

Report on the 2017 SUN Movement Global Gathering Parallel
Workshop: “How can nutrition modeling tools be used most
effectively to inform nutrition”

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Summary

Nutrition modeling tools can and have been used successfully by countries to inform evidence-based nutrition decisions or policies, and to address questions that may come up in the nutrition programming cycle from the advocacy through the decision making, costing and coordination phases. While none of the available tools addresses all possible questions, they collectively can deliver important contributions to nutrition programming.

All of the seven tools reviewed here are evidence-based, but it is important to realize that each tool is only as good as the quality of the data that goes in; plus, as the saying goes, “all models are wrong, though some are better than others.” Recognizing those caveats, four case studies (Malawi, Guatemala, Cameroon and Cambodia) were presented at the SUN Global Gathering in Abidjan in November 2017 to illustrate how different tools concretely informed policies and decisions at the highest level. The presentations were followed by breakout sessions in which the audience reacted to the case studies. The interest was apparent but concerns were raised on: (1) the ability of the tools to represent multi-sectoral programming; (2) the need to contextualize the tools to local conditions and to ensure that all stakeholders feel their situation is adequately represented by the data; (3) the technical and financial resources required to use these tools; (4) the fact that strong evidence may not always be available to fuel the exacting models used by those tools.

The consortium of tool modelers that spearheaded the Abidjan session will consider these discussions in their effort to reach and improve end-users’ access and utilization of such tools, in ways that respond to the most pressing questions.

Background

In April 2017, The Sackler Institute for Nutrition Science (the Sackler Institute) and the Micronutrient Forum (MNF) jointly convened a two-day technical consultation to review seven tools designed to help decision makers in LMIC develop and streamline their nutrition programs and interventions. These tools (see Figure 1) were selected on the basis of their ability to elaborate nutrition policy scenarios adapted to national priorities and contexts, whether through the use of mathematical optimization routines or other evidence-based analytical approaches. Services provided by those tools range from advocacy (e.g. estimating the costs to society of failing to act in reducing malnutrition); to allocative efficiency (e.g. comparing the cost and coverage of various intervention options); to budget planning (e.g. establishing overall program expenditures to facilitate policy discussion and priority setting). More details can be found in the meeting report at: <https://www.nyas.org/media/15770/2017-nutritionmodelingreport-final.pdf>

