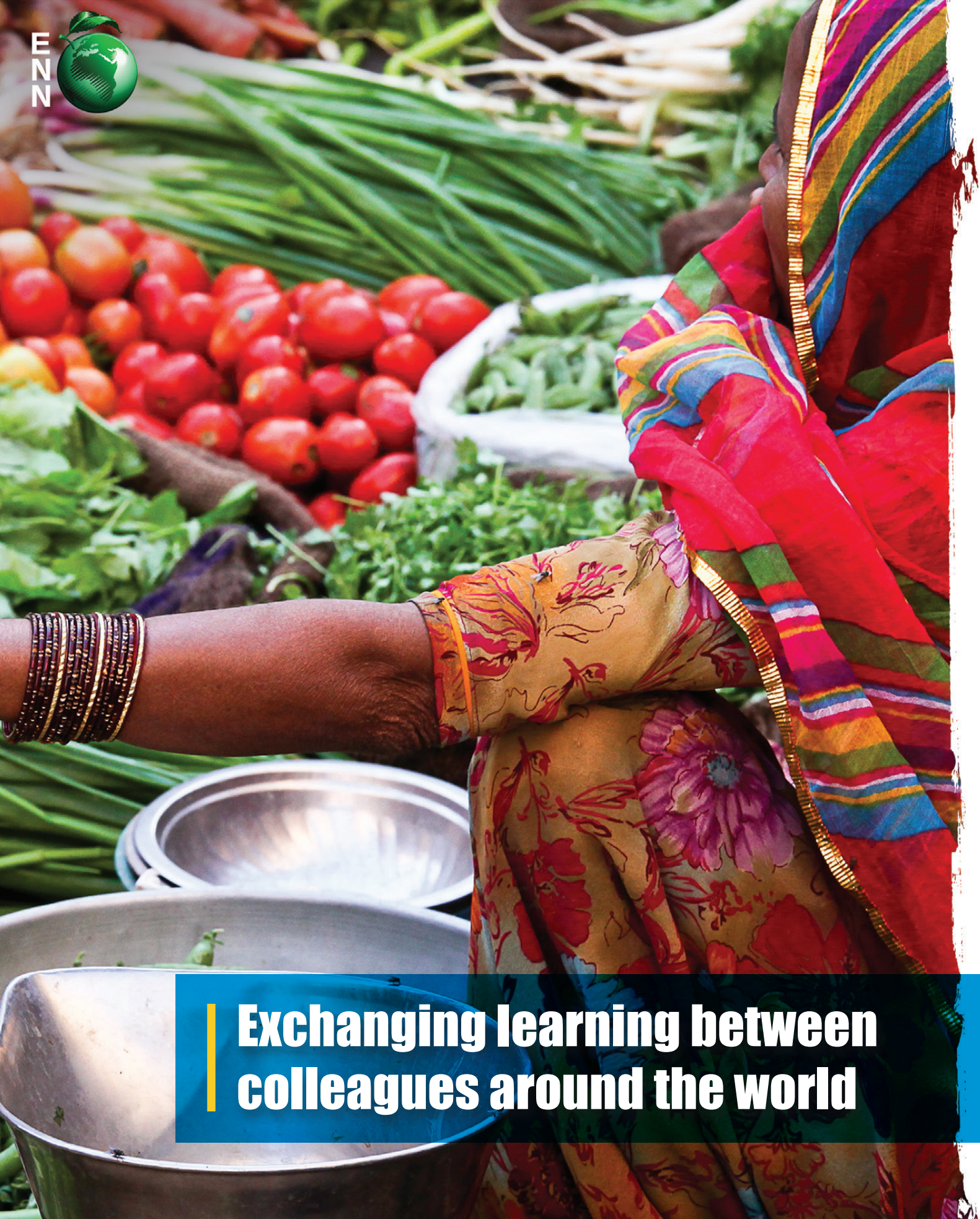


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**Exchanging learning between
colleagues around the world**

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Villagers work in a vegetable garden, made possible by the construction of a water reservoir in South Western Madagascar

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Dear readers,

A warm welcome to the 73rd issue of Field Exchange. In this issue we are excited to bring you articles on a variety of themes and contexts.

The topic of food systems has of course gained traction in recent years and remains of critical importance. In a views piece, **Richardson** draws attention to the intersection of food systems, climate change, and nutrition. This article builds upon recent learning from a variety of sources, drawing in particular from ENN's recent literature review on food systems (**ENN, 2024**). Given each of these topics remain complex, interconnected, and codependent, the author highlights four collective actions we can all take now to address these pressing issues. By future-proofing solutions, we can address current challenges while at the same time proactively engaging with future effects, ensuring sustainability in doing so. More systematic and intentional collaboration – between climate and nutrition actors – can boost co-benefits. Fragile and conflict-affected contexts need greater attention because these populations are most vulnerable to climate change, food system failures, and undernutrition. Lastly, more stories of how positive change can happen need to be shared. This last point is true across all sectors, as we seek solutions to challenges rather than straightforward critique.

Providing a great example of this last point in action, **O'Keeffe and Luondo** describe a small-scale community farming project to address food insecurity in Kakuma refugee camp. The authors take us through the evolution of the Viana Twaweza Club run by students in the camp, from a small fishpond to an internationally renowned success story. As well as generating income, which is then reinvested into the farm and additional training activities, the club provides a valuable nutrition source for over 500 families. This is even more prescient with the recent news that rations in the camp are to be reduced by 60%, on top of further cuts seen in the previous year. Beyond this success story itself, the authors also underscore the value of refugee-led development in the broader humanitarian space.

Turning our attention to India, **Fracassi et al** speak to the value of improved, clean cookstoves and how scaling up this technology can improve nutrition and health in rural areas. The health and environmental benefits of cleaner cooking appliances – such as improved indoor air quality and reduced carbon emissions – have been well documented, but this article delves into the nutrition-specific benefits. Clean cookstoves can directly enhance the nutrient quality of foods and increase overall dietary diversity, as cooking becomes more efficient and people are better able to handle a diverse array of food types. These changes can have an impact on nutritional status, but such cookstoves also result in time saved when both cooking and collecting firewood. In this setting, women reported saving up to two hours per day on firewood collection and a further 50 minutes on cooking-re-

lated time. Such savings can, in turn, lead to further income-generating opportunities and the combatting of detrimental social norms.

Several articles touch on the theme of linking information to action. To do this, understanding nutritional determinants and causal pathways remains critical for the design of contextualised and targeted programmes. Existing assessment approaches are useful, and have been used successfully, but they may be time and resource intensive. **Blanarova et al** describe the pilot of a rapid nutrition determinants assessment approach in Nepal, undertaken by the Moderate Wasting Initiative in partnership with Action Against Hunger. The approach was widely accepted and demonstrated value in improving local government understanding of the causal pathways to undernutrition in three municipalities. Lessons learned from the pilot highlight how, as with the introduction of any new methodology, robust training of assessment teams is crucial to ensure quality within a designated timeframe.

In Kenya, **Maina et al** synthesised data from 18 independent coverage assessments to inform the scale-up of services to address wasting across Kenya's arid and semi-arid counties. The pooled analysis highlighted where inter-county collaboration can address specific geographical issues and how poverty alleviation, stronger community systems, and gender equity are critical to increasing treatment coverage and promoting prevention.

Remaining in East Africa, **Brennan et al** revisit the use of mid-upper arm circumference (MUAC) as a screening tool for at-risk infants aged under six months. This approach was first highlighted by Rana et al in **Field Exchange 64**. In this new article, the authors explore operational pilots in Ethiopia, Somalia, Kenya, and South Sudan where, despite data gaps, the findings highlight important design improvements to optimise MUAC tapes for infants and pregnant and breastfeeding women. These pilots also highlight key challenges when using these multi-MUAC tapes, which bring their own learning opportunities.

Also in East Africa, we feature an article which zooms out from nutrition and speaks to social protection more broadly. Specifically, **Kureishy et al** describe the development of Somalia's first national social protection programme, Baxnaano. This account provides important lessons learned for the scaling up of government-led cash transfer programmes and the introduction of adaptations such as conditionalities, to address the challenges of low uptake of health and nutrition services. A scop-

Using a pellet-based improved cookstove. India



ing review by **Ngamasana and Moxie** affirms the use of conditional cash transfers to positively impact maternal and child health outcomes in sub-Saharan Africa, while a report by UNICEF provides guidance on building synergies between social protection and nutrition.

Several of this issue's articles focus on the neglected topic of infant and child feeding and disability. An analysis by **Rotenberg et al** analyses data from multiple indicator cluster surveys in 30 low-and middle-income countries. They found that children aged two to four years with disabilities were significantly more likely to be stunted, wasted, and/or underweight compared to similar aged children without disabilities. Exacerbating these inequalities, work by **Rice et al** showed that households in Uganda that have children with disabilities lack access to essential nutrition and health services. A views piece by **DeLacey** draws our attention more specifically to institutional-based care, where one-quarter of children are disabled and one-third of them experience feeding difficulties. While global policies focus on discouraging institutionalisation, on a more immediate and practical level positive impacts can be achieved by improving caregiver training, providing appropriate feeding interventions, and with stronger government engagement. In support of addressing gaps in this area, **ENN** has provided an overview of resources and evidence around identifying and supporting infants under six months with feeding difficulties and disabilities.

