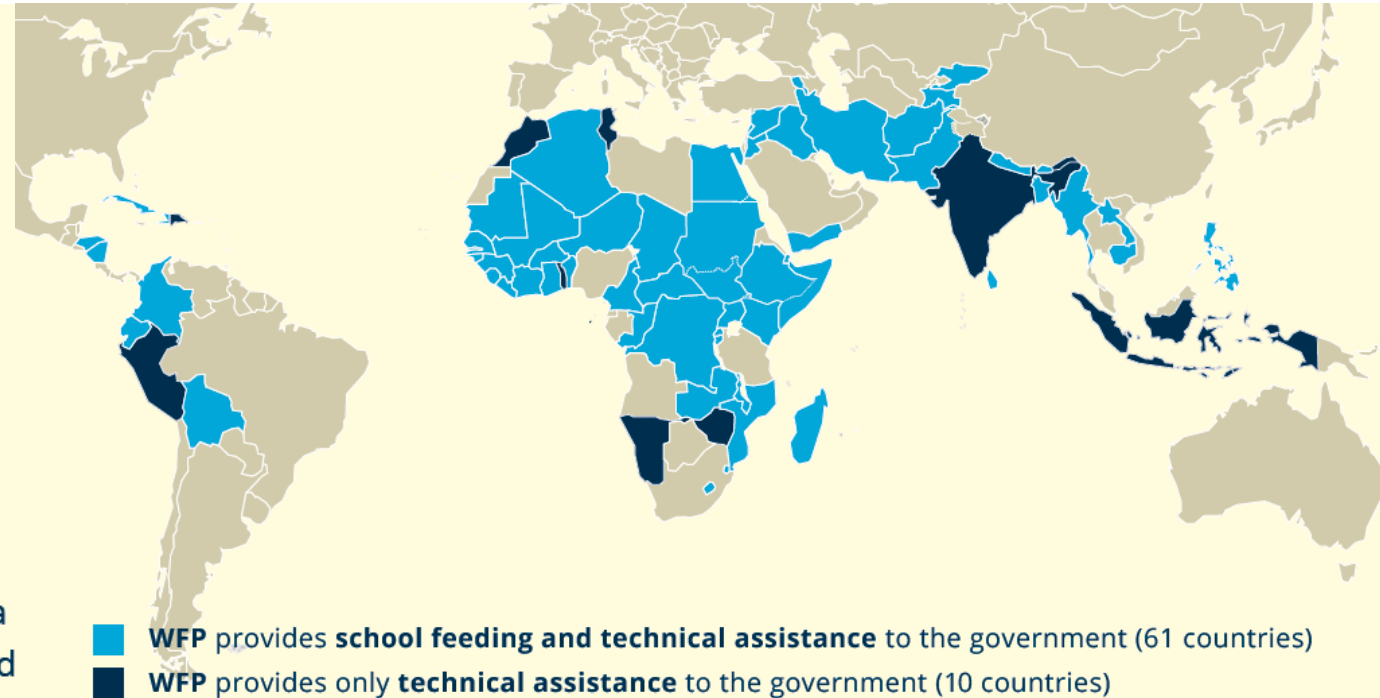
In 2018

 WFP provided school meals or snacks for **16.4 million children** of which **51% were girls**

 Take-home rations in the form of food or cash-based transfers were provided for **630,000** girls and boys

 In 2018, WFP implemented or supported school feeding programmes in **71 countries**

 In two countries **Kenya** and **Bhutan**, the transition to a nationally-owned school feeding programme was completed



# COVID-19

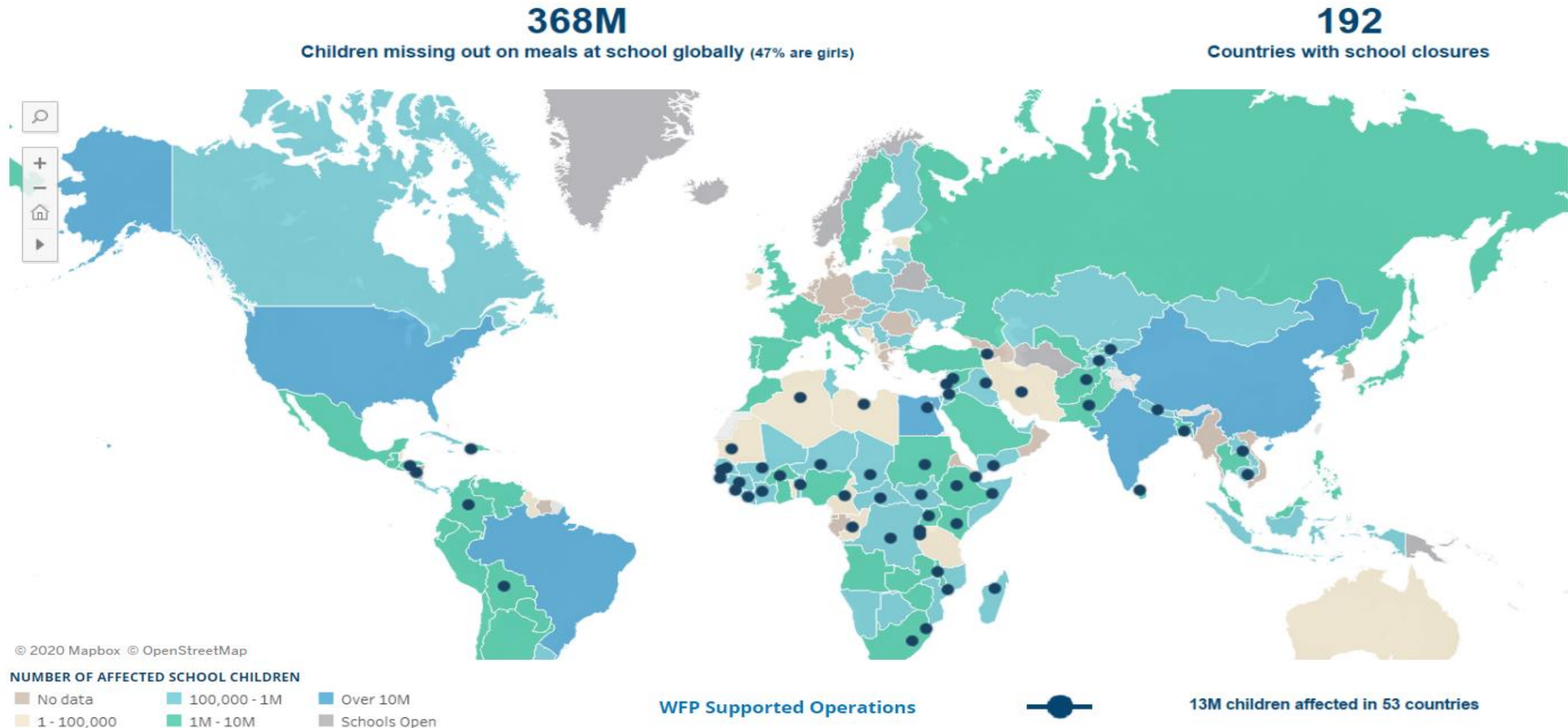
---

# School based programmes in the context of COVID-19

---

- **192 countries** have closed schools
- **1.5 billion children** are no longer have access to education in schools.
- **370 million children** are no longer being fed at school
- **400 million children** are no longer benefiting from school health programmes: deworming, MHM etc

# Global Monitoring of School Meals During COVID-19 School Closures



Link: <https://cdn.wfp.org/2020/school-feeding-map/>

# The impact of COVID-19 on school-age children

---

- Children appear to have few direct health consequences from COVID-19, and appear to play little role in transmission of the virus; they are not the beneficiaries of school closure
- The longer marginalized children are out of school, the less likely they are to return, particularly girls.
- Being out of school is associated with increased risk of :
  - In girls: early marriage, early pregnancy, abuse
  - Inappropriate child labour
  - Poor educational attainment
  - Lower future earnings and career prospects



# The response to the impact of COVID-19 on school-age children

---

- **NOW:** Countries are working with development partners to adapt programmes and mitigate the effects of the pandemic on the nutrition status of school-age children:
  - Distance learning;
  - Social safety nets;
    - Cash transfers;
    - Take home rations;
- **NEXT:** Development agencies are working with countries to support a “BACK TO SCHOOL movement”, to seek to reverse the harm caused by school closures.
- But even when schools are opened there will be challenges:
  - The children are hungry,
  - the longer children are out of school, the less likely they are to return,
  - **School Health and nutrition programmes, especially school feeding, acts as a strong incentive for parents to send their children back to school, and for children to stay.**

# Provision of technical guidance

1. [Joint guidance WFP, FAO and UNICEF for national governments to mitigate effects on schoolchildren](#)
2. Support [IASC Interim Guidance for COVID-19 Prevention and Control in Schools](#)
3. [Framework for safe re-opening of schools](#) UNICEF, UNESCO, WB and WFP



# Respond in partnership

---

Aligned with the UNESCO-led Global Education Coalition, **WFP and UNICEF** are joining forces to ensure children are healthy and nourished despite the disruptions caused by COVID-19.

## Objectives of the partnership

- Call on governments globally for action to ensure the 370 million schoolchildren are prioritized during the crisis response
- Support governments to find alternative solutions to deliver support to schoolchildren during school closures and develop strategies for a back to school campaign
- Provide operational support in 30 of the poorest countries to ensure that school health and nutrition packages are put in place





# End the neglect of health and nutrition in middle childhood

---

- Nutrition interventions are crucial in supporting the health and development of children, not only during the first 1000 days, but as part of a continuum of care that extends throughout the 8000 days.
- Health and nutrition during middle childhood (5-9 years of age) have been particularly neglected, yet are key to sustaining the earlier gains, supporting learning, and creating human capital.
- Schools can provide an exceptionally cost-effective and timely platform to deliver health and nutrition interventions during middle childhood
- School health and nutrition programmes can play a key role in reversing the negative consequences of school closures in the context of COVID-19.



A photograph of two young girls with curly hair, smiling warmly. They are standing in front of a white tent structure. The girl on the left is wearing a green top with a purple floral pattern and a leopard-print skirt. The girl on the right is wearing a red top with a white lace-like pattern. In the background, a white fabric with a blue United Nations logo is visible. The text "Thank you!" is overlaid in a large, dark blue font across the center of the image.