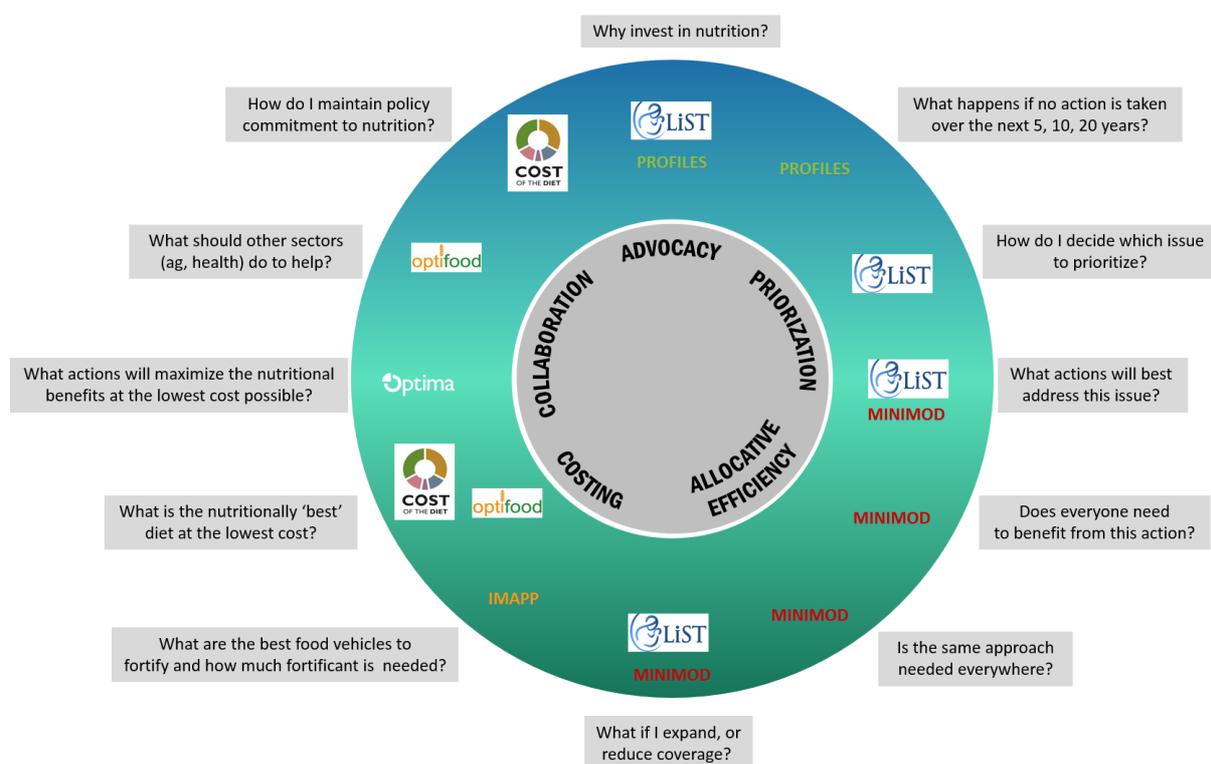


Figure 1. The use of nutrition modeling tools in the different phases of the nutrition programming cycle.

In November 2017, The Sackler Institute for Nutrition Science (the Sackler Institute) and the Micronutrient Forum (MNF) organized a workshop for end-users of these modeling tools, at the Scaling Up Nutrition (SUN) Global Gathering meeting in Abidjan, Côte d'Ivoire. The aim of this workshop was to start a demand-driven approach for the uptake of these tools, by informing in-country actors on what these tools can offer, as well as the respective policy questions they can answer. The workshop was attended by approximately 90 participants,

including SUN Focal Points and others working in Governments or donor organizations. During the workshop, four case-studies were presented by country-participants on their experiences in using some of these tools for effective decision making. During break-out sessions, participants were able to discuss the application and/or limitations of using these tools in their own country situation.

Description of Tools

Table 1 provides a brief overview of the objectives of each of these tools and the specific policy questions for which these tools were originally developed.

	Aim of the tool	Main question addressed by the tool
	To determine the impact of expanding the coverage of nutrition interventions of known effectiveness on outcomes such as mortality, stunting and wasting.	What would be the impact on lives-saved and health- and nutrition outcomes if we expanded the coverage of interventions known to be effective?
PROFILES	To raise awareness among policymakers of the consequences of malnutrition on outcomes such as lives, human capital and economic productivity losses, and by estimating the benefits of action over a defined time horizon.	What are the consequences of the malnutrition situation not improving over-time for lives-saved, disabilities averted, human capital gain and economic productivity?
MINIMOD	To use economic optimization to improve the coherence and efficiency of micronutrient intervention programs, calculating the costs of an intervention per child effectively covered.	What is the best cost-effective solution to specific micronutrient-related problems?
	To model the lowest cost, nutritionally-adequate household diet and how regional variations in those costs affect the affordability of meeting nutrient needs using locally-available foods.	What are cost-effective, context-specific policy and programmatic strategies to fill the nutrient gap?
	To identify 'problem nutrients' in a given diet, establish the cost of providing those nutrients and determine the affordability of a nutritious diet for specific target groups.	What are most optimal and cost-effective food-based recommendations to meet nutrient adequacy?
	To estimate the cost of scaling up interventions; assesses which of those are most cost-effective and states how a given budget could most efficiently be allocated to maximize nutrition outcomes.	For different funding levels, how should resources be allocated across a mix of nutrition interventions and what impact can be achieved?
IMAPP	To set the optimal amount of a nutrient to add for a targeted prevalence of inadequacy using WHO/FAO guidelines, and at estimating the population at risk of inadequate/excessive intake.	What are the best food vehicles for fortification and what is the optimal amount of fortificant to be added?