We can't capture every article here, with this issue featuring a wealth of additional content to explore. This includes an original article by **Ibrahim et al** on mother-to-mother support groups in Yemen and research summaries on topics ranging from climate change to the effectiveness of postnatal interventions to adolescent mother experiences in Bangladesh. Happy reading!

Anne, Nicki, Phil, and Tom

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Using a pellet-based improved cookstove, India



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Scaling up clean cooking in India: What this means for nutrition, health, and beyond



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What we know:

Each day, millions suffer from inhaling hazardous smoke from inefficient, traditional cook stoves. Clean cooking solutions offer a promising alternative, emitting fewer pollutants, while being more efficient and environmentally sustainable.

What this adds:

Conventionally, the discussion around clean cooking has centred on its health and environmental benefits. This article explores some of the nutritional benefits of using improved cookstoves (ICS), such as increased dietary diversity, while highlighting additional challenges and opportunities to scaling up this practice drawing on a case study from India.

Globally, one in three individuals still rely on traditional cook stoves and/or open fires for cooking. Indoor air pollution has an impact on multiple health outcomes, including eye irritation, coughing, lung congestion, increased blood pressure, childhood pneumonia, lung cancer, and cardiovascular diseases (Kumar et al, 2023). Formaldehyde release from biomass combustion increases the risk of low birth weight, even at low levels, while use of kerosene and coal is linked to an increased risk of neonatal death (Epstein et al, 2013). Compounding this, the use of solid biomass fuels contributes to greenhouse gas emissions, deforestation, and habitat destruction (Brooks et al, 2016).

A range of clean cooking solutions, including improved biomass cookstoves, biogas/biogasifier systems, ethanol cookstoves, and liquified petroleum gas or electric stoves, are readily available (IEA, 2023). Technologies like pellet-based improved cookstoves (pellet ICS) offer advantages in areas where access to more expensive solutions such as liquified petroleum gas and electric systems is unattainable. Pellet ICS are more efficient than traditional cooking methods. They save time in terms of cooking and collecting firewood

(Jagger et al, 2019) and reduce smoke, but they also promise wider benefits. Environmental preservation, improved health, and enhanced social well-being – including opportunities for education, employment, and leisure (Jagger & Das 2018) – are all outcomes associated with this technology.

Recent studies also indicate potential direct and indirect impacts on nutrition-related outcomes (figure 1). ICS can increase dietary diversity (Anderman et al, 2015; Jada & Van Den Berg 2022) and the number of meals eaten per day (Fadly et al, 2023), and can improve the nutritional quality of food. Karanja and Gasparatos (2019) state that the consistent use of clean cooking stoves leads to a higher dietary diversity and consumption of nutritionally rich foods, thanks to easier temperature control and the ability to prepare previously avoided meals that required time-consuming preparation. Time saved on cooking and collecting firewood can lead to indirect benefits on both nutrition and well-being as women have more time for feeding and childcare activities, as well as income generating or employment opportunities (Jagger et al, 2019; Jagger & Das 2018). Freeing up time also enables girls to attend school (Karanja & Gaspara-

tos 2019), which in turn can help break the intergenerational cycle of malnutrition (Wodon et al, 2018).

Evidence also shows the potential for circular economy benefits from pellet ICS. Food waste or agricultural residues can be used as biomass feedstock, like in the case of cashew nut shells, or transformed into pellets and thus contribute to income generating activities and local employment across the clean cooking value chain (Babu et al, 2022).

Still, there are significant barriers to the successful scaling up of clean cooking technologies. For pellet ICS in particular, these include shortages of pellet production equipment and spare parts, costs of pellets compared with free charcoal or wood (Jagger et al, 2019), and cultural factors rooted in traditional cooking norms (Karanja & Gasparatos 2019). These are explored in the following case study from India.

Case study: The Clean Cooking Initiative

The Clean Cooking Initiative is a public-private partnership led by the Ecosense Appliances enterprise in collaboration with various Indian government ministries. The initiative has developed pellet ICS for rural communities that predominantly rely on traditional biomass-based cooking methods. The current pilot has reached approximately 500 households in the Indian states of Maharashtra and Gujarat. Stoves are distributed for free, while households are responsible for purchasing the pellets. To encourage pellet ICS uptake, a network of village agents has been established. Report-

ed findings in this article are based on regular household-level assessments carried out by the village agents at baseline, and then at three- and six-month intervals thereafter.

Household and individual benefits

The village of Kalsar is one of the pilot areas in Gujarat, where 200 households have received pellet ICS. Here, women traditionally travel to a nearby forest to collect firewood with their young daughters, spending up to four hours on collection. Each time, women collect up to 30–40kg of firewood, which they then carry home on their back and consume within the subsequent 3–4 days. When using pellet ICS, women reported saving up to two hours each time they collect firewood, freeing up time for other activities including (importantly) girls' education. They also reported saving up to 50 minutes per day of cooking-related time – including on the ignition of stoves, cooking time, and cleaning of utensils, kitchen walls, and floors (as pellet ICS do not emit smoke).

At baseline, almost all households in the project area reported eye irritation and coughing when using traditional cook stoves. Some women also mentioned suffering headaches. The portability of pellet ICS also allows movement inside or outside the house depending on the season, lessening the risk of these symptoms. Cooking outside with more space was also mentioned by users as being conducive to engaging the entire family in cooking. When cooking on traditional cook stoves, in a closed kitchen, it is often only women who are involved in the cooking activity. This segregation further entrenches detrimental social norms.

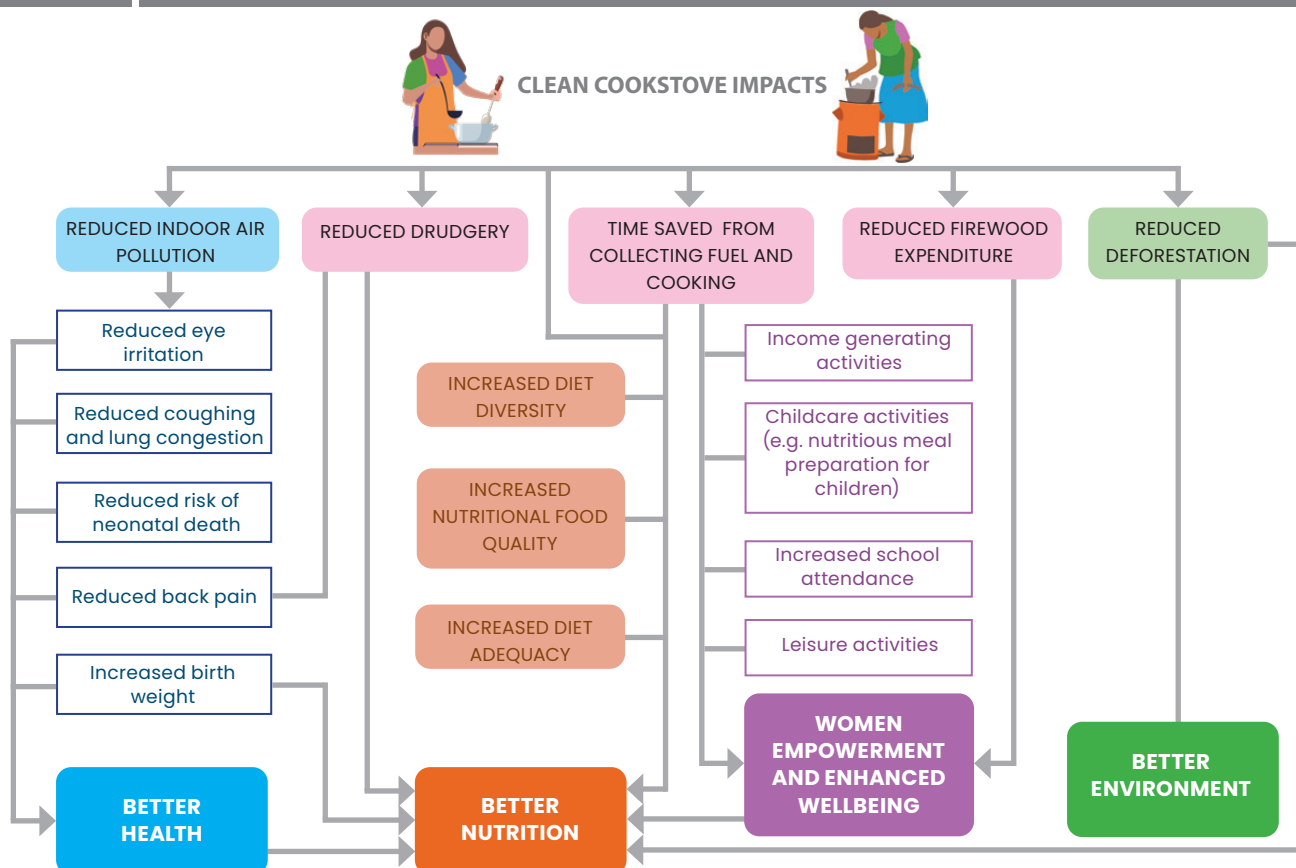
Community and environmental benefits

Babul trees grow in marginal lands around Kalsar village. They absorb ground water, creating water management challenges. The project utilised these Babul trees and agricultural crop residue to create pellets. A village-level production unit was established close to the local market, farms, and the forest to facilitate access. Around 500 kg per day of pellets are produced, creating employment for five people. By using Babul trees, broader deforestation is also limited. According to laboratory testing, each pellet ICS promoted by the Clean Cooking Initiative reduced carbon emission by five tonnes each year, along with a 60% reduction in firewood usage.