**Thank you !**

Nutrition Live Online 2020  
American Society for Nutrition  
May-June 2020

Authors: Donald A.P. Bundy,  
London School of Hygiene and Tropical Medicine  
Mutinta Hambayi, Maree Bouterakos and Michele Doua,  
United Nations World Food Programme

# School health and nutrition provide multiple benefits, setting the foundation for adulthood

---

**Eating behaviours** evolve during the first years of life

**Learning continues** when the child attends school and continues throughout the life cycle

The school environment can shape **food acceptance, including food selection and preferences**



**Healthy eating behaviours and habits** are established in preparation for adolescence

The likelihood of **childhood obesity** persisting into adulthood increases as the child ages. This increases the risk **diet-related chronic diseases**



# Nutrition-sensitive opportunities for school health and nutrition programmes

---

**Target nutritionally vulnerable groups** (pre-school aged children, adolescent girls and mothers of school-age children and younger sibling)

**Add nutrition-specific activities for school-age children**

Work with **partners** to improve kitchen infrastructure, WASH facilities and school gardens

Ensure meals are enough to cover nutritional needs by including **fortified foods and other nutrient rich foods**

Include comprehensive **gender and age analysis** and appropriate activities and **targeting**

# **Final Report: Pakistan School Milk Program**

## Appendix K: GCNF Responses to Questions Raised on 24 September 2020 Meeting





# PUNJAB SCHOOL MILK PROGRAM PROPOSAL

## RESUBMISSION TO THE GOVERNMENT OF PUNJAB – SEPTEMBER 24, 2020



# QUESTIONS ADDRESSED FROM SEPT 7 MEETING

- 1 Consider other school interventions
- 2 Reduce pilot duration and plan faster scale-up of program
- 3 Consider 365 days feeding
- 4 Address safety risks on consumption
- 5 Consider synergies with existing Punjab Govt. organization and activities
- 6 Review and reduce program management and product costs for pilot
- 7 Address scale-up synergies



# PUNJAB SCHOOL MILK PROGRAM PROPOSAL

## OTHER PAKISTAN SCHOOL FEEDING PROJECTS CONSIDERED

# SCHOOL INTERVENTIONS CONSIDERED

NO SCHOOL FEEDING PROGRAM IMPLEMENTED IN RECENT YEARS

## School Health & Nutrition Program (SH&NP)

- Objective: Obtain and record school children health data
- Scope: Punjab-wide (currently running)
- Feeding: No school feeding implemented
- Learning: Leverage attendance and health data

## Punjab School Nashownuma Program

- Objective: Education, Nutrition, Dietary diversity, Local production
- Scope: Feasibility (19-20); Pilot in South Punjab (20-21) at small scale. PC-11 prepared, however, feasibility study not conducted.
- Feeding: 3 options considered (indigenous food)
- Learning: Pilot duration, risk management

## Landolakes School Feeding (2003-2009)

- Objective: Increase school enrolment; bridge nutrition gap
- Scope: Ghotki, Sindh
- Feeding: UHT milk & fortified biscuit
- Learning: KPIs measurement, cost benchmarks, execution, sustainability

Education	<ul style="list-style-type: none"> <li>• 42% increase in enrolment at targeted schools</li> <li>• 7% at other schools in the province from 2003 to 2004</li> </ul>
Weight/Height	<ul style="list-style-type: none"> <li>• 2.8 kg gain by targeted students as compared to 1.9 kg for control students</li> <li>• 6 cm gain by targeted students as compared to 5.1 cm for control students</li> </ul>
Nutrition	<ul style="list-style-type: none"> <li>• Reduction in the prevalence of wasting from 10.2% to 7% among targeted students</li> <li>• Decrease in the number of children classified as stunted from 11.4% to 9%</li> </ul>





# PUNJAB SCHOOL MILK PROGRAM PROPOSAL

## PILOT SCOPE & ROLL OUT PLAN

# PILOT (DISTRICT: MUZAFFARGARH) SCOPE

AS PER ORIGINAL PROPOSAL

No. of schools: 1400

No. of children:  
207,000

Public\* primary  
schools (ages 5-9)



No. of farmers  
engaged: 8,500

Milk fed / day:  
26,000 liters

Feeding:  
5 days/ week  
208 days/year

\*Non-formal schools  
inclusion to be  
discussed

# NO. OF FEEDING DAYS EVALUATION

## Global Perspective:

- All school milk programs globally are run during school days averaging from 3-5 days / week
- Serve size ranges from 180-250 ml

## Feeding in school ensures:

- Benefit fully passed to intended beneficiary
- Pilferages and wastages minimized
- Direct impact on school attendance
- Better control over crisis management

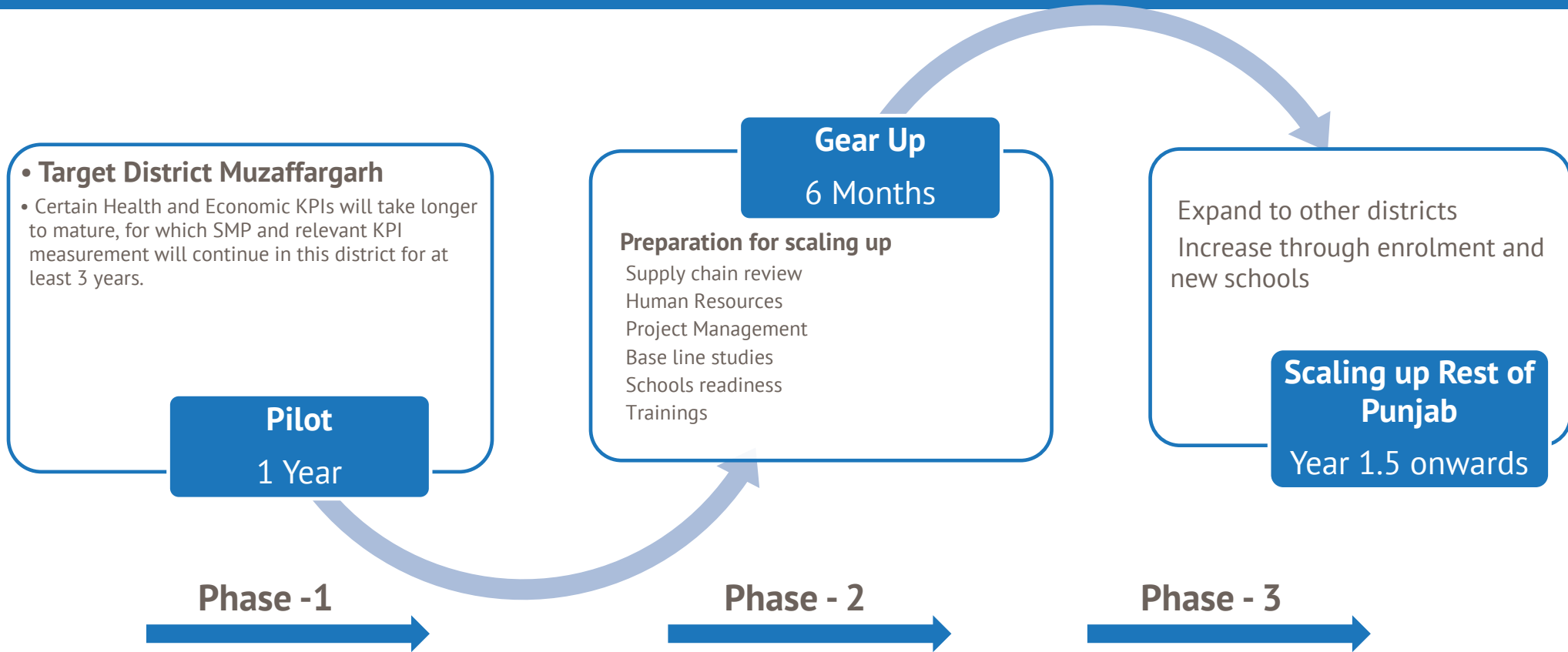
## Considering 365 days feeding execution

- Weekend stocks to be logged and given to children at school to take home
- Vacation stocks to be distributed to Basic Health Units where either a) parents could collect weekly stock via school IDs or b) milk can be distributed directly to beneficiary households through lady health workers as per their roster

## Watch Outs:

- Ensuring distribution & beneficiary consumption
- Administration during non-school days

# PROGRAM ROLLOUT



# PUNJAB SCHOOL MILK PROGRAM PROPOSAL

## KPI MEASUREMENT\*

\* A control sample of 24 schools without intervention will be measured to establish impact comparison

# EDUCATION

	Indicators	Description of Indicators	Source	Timing
1	Enrollment (number)	Number of new admissions in the sampled school before and after SMP	Historic data + register and data from sampled schools	Baseline, Endline
2	Estimated attendance rate	Ratio of students present in school on a given number of days during the year (determined by head counts) to the number of children enrolled		
3	Drop-out rate	Percentage of children enrolled in a given year who do not finish the school year.		
4	Promotion rate	Percentage of children enrolled in a given year who are promoted to the next grade at the end of the year		
5	Involvement of parents in activities at schools	Change in parents' level of involvement in children's schooling	Qualitative Research with parents, teachers and students	Baseline, Endline
6	Students' academic ability	Change in students' academic performance		Endline



# HEALTH AND NUTRITION

	Indicators	Description of Indicators	Source	Timing
1	Height	Height according to age, measured with stadiometer or measuring tape	Primary data from children of sampled school	Baseline, Endline, thereafter annually
2	Weight	Weight according to the age, measured with weighing scale		
3	Body Mass Index	Approximate measure of over- or under- weight, calculated by dividing the weight in kilograms by the square of their height in meters		
4	Mid-Upper Arm Circumference (MUAC)	Circumference of left upper arm mid-point between the tip of the shoulder and the tip of the elbow. Used to assess nutritional status.		
5	Iron Deficient Anemia	Caused by a lack of iron, leading to low levels of hemoglobin	*	
6	Vitamin D deficiency	Vitamin D is essential for strong bones: It helps the body use calcium from the diet		
7	General Health	Incidence of general illnesses (include dental & vision)	Absenteeism and # of hospital visits	
8	Student reaction to the intervention	Student reaction to the milk delivered; its frequency, amount, quality and taste	Qualitative Research with students, parents, teachers	Month 1
9	Student behaviors	Any significant change in student behaviors (alertness, fatigue, focus, physical activity, anger, emotional disturbance etc.)		Endline

\* Blood testing viability to be checked. Refer to alternate method via Agha Khan, or via qualitative research

# ECONOMIC DEVELOPMENT

	Indicator	Description of Indicators	Source	Timing
1	New safe packaged milk market	Number of packs delivered to schools	Milk dispatch/received data	Monthly
		Increase in liters of milk collected	Milk collection data	Baseline, monthly
		Increase in size of safe packed milk market in pilot area	Data from processors	Baseline, <b>Annually</b>
2	Farmer engagement	Number of farmers engaged with the SMP	Data from milk collection	Monthly
		Incremental value of milk procured from the farmers	Milk collection data	Baseline, <b>Annually</b>
3	Employment	Increase in employment related to the SMP – Processors, milk collectors, distributors, and project management	Data from processors value chain & project team	Baseline, Endline
4	Impact on farmers	Income stability, improved farming practices (via processors' efforts), sense of contribution, perception about children's schooling	Qualitative Research with farmer households	Baseline, Endline, <b>thereafter annually</b>