Table 1. Overview of Nutrition Modeling Tools.

All of these tools are strongly evidence-based and most have a costing component included to allow for prioritization of interventions based on cost-effectiveness. However, the tools rely on the availability of data and evidence and are only as good as the quality of the data that goes in. In addition, most of these tools require substantial technical capacity to implement. Finally, it is important to realize that all models are flawed, but still can be useful. None of these models will be able to fully capture the entire reality, but collectively they can deliver important contributions to nutrition programming.

Case-studies

Following the introduction above, four case studies were presented by end-users (one each from Malawi, Guatemala, Cameroon and Cambodia) illustrating how the different tools have been used to inform policies and decisions at the highest level. Those four case studies are

presented here as a record of the session, but also as a first step in building a compendium of case studies that will be further expanded in the future with experiences from other locations and other tools.

[LiST - Malawi](#)

Mr. Felix Phiry, SUN Focal Point from the Department of Nutrition, HIV and AIDS (DNHA) of the MoH in Malawi, presented how his team used the LiST tool to support nutrition policy decisions. The Government of Malawi, under the DNHA was developing a National Nutrition Policy and Strategic Plan (NNSP) 2015-2020, to accelerate stunting reduction in Malawi by half over the next 10 years (from 42.4% in 2014 to 22.8% in 2025). The Draft NNSP however, lacked evidence of the expected impact of the strategy on stunting reduction, and key stunting reduction drivers for prioritization purposes. A National Evaluation Platform (NEP) was formed as a partnership between the Malawi National Statistical Office, the Ministry of Health and Johns Hopkins University to examine the feasibility of realizing the NNSP stunting goal given the intervention targets proposed. The key question this team tried to address with the LiST tool was: if Malawi scales up the coverage of key nutrition-specific and WASH interventions by 2025, what impact will that have on stunting?

The LiST analyses suggested that based on recent trends, many of the proposed targets for coverage of nutrition-specific interventions were not realistic. For instance, meeting 5-year stunting target would require scaling the nutrition-specific and WASH interventions to 100%. This led the government to adapt the NNSP to more realistic targets for existing nutrition-specific interventions and to focus more on other nutrition-sensitive interventions in order to meet the ambitious nutrition targets the country committed to.

Link:

[LiST PPT Presentation](#)

[Optifood \(Guatemala\)](#)

Dr. German Gonzales, Secretary SESAN and SUN Focal Point in Guatemala presented their experiences using Optifood to formulate food based recommendations that would help the population meet dietary guidelines. The main questions that needed to be addressed by the program were: (1) What is the quality of the local food supply? (2) What are the nutrient gaps? (3) Which local foods should be promoted to improve nutrient adequacy for key target groups? (4) What additional interventions should be promoted? (Vitacereal/Incaparina or other similar products? Supplements? Animal protein? New agricultural products?) The Optifood analyses helped the Government develop Food Based Dietary Recommendations (FBR) for children 6-23 months of age and pregnant and lactating women. Specifically they were used to inform micronutrient supplementation strategies and the national discussion on the provision of fortified blended flour, as well as to inform the development of national dietary guidelines for infant nutrition. The results of the analyses had implications for (1) policy and programs by indicating the need for additional micronutrient supplements and fortified flour to meet nutrient adequacy, the actual costs of a fully nutritious diet and the importance of improving access to local markets; (2) agriculture and nutrition linkages by stressing the importance of the selection of foods/crops to inform decision making and training for agricultural extension workers as well as the importance of dietary diversity and diversity of production; and (3) local capacity building. However, Dr. Gonzalez also noted

constraints for an effective use of the Optifood tool, including the time and cost involved in the collection of the required individual 24 hour recall intake data, as well as a limited local capacity to perform these analyses (i.e., individuals with the required interest, analytical capacity and data management skills). In addition, questions were raised on how often the analyses needed to be repeated in order for the FBR to remain current across regions; and on how best use the generated information to influence policy and programs.