Challenges to uptake: Tradition vs. innovation

To understand the barriers rooted in traditional cooking norms in the village of Kalsar, the initiative conducted a behaviour and emotional study. The study conducted door-to-door visits of households relying on firewood for cooking to gain a better understanding of cooking practices, family dynamics, and potential financial barriers. The study highlighted the importance of several aspects to consider when promoting pellet ICS. Traditional cooking was strongly associated with preserving cultural identity and traditional tastes. On the contrary, switching to clean cooking technologies was associated with modern life and women working outside the home, which still carries negative bias in the community. Particular barriers were encountered from older

Figure 1 Pathways linking improved cookstoves to better nutrition



family members who fear changes in taste and food not being cooked properly.

“It not being our way of cooking” is a quote that captures the culture, habits, and values that oppose the new in favour of traditional practices. “The traditional cooking stove is free of cost” was another statement that was recorded, which does not account for the unpaid work that women spend in collecting firewood and cooking. This speaks to a lack of financial independence for women, who may be hesitant to ask husbands to invest in new cooking appliances for the house when the traditional method is free.

The campaign for change

To overcome these barriers, the Clean Cooking Initiative undertook a ‘campaign for change’ aimed at promoting the uptake of ICS within the community, emphasising health benefits and smoke and firewood reduction. The campaign involved various steps, from choosing community champions to undertaking promotional events during weekly markets and/or through community groups, schools, and individual visits. Some basic principles were applied: a focus on women being the change agent, including a mix of young girls through to elder women; community presence of the project team to promote familiarity and trust; product availability at a local store for purchase and after-sale services; and sustainable local production of biomass fuel as described above.

During household visits, the project team noticed that school-going children were interested in understanding the new cooking technology. As a result, they conducted demonstrations of pellet ICS in schools and gave reading material to the children to share with their parents. The project also designed a special pellet ICS to be used in a school canteen, cooking for 100 children at a time.

Lessons learned

In contexts grappling with the consequences of traditional cooking methods, the development of pellet ICS represents an important innovation. This technology brings various advantages, from saving women's time to reducing harmful emissions and ensuring the safety of homes.



Using a pellet-based improved cookstove, India

© Ecosense Appliances Team

However, traditional stoves remain popular, more often because of societal norms and emotional ties than challenges with affordability.

In this clash between old and new, the initiative has successfully used a behaviour change campaign to champion the adoption of pellet ICS. This campaign went beyond marketing the product; it discussed social behaviours and involved a wide range of groups, including school children, young women and men, married women and their husbands, and older family members. The campaign orchestrated awareness-building sessions at schools, community gatherings, and women's homes, creating opportunities for potential users to witness the transformative impact of the pellet ICS. To increase the nutrition sensitivity of pellet ICS, additional campaigns could integrate healthy recipes when promoting cooking demonstrations.

The pellets, sourced from agricultural waste, not only contribute to reducing deforestation from the collection of firewood but also play a role in improving public health. The ash generated in the cooking can be used as fertiliser. This holistic approach forms the foundation of a social enterprise, turning agricultural residue into a valuable energy source—a true embodiment of the “waste to energy” mantra.

The initiative recognises the disproportionate impact of traditional cooking methods on women, both in terms of the physical drudgery involved in firewood collection and the adverse health effects, as well as the missed opportuni-

ties due to time constraints. This article highlights the imperative need to include women and the community at large in the design and execution of solutions for clean cooking energy access. In relation to the nutrition benefits of the use of clean cooking technologies, the following three research gaps have been identified when looking ahead. First, finding best practices on how to integrate nutrition into upscaling approaches. Second, the evaluation of impact on diet diversity, young child feeding practices, and broader nutrition outcomes. Third, the need for feasibility studies on using such technologies in institutional settings (e.g. schools). These gaps are being addressed via a collection of case studies.

For more information and to submit your best practices, visit <https://www.fao.org/in-action/global-bioenergy-partnership/programme-of-work/working-areas/bioenergy-and-nutrition/en>

For more information, please contact Linda Migliorati at linda.migliorati@fao.org

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Demonstration of improved cookstoves, India

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Appropriate nutrition support for children in institution-based care: Is it too much to ask?



Emily DeLacey
Director of Nutrition and Health Services at Holt International

The images shown in this article feature vulnerable children in institution-based care. Full consent was obtained and care was taken to feature appropriate imagery which is relevant and important to this story.

Globally, between 3.18 million and 9.42 million children are estimated to be living in IBC (Desmond et al, 2020). Prior to their admission into IBC, many orphaned and vulnerable children may have faced compounding adversities. Prenatal substance exposure, trauma, neglect, abuse, and conditions such as HIV/AIDS or disabilities are commonly observed, making these children more vulnerable to developing malnutrition (Dozier et al, 2012). Those who are at higher risk – such as infants and children with disabilities – are overrepresented in IBC. More than one in three children in IBC are estimated to be aged under one year and one in four are estimated to have a disability (DeLacey et al, 2020). However, despite there being a large population of vulnerable children in IBC, this group is still regularly excluded from global nutrition conversations, research, and programming, as well as from routine essential health and nutrition services, surveys, and policy decisions. Much about their needs remains unknown.

In 2021, we conducted research to fill the information gap on the nutrition-related epidemiology of children living in IBC across six low- and middle-income countries: Mongolia, India, Ethiopia, Vietnam, China, and the Philippines (DeLacey et al, 2021). We used health records collected from Holt International's nutrition screening database between 2013 and 2020. Data analysis of baseline nutrition screening from 2,926 children aged 0–18 years old revealed that children living within IBC were ex-

What we know:

Children living in institution-based care (IBC) represent a forgotten population for the nutrition sector. This group remains particularly vulnerable to malnutrition, but many data and service gaps exist, especially for those with disabilities who make up a quarter of children in IBC.

What this adds:

While global efforts focus on policies to discourage institutionalisation, more needs to be done to realise the rights of children living in IBC to appropriate nutrition and the engaged quality care needed to support growth and development. Good nutrition, growth, and development are, in turn, critical to home finding. This article highlights the positive impacts that can be achieved through caregiver training, appropriate feeding interventions, comprehensive monitoring and evaluation systems, and coherent government engagement.

periencing underweight (34.1%), stunting (37.3%), and wasting (12.6%). Overweight/obesity (12%), small head circumference (31%), and anaemia (28.7%) were also present. These levels of malnutrition were higher than any global or low- and middle-income country averages.

As mentioned, a quarter of children in IBC have a disability. Children with disabilities often experience feeding difficulties, such as choking and aspiration (inhalation of fluid or food into the lungs) during mealtimes – which can increase the risk of infections, respiratory complications, morbidity, and mortality. The presence of a feeding difficulty can also directly lead to malnutrition. Children might resist eating due to associated negative experiences or caregivers may provide nutritionally inadequate foods that they hope are easier for the child to safely swallow. Compounding this, feeding difficulties and accompanying malnutrition can both cause disability and exacerbate existing disabilities. In another study using the same programme data, we found that 11.3% of children in IBC had feeding difficulties. Among children with disabilities, 29.7% had feeding difficulties compared to 5.9% of children without disabilities. After adjusting for confounders, we found that children with disabilities had five times greater relative risk of having feeding difficulties than those without a disability (RR 5.08, 95% CI 2.65–9.7, $p < 0.001$) (DeLacey et al, 2022a).

Collectively, these adversities greatly increase the risk of children not reaching their full potential. As a child spends more time in IBC, there are increasing consequences for their physical, cognitive, and interpersonal development.

Institution-based care: Our current reality

While not an ideal option, many orphaned and vulnerable children live in institutions that are necessary for their immediate care or protection. Living conditions are often insufficient to address the individual needs of children. This is especially true for infants and children with disabilities who rely on caregivers to meet basic needs and who may be unable to convey their requirements. Facilities are frequently limited in terms of staffing, funding, training, and re-

sources. As such, caregivers have many competing priorities for their time, limiting responsive caregiving.

