ISSUES IN THE DESIGN & DELIVERY OF INTERVENTIONS TO IMPROVE RURAL DIETS IN LOW- AND LOWER-MIDDLE-INCOME COUNTRIES

ISSUE I: DIETARY QUALITY TARGETS

GAIN Convening Paper n°14

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SUMMARY

The Global Alliance for Improved Nutrition (GAIN) and Wellspring Development designed and hosted a series of in-person and online consultations with partners of the Dutch Ministry of Foreign Affairs to examine challenges in improving the quality of diets of population groups living in rural areas of low- and lower-middle-income countries. These groups largely consume nutrient-inadequate, even unhealthy, diets and face heavy burdens of malnutrition. This first paper, out of six, looks specifically at the challenges of setting targets for dietary quality improvement. The aim of the discussions was to gather examples of successful project interventions at scale, to understand the decision processes of different organisations, and to identify important points of convergence in conceptualisation and action.

The bulk of the discussion reflected in this paper is from an online meeting held on 11th September 2024, with the participation of the Dutch Ministry of Foreign Affairs, Bopinc, CARE Netherlands, East-West Seeds, the Netherlands Food Partnership, One Acre Fund, and the Wageningen Centre for Development Innovation.

The meeting clarified key concepts around healthy diets, identified multiple pathways through which a project can move populations from energy-insufficient through to healthier diets, and highlighted the challenges of measuring outcomes. Case studies were explored from the work of GAIN and CARE International, with complementary inputs from other participating organisations.

KEY MESSAGES

- Rural populations in low and lower-middle income countries face many challenges in moving from energy-sufficient to nutrient-adequate and finally to healthy diets.
- Many partner organisations of the Dutch Ministry of Foreign Affairs face similar challenges in designing and implementing impactful and sustainable projects to benefit these population groups and improve the quality of their diets. There have been limited opportunities to share experiences and compare approaches.
- This meeting—one in a series of six—explored case studies and sought to identify areas of convergence across organisations, focusing on target setting for dietary quality improvement. Participants found common ground on the conceptualisation of healthy diets, the challenges of results measurement, and the need to contextualise interventions to ensure relevance and coherence.
- Participants committed to examining their own work in the light of the meeting conclusions over the course of the following year.

BACKGROUND AND OBJECTIVE

THE CHALLENGE OF IMPROVING THE DIETS OF RURAL POPULATIONS IN LOW- AND LOWER-MIDDLE-INCOME COUNTRIES

Despite decades of rapid urbanisation, it is still the case that 42% of the world's population—3.4 billion people—live in rural areas (1). In lower-middle-income countries, this proportion is somewhat higher (56%), and in low-income countries, nearly two-thirds of the total population live in rural areas. There are 2.4 billion people living in rural areas in these two groups of countries.

Healthy diets are the foundation of all nutrition outcomes—from undernutrition and micronutrient deficiencies to obesity. Many rural households struggle to access a nutritious diet, even though they live close to the land. Globally, and in almost all regions, rural households are more likely than urban households to report severe or moderate food insecurity (2). In Sub-Saharan Africa, the average prevalence of severe/moderate food insecurity is 60% in rural areas (2) and the cost of a healthy diet is no cheaper (or barely cheaper) in rural compared to urban areas (3). Throughout Sub-Saharan Africa, the value of food consumed from own production never exceeds 50% for rural households (4). As a result, African rural households are vulnerable to high food prices, perhaps counter to common perceptions. And in the 85 countries around the world for which the Global Diet Quality Project has collected data on dietary patterns (5), the average percentage of rural dwellers consuming all five major food groups on a given day is just 30%. Indicators of malnutrition in children are consistently worse in rural than in urban areas (6).

Over the last few decades, there has been a renewed focus on the critical role of agriculture and rural development in supporting adequate nutrition by way of promoting healthier diets. In the wake of the food price crisis in the early 2000's (7), 'community development' and 'integrated rural development' agendas both mobilised significant funding over many years. 'Food and nutrition security' has been an important theme and 'nutrition-sensitive agriculture' (8) has become a recognised priority for development. At the same time, many governments have developed national multi-sectoral nutrition plans, policies, and strategies that include or prioritise rural populations, and numerous international development partners have supported project and programme implementation in these areas.

Today we have a better understanding of what works for improving rural diets (9). However, while these approaches have achieved notable nutrition outcomes, evidence of large-scale, sustainable improvements in rural diets remains limited. Looking ahead, large-scale development projects may benefit from placing greater emphasis on dietary outcomes, rather than focusing solely on downstream health metrics for specific target populations.

