# Nutrition Modeling Consortium Virtual Meeting Notes
September 29th and October 1st, 2021
10:00am-12:00pm EDT

Day 1, September 29th – Current projects and updates

Co-located modeling in Cameroon
Saskia de Pee
Steve Vosti
Debra ten Brink
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Jose Luis Vivero

Over the last 10 months, three modeling tools of the NMC, Fill the Nutrient Gap (FNG), MINIMOD, and Optima Nutrition, have been jointly working in Cameroon with partial funding from the NMC. The figure below shows the initial framework of priorities for the new nutrition policy in Cameroon and how the modelling tools came together to address the various priorities.
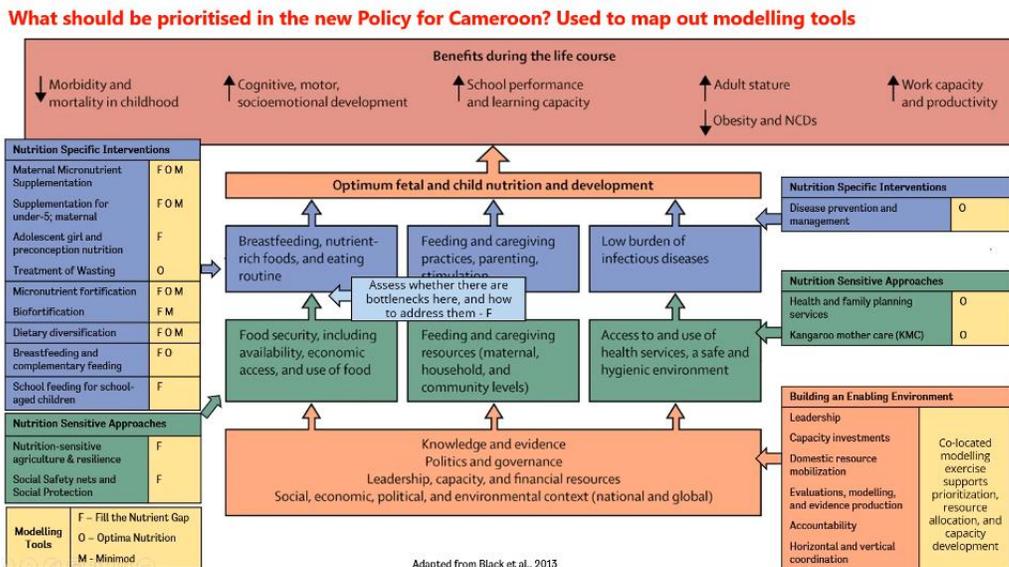
A 4-day workshop was followed by a communication event on policy messages that were broadcast on the local news. FNG's results showed nearly half the Cameroonians cannot afford a diet that meets their
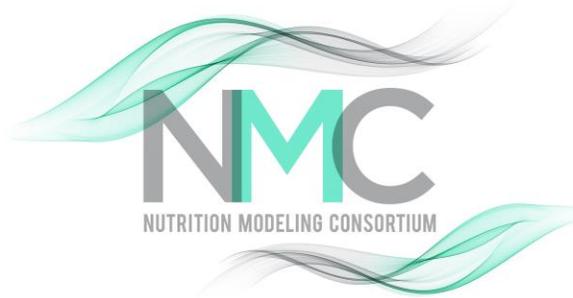
nutrient requirements, and there is a strong correlation between affordability and stunting, but interventions from multiple sectors can improve nutrient intake. Optima Nutrition showed additional funding can have the greatest impact if it is allocated to more complementary feeding interventions for young children in all regions, and specifically, complementary feeding promotion in the south of the country, where nutritious foods are more available and affordable, and specialized nutritious foods in other regions where complementary foods are less available and affordable. Additional funding would also be allocated to vitamin A supplementation, kangaroo mother care, and the management of MAM. MINIMOD results showed that although rice fortification is not implemented at scale, it has good potential for fortification. Oil fortification can improve vitamin A intake and can be complemented by vitamin A supplementation in some regions for better coverage. The results of the co-located modeling will be used in the revision of the National Nutrition Policy and taken into consideration for the WFP new Country Strategic Plan.