Children living in IBC have the same rights as other children in terms of appropriate nutrition, safe and enjoyable mealtimes, and the engaged quality care needed to support growth and development. These lifelong rights have been clearly outlined by several UN conventions and resolutions.

To date, global efforts have focused on policies to discourage institutionalisation – through guidance from the European Union, UNICEF, the World Health Organization, and others. There has been little to no focus on addressing the immediate needs and rights of children in IBC or actions to improve their current circumstances (Hope and Homes for Children, 2020). Funding remains insufficient for community initiatives to strengthen families, support caregivers, expand family-based care and respite care (short-term relief for primary caregivers), reunify families, and provide accessible health and nutrition services. Some governments have set up IBC reforms within their social welfare systems and developed family-based care alternatives, such as foster care. But those too remain unacceptably under-resourced, especially when children require highly specialised care or are malnourished.

Deinstitutionalisation is imperative to improving children's developmental outcomes. However, it does not guarantee that all children experience optimal nutrition and health. Indeed, there is evidence that children and families in the same communities may be worse off than children living in IBC (Whetten et al, 2014). In these cases, IBC may offer more consistent access to nutritious meals and to the trained caregivers, peer support, and resources to provide impactful education, healthcare, and specialised therapies. The transition away from IBC is therefore nuanced and requires utmost care. Understanding the needs of families within communities, and learning why abandonment happened, is clearly an important step toward deinstitutionalisation. Otherwise, the process risks being detrimental if children are

subsequently returned or placed in unsafe environments that are unable to meet their needs (Desmond et al, 2020).

Finally, the opportunity for family placement remains limited, especially when children are malnourished, sick, or unable to do activities of daily living. Disability-inclusive programming – from organisations such as Holt International, the Ubuntu-hub, and MAITS – provide training for caregivers that can improve child health and development and provide support to caregivers in communities, IBC,

and foster care. When children are well nourished, it speeds up the process and increases the chance of placement in family-based care, family reunification, or adoption. This then decreases the time children spend in care and avoids the time and cost of nutrition treatment once they are placed with families.

As we work to strengthen families and support deinstitutionalisation efforts, we also need to address the current needs of the large and highly vulnerable population who remain in IBC.

Addressing child nutrition in institution-based care

Through its child nutrition programme, Holt International aims to both address the nutrition needs of children while they are in IBC and ease subsequent life options outside IBC. The programme includes comprehensive assessment, training, and monitoring and evaluation, and works in strong partnership with government structures to support both implementation and scaling.

We provide training for caregivers and nutrition and feeding interventions for children in institutions, foster care, and community programmes in nine countries, over 130 sites. More than 15,000 children have participated in the programme, with more than 7,000 caregivers trained. We use a training of trainer’s approach to improve individual- and site-level care practices. We provide caregivers and site staff with training on the following topics: providing safe and engaging mealtimes for children of different ages, feeding and positioning, hygiene and sanitation, growth monitoring, treating common illnesses, anaemia screening and treatment, micronutrient deficiencies, and other development topics. Within this, there is a special focus on the needs of infants and children with disabilities (DeLacey et al, 2022b).

In addition to robust monitoring and evaluation systems, the programme uses an electronic nutrition screening system that tracks growth measurements according to World Health Organization growth charts, incidence of illness, iron status and supplementation, and feeding interventions for each child. The system automatically calculates malnutrition risk and supports caregivers to examine children’s nutrition and growth over time and instigate changes to care if, for example, a child’s growth chart trends flat or downwards.

Analysis of programme data has showed the positive effects the child nutrition programme has had on feeding difficulties. Among children with feeding difficulties at baseline, 33.1% of 163 children with disabilities and 53.8% of 106 children without disabilities no longer had feeding difficulties after one year of participation in the programme (DeLacey et al, 2022a). This is likely related to improved caregiver practices, better positioning, and support from caregivers to develop skills like self-feeding. This analysis helped us to improve programme implementation by identifying sites with persistent nutrition issues or additional need for support. Sharing these findings with global audiences has helped raise awareness about the needs of children in IBC.

Quinn’s story: From institution-based care to a permanent family

In 2012, Quinn was abandoned as a newborn at a government-run institution in Vietnam by her birth family. It is unknown whether she was born premature or low birth weight. Quinn has *arthrogryposis multiplex congenita*, a condition present from birth that affects muscle development and often limits mobility and the ability to self-feed (figure 1).

Figure 1

Quinn, moving with the aid of a walking frame to support a congenital disorder in IBC



© Holt International

Figure 2

Children being fed at a government-run institution in Vietnam



© Holt International

Quinn is highlighted by the yellow arrow (shown above)

Figure 3 Quinn growing and developing well, post-adoption



© Quinn's Family

Her health records indicate that, at 34 months of age, she was having difficulties chewing and was fed infant formula from a bottle or spoon-fed rice cereal. Her records also indicate that she was frequently hospitalised and experienced fevers and nausea/vomiting. She was stunted (according to height-for-age), underweight (according to weight-for-age), and anaemic. She was identified as malnourished and her caregivers received additional training from the nutrition programme staff on ways to improve her diet and to help her safely develop her chewing and feeding skills (figure 2). She was also provided with vitamins and iron supplementation.

In 2017, after four years and nine months of living in IBC, Quinn's nutrition and health status had improved and she had learned to safely feed herself. She became healthy enough to be adopted by a family. Her adoptive family received extensive training by Holt during the adoption process on strategies required to meet the complex needs of a child with a disability, as well as skills to build trust and a strong relationship with a child who has experienced adversities. With support from her family and occupational and physical therapy, Quinn no longer has feeding or nutrition issues and is growing and developing well (figure 3).

Avenues to improve nutrition support in institution-based care

While we work to unite children with families, children in IBC still need to receive appropriate care and nutrition. With this in mind, we highlight some strategies that can improve nutrition support in IBC.

Caregivers need more training. They usually have limited education on caring for children, especially those with disabilities. Appropriate training content and support would allow caregivers to provide responsive caregiving, safe and enjoyable feeding, and support for children with disabilities. There is increasing evidence that sensory stimulation, including touching or playing with food, plays an important role in child development and recovery from malnutrition (Kamble et al, 2022). Exploring the importance of engaging, enjoyable mealtimes is just one example of how appropriate caregiver training can improve nutrition outcomes. Another, more obvious focus is on malnutrition screening and prevention. Specifically, ensuring that caregivers are aware of sufficient, age-appropriate dietary intake and can identify and treat malnutrition early and effectively. This requires high-quality training and ongoing support.

Interventions to address malnutrition faced by children in IBC, especially infants and children with disabilities, must be part of the overall care plan and standard practice of every institution. Nutrition and feeding interventions need to be integrated into an organisation's workflow. Institutions can then work to support staff with frequent training, provide environments to enable best practices (e.g. easily accessible handwashing stations), and clear guidance on expectations.

IBC sites should create systems of accountability to ensure consistent and routine assessment of the nutrition and health of individual children and across a given site. Stronger routine monitoring and evaluation systems would not only enable governments to have a better picture of the number and conditions of children in IBC – thus raising visibility – but also improve the implementation of programmes supporting children in IBC. Such systems also help institutions to provide transparent and objective data, increasing accountability to governments.

Additionally, governments and organisations need to ensure nutrition and health standards are key aspects of any family-based care programmes, such as foster care or kinship care. Child protection, deinstitutionalisation, and family strengthening plans should also include core components of nutrition, hygiene and sanitation, safe feeding, and support for caregivers. As children become well nourished and cared for, family-based care (foster care, kinship care) should be the next stage whenever possible, as a part of permanency planning (family reunification, adoption).

Responsibility for IBC, child nutrition and development, healthcare services, disability services, foster care, and child protection are often spread across several government ministries. Governments will need to develop a clear vision and collaborate across all departments and levels to ensure meaningful actions create environments that best support children's development. Increased funding to train caregivers and support family-based care is essential. With funding and resources aligned to policy and global reforms in child welfare practices, deinstitutionalisation can become actionable and prevent the detrimental consequences to children's development seen in IBC.

Conclusion

Although not ideal, millions of children live in IBC today, and their needs cannot be ignored. We need to work to ensure all children live in conditions that will support their full and adequate development. As the global community works toward strengthening families and deinstitutionalising children, the children currently in IBC need to be included in the conversation, especially infants and those with disabilities. Nutrition status and development are critical elements in finding appropriate homes for these children. We therefore need to improve practices in IBC in the immediate term.

Governments need to better monitor children in IBC in their respective countries, including the large number with disabilities or malnutrition. This is crucial so that we can better understand and respond to the needs of this unique population. Evidence-based research offers a strong platform to raise awareness about this highly vulnerable population and to advocate for their needs and rights to be met. By the same token, sharing successful case studies and the learnings from interventions also remain powerful tools for change.

More can be done to ensure that children reach their full potential, regardless of where they reside early in their lives.