CONVENING SERIES WITH PARTNERS OF THE DUTCH MINISTRY OF FOREIGN AFFAIRS

The Global Alliance for Improved Nutrition (GAIN), supported by Wellspring Consulting, designed and hosted a series of in-person and virtual meetings with a range of partners of the Dutch Ministry of Foreign Affairs, including: Bopinc, CARE Netherlands, East-West Seeds, the Netherlands Food Partnership, One Acre Fund, and Wageningen University & Research. The aim of these meetings was to share experiences and insights on the most pressing issues that complicate the design and implementation of initiatives to improve

rural diets and thereby to guide more impactful and sustainable project design and implementation in the future. The in-person meeting was held in May 2024 in Utrecht. The list of topics to be explored was developed by GAIN and Wellspring based on a preliminary non-systematic literature review and the initial in-person meeting; topics for which the evidence is weak or non-existent were prioritised for exploration. The selected topics, all of them referring to rural populations in low- and lower-middle-income countries, were:

1. ***Dietary quality***. What does improving quality of diets mean in practice; specifically, what constitutes a meaningful increment in dietary quality in this context?
2. ***Segmentation***. How can we define and understand the needs of different segments / groups of rural populations?
3. ***Markets***. What are the different types of markets and their role in improving incomes, supply of nutritious foods, and quality of diets?
4. ***Scale***. What does large-scale mean, and what is the role of financial viability / sustainability in such large-scale efforts?
5. ***Orchestration***. Why is coordination (or orchestration) of different programme components and multiple partners so critical? How can it be done better?
6. ***Trade-offs***. What are the synergies and trade-offs involved in combining different programme components? How can these be managed?

At least one detailed case study was presented in each meeting, and participants were invited to share other case studies and references. There was no attempt to force consensus around pre-determined or emerging conclusions. To produce the resulting convening papers, the transcripts of the discussions were synthesised and analysed using Artificial Intelligence (Claude 3.5), with output subsequently checked and editorialised by the paper's authors, who take responsibility for the final content.

TOPIC I: SETTING TARGETS (IDENTIFYING A MEANINGFUL INCREMENT IN DIETARY QUALITY)

This paper is one of a series of six, covering each of the abovementioned topics. It examines the challenge of setting appropriate outcome targets.

Nutritional science is based on the premise that the quality of the diet is an important predictor of short-, medium- and long-term health outcomes. The Global Burden of Disease study (10) has shown that in 2017, dietary risks were associated with 22% of all deaths among adults and 15% of all disability-adjusted life years lost (DALYs). This proportion is high, not so much because the association is very strong, but rather because the prevalence of poor diets is so high across regions. In children, measures of diet quality have been shown to be protective against death, stunting, and wasting across countries (11).

Given these findings, promoting the consumption of healthy diets has become a global priority. The concept of a healthy diet continues to evolve in its articulation, particularly given the need to not only promote good food, but also to reduce the increasing preponderance of unhealthy foods. Recently, the Food and Agriculture Organisation of the United Nations and the World Health Organisation have attempted to reflect this evolution by issuing a Joint Statement on the principles behind the definition of a healthy

diet (12). Many countries have food-based dietary guidelines that embody most or all of these principles, and numerous summary measures of dietary quality have been devised and validated against health outcomes (13).

For development projects that aim to support dietary improvement, having a clear and measurable definition of the outcome is critically important. For instance, for the Dutch Ministry of Foreign Affairs defines dietary improvement as 'a more diverse and adequate diet' in its results framework (14)., with 'diversity' covering elements of food group variety and 'adequacy' covering balance (i.e.,- moving diets towards healthier foods and away from less healthy foods). It is generally agreed that project-/award-specific targets should be contextually relevant, meaningful in their degree of change, and contribute to a reduction of malnutrition at scale.

Against this background, the first topic-specific convening of this series set out to explore how projects can identify a meaningful and feasible increment in dietary quality at the level of rural populations.

INSIGHTS FROM THE MEETING

How should we understand a 'healthy diet'?

Setting the context, the first presentation conceptualised diet quality as a multifaceted theoretical construct that encompasses several key elements, including diversity, frequency, and quantity, with an additional crucial emphasis on limiting unhealthy food intake. In addition, it was noted that, while many populations consume energy-sufficient diets, a truly healthy diet must go beyond basic macronutrient sufficiency to ensure adequate micronutrient intake.