Link:

[Optifood PPT Presentation](#)

Minimod (Cameroon)

Ms. Anne Tarini, consultant to Helen Keller International (HKI) in Cameroon, presented the experiences of a team consisting of representatives from HKI-Cameroon, the University of California, Davis, and stakeholders from the Ministry of Public Health, CPC Cameroon and UNICEF Cameroon, in using MINIMOD to identify more cost-effective strategies to address Vitamin A deficiencies in children. MINIMOD was able to compare the costs of improving coverage of adequately vitamin A fortified oil, vitamin A fortified bouillon cubes and high dose vitamin A supplementation against each other for three different regions in Cameroon. The results showed that while in the Southern region, improved coverage of fortified vitamin A products would reduce the prevalence of inadequate vitamin A intakes to below the WHO cut-off of 2.5%, this was not feasible in the Northern region where the prevalence of inadequate vitamin A intakes was much higher. In the Northern region therefore, high-dose vitamin A supplementation programs would need to be sustained.

The MINIMOD tool not only identified the most cost-effective strategies for addressing vitamin A deficiencies in children, it also identified the programmatic pathways for transitioning from the current “business as usual” to more cost-effective strategies and the cost implications of shifting to these new strategies, which would for instance require field-based validation studies. MINIMOD showed that for all regions, the most expensive scenario would be to continue with “business as usual.”

For the future, the team intends to continue the discussion with national nutrition stakeholders to start implementing actions, invest in vitamin A oil fortification programs in order to reach its full potential. Additionally they plan to start discussions with stakeholders to add new foods, such as bouillon cubes, to the fortification program and perform additional model simulations to explore other possible intervention such as sugar fortification.

Link:

[MINIMOD PPT Presentation](#)

Fill the Nutrient Gap & Cost of Diet tool (Cambodia)

Indira Bose from the World Food Programme, elaborated on how the Fill the Nutrient Gap (FNG) tool was used in several countries, using Cambodia as an example for this presentation.

In Cambodia the FNG exercise was used to feed into the mid-term and strategic review of the National Strategy for Food Security and Nutrition. The exercise aimed to identify barriers to adequate nutrient intake for different regions in the country, to model the impact of different actions across different sectors, including the food, social protection and health systems, and to identify national-level recommendations for policy and programmatic decision-making. Multiple stakeholders from the national government, WFP, other UN agencies and other partners were engaged throughout the entire process, which started with a stakeholder inception workshop to define the scope of the exercise. For the analyses in the Cost of Diet tool, market price data had to be collected across 19 regions in order to estimate the costs of nutritious diets, and combined with secondary data for the Cost of Diet modeling. This analysis demonstrated that while a wide range of nutritious foods are available across Cambodia, over 20% of households cannot afford a nutritionally adequate diet, particularly in the Northeast of the country. Possible interventions to improve access to nutritious foods involving the social protection, food processing, fortification, health and agricultural sectors were identified and prioritized. Key findings were presented and discussed at a multi-stakeholder workshop, during which potential strategies to fill the nutrient gaps across multiple sectors were identified. While FNG was successful in making evidence-based policy and program decisions in Cambodia, challenges were faced due to the continuous need to actively engage stakeholders and maintain their participation throughout the process, ensure the collection of market price data across the country, identify funds to support the exercise and align the timing of the exercise with the national processes.

Link:

[FNG PPT Presentation](#)

Break-out sessions

After the plenary session, workshop participants regrouped into four break-out sessions, each with a focus on one of the tools that had just been presented, to discuss possible uses for the tools and constraints in using these tools in different contexts. There was a strong interest and lively debate among participants for the use of these tools in their own countries. Yet, a few recurrent concerns were raised by all four break-out groups.