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Vijana Twaweza Club: Food security via a refugee-led organisation in Kenya



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Amisi from Vijana Twaweza Club holding a catch of fish. Kenya, 2024

What we know:

Food insecurity and population displacement are widespread in the East and Horn of Africa and Great Lakes region, and are exacerbated by climate-induced shocks, poverty, and conflict. Home to huge refugee camps, such as Kakuma and Dadaab in Kenya, the region currently hosts 20% of the world's refugee population (Reliefweb, 2022).

What this adds:

The authors present a case study of Vijana Twaweza Club, a refugee-led farming project that aims to improve food security for people living in Kakuma refugee camp, albeit on a small scale. The club has created a successful farm, as well as a training division, illustrating the potential of refugee-led organisations to find successful community-level solutions to improve food security.

Although clearly outlined in Article 25 of the 1948 Universal Declaration of Human Rights, the right to food remains elusive for many. For the 110 million forcibly displaced people globally, this is particularly true. By 2050, estimates point to an increased global population of 9 billion people, resulting in a 60% increase in food demand (Breene, 2016). With global efforts to feed a growing population veering off track – notably, the Sustainable Development Goal of 'zero hunger by 2030' – addressing demands for food is becoming ever more urgent.

“The idea of gaining global consensus on the need to ensure food security looks unlikely any time soon.”

The international development policy discourse on meeting global challenges, such as

food security, is awash with optimistic jargon. The terms 'resilience', 'participation', 'empowerment', and so on only capture the current situation in vague and simplistic forms (Schnable et al, 2020). These terms often form the backbone of policies that deflect decisive action and encourage the transfer of responsibility to those living in poverty, all for problems that are seldom of their own causing. The concept of 'resilience' has long enjoyed prominence in development policy relating to food security programming in developing countries. While ostensibly implying that the poorest have the power and capacity to feed themselves, if only they just showed enough determination to do so, the concept has increasingly been criticised by social and political analysts (Jaspars, 2020). The term ignores the reality of unjust power dynamics and resource shortages in food systems around the world.

Accounting for power dynamics, along with many other factors that influence access to ad-

equate food, the reality of the 'right to food' as a universally accessible concept becomes questionable. Like other universally agreed human rights, this is pertinent when considering those whose legal status is defined by exclusion of one or more of these rights, rather than inclusion. Refugees, being the case in point, live predominantly in conditions that exclude them from exercising the right to food to its fullest.

Focusing on East Africa

After six consecutive years of drought and other climate-induced shocks, displacement and food insecurity are endemic in the East and Horn of Africa and Great Lakes region. This situation is driven – and further reinforced by – widespread poverty, conflict, and violence in a complex and perpetuating cycle. Home to huge refugee camps, such as Kakuma and Dadaab (both in Kenya), the region currently hosts 20% of the world's refugee population (Reliefweb, 2022). In Kakuma alone, nearly 250,000 people rely on food rations from the World Food Programme to make ends meet while they wait out their exile.

With a reduction in resources allocated to refugee camps the world over, people living in camps like Kakuma are very much at the receiving end of global humanitarian funding cuts. Although up-to-date figures are hard to come by, the World Food Programme generally provides monthly rations that equate to 70–75% of people's food requirement. However, the amount of food refugees receive fluctuates frequently in the region. In February 2024, rations were reportedly reduced from 80% to 50% in Kenya's Dadaab refugee camps (UNHCR, 2023a). In Kakuma, rations were cut by 60% in May 2024 (USCRI, 2024).

“From an academic vantage point, it is easy to see the failings in our global humanitarian and development systems. What is harder is to point out viable solutions that could prevent some of the worst outcomes that these failings accrue.”

In recent years, refugee-led development is one solution receiving more attention in the international development discourse. Defining refugee-led organisations as legitimate stakeholders in refugee policy and programming in 2023, the United Nations High Commission for Refugees (UNHCR) heralded a shift in development thinking (Harley, 2023). Transitioning from a top-down approach to a more grassroots view allows refugees to play the primary leadership role in deciding and managing objectives and activities to meet their own needs.

Considering its relative novelty, refugee-led development is an under-investigated approach. Taking a cue from the Localisation agenda promoted over the last decade in the humanitarian sector, the development sector is increasingly aware of the power asymmetries that characterise top-down global development methods. With this in mind, refugee-led approaches to development offer another pathway to course correct. Specifically, advocates of refugee-led development applaud its proximity to both the communities it serves and the issues it addresses. They suggest that refugee-led organisations’ understanding of, and connection to, local problems afford them a level of legitimacy and transparency that other development actors do not have. Ultimately, supporters of refugee-led organisations champion their capacity to be more effective and achieve more impactful outcomes than development organisations directed from afar (Sturridge et al, 2023).

Discussion of development is often confined to abstract academic discourse. One can easily forget that it is a concept grounded in the real-life experiences of people who are seldom part of the academic arenas in which it is debated. Discourse surrounding food security is frequently held at a level that may obscure the individual experiences of those that it most affects. Cutting through this noise, we offer here an example of a small but successful refugee-led farming project aimed at improving food security within Kakuma refugee camp. By sharing this experience, we hope to bridge the gap between discourse and reality. We highlight the ability of refugee-led organisations to find their own development solutions and the implications of such schemes.

Case study: Vijana Twaweza Club Kakuma refugee camp

Kakuma refugee camp is in northwestern Kenya in the semi-arid Turkana state. Along with the neighbouring Kalobeyei integrated settlement, Kakuma is home to more than 250,000 refugees from 24 different ethnic communities (UNHCR, 2023b). The camp has been open since 1992, when the ‘lost boys’ of Sudan (a group of young people fleeing civil war in the country) were first granted sanctuary there. It is administered by the Kenyan government and UNHCR. Life in Kakuma’s desert-like conditions is difficult, with temperatures regularly exceeding 35C degrees. Conditions are those of survival.

While Kenya’s 2021 Refugee Act foresees a time when its refugee camps will be converted into settlements, the reality is that the country currently operates an encampment policy. Asylum seekers who enter the county are sent to one of its huge refugee camps while they await processing of their asylum claim. When they arrive in Kakuma, refugees are allocated some building materials (usually wooden poles and tarpaulin sheeting), a mosquito net, and some space to set up their own huts. Monthly food rations in-

clude sugar, flour, and cooking oil – amounting to roughly 75% of their food requirements. Various services are provided in the camp, such as basic healthcare and education, but conditions are overcrowded.

Beyond rations, Kakuma’s residents rely on trading and an informal market economy to meet their food requirements. Despite their efforts, malnutrition is an issue with around 11% of children aged 6–59 months experiencing wasting and an estimated 60% suffering from anaemia in 2017 (Njagi, 2022). With the regional drought, pressure on global food production, and now reduced rations, there is a worsening food crisis in the camp. There are few sustainable solutions on the table.

Vijana Twaweza Club

Vijana Twaweza Club is a community-based organisation in Kakuma refugee camp that sustainably produces food to feed people living in the camp. Since its formation in 2018, the project has produced over 1,200kg of fish. This has supplied more than 500 families in Kakuma with produce, which the club sells at affordable prices throughout the camp. Vijana Twaweza Club is composed of 23 young refugees who represent all the different ethnic and national backgrounds of Kakuma’s diverse population. The club started life as an idea generated by refugee students who were studying the University of Geneva’s undergraduate ‘One Health, Basic Medical Training and Introduction to Human Rights’ course being delivered in the camp. These students wanted to use their knowledge and skills to find solutions within the camp. With some seed money donated from friends overseas, Vijana Twaweza Club was born. It took its first steps toward becoming a food-producing organisation by digging a small fishpond in the refugee living quarters in the camp. The pond, which was lined with plastic sheeting bought from the nearby Kakuma town, was then filled with water and populated with Tilapia fish captured from a nearby river.



Members of Vijana Twaweza Club harvesting their fish. Kenya, 2024

After a few trials (and errors), the students began contacting various humanitarian organisations working in Kakuma refugee camp and the wider international development community to scale up their project. Project members took additional training courses in aquaculture, agriculture, permaculture, and project management – both in person and through on-line platforms. After connecting with the Jesuit Refugee Services in Kakuma, Vijana Twaweza Club was granted some additional space to build more fishponds in 2020. Moreover, the Jesuit Refugee Services stood as a referee for the club's first successful funding application to Caritas Italiana Kenya. The funding they received allowed Vijana Twaweza Club to build a new 20m by 8m fishpond, which was then used to raise tilapia and catfish.

It was at this time that the project began to garner international attention. The UK-based Permaculture Magazine awarded Vijana Twaweza Club the 'Youth in Permaculture Prize' for 2020. The World Food Programme quickly followed suit, bestowing the 'Young East Africa Innovators Award' in 2021. The prize money garnered from both afforded Vijana Twaweza Club the opportunity to invest into new tilapia and catfish stocks. This money also supported scale-up efforts, which focused on the construction of new fish tanks.