This presentation echoed FAO's (15) conceptualisation, in which diets progressively improve from energy-sufficiency to nutrient adequacy and finally to consumption of a fully 'healthy' diet, with diversity even within food groups. Relatedly, dietary diversity metrics may not capture all improvements. Tailored indicators like frequency of food group consumption or increased quantities of a specific food or food group may be more relevant in specific contexts.

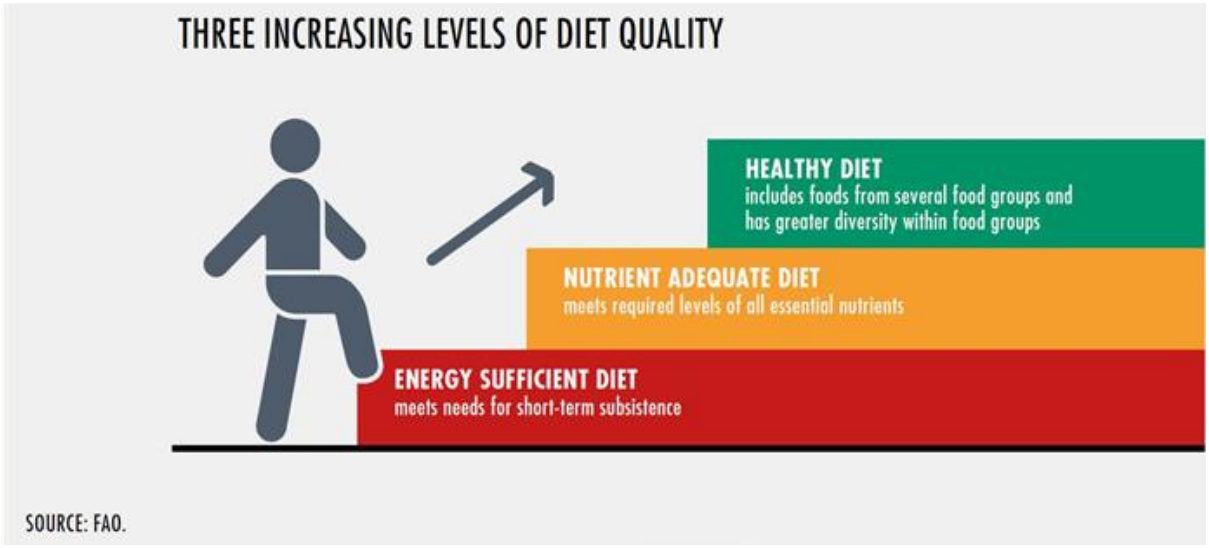

Figure 1. Increasing levels of dietary quality in the FAO framework (15).

A participant from Wageningen University & Research emphasised that what constitutes a healthy diet should be defined by national food-based dietary guidelines rather than global standards alone. It was argued that diet quality is holistic and cannot be reduced to single food groups, suggesting that a truly healthy diet must be considered within the cultural and environmental context where it exists, while still meeting fundamental nutritional requirements.

Case studies

The case studies in this session focused on two GAIN projects funded by the Netherlands Ministry of Foreign Affairs in Kenya and Mozambique. Both project examples were designed around increasing access to and desirability for an under-consumed food group in the local diet with clear potential to meet critical nutrient gaps (see Box 1).

BOX 1. IMPROVING THE CONSUMPTION OF SPECIFIC FOOD GROUPS

GAIN's '**Vegetables for All**' project in Kenya aims to improve the diets of one million lower-income consumers, with a broader reach of approximately 5 million. The project conducted extensive formative research on Kenyan diets in low-income households and concluded that while vegetables were commonly consumed in Kenya, the consumption practices centred on little variety and specific eating occasions. Quantities consumed (of vegetables and fruits combined) have been only about one-quarter of WHO's recommended 400 grams per day for the last 20 years across all income groups. The analysis showed that vegetables were relatively affordable compared to other food groups, and dark green leafy vegetables were particularly important for filling nutrient gaps in women's and children's diets. The project therefore aimed to increase the quantity of vegetables consumed. While vegetables were sometimes perceived as 'poor people's food,' the project developed a comprehensive brand strategy focusing on freshness, variety, and safety, supported by recipe development and parent motivation programmes. The project is now working to improve supply chains, change consumer uses for vegetables, and strengthen the enabling environment at national and county levels.