The results of co-located modeling effort show how the tools together contributed to providing more concise and scientifically robust answers to current nutrition policy questions in Cameroon, namely what are the key nutrition problems, what can be done and the costs of impactful policy options. The specific contributions and value added by MINIMOD, Optima Nutrition and FNG are described in the figure to the right.

Contributions of the Three Tools

- FNG
  - Situation analysis and multi-sector stakeholder engagement process – to tailor the analysis & provide hooks for modelling results
  - What is the cost of a nutritious diet?
  - Who can afford it?
  - What can policymakers across sectors do to make that diet more available, affordable and chosen?
- MINIMOD
  - What are people actually consuming?
  - How deficient are their diets in key micronutrients?
  - What can policymakers to do improve the quality of micronutrient-deficient diets?
  - What are the costs and cost-effectiveness of alternative micronutrient intervention programs?
- Optima Nutrition
  - What nutrition and other programs are currently in place that reduce child stunting, wasting and mortality?
  - How effective and cost-effective are they in reducing stunting, wasting and mortality?
  - Are there more efficient sets of programs available for achieving those objectives?
  - If additional resources were available, how would they be most efficiently spent?

All presentations contain results at the national and subnational levels.

A big priority in Cameroon is stunting and one of the main drivers of stunting is lack of affordability of healthy/nutritious diets (by parents). Improving dietary diversity, mothers' autonomy/empowerment/ education, diversify/increase income and universal social protection combined with universal school meals can all work to improve stunting rates. Local preferences for foods (e.g., eggs, moringa, fish, etc.) should ideally be included in the models, as 46% of household have access to food through local/private markets or from their own food production, limiting the access to fortified foods.
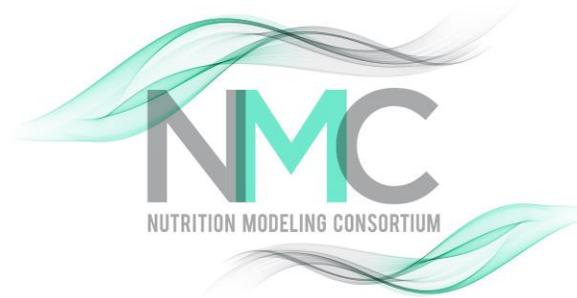
Tool updates

SEEMS-Nutrition
Carol Levin
The SEEMS-Nutrition tool focuses on costing complex multisectoral intervention projects/programs, and can be used in economic evaluations of complex nutrition-sensitive interventions, such as in Malawi (with the "NEEPIE" project) and Bangladesh (with the "TRAIN" project). These are projects with large training/household counselling components, where the biggest drivers of costs are personnel. The analysis for the NEEPIE project is completed and demonstrated this investment is a good value for money. Additional information and specific training about SEEMS-Nutrition can be found online: https://sites.google.com/uw.edu/seems-nutrition/

MINIMOD
Steve Vosti
The MINIMOD team continues to update both the MINIMOD-Full and MINIMOD-SD Tools, and expand their applications and policy engagement activities. This includes the newly developed MINIMOD-SD (using primarily secondary data), the multi-fortified bouillon cube project, the development of an online premix cost calculator and the continuous-variable version of the economic optimization model.

ENHANCE (Environment, Nutrition and Health Analytics for National, Consumer and Emergency Diets)
Saskia de Pee
ENHANCE is a Data platform & Modeling for Sustainable, Healthy and Affordable Diets to inform Food System Transformation. Use of ENHANCE showed that the adoption of the "planetary health diet" has different impacts on countries' greenhouse gas emission, e.g., the greenhouse gas emission for bovine meat production varies by production method and country of origin. An analysis conducted in Indonesia explored different dietary scenarios and their impact on nutrient adequacy, environment and costs. ENHANCE can be used with policy makers to compare and optimize scenarios on food systems transformation.