The growth of Vijana Twaweza Club has not been without setbacks. The COVID-19 pandemic and its associated lockdown in 2021/22 impacted Kakuma in unique ways, placing a greater onus on refugees to meet their own needs. With entry and exit to the camp largely closed and little guidance and health management penetrating the camp, Vijana Twaweza Club mobilised itself as a community-based organisation. Members used their health knowledge to produce short advisory videos on social distancing, hygiene, and general health-care, which were made in English, French, and Kiswahili. Videos were shared around the camp via the free WhatsApp instant messaging app

(which has high penetration in Kakuma) to empower fellow refugees. Through their provision of this social good, Vijana Twaweza Club gained further prominence in Kakuma as a vehicle for refugee-led development. Anecdotally, it seems this also paved the way for further conversations inspiring fellow refugees in Kakuma to begin their own food security journeys. Many individuals approached club members for advice on how to start their own gardens and farming projects in the camp.

After realising the food security role that refugee-led organisations could play, combined with their successful fish farming experiences, Vijana Twaweza Club began developing a side project. On land granted by Jesuit Refugee Services, the club set up a small vegetable garden to grow *murere* – a local spinach-like crop that yields highly nutritious greens. The successful production of *murere* enabled Vijana Twaweza Club to quickly scale up the gardening project to include carrots, onions, spinach, kale, *amaranthus*, banana, cowpeas, sweet potatoes, tomatoes, and sugar cane. The vegetables are harvested at regular intervals and distributed to club members or sold in the local market, with profits being put back into the project.

Using the profits gained from selling vegetables and fish, Vijana Twaweza Club set up other side projects raising rabbits and ducks, as well as rearing crickets for protein. The crickets and droppings from the rabbits and ducks are then used to feed the fish in a cycle that complements the club's founding permaculture principles.

With the help of the World Food Programme, construction of five additional 15m fishponds, made from cement, is underway. The ponds will be supplied with water that is used in a circular manner to water the crops in the gardens. In addition, Vijana Twaweza Club has recently received funding from Credit Agricole Assurances to initiate a poultry farming training programme for refugee women in Kakuma. The project, which began in February

2024 (the time of writing), is training 10 refugee women over six months to become independent chicken farmers.

Conclusion

Being a refugee-led organisation driven by young people, part of Vijana Twaweza Club's ethos is to build the agriculture management capabilities of its members for the future. This means that all members take part in and learn from new projects as they progress. This type of forward-looking capacity development is an important learning point for other refugee communities who wish to become more self-sufficient in achieving food security. Refugee-led organisations, such as Vijana Twaweza Club, can play a pivotal role in supporting food security for future generations. This can be whether refugees stay in camps where resources are limited, are resettled overseas where cutting-edge agriculture management skills are required, or if they return home to rebuild their own agriculture systems.

As the world moves toward an uncertain future, with challenges such as population growth and climate change weighing heavily on current food systems, innovation is needed more than ever. Drought, famine, inequality, and conflict may seem like impossible foes, but projects such as Vijana Twaweza Club show that young people can and will find ways to overcome adversity. Even in the most difficult of circumstances, the success of the project represents the hard work of the club's members. The power of knowledge to inspire new ways of thinking, doing, and – above all – the possibility of humanity to forge a sustainable future for everyone is on show. Vijana Twaweza Club provides an example to all.

To learn more, please visit the club website at <https://www.vijanatwawezaclub.org/>

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Food systems, climate change, and nutrition: Taking a unified approach



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Children help planting the community garden of the Municipality of Guatemala

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What we know:

Current food systems are largely failing those who rely upon them and there is a global imbalance in food availability, food costs, environmental impacts, and – ultimately – food justice. The broader topic of food systems has been gaining greater attention in recent years, which is important, but framing the learning from this renewed focus into practical steps remains a challenge.

What this adds:

This article consolidates some of the recent food systems learnings, highlighting critical insights and areas of focus that can be taken forwards. Ultimately, nutrition, food systems, and climate change are interconnected and efforts to improve any one of these entities relies upon the others.

The intricate relationships between food systems, climate change, and nutrition have become increasingly evident. These interconnected challenges present a daunting task but also an unparalleled opportunity for collaborative action. Despite the challenges, there are still some cards left to play. Evidence does exist, proven strategies can be put into place, and innovations are being ushered in on areas where we currently fall short. Yet, as ever, although we may have the cards in our hand, discerning which ones have value – and how to play them – can be overwhelming. By drawing from the insights of recent publications (ENN, 2024; FAO, 2023) and webinars (ANH Academy, 2024a; UN Nutrition, 2024) we can reorient ourselves among all the noise. There is a path forward that leverages existing knowledge, fosters partnerships, and drives impactful change.

This article seeks to inspire collective action and to highlight practical steps that can be taken immediately to address these critical issues.

Understanding the interconnections

Food systems significantly influence nutritional outcomes by determining the accessibility and quality of foods available. Food security and healthy diets are crucial for maintaining optimal nutritional status as they ensure consistent access to sufficient, safe, and nutritious food that meets dietary needs for an active and healthy life. A lack of food security can lead to malnutrition, while

an unhealthy diet can contribute to nutrient deficiencies and chronic diseases – both of which impair physical and cognitive development and overall well-being. The diets of mothers, infants, and young children are particularly vulnerable to disruptions in food systems. These groups often have both increased nutrient needs and less agency over what they consume, which is constrained by gender inequality and sociocultural norms.

Concurrently, food systems contribute substantially to environmental degradation, exacerbating climate change, which in turn heightens the risk of malnutrition (figure 1). Agricultural activities, including deforestation for crop and livestock production, contribute to habitat loss and biodiversity decline. The use of synthetic fertilisers and pesticides leads to soil degradation and water contamination, further stressing ecosystems. Additionally, the extensive water use required for irrigation depletes freshwater resources, while food transportation and processing add to the carbon footprint. Livestock farming is particularly impactful, producing large quantities of methane, a potent greenhouse gas. Together, these processes release about one-third of the world's greenhouse gases and contribute decisively to global warming, altering weather patterns and intensifying the effects of climate change.

At the same time, climate change negatively affects food systems by altering rain patterns and thus reducing soil fertility, crop yields, and nutrient composition, leading to a reduction in macro- and micro-nutrients in the global food sup-

ply. These changes are compounded by indirect impacts, such as increased pests, and contribute to increased spoilage and food safety hazards. Climate change can also disrupt food supply chains and transportation, increasing food price volatility and reducing food accessibility.

It is the poorest people in all societies, and those living in low- and middle-income countries, who are likely to suffer the most from exposure to climate shocks, to unsustainable food systems, and to the livelihood threats posed by ill health and poor nutrition (FAO, 2023). And it is often these populations that are most exposed to climate shocks and disrupted food systems who are also most vulnerable to malnutrition.

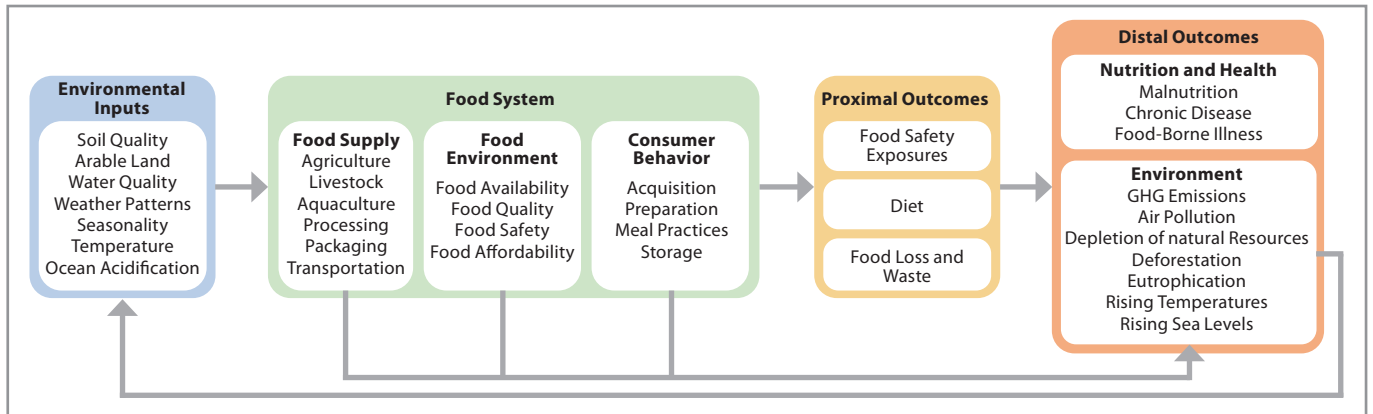
Four immediate steps for collective action

In a recent literature review including 135 peer-reviewed articles and reports, ENN examined how the intersections of food systems, climate, and nutrition have evolved (ENN, 2024). We identified key topics that have emerged or remained neglected since the first UN Food Systems Summit in 2021. Key emerging topics include an increasing focus on 'all forms of malnutrition' and the growing linkages across urban, peri-urban, and rural areas. Infants, women, and children continue to be disproportionately affected by malnutrition, the negative effects of climate change, and weaknesses in current food systems. At the same time, there is greater recognition of the co-benefits of more systematic, multisectoral, and longer-term action that integrates climate and nutrition considerations into food systems policies and programmes. Two areas were singled out as neglected but of critical importance: i) how sustainable food systems can be leveraged to prevent malnutrition; and ii) establishing sustainable food systems in conflict-affected settings.