A second GAIN project, in Mozambique, focused on increasing consumption of **animal-source foods (ASFs)**, working along the established trading corridors of Beira and Nacala. The project's research revealed that while ASFs were preferred by consumers, consumption was highly infrequent and seasonal due to affordability and access issues. Their approach was to identify cost-effective ASFs, such as small, dried fish that require only small quantities to meet nutritional needs, and low-cost chicken parts like offal as efficient sources of nutrients. Rather than promoting occasional quantities of ASFs, the project emphasised the importance of regular, small-quantity additions to diets across the week. The project targeted low-income consumers who had sufficient calories but needed dietary improvement, rather than the ultra-poor, and focused on sustainable system-level change through multiple interventions including demand generation, business support for improved post-harvest handling and distribution, and policy advocacy work. The project aims to show that inclusion of nutrient-dense foods can sustainably lead to dietary improvement.

APPROACHES TO IMPROVING DIET QUALITY

The discussion recognised that projects aiming to improve diet quality take different strategies depending on the theory of change or pathway. For example, a project can improve diet quality by encouraging consumption of foods in a food group that is completely absent from the diet, contributing to diet diversity. Diet diversity is an important aspect of diet quality, and its measures are often used as a proxy for diet quality. In practice, dietary quality and dietary diversity largely overlap except in regard to overconsumption and unhealthy food consumption. The group discussed various approaches to improve diet quality.

The first approach emphasises overall **improvements to the 'basket of foods'** consumed and generally works toward improving dietary quality through reducing various production-related, economic, and social constraints.[1] The group discussed the example of CARE's Shouhardo project, implemented in rural Bangladesh between 2017 and 2022. The project took a comprehensive approach targeting the poorest communities in the project area, using multiple simultaneous interventions to address economic constraints by providing food rations, vouchers, and cash support. It focused on establishing household stability as a foundation for dietary improvement, recognising that access to land and basic resources was crucial for sustainable change. The presenter explained that the project took dietary diversity as the principal dietary target, but despite strong implementation, only a small increase in dietary diversity was achieved during the project lifespan.

Adding a **new food group** to the diet is another approach to improving diet quality, which will provide missing nutrients (and will also register on dietary diversity measures). The Mozambique ASF project centred on ***small-quantity additions of nutrient-dense animal source foods to existing diets.*** Rather than promoting expensive foods like meat, which would necessarily be consumed infrequently due to their cost, this approach identified cost-effective options like dried fish and chicken offal that could provide significant nutritional benefits even in small amounts, emphasising regular consumption of these foods in modest quantities.

Diet quality can also be improved through encouraging greater volume of consumption **within a food group**. For instance, supporting beneficiaries to consume higher quantities of a nutritious food already a regular part of the diet can bring consumption levels closer to recommended guidelines. The GAIN Vegetables for All project focused on ***increasing quantities consumed of already familiar and culturally accepted foods***, particularly vegetables.[2] The project saw a need to align current consumption patterns with local and international nutrition recommendations; the approach acknowledged that improving attitudes and behaviours was necessary to help populations consume more of the same foods that were affordable and available.

The group recognised that in most contexts, there will be multiple pathways that a project could potentially use in the effort to move the population towards dietary improvement, ultimately contributing to a healthier diet. Building on the FAO imagery

[1] 'A rising tide lifts all boats'. traditional saying.
[2] In theory, this could include either a focus on portion size or a focus on frequency of consumption, or both.

[Fig. 1], an analogy was suggested of a house with many stairs leading from the ground level (energy sufficiency) to the top level (healthy diets).

Figure 2. 'No single way to get to the top'. Authors' own image generated using Dall-E (labs.openai.com), no permissions required.

Every project would need to determine which 'staircase' it is choosing, based on baseline dietary quality and the feasibility of different intervention strategies. It would also need to lay out a realistic goal in terms of the expected increment (i.e., the number of steps up) in dietary quality to be achieved by the end of the project. These steps can only be defined if a strong measurement strategy is in place.

MEASURING PROGRESS

Participants had substantive discussions about measuring dietary progress, which was recognised to be methodologically challenging. One participant explained that accurately tracking frequency and quantity of consumption requires resource-intensive methods like

24-hour dietary recalls. While new mobile phone-based methodologies show promise, fundamental challenges remain in standardising portion sizes and measurements across different contexts. Another participant advocated for a comprehensive approach to measurement, suggesting the use of data collection tools like the Diet Quality Questionnaire (5) that allow for analysis of multiple food groups yet is much less time- and resource-consuming than other approaches. Another participant then raised an important point about adapting measurement approaches to specific project goals. Using GAIN's Kenya vegetable project as an example, traditional metrics like dietary diversity scores would not effectively capture the intended improvements, since the project was focusing on increasing quantities of already-consumed foods toward dietary requirement rather than introducing new food groups. This has led GAIN to adopt measurement approaches that are more appropriate for this objective, including quantitative data collection methods specifically for tracking vegetable consumption amounts.