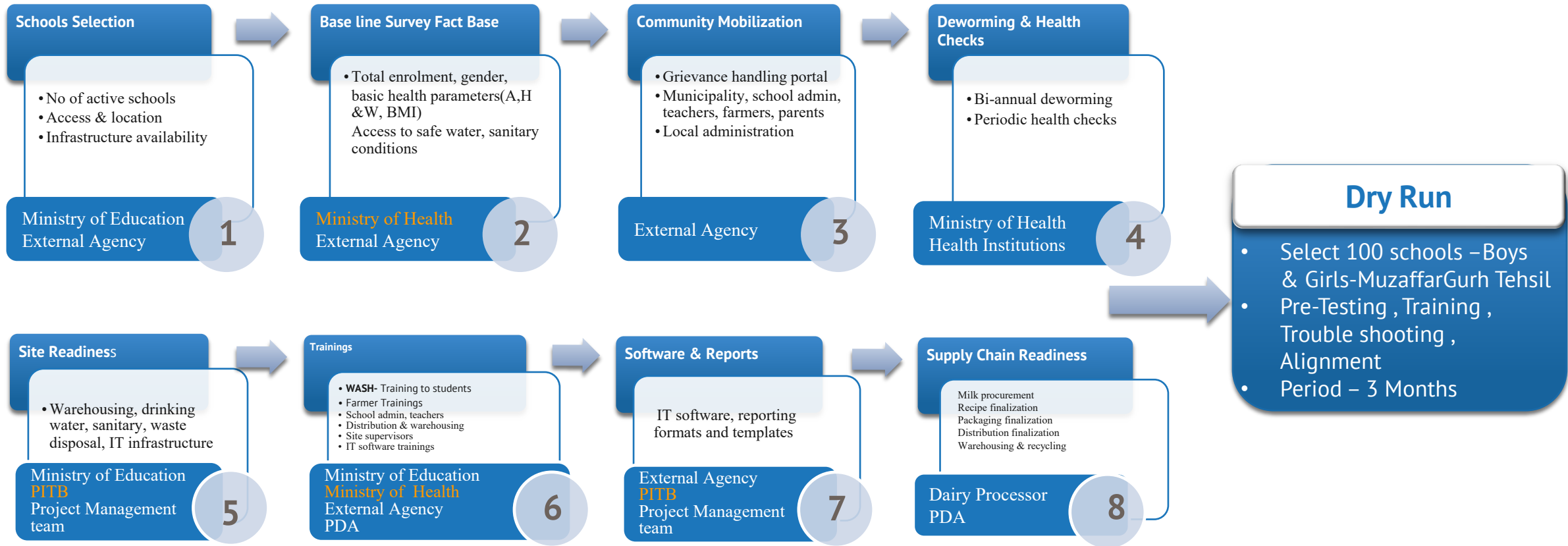


# PUNJAB SCHOOL MILK PROGRAM PROPOSAL

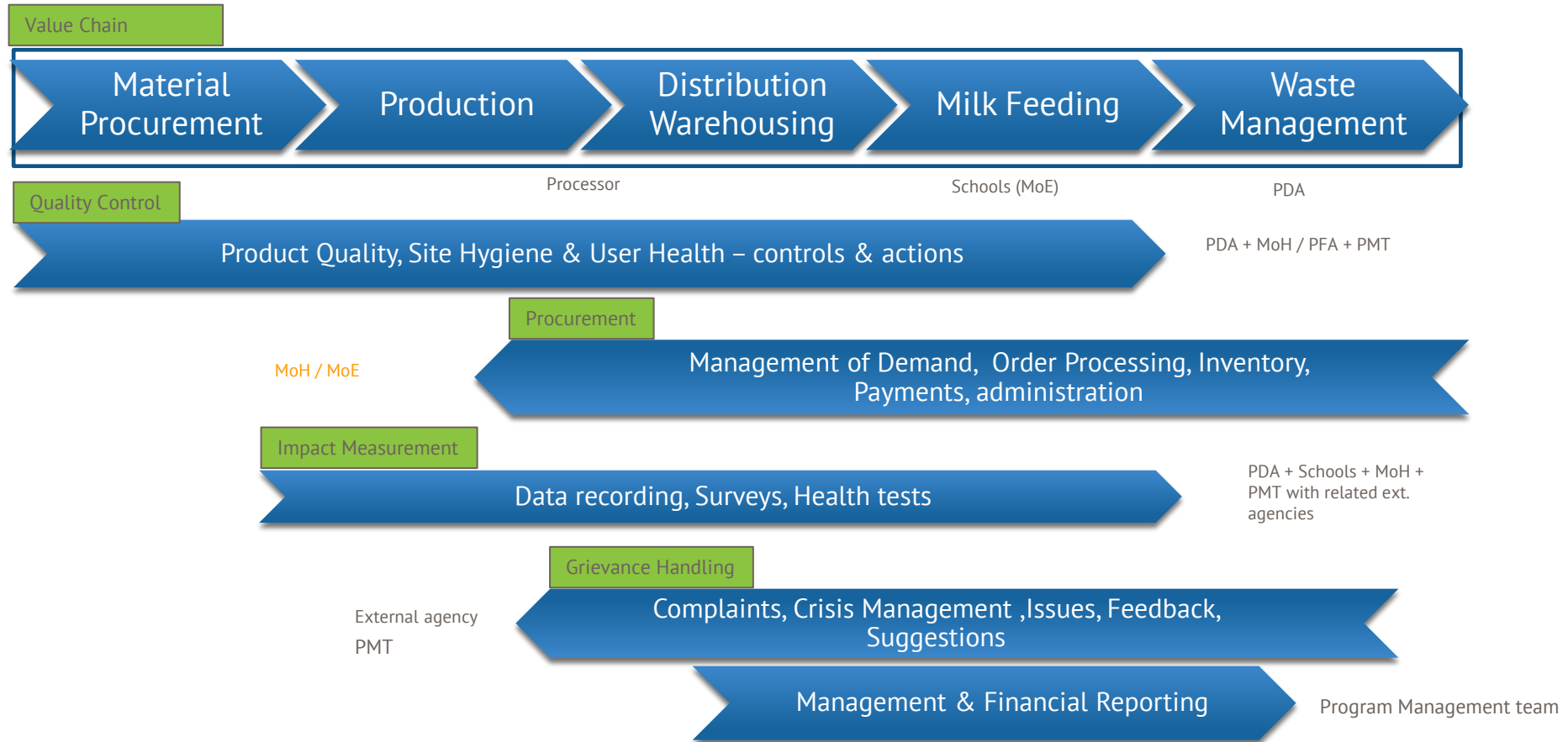
## PROCESSES, ROLES & ORGANIZATION (REVISED BASED ON GOVT. FEEDBACK)

# PROJECT PREREQUISITES

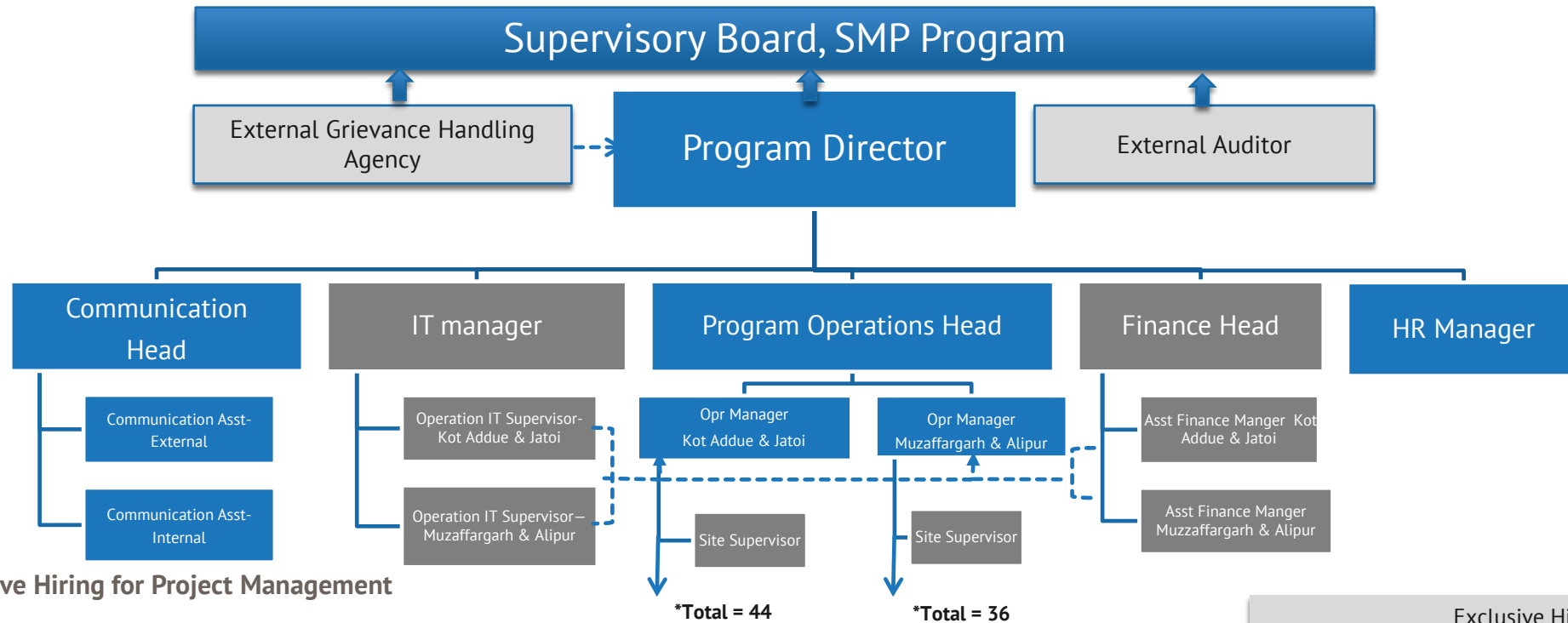
## TASKS, ROLES, PROPOSED ASSIGNEES



# EXECUTION PROCESSES & ROLES



# PROPOSED PROGRAM MANAGEMENT TEAM (REVISED)



**Exclusive Hiring for Project Management**

**Government Resources**

**External Agencies**



	Exclusive Hiring	Govt Resources
Program Director	= 1	
Communication	= 3	
Finance		03
IT		03
HR	= 1	
Program Operations	= 3	80
<b>Total Staff</b>	<b>= 94</b>	<b>218</b>