My reflection from leading this review is that, while work on generating evidence continues, we can now boldly move forward as we already have enough learning that can be immediately used to collectively gain momentum. Here are four things we can all start applying in our work today:

Future-proof solutions

Policies and programmes should not only respond to current drivers but also to increasing

Figure 1 Food systems and the environment for nutrition

Source: Fanzo et al, 2021

challenges such as rapid urbanisation and the rising burden of obesity. Long-term planning should be embedded within current initiatives to ensure sustainability. For example, using climate forecasting to target nutrition interventions to at-risk populations can help address both immediate and future nutritional needs. Climate scientists can share relevant climate information, such as weather forecasts and climate variability projections, with health and nutrition practitioners. By delivering this information in a simple manner, the nutritional needs of communities adapting to a changing climate can be addressed through better targeting and management of climate-impacted infectious diseases that can lead to malnutrition. Health ministries can also use climate information to improve planning, surveillance, and preparedness to protect nutrition and public health by enhancing resources and infrastructure, helping communities adapt better to both short-term and long-term climate effects.

Boost climate-nutrition collaboration

There is a clear link between climate policies and nutrition outcomes. Collaborative efforts can help develop co-benefits between environmental and nutritional goals. There needs to be increased representation of nutrition priorities and needs within climate dialogues so that climate action has a positive impact on the nutritional status of the world's population. In order for this to happen, we need to both demand a seat at the table and be welcomed. Similarly, working closely together across food systems, climate, and nutrition will help us ensure that co-benefits between environmental outcomes and diets/nutrition are not left to chance. There is ever-increasing guidance such as the Centre for Food Policy's "45 actions to orient food systems towards environmental sustainability" (Caleffi et al, 2023), which also examines co-benefits with nutrition. We need to invest in systematic and intentional efforts from the outset.

Don't forget conflict-affected and fragile settings

It is likely that in years to come that there will be more fragile settings, given the impact of climate change, global economic pressures, and conflicts at scale. Establishing sustainable food systems in conflict-affected areas is often overlooked. Yet it is exactly the populations in these areas who are most in need of sustainable nutrition and food security, economic opportunities, and mitigation of climate impact. A holistic

approach that includes the "missing middle" of the food system – beyond mere agricultural production – is essential. This means supporting the entire food system, from production through to consumption, and ensuring knowledge sharing across programmes to build resilient food systems in these fragile contexts. Often, this may be most viable through smaller-scale, contextually based practices, involving communities themselves (and women in particular) in their design and implementation. Building an understanding of how humanitarian assistance impacts local food systems and communities and how it can be more effective in strengthening these systems through longer-term funding is also key.

Document and share success stories

Something that came up repeatedly as we did our literature review is that we need more stories of how positive change has happened. We need to know more about what the practical doable actions are for increasing integration, navigating trade-offs, and building co-benefits. We can all do more to ensure a greater representation of low- and middle-income contexts in the learning shared. Understanding how globally focused theories and practices translate into different contexts will support the establishment of national priorities and investments. Learning already exists at the country level. It is often only a matter of capturing it and improving dissemination through, for example, national or regional academic partners and via engagement with global communities of practice such as the Agriculture, Nutrition and Health Academy. The Agriculture, Nutrition and Health Academy comprises of interdisciplinary researchers, practitioners, and policymakers that work on agriculture and food systems for improved nutrition and health, with over 9,000 members in over 145 countries. Peer-to-peer publications, such as Field Exchange, can also facilitate the sharing of experiential, evidence-based learning, beyond more formal journal publications.

Leveraging existing tools and partnerships

To navigate the wealth of existing knowledge, stakeholders can utilise tools such as the Climate Nutrition Evidence Data Base (Stronger Foundations for Nutrition, 2024) and the interactive Evidence and Gap Map (ANH Academy 2024b) that links climate change to food systems, nutrition, and health. Joining alliances like the Initiative on Climate and Nutrition (ATACH 2024) and the

Coalition of Action for Healthy Diets from Sustainable Food Systems for all (World Health Organization, 2024) can also provide a platform for shared narratives and coordinated action.

Moving forward together

The need for immediate and collaborative action is clear. While perfect solutions may not be available, we cannot afford to wait. By leveraging existing knowledge, fostering partnerships, and taking pragmatic steps, we can address the intertwined challenges of food systems, climate change, and nutrition. Each sector – climate, nutrition, and food systems – must recognise their roles as a part of this integrated approach, working together to create sustainable and resilient solutions. By doing so, we can ensure that food systems contribute to both environmental sustainability and improved nutrition, paving the way for a healthier and more resilient future for all.

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Lead mother, explaining to mothers how to express breastmilk. Yemen

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Reviewing the FHI 360 mother-to-mother support experience in Yemen

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What we know:

Mother-to-mother support groups (MtMSGs) provide a peer support environment where women come together to discuss infant and young child feeding (IYCF) issues and share their experiences overcoming problems. These groups can effectively improve IYCF practices, including in emergency contexts.

What this adds:

This FHI 360 experience illustrates the importance of peer support groups, especially in crisis contexts, reaffirming their potential to provide benefits in terms of IYCF practices, mutual support, health and wellbeing, and cost savings from reduced purchase of commercial milk formula and medication. We identify strategies to enhance support for lead mothers and to strengthen mothers' engagement in support groups, for additional benefits.

After 10 devastating years of war, with thousands of civilian casualties and over four million internally displaced people, violence and insecurity remain endemic in Yemen. A profound economic crisis threatens the government's ability to sustain vital public services. Multiple domestic and external shocks are exacerbating the situation, including extreme weather events, the financial repercussions of the COVID-19 pandemic, and the wars in Ukraine and Gaza. A recent Humanitarian Needs Overview from the UN Office for the Coordination of Humanitarian Affairs (OCHA, 2024) reported that 7.7 million people require nutrition services: 2.7 million women and 5 million children.

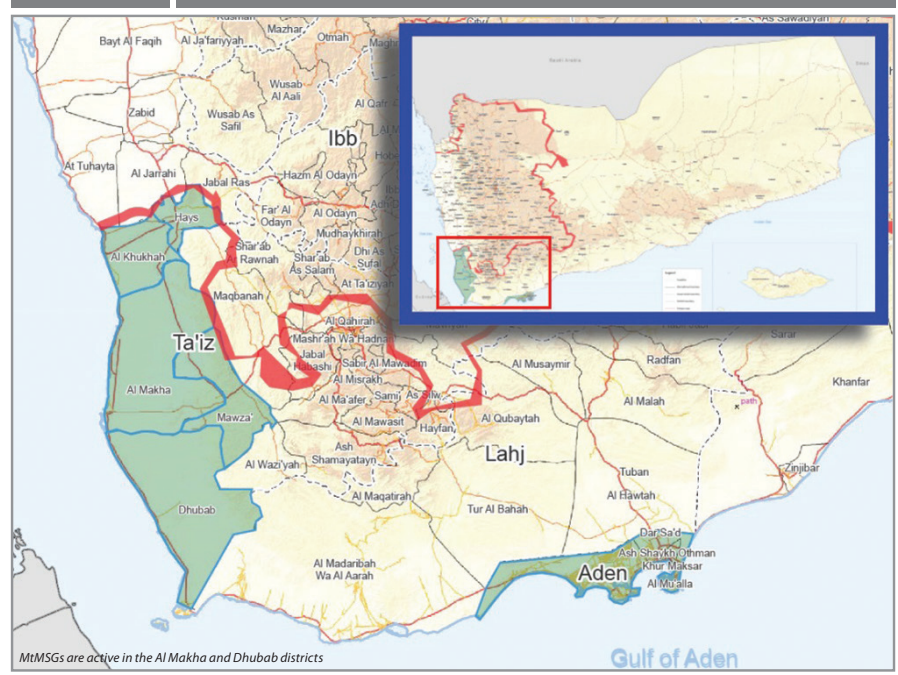
According to data from the Nutrition cluster, 8/21 Yemeni governorates have wasting rates that exceed the 15% WHO emergency threshold: Al Hudaydah, Lahj, Taiz, Hajjah, Abyan, Mahawit, Sa'ada, and Dhamar (IPC, 2023). These gover-

norates include 76 districts, accounting for 36% of the national wasting caseload. In the districts served by FHI 360 (figure 1), the level of nutrition severity is 5 (the highest), with a wasting rate of 28.9% in Hudaydah (Hays) and Taiz (Dhubab, Mawza and AlMokha (Al Makha)). Poor IYCF practices are a key factor contributing to the high wasting rates in the country.