Returning to the topic of setting specific targets for 'step' improvements in dietary quality, A participant shared an example from Rwanda, where One Acre Fund set programme goals for egg consumption based on research showing that one egg per day for six months led to a 47% reduction in childhood stunting, demonstrating how research evidence could be used to set concrete, measurable targets. They also suggested that a practical way of setting targets is to have a conversation directly with intended beneficiary groups and understand from them what ***beneficiaries*** would consider to be an important change to consumption patterns in their households.

Statistical issues can also be important in setting and reporting targets. Someone challenged whether success should be measured through average increases (such as 50 or 100 grams of vegetables) or by tracking the proportion of people reaching specific thresholds (like WHO's 400 grams per day recommendation). It was noted that while projects often report improvements in terms of average increases across food groups, this might not be the most meaningful way to assess impact.

INSIGHTS FOR DEVELOPMENT PARTNERS

The topic of target setting for projects aiming to improve the quality of diets was recognised to be a complex one, but one that certainly merits careful consideration. If targets are set too high (too ambitious), there is a clear risk that both grantee and funder will be seen to have 'failed' in their mission, which can damage organisational reputations. But if the targets are unambitious, scarce resources may be expended with little impact on beneficiary wellbeing in return.

The discussions of this group of partners of the Netherlands Ministry of Foreign Affairs suggested the following important conclusions:

1. Healthy diets are widely understood to be multifaceted. While there is broad consensus on their core characteristics, differing perspectives exist on which specific improvements should be prioritised in programming. Establishing a shared understanding of what constitutes a healthy diet can help define a medium- to long-term vision for projects with nutrition objectives. To bridge these differing perspectives among partners and stakeholders, greater alignment is needed on how to prioritise strategies that move toward the desired future-state diet. Where Food-Based Dietary Guidelines exist, they should inform and anchor this shared vision.

2. Most rural households in low- and lower-middle-income countries currently consume diets that fall short of even basic nutrient adequacy—let alone meeting the standards of a healthy diet. Nutrition-sensitive projects should begin with a clear assessment of baseline consumption patterns and adopt realistic expectations about what can be achieved within a project's duration. Moving large populations from inadequate to fully healthy diets over just a few years is unlikely; incremental, context-appropriate improvements are a more feasible and meaningful goal.

3. There are multiple possible strategies or pathways for moving from current consumption patterns to healthier ones. Projects should make a clear choice of pathway based on an informed assessment of feasibility and alignment with national priorities. Sometimes it will be appropriate to focus on single food groups or even a few strategically chosen foods, when these foods/food groups meet verified nutritional needs in the target population. With less focused approaches, a clear impact pathway needs to be articulated.

4. Project implementors and donors should set realistic targets for progress that take into account the resources available to the project. Evidence to support the likelihood of impact and beneficiaries' own perceptions about the feasibility and significance of proposed changes are inputs that can help protect against under- and over-ambition, respectively. It would be useful to subject target-setting to external review.

5. Adequately capturing the complexity of dietary change in a single measure is difficult and often expensive. Methods should be robust enough to detect relatively modest but meaningful changes in consumption patterns and should be tailored to the specific aims of the project. Projects aiming to improve dietary quality should look beyond standardised validated measures like MDD-W if they are not well aligned with the project approaches and objectives. For instance, it may be necessary to assess frequencies and/or quantities consumed. Leading indicators on food access—such as purchases and/or stores of food put aside from agricultural harvests—can supplement infrequent dietary intake surveys.

6. Food systems development projects are expected to affect the consumption of entire households, via changes in purchases and own production (and retention) of foods. But dietary intake is assessed at the level of individuals. If intra-household food (re-)distribution is also an expected outcome of the project, the necessary additional interventions must be planned and resourced.

As with the other discussions in this series, each participating organisation agreed to take these ideas forward and review implications for their own work over the months following the convening.

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ABOUT GAIN

The Global Alliance for Improved Nutrition (GAIN) is a Swiss-based foundation launched at the UN in 2002 to tackle the human suffering caused by malnutrition. Working with governments, businesses and civil society, we aim to transform food systems so that they deliver more nutritious food for all people, especially the most vulnerable.

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