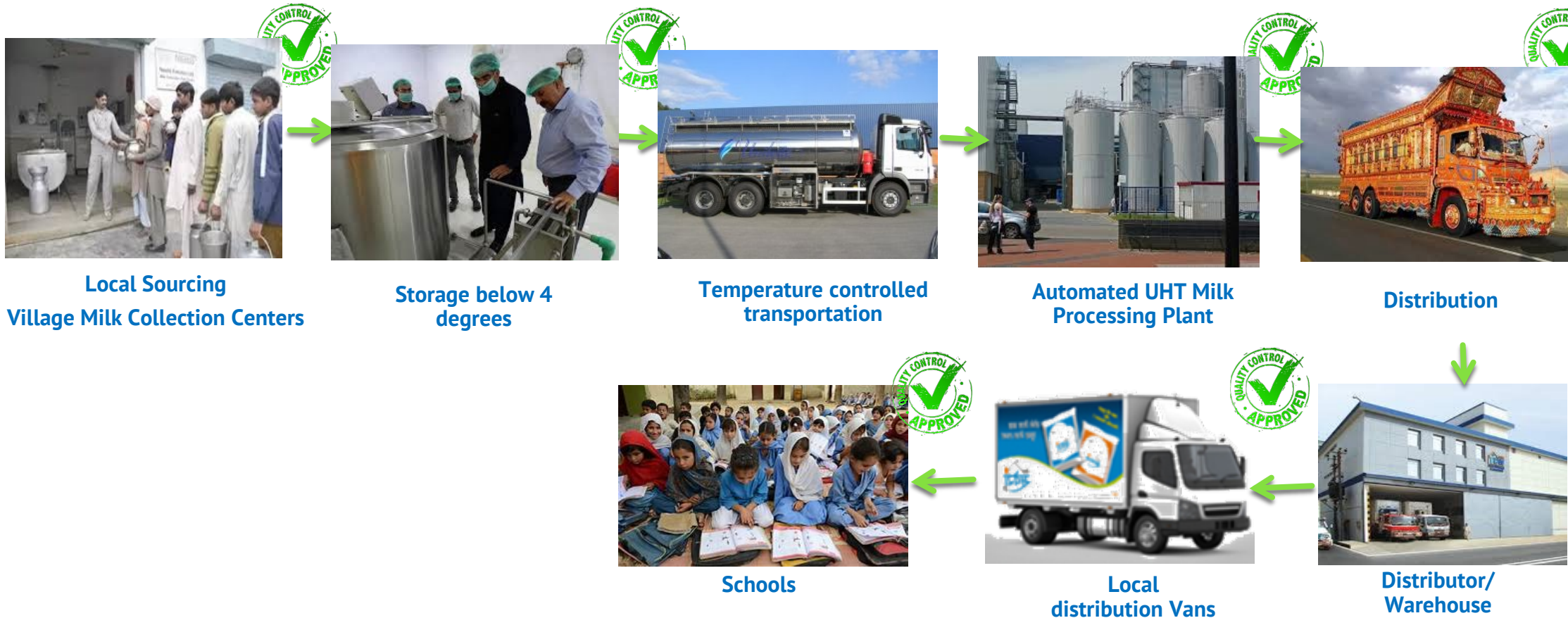
# PUNJAB SCHOOL MILK PROGRAM PROPOSAL

## PRODUCT PROPOSITION

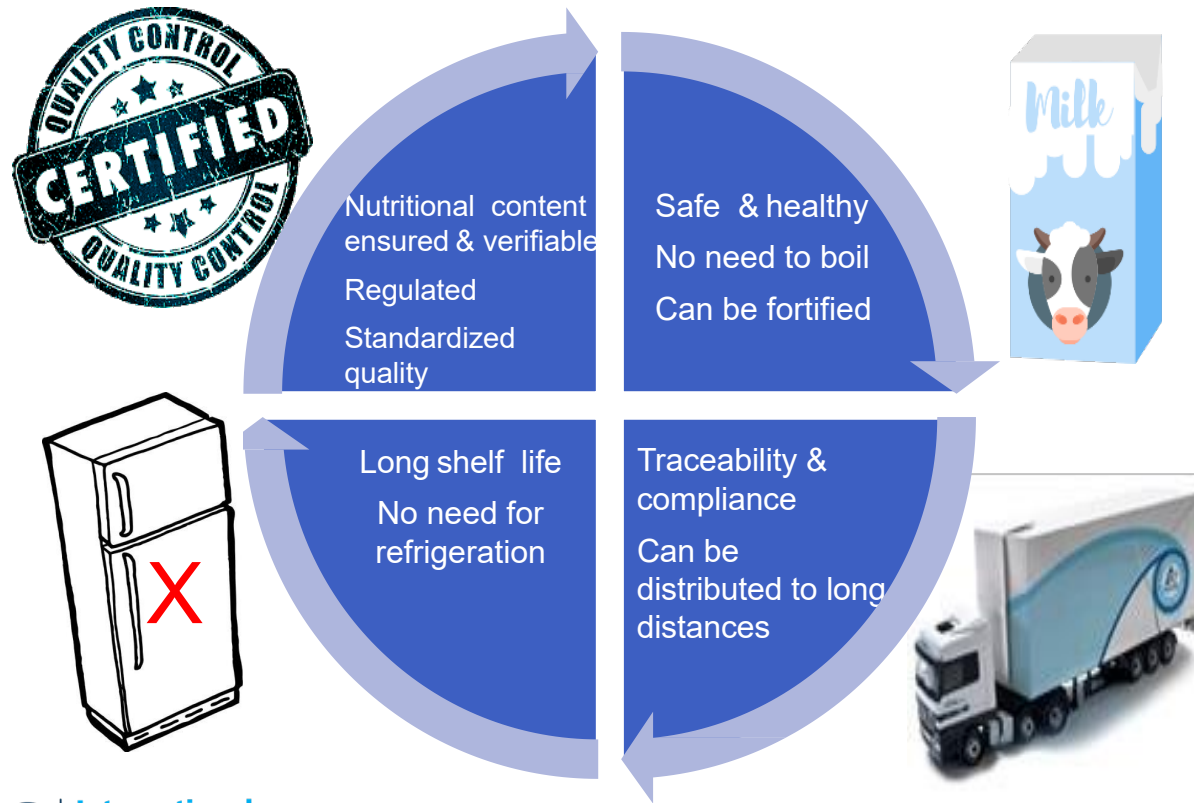
# SMALL HOLDER FARMER SOURCED UHT PROCESSED MILK

## 27 TESTS ACROSS THE SUPPLY CHAIN TO ENSURE QUALITY & SAFETY

School Milk Value chain



# WHY UHT MILK



# MANAGING RISKS WITH MILK FEEDING

## Lactose Intolerance

### Pre-feeding strategy

1. History of the parents/children during research phase (being a genetic disorder)
2. Awareness sessions with parents/ teachers regarding the issue and its management
3. Development of IEC (Information, Education, and Communication) materials for parents/teachers

## Drinking Milk Empty Stomach

### Pre-feeding strategy

- Avoid giving milk empty stomach;  
Recommended to take during school lunch break

## Drinking Spoilt Milk

### Containment strategy

1. Stop the feeding process
2. Isolate the suspected batch
3. Inform site supervisor
4. Contact hotline for reporting
5. In case of reaction, contact closest doctor

### Post-feeding strategy

1. Simple observation of foul/rotten egg smell after taking milk
2. Avoid large servings of milk; project has recommended 200ml of milk
3. Frequent use of traditional diet rice lentils and yogurt\*
4. Directions should be written on the box to discontinue in case of diarrhea/bloating
5. In case of severe reaction, visit doctor

### Escalation Process & Crisis Management

1. Site supervisor to contact Program Director and Communication in-charge
2. Program Director to contact all other site supervisors to isolate the suspected batch immediately
3. Program Director to immediately involve supplier responsible for investigation.
4. Parents should be engaged through School Admin
5. Local Health Department should be engaged immediately
6. Board should be updated and a holding statement of the issue should be released

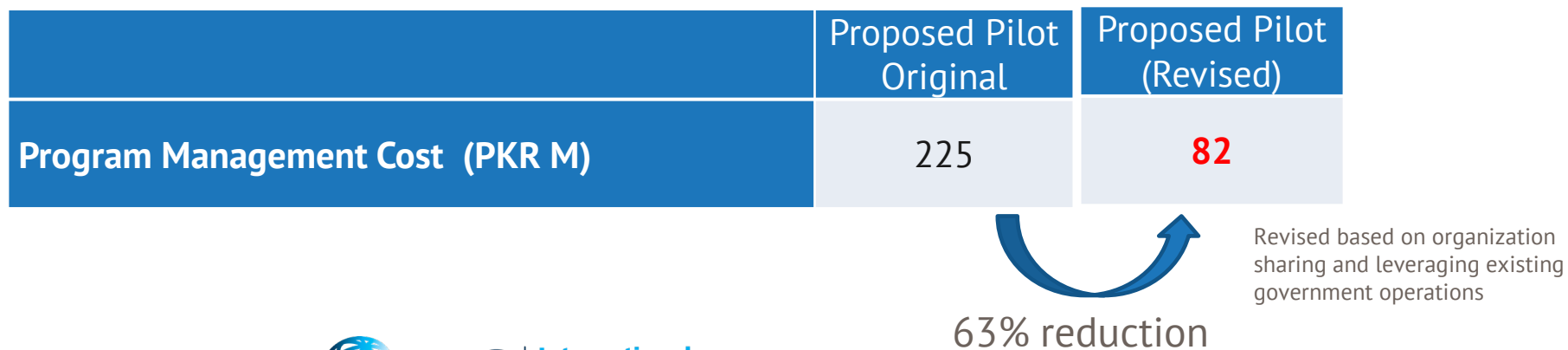
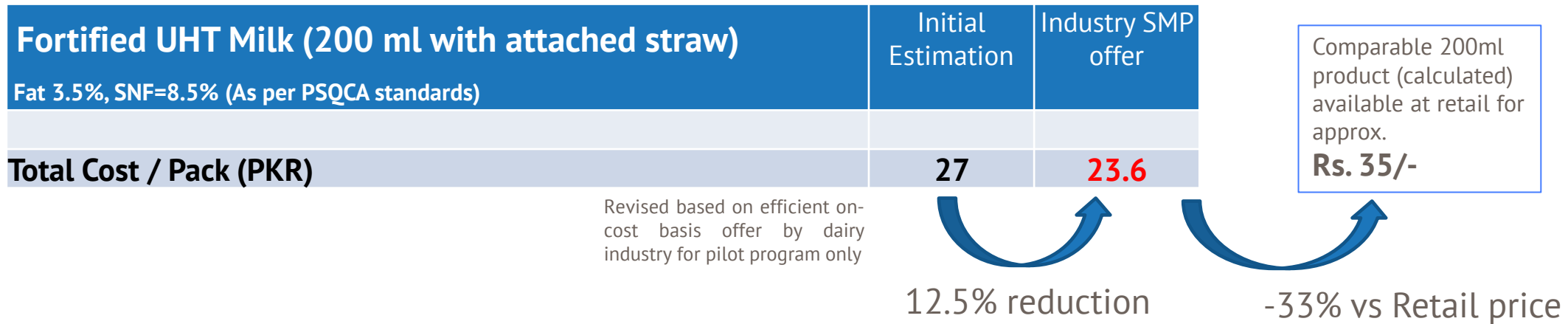


# PUNJAB SCHOOL MILK PROGRAM PROPOSAL

## PROGRAM BUDGET



# REVISED PILOT PRODUCT & PROJECT MANAGEMENT COST





# BUDGET FOR PILOT PROGRAM

	Proposed Pilot Original	Proposed Pilot (Revised)	Proposed Pilot Revised- Full Year
Serving Days	208	208	<b>365</b>
Total Number of Students	207,000	207,000	207,000
Product Cost (PKR)	27	<b>23.6</b>	23.6
Total Packs Required (M)	47.0	47.0	81.0
Annual Product Cost (PKR M)	1,269	1,109	1,912
Program Management Cost (PKR M)	225	<b>82</b>	82
<b>Total Program Cost ( PKR M)</b>	<b>1494</b>	<b>1,191</b>	<b>1,994</b>
Cost per School (PKR M)	1.06	0.85	1.42
Cost per Student per month (PKR)	593	473	792

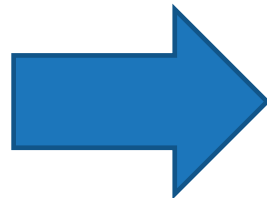
# SCALING-UP CONSIDERATIONS

## Project Management Costs Assumptions:

- Manpower will be fully absorbed in Government structure
- Execution expenses: while some activities will benefit from scale, other variable costs will be replicated
- Per school cost: **Rs. 58,576 (pilot)** to **Rs. 34,056 (roll-out)**

## Dairy Industry Challenges

- Quality milk availability, low yields and price
- Perception of packaged milk
- Industry at financial loss



## Product Cost Assumptions:

- For pilot test, private sector will deliver packaged milk at schools at subsidized cost as volume required (44k litres/day) is minor vs. current supply chain operations.
- Full scale up volumes are **780k** litres/day (~25% of industry size) which require considerations on investment in sourcing, processing etc. This requires a larger discussion and alignment between private sector and the government

THANK YOU

## Program Cost Per Annum

	Pilot Original	Pilot (Revised)	Scale up Cost
Salaries & Allowances	52,854,000	17,976,000	142,804,286
Office & Admin Expenses	16,590,000	0	0
Office Setup Costs one time expense	5,560,000	0	0
Executions Expenses on Field	150,570,000	64,030,000	846,732,800
<b>Total Cost in PKR</b>	<b>225,574,000</b>	<b>82,006,000</b>	<b>989,537,086</b>
<b>Total Cost in USD\$</b>	<b>1,367,115.15</b>	<b>497,006</b>	<b>5,997,194</b>
<b>Total Cost per school in PKR</b>	<b>161,124</b>	<b>58,576</b>	<b>34,056</b>