Day 2, October 1st – Future directions

National Perspective of the Co-located modeling in Cameroon
Alex Ndjebayi
Ann Tarini
The resources brought by the co-modeling work to the various national stakeholders (agriculture, health, education, social protection sectors) was very helpful in planning for a new nutrition policy. It was particularly useful to have the results broken down by region, which makes it possible to understand the type of intervention that is more appropriate according to the needs of a specific region. However, new data from
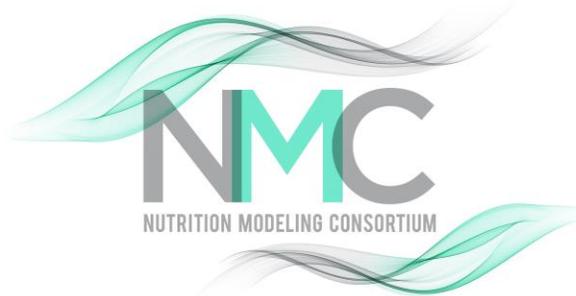
Cameroon is needed, as some existing data are 10 years old. The next step is to implement the resulting decisions from this first part of the project.

The results of this work confirmed that the usual target regions were the right ones, but identified a new important target group – the adolescent girls. A system to routinely update the data would be desirable and support for each sector is needed to translate take-away messages into action, in each of the Ministries. It is equally important to share the results and messages with other development partners that are supporting more directly those sectors (e.g., agriculture and education).

## Overview of NMC Accomplishments
Gilles Bergeron
A number of NMC's achievements over the past 3 years can be quantified. The NMC has grown from an initial 17 participants and 8 modelling tools, which increased to 35 participants and 13-15 tools. Eight NMC meetings were hosted with additional presentations about the NMC at conferences organized by ASN, EAT and SUN. The secretariat is organizing a Special Issue of the Annals of the NYAS with 9 papers showing the impact of nutrition modeling, and created a website dedicated to the NMC with descriptions of tools, case studies, and video tutorials. Most importantly, the NMC created a community of practitioners, which facilitated collaboration between the various tools, helped resolved discrepancies and increased the interoperability of the various tools and clarified the field to outside users. The main challenges included the data itself, which is needed in a specific format, and the end-user uptake, which was less than expected (we should have pivoted from supply to demand). It was also pointed out that the ability to assess the impact of COVID-19 on nutrition was greatly facilitated by the existence of the NMC and it's "broker" role and how it facilitates large collaborations and integrated models to address complex questions is important.

Micronutrient Data Innovation Alliance (DInA)
Reed Atkin
Saskia Osendarp
Two very relevant data workstreams of the Micronutrient Forum include the biochemical data gap strategy (convening) and IHME Technical Assistance (advocacy). A proposal for DInA was recently submitted for funding to the BMGF and other agencies will be asked to take on areas that are not a priority for BMGF. The problems that the Alliance aims to address are: sparce reliable micronutrient data, poor utilization of available micronutrient data, and lack of consensus on tools, which need harmonized definitions and indicators. The goal of the Alliance is to improve the availability, quality, accessibility and use of data across the micronutrient data value chain to support national level decision makers, implementers, normative bodies, and funders. Two phases are planned: phase one (the launch phase) and phase two (the implementation phase). Illustrative DInA activities were presented, e.g. build an large scale food fortification (LSFF) and micronutrient data lexicon and roadmap, LSFF and MN data Tool Use Case Identification,
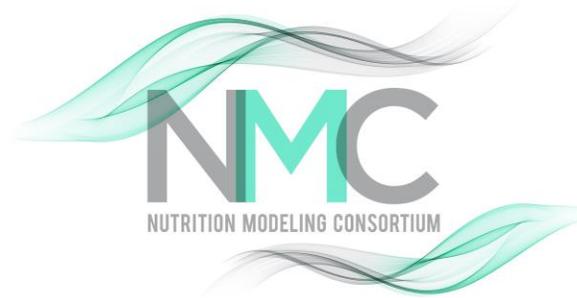
development of a subnational data visualization tool, etc. There are ongoing discussions about how to best integrate the NMC Tools into this initiative.

BMGF Nutrition Strategy

Jonathan Gorstein

After introducing the BMGF values of reducing inequity and the focus on areas of greatest need to reach the most vulnerable, the new nutrition strategy was summarized, with a primary focus on food fortification. The nutrition strategy is built to address 5 key challenges in food fortification: data gaps, R&D advancement needs, low technical capacity, weak or no LSFF standards and low compliance.