- (1) *The ability of the tools to represent multi-sectoral programming*: with many countries shifting to multi-sectoral programming for nutrition, the ability of these tools to model both nutrition-specific as well as nutrition-sensitive interventions was discussed. While some of these tools, such as Minimod and Optifood have an exclusive focus on nutrition-specific interventions to develop food based dietary guidelines or prioritize micronutrient interventions, others such as FNG and LIST can potentially include both nutrition-specific as well as some nutrition-sensitive interventions. Whether these tools can be used to prioritize multi-sectoral policies will however depend on the availability of evidence to be included in the models. All LIST based tools are limited to interventions that “save lives” or that promote broad nutrition outcomes (stunting, wasting, underweight) for which there is high quality evidence of impact. However, for many of the nutrition-sensitive interventions, such evidence does not yet exist. To guide the further development of LIST, a global inventory of the need for evidence on specific nutrition sensitive interventions would be useful.

- (2) *How to ensure all stakeholders feel their situation is adequately represented by the data:* involvement of different stakeholders, including the Ministry of Finance, from the beginning of the process could help to clearly identify the focus and main objectives of the exercise, create a roadmap on how the tool can feed into the decision process for the different sectors, and identify the need for additional data collection, taking the cost implications into account. A careful selection of a stakeholder consortium group, representing the different sectors involved in nutrition and health programming and policies in the country, is therefore important. While this will require additional time and resources, the involvement of stakeholders throughout the process has been critical to the successful adoption of the tool's outcomes in policies and strategies.
- (3) *The technical and financial resources required to use these tools:* it is evident that effective use of these tools require sufficient technical and financial resources, throughout the process and especially when additional data collection is required. For most of the case studies presented, the costs and technical resources to undertake the process were covered by the tool developers and/or donor driven. In order to do so, governments will need to better understand when and where in the decision process these tools can be used, which answers they can provide, how long it will take to deliver results, what evidence is required to support the process, what level of technical capacity is required and whether it is available within country.
- (4) *The need to contextualize the tools to local conditions:* for several interventions, particularly the nutrition sensitive interventions, the effect size may be context specific. In addition, the outcome of the modeling tools can be very different depending on the context because of regional differences in infrastructure, market prices, population size and dietary habits (as shown by Minimod in Cameroon). Although all tools have the possibility to adapt effect sizes and coverage figures to the local context, this contextualization requires good quality local data, which is not always available. When this evidence is lacking, alternative data sources may be explored, but its use may be limited. For instance, Optifood relies on the availability of individual dietary intake data, which is cumbersome and expensive to collect. While alternative data sources, such as data from Household Expenditure Surveys can partly overcome this issue for adults, it is not a valid source of information on dietary intakes in children under two years of age. To take informed decisions on the need to collect additional data, stakeholders need to be aware of the resources required to collect these data, the relevance of this context-specific data for addressing specific policy questions and the fact that some of the messages that the data/models can deliver will mostly be relevant for categories of countries (e.g., SSA versus SEA). To further institutionalize the process of identifying additional data needs, a decision-making roadmap leading to an inventory of the demands and needs for additional data in a given context could be considered. Such a roadmap could also be helpful to align demands for additional data globally.

Conclusions and recommendations

The workshop at the SUN Global Gathering clearly indicated a strong interest, among participants from many of the SUN countries, to use these tools for evidence-based nutrition policy and programming in their countries. As an immediate next step, a consortium of tool

modelers and end-users will be created to further improve the access and utilization of these tools in ways that respond to the most pressing questions. This report will feed into a compendium of case-studies of users' experiences with these tools, which will be made available for potential end-users of the tools. This compendium will be a "living document" summarizing user countries' growing experience with the tools. This should facilitate the understanding of the use of the tools, and their adoption in other settings. Lastly, it is important to recognize the need to build in-country capacity. This will require some institutionalization of the tools, a prospect that will be helped if tool developers respond to the demand for new evidence (e.g on nutrition-sensitive interventions) and for local/regional updates.