-

-

-

Salary & Allowances							
	Salary	Allowance @15%	Total Head Count Required	Monthly Salary+ Allowance	Pilot (Revised)	Scale Up Cost	Assumptions
Site Supervisor	30,000	4,500	80	2,760,000	360,000	360,000	4500 incentive (Equal to allowance) Resources from MOH
Operations Manager	55000	8250	2	126500	126500	16,500	8250 incentive (Equal to allowance) Resource replaced with Govt employees after one year of pilot
Operations IT Supervisor	30,000	4,500	2	69,000	9,000	9,000	4500 incentive (Equal to allowance) Resources from PITB
Site Finance Manager	55000	8250	2	126500	16500	16,500	8250 incentive (Equal to allowance) Resource from Govt
Asst Communication Manager	55,000	8,250	2	126,500	126,500	16,500	8250 incentive (Equal to allowance) Resource replaced with Govt employees after one year of pilot
Finance Head	110,000	16,500	1	126,500	16,500	16,500	16500 incentive (Equal to allowance) Resource from Govt
Communication Head	110,000	16,500	1	126,500	126,500	16,500	16500 incentive (Equal to allowance) Resource replaced with Govt employees after one year of pilot
IT Head	110,000	16,500	1	126,500	16,500	16,500	16500 incentive (Equal to allowance) Resources from PITB
Operations Head	150,000	22,500	1	172,500	172,500	22,500	22500 incentive (Equal to allowance) Resource replaced with Govt employees after one year of pilot
HR Head	110,000	16,500	1	126,500	10,000	16,500	16500 incentive (Equal to allowance) Resource from Govt
Program Director	450,000	67,500	1	517,500	517,500	67,500	67500 incentive (Equal to allowance) Resource replaced with Govt employees after one year of pilot
Monthly Cost			94	4,404,500	1,498,000	574,500	
<b>Annual Cost in PKR</b>				<b>52,854,000</b>	<b>17,976,000</b>	<b>6,894,000</b>	
<b>Annual Cost in USD\$</b>				<b>320,327.27</b>	<b>108,945.45</b>		
Scale up Factor*						21	
<b>Annual Cost in PKR</b>						<b>142,804,286</b>	

Allowance Taken @15% of Salary covers transportation and mobile expenses  
USD to Pkr Conversion rate at 165

\* Scale up no. of schools: 29056 / Pilot no. of schools: 1400



Office & Admin Expenses						
	Expense	Admin Expenses	Total Required	Total Expense	Pilot (Revised)	
Site Office Rent	50,000	25,000	4	300,000	0	Existing Infrastructure of the Govt of Punjab
Head Office Rent	55,000	27,500	1	82500	0	
Admin Staff (Guard, Cleaning, Office Boy)	50,000		15	750,000	0	
Maintenance expenses	50,000		5	250000	0	
Monthly Cost				1,382,500	0	
<b>Annual Cost in PKR</b>				<b>16,590,000</b>	-	
<b>Annual Cost in USD\$</b>				<b>103,687.50</b>	-	

Admin Expense Covers, Electricity, water, internet , telephone expenses

Admin Staff 3 for each office , in total 15 for 5 offices

Maintenance expenses includes Electricity internet, office stationary, computer , printer cartridges etc

USD to Pkr Conversion rate at 165

Office setup cost				
	Expense	Total Required	Total Expense	Pilot (Revised)
Office Furniture	600,000	5	3,000,000	- Existing Infrastructure of Govt of Punjab
IT infrastructure(computer + Inter net)	55,000	42	2,310,000	-
Printer, Photocopies, Scanner	50,000	5	250,000	-
<b>Total Cost in PKR</b>			<b>5,560,000</b>	<b>-</b>
<b>Total Cost in USD\$</b>			<b>33,696.97</b>	<b>-</b>

Office Furniture includes AC, Furniture

IT infrastructure includes Computer for office staff plus 5 computers each office for site supervisors

USD to Pkr Conversion rate at 165

## Executions Expenses on Field

	Expense	Total Required	Total Expense	Pilot (Revised)	Scale Up Cost	Scale up Assumptions
Teachers Training	4,000	5000	20,000,000	20,000,000	113,720,800	Reduced by 75% on scale up via Govt. training
Health Checks IRON & Vit D per student 20% of total students	2,200	38,200	84,040,000	0	0	Based on Agha Khan Hospital Feedback
Deworming Medicine bi annual Rs 25 per dose per student	50	191,000	9,550,000	9,550,000	189,035,040	Taken as per pilot
Quality Tests of product 1% of total schools twice year	10,000	28	280,000	280,000	5,811,360	Taken as per pilot
Survery Costs per year	1,500,000	2	3,000,000	3,000,000	9,000,000	Will be done across using samping technique
Bio Metrice Device Cost	15,000	1,400	21,000,000	21,000,000	435,852,000	Taken as per pilot
Software development including trainings	2,500,000		2,500,000	0	0	Cost taken up by PITB
Water Testing at site	2,000	1,400	2,800,000	2,800,000	58,113,600	Taken as per pilot
Grievance Handling Agency Cost @ 200,000 per month	2,400,000		2,400,000	2,400,000	7,200,000	3 times the pilot fee
External Auditor Cost	2,000,000		2,000,000	2,000,000	2,000,000	Taken as per pilot
Communications & Collaterals	2,000,000		2,000,000	2,000,000	10,000,000	Scaled up and added econmies
Waste management (warehouse+bailer cost per tehsil)	250,000	4	1,000,000	1,000,000	16,000,000	Scaled up and added econmies
<b>Total Cost in PKR</b>			<b>150,570,000</b>	<b>64,030,000</b>	<b>846,732,800</b>	
<b>Total Cost in USD\$</b>			<b>912,545.45</b>	<b>388,060.61</b>	<b>5,131,713.94</b>	

Teacher trainings 25 teachers per session

Quality tests on ground will be random to reduce the cost and 1% of total target schools

Rest of health parameters H, W BMI will be checked by Lady Health workers/teachers/site supervisors

Communciation collateral includes leaflets, standees, external communications, SMP magazine etc

Bailer is for compression and compaction of the empty packs for transportations

USD to Pkr Conversion rate at 165

# SCHOOL CENSUS - 2018

Level	Schools		Student Enrolment		Teachers	
	Male	Female	Male	Female	Male	Female
Primary	17095	19226	2683530	2362938	58586	83565
<b>G.Total</b>	<b>17095</b>	<b>19226</b>	<b>2683530</b>	<b>2362938</b>	<b>58586</b>	<b>83565</b>

	Total Schools	Total Enrollment	TOTAL TEACHERS
	36321	4725876	142151
Calculated at 80% assumption	29056.8	3780701	113721

# **Final Report: Pakistan School Milk Program**

Appendix L:  
Final Joint Workshop  
Presentation  
28 October 2020





# PUNJAB SCHOOL MILK PROGRAM PROPOSAL

JOINT WORKSHOP – OCTOBER 28, 2020



# ACTION POINTS FROM LAST MEETING

## Topics for review:

- Study existing/past relevant GoP initiatives
- Reduce pilot duration and fast track scale up timing
- Consider full calendar year feeding
- Address safety risks on consumption
- Revise budget: leverage synergies for project management cost and efficiencies for product cost
- Consider economies of scale for scaling up

## Stakeholder Consultations held:

- Punjab Health Department
- Punjab Education Department
- World Food Programme
- Pakistan Dairy Association
- Tetra Pak

# ALIGNED ELEMENTS OF PILOT DESIGN

## Feeding Scope

- Pilot area Muzaffargarh district - All 4 Tehsils
- Public Schools – primary level
  - Boys and Girls
  - Non formal schools to be considered
- 1400 Schools
- 207,000 students
- 5000 teachers



## Product

- Fortified plain UHT Milk
- Milk collection from small holder farmer
- 200ml Aseptic packaging

## Measurement & Evaluation

- Impact on KPIs of following will be measured:
  - Education
  - Health & Nutrition
  - Economic development
- A control sample of 24 schools will be measured in pilot district

# UPDATED ELEMENTS OF PILOT DESIGN

## Pilot Duration & Scale up Timing

- Pilot duration reduced from 5 years to 1 year
  - Certain health and economic KPIs measurement to continue for 3 years
- Gearing up for scale-up: 6 months
- Scale up: 1.5 years from start of pilot



## Feeding Days Evaluation

- Optimal feeding days researched from global practice and execution proposal provided (+67.5% cost impact for 365 days feeding)

## Pilot Budget

- Revision of program management cost: From PKR 225m to 82m; **-63 %**
  - Based on leverage of existing GoP resources
- Revision of per pack cost: From PKR 27 to 23.6; **-12.5%**
  - Based on subsidies & efficient on-cost basis offer from PDA for pilot
  - **-33%** vs. comparable product retail price
- Total budget reduced from PKR 1,494m to 1,191m; **-20%**
  - Cost per student/month reduced from PKR 593 to 473

\* Budget based on 208 days feeding

# SCALING-UP CONSIDERATIONS

## Project Management Costs Assumptions

- Manpower will be fully absorbed in Government structure
- Execution expenses: while some activities will benefit from scale, other variable costs will be replicated
- Per school cost: **Rs. 58,576 (pilot)** to **Rs. 34,056 (roll-out)**

## Dairy Industry Challenges

- Quality milk availability, low yields and price
- Perception of packaged milk
- Industry at financial loss



## Product Supply and Cost (based on both 208 & 365 feeding days)

- For pilot program private sector will deliver packaged milk at schools at subsidized cost as volume required (26-44k litres/day) is relatively small vs. current supply chain operations.
- Punjab-wide scale up milk volumes are 18 x pilot (**470-780k litres/day**) which will trigger investment considerations in sourcing, processing etc. This requires a larger discussion and alignment between private sector and the government.
- Alternate option is to consider South Punjab (7 districts only) for scale-up scope. Milk volume required will be 4.8 x pilot (**125-213k litres/day**)
  - Sourcing not to be limited to target area only
  - Farmer development program to be initiated and integrated in target districts

# GCNF RECOMMENDATIONS TO GOP FOR NEXT STEPS

- Scale-up scope
  - South Punjab (7 districts) recommended for scale-up phase (this area delivers critical impact on all stated objectives)
- Partnership with other stakeholders
  - Supply agreement with Pakistan Dairy Association
  - Consider World Food Programme involvement in program management
  - Potential donors (list attached) to be considered

THANK YOU



# BUDGET FOR PILOT PROGRAM

	Proposed Pilot Original	Proposed Pilot Revised	Proposed Pilot Revised- Full Year
Serving Days	208	208	<b>365</b>
Total Number of Students	207,000	207,000	207,000
Product Cost (PKR)	27	<b>23.6</b>	23.6
Total Packs Required (M)	47.0	47.0	81.0
Milk procurement per day (litres)	26000	26000	44000
Annual Product Cost (PKR M)	1,269	1,109	1,912
Program Management Cost (PKR M)	225	<b>82</b>	82
<b>Total Program Cost ( PKR M)</b>	<b>1,494</b>	<b>1,191</b>	<b>1,994</b>
<b>Cost per School (PKR)</b>	<b>1,060,000</b>	<b>850,000</b>	<b>1,420,000</b>
<b>Cost per Student per month (PKR)</b>	<b>593</b>	<b>473</b>	<b>792</b>

# BUDGET FOR SCALE UP (SOUTH PUNJAB – 7 DISTRICTS)

Serving Days	208	365
Total Number of Students	1,064,198	1,064,198
Product Cost (PKR)	23.6	23.6*
Total Packs Required (M)	221.3	388.4
Milk Procurement per day (litres)	121,289	212,840
Annual Product Cost (PKR M)	5,223	9,167
Program Management Cost (PKR M)	273	273
Total Program Cost (PKR M)	5,496	9,440

Cost per School per year (PKR)	686,485	1,179,115
Cost per Student per month (PKR)	<b>430</b>	<b>739</b>

Total number of schools: 10008  
 @ 80% qualification = 8006

PM cost: PKR 34056 x 8006 = PKR 272.65 M

\* It is assumed that South Punjab volume will be delivered at same product cost of PKR 23.6 as quoted for pilot

# SCHOOL INTERVENTIONS CONSIDERED

## NO SCHOOL FEEDING PROGRAM IMPLEMENTED IN RECENT YEARS

### School Health & Nutrition Program (SH&NP)

- Objective: Obtain and record school children health data
- Scope: Punjab-wide (currently running)
- Feeding: No school feeding implemented
- Learning: Leverage attendance and health data

### Punjab School Nashownuma Program

- Objective: Education, Nutrition, Dietary diversity, Local production
- Scope: Feasibility (19-20); Pilot in South Punjab (20-21) at small scale. PC-11 prepared, however, feasibility study not conducted.
- Feeding: 3 options considered (indigenous food)
- Learning: Pilot duration, risk management