OUR STRATEGY IS BUILT TO ADDRESS FIVE KEY CHALLENGES IN FOOD FORTIFICATION

	Key challenges in LSFF	Our response
	Data Gaps: Primary data collection on micronutrient deficiencies is invasive, costly, and static; persistent gaps provide an incomplete view on deficiencies and coverage, and impede programming quality	**Big Bet #1 - Data:** Reduce reliance on primary data through dynamic modeling enabled by AI / ML; utilize data models to guide program investments, measure impact, and collaborate across LSFF & Nut. community. Limited primary collection of biomarkers where existing data are insufficient
	R&D Advancement Needs: Currently available vehicles are insufficient in satisfying diverse consumption patterns; additional innovation needs exist around IoT and analytical devices	**Big Bet #2 - R&D:** Invest in both 'on the horizon' and 'blue sky' micronutrient / vehicle / device innovation (including stronger private sector partnerships to help scale LSFF)
	Low Technical Capacity: Limited fortification experience and capacity, important for compliance testing (by both food producers and government regulators), undermine fortification quality and enforcement	**Big Bet #3 - Technical Assistance Accelerator:** Establish a catalytic PPP model, led by premix & technology suppliers, to deliver TA to drive adherence to new and existing fortification standards
	Weak or No LSFF Standards: Standards–where existent–are often incomplete / insufficient, covering only 1-2 food vehicles per country (with 1-2 MNs per vehicle), leading to inadequate reach and impact	**Big Bet #4 - Standard Setting Accelerator:** Address gaps in country-level LSFF regulations to improve enabling regulation (logo, claims), mandatory fortification, implementation, and embed gender-equity principles
	Low Compliance: Only 15-50% of fortified foods are compliant with standards, largely due to ineffective quality assurance and control[1]	**Big Bet #5 - Digital QA/QC:** Systemically leverage digital tools to assess fortification compliance at production, market, and border to increase trust and catalyze 'quality partnerships' between governments & producers to ultimately improve compliance
Entire strategy supported by:	**Advocacy:** Maintains the foundation's voice and influence on broader nutrition sector	
	Gender: Applies a learning agenda to gender integration in a population-based approach	

Sources: 1. Luthringer et al. 2015, "Regulatory Monitoring of Fortified Foods: Identifying Barriers and Good Practices," Global Health: Science and Practice.

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One of the main objectives is to increase access and use of data at country level to inform decisions on program design and implementation of monitoring. Data on prevalence of micronutrient deficiencies and how these deficiencies are addressed with fortification are scarce. As a result, there will be a focus on generating that data to close LSFF data gaps.

Other interventions that improve micronutrient status will be closely monitored to understand the individual impact of LSFF and the combined effect of the various nutrition interventions. It is not expected that LSFF will meet the needs of all segments of the population, and it is suspected that additional interventions and/or other delivery channels will be needed.
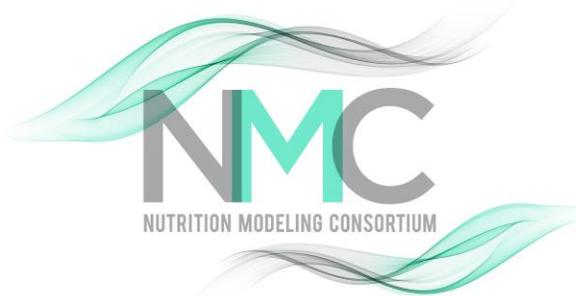
Potential future projects

Megan Bourassa/NMC

There are a number of potential next steps for the NMC that would allow it to build upon its existing work. Potential future steps for the NMC could include:

- reach policy makers at the right point in the policy cycle with appropriate follow through
- document case studies of end-user driven demand of tools, e.g., request in Mexico to use LiST
- pre-populated data to help engage end users in using data (e.g., through a dashboard)
- training and capacity building either in country or in region on how to use the data
- continue to bring the modelers together, which allow them to work on the "validation" aspects of the models
- find a way to keep up with the most recent data/evidence (e.g., systematic reviews) that is used for the models
- use the tools to improve existing programs, through new products or delivery mechanisms (e.g., multi-fortified salts and bouillon cubes); help fill information/evidence gaps for different groups that collaborate with national food fortification alliances (e.g., UNICEF) to help them move in cost-effective ways.

Participants

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