### Land O'lakes School Feeding (2003-2009)

- Objective: Increase school enrolment; bridge nutrition gap
- Scope: Ghotki, Sindh
- Feeding: UHT milk & fortified biscuit
- Learning: KPIs measurement, cost benchmarks, execution, sustainability

Education	<ul style="list-style-type: none"> <li>• 42% increase in enrolment at targeted schools</li> <li>• 7% at other schools in the province from 2003 to 2004</li> </ul>
Weight/Height	<ul style="list-style-type: none"> <li>• 2.8 kg gain by targeted students as compared to 1.9 kg for control students</li> <li>• 6 cm gain by targeted students as compared to 5.1 cm for control students</li> </ul>
Nutrition	<ul style="list-style-type: none"> <li>• Reduction in the prevalence of wasting from 10.2% to 7% among targeted students</li> <li>• Decrease in the number of children classified as stunted from 11.4% to 9%</li> </ul>

# THE PRODUCT: FORTIFIED UHT MILK IN 200ML PACK

Micronutrient deficiency status: Punjab	%age
Vitamin D	42
Zinc	35
Iron	48



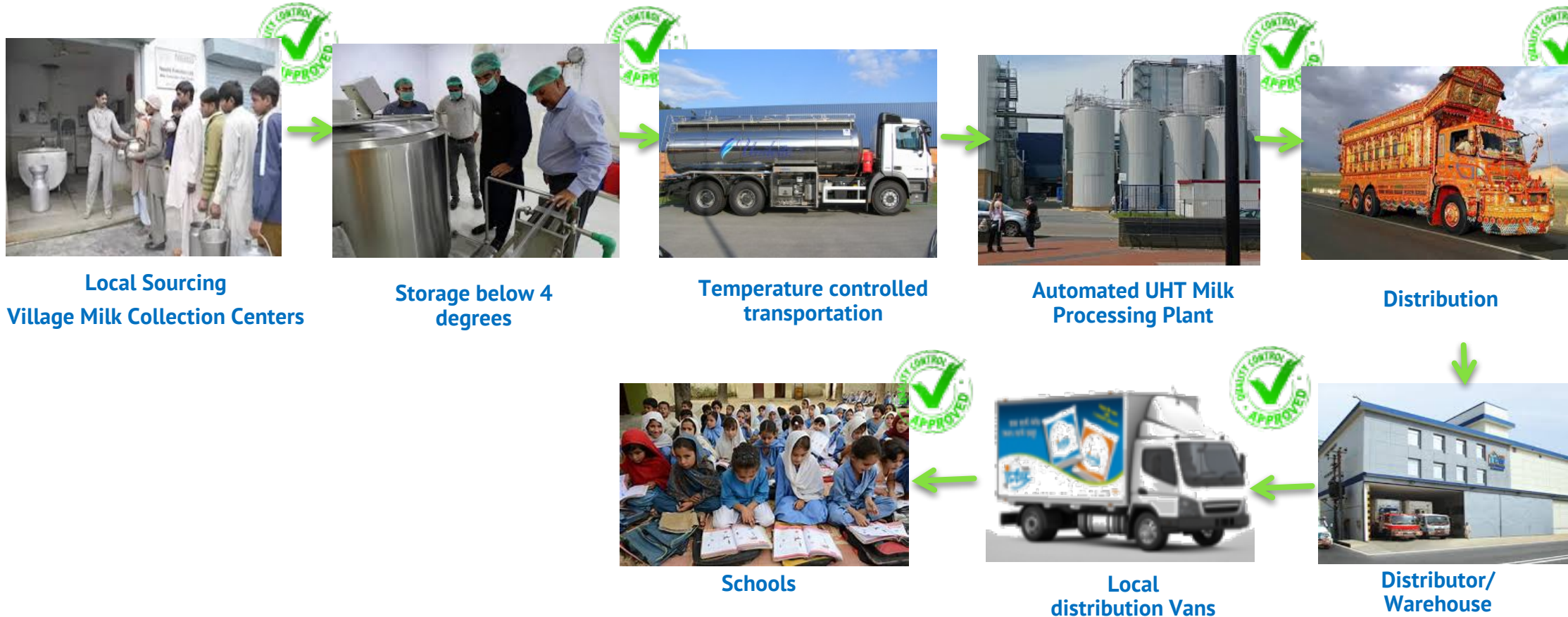
Fortification with micronutrients (25% of Reference Daily Intake)			
Fortified Nutrients	Designed product	Whole milk	Reference Daily Intake
Iron (mg)	2	Traces	8
Vitamin A (mcg)	150	64	600
Vitamin D (mcg)	2.5	1.92	10
Zinc (mg)	1.75	0.84	7

**Fat content in the product 3.5%, Solid Not Fat (SNF)=8.5%**

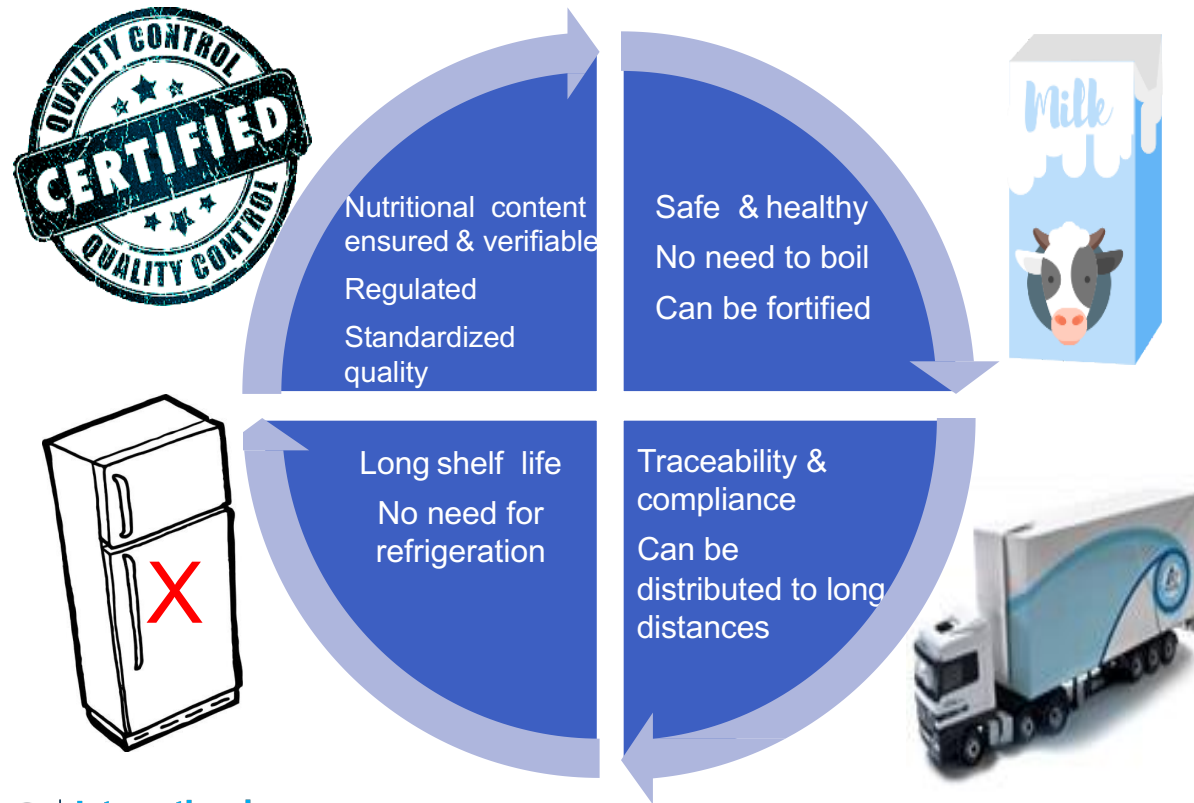
# SMALL HOLDER FARMER SOURCED UHT PROCESSED MILK

## 27 TESTS ACROSS THE SUPPLY CHAIN TO ENSURE QUALITY & SAFETY

School Milk Value chain



# WHY UHT MILK





# NO. OF FEEDING DAYS EVALUATION

## Global Perspective:

- All school milk programs globally are run during school days averaging from 3-5 days / week
- Serve size ranges from 180-250 ml

## Feeding in school ensures:

- Benefit fully passed to intended beneficiary
- Pilferages and wastages minimized
- Direct impact on school attendance
- Better control over crisis management

## Considering 365 days feeding execution

- Weekend stocks to be logged and given to children at school to take home
- Vacation stocks to be distributed to Basic Health Units where either a) parents could collect weekly stock via school IDs or b) milk can be distributed directly to beneficiary households through lady health workers as per their roster

## Watch Outs:

- Ensuring distribution & beneficiary consumption
- Administration during non-school days

# PILOT AREA SELECTION CONSIDERATIONS

## Core Criteria : applied across all Punjab districts

- Incidence of malnutrition
- Incidence of poverty
- Literacy rate

## Supplementary Criteria : applied on short listed districts

- Livestock- Number of milking animals
- Number of small holder farmers
- Number of primary schools (Boys & Girls)

## Confirmatory Criteria : applied on short listed districts

- Dairy processors milk collection network availability
- Dairy processors distribution and ware housing availability
- Accessible infrastructure( road, mobile and internet network)
- Human resource availability (NGO's network etc.)

Cities	Ranking Score
<b>MuzaffarGarh</b>	<b>1</b>
Rahim Yar Khan	2
Bhawalnagar	3
Bhawalpur	4
Dera Ghazi Khan	5
Rajanpur	6
Lodhran	7

### Sources:

Planning commission- Government of Pakistan (Chapter-2: Punjab Poverty Profiling 2018)  
 Multiple indicator cluster survey 2017-18  
 Punjab livestock census 2018  
 Government of Punjab - Education Department  
 Pakistan Dairy Association

# EDUCATION

	Indicators	Description of Indicators	Source	Timing
1	Enrollment (number)	Number of new admissions in the sampled school before and after SMP	Historic data + register and data from sampled schools	Baseline, Endline
2	Estimated attendance rate	Ratio of students present in school on a given number of days during the year (determined by head counts) to the number of children enrolled		
3	Drop-out rate	Percentage of children enrolled in a given year who do not finish the school year.		
4	Promotion rate	Percentage of children enrolled in a given year who are promoted to the next grade at the end of the year		
5	Involvement of parents in activities at schools	Change in parents' level of involvement in children's schooling	Qualitative Research with parents, teachers and students	Baseline, Endline
6	Students' academic ability	Change in students' academic performance		

# ECONOMIC DEVELOPMENT

	Indicator	Description of Indicators	Source	Timing
1	New safe packaged milk market	Number of packs delivered to schools	Milk dispatch/received data	Monthly
		Increase in liters of milk collected	Milk collection data	Baseline, monthly
		Increase in size of safe packed milk market in pilot area	Data from processors	Baseline, <b>Annually</b>
2	Farmer engagement	Number of farmers engaged with the SMP	Data from milk collection	Monthly
		Incremental value of milk procured from the farmers	Milk collection data	Baseline, <b>Annually</b>
3	Employment	Increase in employment related to the SMP – Processors, milk collectors, distributors, and project management	Data from processors value chain & project team	Baseline, Endline
4	Impact on farmers	Income stability, improved farming practices (via processors' efforts), sense of contribution, perception about children's schooling	Qualitative Research with farmer households	Baseline, Endline, <b>thereafter annually</b>

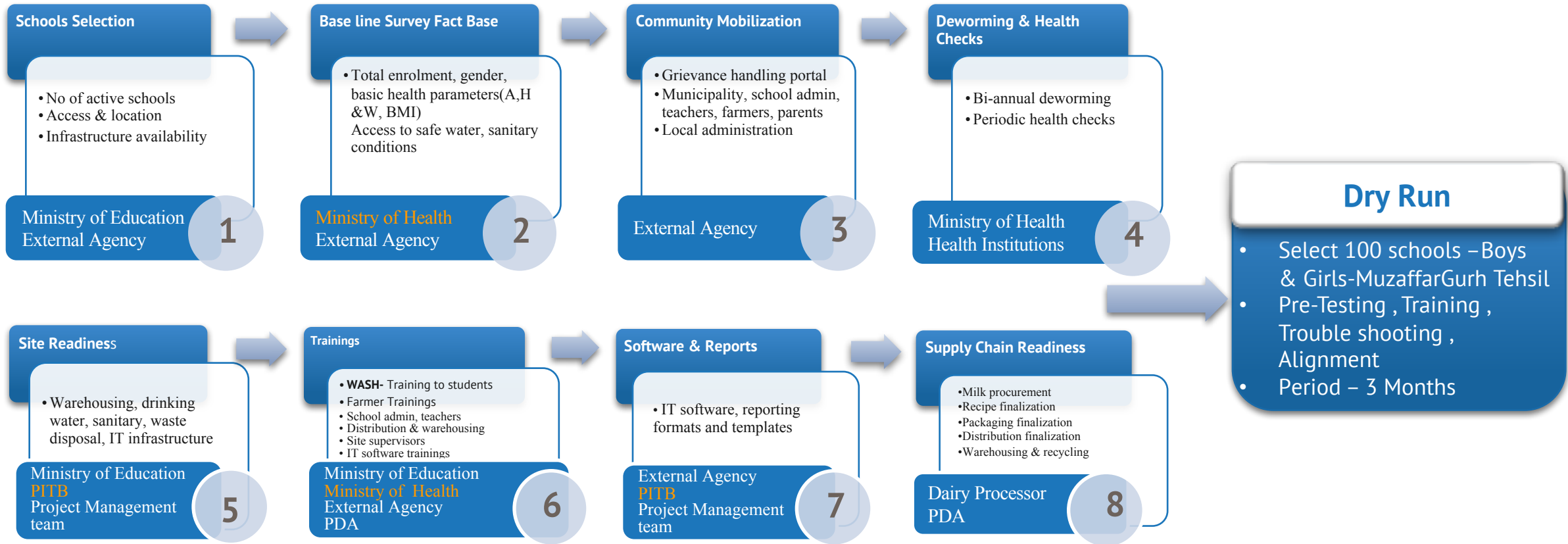
# HEALTH AND NUTRITION

	Indicators	Description of Indicators	Source	Timing
1	Height	Height according to age, measured with stadiometer or measuring tape	Primary data from children of sampled school	Baseline, Endline, thereafter annually
2	Weight	Weight according to the age, measured with weighing scale		
3	Body Mass Index	Approximate measure of over- or under- weight, calculated by dividing the weight in kilograms by the square of their height in meters		
4	Mid-Upper Arm Circumference (MUAC)	Circumference of left upper arm mid-point between the tip of the shoulder and the tip of the elbow. Used to assess nutritional status.		
5	Iron Deficient Anemia	Caused by a lack of iron, leading to low levels of hemoglobin	*	
6	Vitamin D deficiency	Vitamin D is essential for strong bones: It helps the body use calcium from the diet		
7	General Health	Incidence of general illnesses (include dental & vision)	Absenteeism and # of hospital visits	
8	Student reaction to the intervention	Student reaction to the milk delivered; its frequency, amount, quality and taste	Qualitative Research with students, parents, teachers	Month 1
9	Student behaviors	Any significant change in student behaviors (alertness, fatigue, focus, physical activity, anger, emotional disturbance etc.)		Endline

\* Blood testing viability to be checked. Refer to alternate method via Agha Khan, or via qualitative research

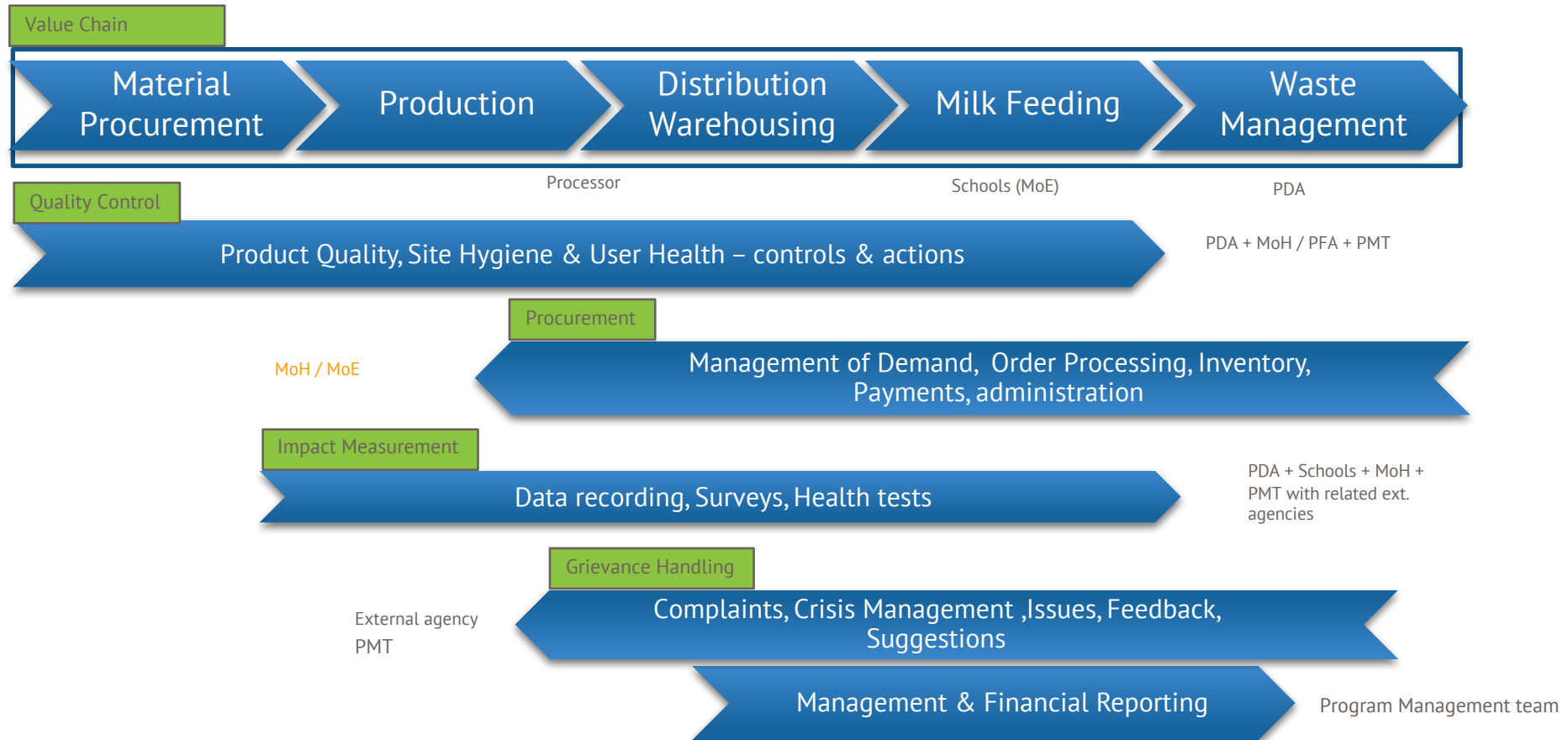
# PROJECT PREREQUISITES

## TASKS, ROLES, PROPOSED ASSIGNEES





# EXECUTION PROCESSES & ROLES



# QUALITY CONTROLS

## Raw Milk Reception Standards

- Sensory features like TOA (taste , odor , appearance)
- Total Viable Count As per regulatory norms ml 2: MSNF min 8.5 % (if quality SMP option exists then lower MSNF can be accepted up to 8.3 % , Protein min 34 % of MSNF)
- Aflatoxin M1 below 0.5 ppb , Free from antibiotics and hazards like formalin , urea etc.
- pH value 6.8 to 6.9
- APT @ 65 % IPA / or min requirement no COB
- Temperature max 7 C

## Dairy Plant

- GMP / Hygiene Satisfactory |Status
- Tanker wheel bath at plant entrance or tire washing restrictions.
- Availability of all PPEs
- HACCP / FSMS
- CIP / COP Standard protocols
- Capability of the equipment 1 bad pack per 10000 packs (validated)
- One Step (not mandatory) scoring parameter only
- Losses below 1% (process / packaging)
- Space for min 5 days storage of finished goods
- Passed the national quality supervision and sampling, with no food safety incidents in past three years.
- Established product traceability system
- Site must have Valid GFSI certification (min FSSC 22000 ver. 4.1)

## Product Specification & Recipe

- ERP (inventory / recipe / SPC)
- Milk reception 1000 H max @ plant with a dispatch note having Fat/MSNF/ Time information as minimum.
- Expiry minimum 3 months at target location
- Tanker must be labeled milk for Processing / Not for direct sale.
- Incoming material inspection program
- Package Quality Program / Approved Suppliers

## Logistic & Warehousing

- Must Comply with Good Warehousing Practices
- Ensuring the FIFO compliance and desired keeping conditions like stacking heights , temperature , Relative Humidity
- Strict Compliance to Product Release Program & Traceability (tagging of pallets - mandatory)
- Order receiving and serving through integrated and ERP-based warehousing and dispatch management system.
- Minimum and maximum inventory level guidelines to be followed
- Product release min 5 days incubation. Under Hold or Under Observation products release decision strictly by QAM.

# QUALITY CONTROLS

## Distributors

- Containment of the earmarked stocks for distribution to schools only
- Ensuring FIFO compliance and desired keeping conditions
- Inward, stay and outward record keeping in the Management System.
- Periodic physical counting of stocks.
- Batch numbers of each delivery to be noted.

## Traceability System

- There must be a traceability system that enables upstream tracing of all raw materials, ingredients and primary packaging materials, including all relevant data of individual batches, and downstream tracing of finished products and by-products, which has been tested and documented at regular intervals.
- The traceability system must be tested at least yearly to ensure that it is delivering the required level of traceability with respect to speed and quantity.
- Manufacturing & Distribution locations must at all times be able to track and trace raw materials, ingredients, processing aids in contact with product, primary packaging, (semi) finished products and activities (in so far they can have an effect on food safety), at least one step up and one step down and within a period of 4 hours at the most.
- The Food Security Management System must be in place to control the food sabotage . There must be written procedure and risk assessment on site to identify and control food sabotage hazards

## Sampling & Testing

- Sampling Policy 2 (nearly zero defect) : 5 samples per hour including very first packs incubate @ 35 C and check TOA/pH Day 1/3/5 & 2 retention @ room Temp as a back up of for Complaint verification.
- . Weekly three randomly picked preferably 1st & last pack on an operation for Fat/M|SNF/Viable Count (Pathogens like Coliform ( total+f ecal) / salmonella in case of positive Total Plate Count)

# ADMIN CONTROLS

## Pilferage & Wastage

- Specific design and labeling for School Milk pack clearly marked not for sale and have specialized bar code to identify it
- Maintaining documentation of product dispatched to and received at schools.
- Recording of receiving, inventory and consumption of packs in software
- Control over expiries, disposal of open packs and maintenance of keeping conditions
- Bio metric scan for attendance in the schools and pack distribution accordingly to ensure milk is consumed by the student present in the school
- All Empty packs (consumed) should be recorded every school day and handed over to recycler
- Recording of all open packs wasted or less consumed
- Records for all unused packs (wasted/ expired) with physical packs proof should be separately recorded and kept for audit review

## Audit

- Verification of all the records e.g. demand note, dispatch note, consumption as per attendance through biometric records , empty packs, milk wasted/ expired, distribution losses by an independent third party
- Reimbursement of funds on the basis of such report

## Grievance Handling

- Hotline number shared with the parents to contact in case of any complain/issues/feedback
- Grievance committee log the complaint and inform the program director and also keep track of the issue resolution and frequency of complaints for updating board members

# MANAGING RISKS WITH MILK FEEDING

## Lactose Intolerance

### Pre-feeding strategy

1. History of the parents/children during research phase (being a genetic disorder)
2. Awareness sessions with parents/ teachers regarding the issue and its management
3. Development of IEC (Information, Education, and Communication) materials for parents/teachers

## Drinking Milk Empty Stomach

### Pre-feeding strategy

- Avoid giving milk empty stomach;  
Recommended to take during school lunch break

## Drinking Spoilt Milk

### Containment strategy

1. Stop the feeding process
2. Isolate the suspected batch
3. Inform site supervisor
4. Contact hotline for reporting
5. In case of reaction, contact closest doctor

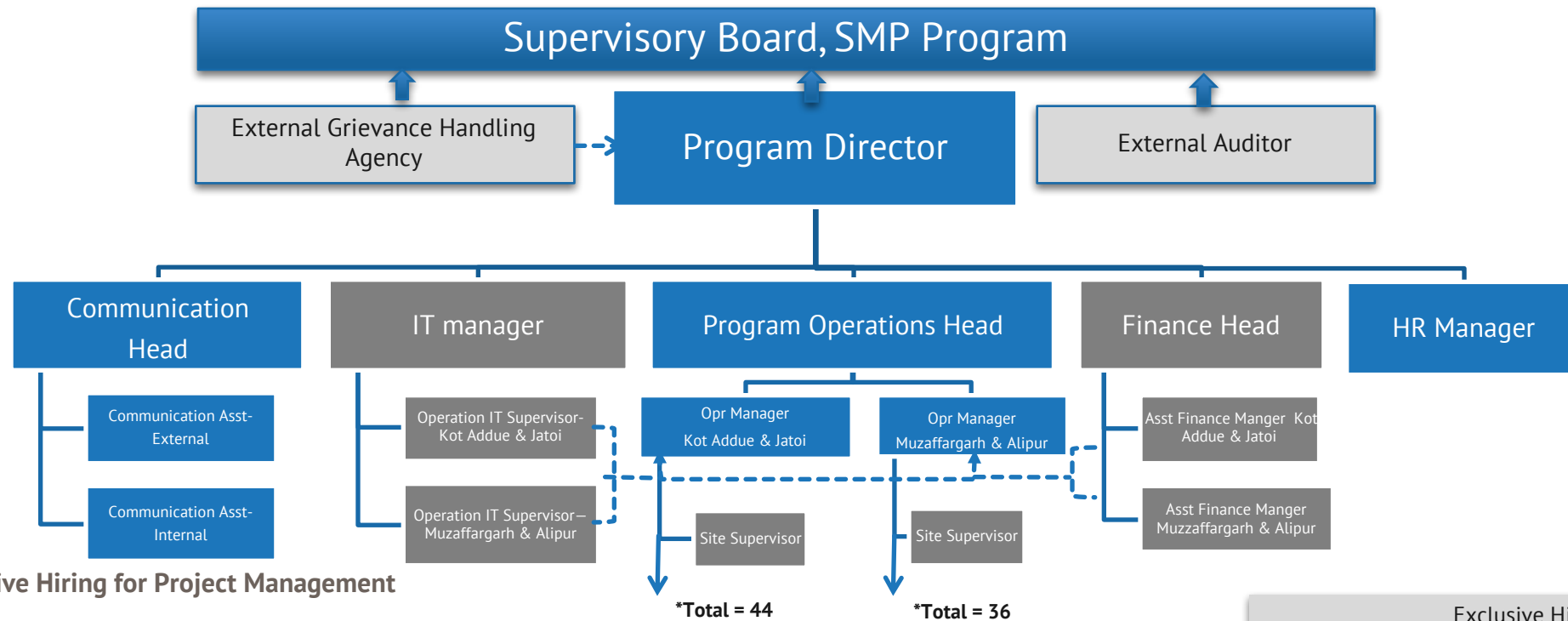
### Post-feeding strategy

1. Simple observation of foul/rotten egg smell after taking milk
2. Avoid large servings of milk; project has recommended 200ml of milk
3. Frequent use of traditional diet rice lentils and yogurt\*
4. Directions should be written on the box to discontinue in case of diarrhea/bloating
5. In case of severe reaction, visit doctor

### Escalation Process & Crisis Management

1. Site supervisor to contact Program Director and Communication in-charge
2. Program Director to contact all other site supervisors to isolate the suspected batch immediately
3. Program Director to immediately involve supplier responsible for investigation.
4. Parents should be engaged through School Admin
5. Local Health Department should be engaged immediately
6. Board should be updated and a holding statement of the issue should be released

# PROPOSED PROGRAM MANAGEMENT TEAM (REVISED)



**Exclusive Hiring for Project Management**

**Government Resources**

**External Agencies**



	Exclusive Hiring	Govt Resources
Program Director	= 1	
Communication	= 3	
Finance		03
IT		03
HR	= 1	
Program Operations	= 3	80
<b>Total Staff</b>	<b>= 94</b>	<b>260</b>



# REVISED PILOT PRODUCT & PROJECT MANAGEMENT COST

Fortified UHT Milk (200 ml with attached straw) Fat 3.5%, SNF=8.5% (As per PSQCA standards)	Initial Estimation	Industry SMP offer
<b>Total Cost / Pack (PKR)</b>	<b>27</b>	<b>23.6</b>

Comparable 200ml product (calculated) available at retail for approx. **Rs. 35/-**

Revised based on efficient on-cost basis offer by dairy industry for pilot program only

12.5% reduction

-33% vs Retail price

	Proposed Pilot Original	Proposed Pilot (Revised)
<b>Program Management Cost (PKR M)</b>	<b>225</b>	<b>82</b>

Revised based on organization sharing and leveraging existing government operations

63% reduction

# POTENTIAL FUNDING RESOURCES, PAKISTAN SCHOOL MILK

ORGANIZATION	PROJECT/CATEGORY	STAFF IN PAKISTAN?	LINK(S)/CONTACT INFORMATION
Aga Khan Development Network	Agriculture and food security/education	Yes	<a href="#">AKDN work in Pakistan</a>
Asian Development Bank	Public-private partnerships/agriculture	Yes	<a href="#">Office of Public-Private Partnership</a> within ADB ADB Resident Mission in Pakistan: Level 8, North Wing, Serena Business Complex, Khayaban-e-Suhrawardy, G-5, Islamabad Hours: 8 am to 5 pm Monday to Friday Tel: +92 51 2600351 to 69, 2087300 <a href="http://www.adb.org/pakistan">www.adb.org/pakistan</a>
Cargill	Cargill Global, Cargill Asia-Pacific, Cargill Agriculture Supply Chain/Livestock/Dairy	Yes	<a href="#">Cargill Announcement</a>

# POTENTIAL FUNDING RESOURCES

ORGANIZATION	PROJECT/CATEGORY	STAFF IN PAKISTAN?	LINK(S)/CONTACT INFORMATION
Food and Agriculture Organization of the UN (FAO)	Livestock/Dairy	Yes	<a href="#">DAIRY DEVELOPMENT IN PAKISTAN</a> FAO Representative: Ms. Mina Dowlatchahi <a href="mailto:FAO-PK@fao.org">FAO-PK@fao.org</a>
Global Alliance for Improved Nutrition (GAIN)	Nutrition/Food fortification/Private Sector	Yes	<a href="#">GAIN Pakistan</a>
International Fund for Agricultural Development (IFAD)	Agriculture. Note new fund for new technologies, approaches and methodologies that can subsequently be scaled up through IFAD's country programs and by other stakeholders	Yes	<a href="#">IFAD Grants and Design</a> <a href="https://www.ifad.org/en/web/latest/news?mode=search&amp;catCountries=39090886">https://www.ifad.org/en/web/latest/news?mode=search&amp;catCountries=39090886</a> (link to work in Pakistan)  Hubert Boirard, Country Director: <a href="mailto:h.boirard@ifad.org">h.boirard@ifad.org</a> Fida Muhammad, Country Program Officer: <a href="mailto:f.muhammad@ifad.org">f.muhammad@ifad.org</a>

# POTENTIAL FUNDING RESOURCES, PAKISTAN SCHOOL MILK

ORGANIZATION/ COUNTRY	PROJECT/CATEGORY	STAFF IN PAKISTAN?	LINK(S)/CONTACT INFORMATION
World Bank - Social Safety Nets	Access to quality healthcare & education, support economic opportunities for women, and <u>strengthen social safety nets</u> to limit impacts of COVID-19: \$500,000,000, beginning 2020	Yes	<a href="#">World Bank Pakistan</a>
World Bank – Livestock	Agriculture and livestock productivity: \$300,000,000, 2017-2013	Yes	<a href="#">World Bank Pakistan - Punjab</a>
U.S. International Development Finance Corporation			<a href="#">DFC Funding Announcement</a> <a href="https://www.dfc.gov/what-we-offer/eligibility">https://www.dfc.gov/what-we-offer/eligibility</a>
Government of Turkey/Turkish Dairy Interests			

# POTENTIAL FUNDING RESOURCES, PAKISTAN SCHOOL MILK

ORGANIZATION/ COUNTRY	PROJECT/CATEGORY	STAFF IN PAKISTAN?	LINK(S)/CONTACT INFORMATION
Islamic Development Bank	Agriculture and Rural Development		<a href="https://www.isdb.org/sites/default/files/media/documents/2019-04/IsDB_Agriculture%20Sector%20Policy.pdf">https://www.isdb.org/sites/default/files/media/documents/2019-04/IsDB_Agriculture%20Sector%20Policy.pdf</a>
Government of Canada/Global Affairs Canada	International Assistance Innovation Program (IAIP Canada, a \$900 Million fund 2018-2023 ): Market building for pro-poor investments and Gender Equality	Yes	<a href="#">IAIP Assessment Criteria</a> Canadian High Commission in Pakistan Diplomatic Enclave, Sector G-5 Islamabad Phone: (+92) (51) 208-6000
Ministry of Foreign Affairs of Japan; Japan International Cooperation Agency	International development (generally favorable to school meal programs)	Yes	4th Floor, Serena Office Complex, Plot No. 17, Ramna 5, Khayaban-e-Suhrawardy, G-5/1, Islamabad Tel : (92-51) 9244500~7

# POTENTIAL FUNDING RESOURCES, PAKISTAN SCHOOL MILK

ORGANIZATION/ COUNTRY	PROJECT/CATEGORY	STAFF IN PAKISTAN?	LINK(S)/CONTACT INFORMATION
Netherlands: Ministry of Foreign Affairs; multiple Dutch foundations	Varied, but interest in dairy and in Dutch companies in the country	Yes	<a href="#">List of Funders</a>  Netherlands Embassy: Diplomatic Enclave, Sector G-5 167, Street 15, Islamabad, Phone: (051) 2004444
USAID/Punjab	\$180 million USD over 5 years in grants	Yes	<a href="#">Punjab Enabling Environmental Project</a>
USAID/Pakistan	“helping businesses expand through access to new technologies and improving the management of high-value sectors such as dairy, textiles, and agribusiness”	Yes	USAID/Islamabad, Unit 62206 – USAID APO AE Pakistan 09812-22096 Phone: 92-51-208-00000 Email: <a href="mailto:infopakistan@usaid.gov">infopakistan@usaid.gov</a>



The Global Child Nutrition Foundation

P.O. Box 99435

Seattle, WA 98139-0435 USA

Office: (US) 206-258-6749

Email: [info@gcnf.org](mailto:info@gcnf.org)