The intervention

MtMSGs are among the strategies implemented by FHI 360 to support communities to redress the dire situation. These groups complement and link with community health volunteers' (CHVs) work. FHI 360 has implemented the MtMSG approach in five locations since 2023: Al Ghaded, Al Kadaha, Al Roa'a, Al Gharaffi, and Al Shatheliah. FHI 360 adopted the guidance and recommendations from the Yemen Ministry of Public Health and Population, while also drawing from the organisation's experience in similar contexts such as north-east Nigeria and Ethiopia.

Figure 1 FHI 360's areas of intervention



MtMSGs are active in the Al Makha and Dhubab districts



Evidence suggests that MtMSGs can be effective in emergency contexts. In the Dadaab Refugee camp (Kenya), there were 713 MtMSGs across three different camps, with 581 facilitators being trained over one year. Despite an increasing programme size due to refugee influxes, IYCF behaviours continually improved (World Alliance on Breastfeeding Action, 2024).

What are mother-to-mother support groups?

There are important considerations when deciding to establish MtMSGs. In Yemen, FHI 360 looks for the following conditions: some stability in the context of operations (e.g. no major security threats in terms of fighting or social unrest), that people are likely to continue residing in the area for some time (at least six months), and that there is a sense of community. If the population is mobile and/or living in an unstable context, other strategies such as home visits and community discussions by community health and nutrition volunteers may be more effective.

To target the window of opportunity of the first 1,000 days of life, the recommended members of MtMSGs are pregnant women and mothers (primary caregivers) of children aged 0–2 years. In Yemen, where men must be informed and approve when women leave the house, it is very important for a mother to have the agreement of her family to join a MtMSG. As this is a new activity for FHI 360 and the community, it is important that the lead mothers and group members ensure that their husbands agree to and support their participation.

Lead mothers are selected from among the MtMSG members based on various criteria, including community knowledge, successful IYCF practice, communication skills, and time to dedicate to the initiative. They generally host group meetings in their homes. They are provided with two training days in IYCF facilitation and communication, as well as basic information, education, and communication materials to support group discussions and exchanges. The lead mothers also link with the health facility and the CHVs, sharing their group's updates, issues, and challenges.

FHI 360 MtMSGs are set up so that group members do not need to walk more than 30 minutes to attend. Each MtMSG has between eight and 15 members. MtMSGs must be supervised and supported by trained CHVs and the health and nutrition staff of the nearest health facility.

MtMSG activities

The lead mother follows the proposed programme of thematic sessions on maternal, infant, and young child feeding, preparing each session in advance.

At the start of each session, the lead mother presents a visual counselling card (Figure 2) that describes the session's top-

ic. She facilitates the group to share their knowledge and engage in discussion. The lead mother then suggests what they “would” do to help others practice what is recommended or “what they will do to try to practice it themselves.” Members then review and agree on recommendations to action themselves and promote to their communities.

Members commit to attend the sessions and participate by sharing experiences or ideas, trying out (and hopefully sustaining) recommended practices, and supporting the learning of other mothers living in their area. Members also refer mothers who may need additional support. A member will be asked to share their experiences of helping other mothers during the group sharing activity. Lead mothers also visit members' homes to discuss how the support to other women is going.

Assessing success

After more than one year of implementation and anecdotal success, FHI 360 conducted a rapid assessment of the experience to learn from and inform the subsequent phases of the work. This assessment collected qualitative information on how IYCF practices among participants in the MtMSGs have changed after 16 months. The primary assessment outcomes were self-reported changes in knowledge about IYCF, self-reported changes in IYCF practices, and preferred topics discussed during support groups. Other benefits of participation in MtMSGs were assessed, as well as challenges or negative aspects, the level of engagement with other community members, and recommendations to improve the groups.

The study was conducted on the west coast in south Yemen, where FHI 360 is implementing an emergency response project. Five areas in Taiz were selected based on FHI 360's extended presence in the area and the associated trust that has been built with communities. The assessment was conducted in December 2023 using focus group discussions (FGDs) and in-depth interviews to elicit the experiences of mothers and lead mothers in MtMSGs. Fifteen FGDs were conducted, with a total of 79 participants. Each FGD took between 60 and 90 minutes and included two note takers. Thirteen in-depth interviews were conducted with lead mothers, representing half of all lead mothers in the assessment area. Each interview took up to 60 minutes, with either the interviewer or a notetaker taking notes. Purposive sampling was used to identify and select the participants for the FGDs and the interviews.

Study limitations

A compressed timeline limited the assessment team's ability to pre-test the interview and FGD guides and limited the time for in-depth data analysis. Mothers did not feel comfortable with audio recording,

so the assessment data consisted of notes taken by the team. These notes highlighted key themes and quotes from participants. In the results below, when frequencies are reported, these refer to the number of FGDs in which a particular theme emerged. While images would have been helpful, many participants did not want to be photographed (a traditional value on the west coast of Yemen).

Results

FGDs with participant mothers

Most women attended between 40 and 50 MtMSG sessions and noted that the location was easy to access, comfortable, and safe. Participants in all FGDs emphasised optimal breastfeeding and complementary feeding when asked what they had learned. The importance of exclusive breastfeeding in the first six months emerged as a critical learning across all FGDs (n=15). In addition, participants mentioned breastfeeding attachment (n=4), breastfeeding positioning (n=8), and hygiene, including personal and child hygiene (n=12). When asked about the benefits of these practices to the child and mother, they noted that their children are healthier and experienced a reduced incidence of disease, especially diarrhoea. Mothers credited the knowledge gained for their children's improved nutrition/freedom from malnutrition, body growth, weight gain, development, and sleep, as well as comfort and confidence for mother and child (n=12). Mothers shared additional benefits, such as a reduction in the cost of purchasing both commercial infant formula and medications/medical care. Mothers in all FGDs associated increased immunity and improved health with changes they made due to their participation in MtMSGs.

“It affected my comfort because my child’s comfort is my comfort.”

– FGD participant

When mothers were asked what they perceived to be the most significant change that resulted from their participation in MtMSGs, the key themes highlighted in the FGDs were improved breastfeeding (n=13) and complementary feeding (n=5), alongside cost savings (n=4) and improved family and home situations (n=3).

Mutual support emerged as an important element of MtMSGs. Mothers valued the exchange of opinions and experiences with each other and, subsequently, their families and communities. Women from all but one FGD had invited neighbours or other women to join their MtMSG. The FGD facilitators asked participants about opportunities for MtMSGs to provide additional support and possible MtMSG adaptations. Mothers in more than half of the FGDs identified the provision of incentives and assistance, citing hygiene kits, nutritional support, and cash support as options that support groups are well placed to provide. Suggested adaptations ranged from varying the topics of the sessions and changing the leaflets and posters to providing snacks/meals, mats, and more materials for sessions. Participants noted that more groups could be created to benefit more women, children, and families.

“Breastfeeding has been a challenge because... mothers believed that breastfeeding alone was insufficient to satisfy the child’s hunger and that using formula feeding and introducing solid foods would contribute to faster growth. There was a misconception that breastfed children might be more susceptible to illnesses due to their slender and weak bodies.”

– Lead mother, Taiz

Interviews with lead mothers

Reflecting on sessions they facilitated, lead mothers found the sessions that addressed breastfeeding, complementary feeding, and personal hygiene to be most impactful (in line with participant views). In terms of the successes of the MtMSGs, all lead mothers noted that, by successfully conveying information to members, they saw mothers make more positive choices. These included avoiding complementary feeding until the seventh month and prioritising vaccination (after initially fearing them). Anecdotally, lead mothers also reported seeing an overall reduction in disease and malnutrition among members' children.

Nine out of thirteen (69%) lead mothers shared that the most challenging part of their role was managing misconceptions related to breastfeeding and complementary feeding, as these made it difficult for mothers to accept the information being given. Other reported challenges included difficulty motivating members and the need to adapt information to suit members' education/literacy levels. In addition, mothers had concerns about their own nutrition. Some mothers were unable to consume regular meals and they feared that this would affect their breastfeeding. Other challenges cited by lead mothers focused on logistical challenges (n=6) such as the distance between homes, lack of transportation, challenging roads, high winds, and presence of dogs.

Lead mothers mentioned educating (n=12) and building relationships with/respecting mothers and the community (n=3) as their favourite part of being a leader. When asked how one might improve upon MtMSGs, lead mothers suggested additional training for leaders (n=3) to be able to discuss new topics and providing cash incentives (n=5) for participating mothers.

“MtMSGs are a vehicle for behavioural change, valuing each member’s experiences, views, and opinions. It provides a learning opportunity, receiving support, and supporting others without being judged or shamed.”

– Lead mother

Recommendations for support group implementation

The findings of the qualitative assessment provide several recommendations on ways to strengthen MtMSGs that could lead to greater effects. The provision of joint session review meetings for lead mothers would support them to understand and agree on strategies that work to make MtMSG sessions more engaging. These session review meetings would also give the lead mothers a chance to share experiences with each other. Communication materials need to be adapted for specific contexts to address local misconceptions and myths. The possibility of supporting MtMSG members with basic in-kind materials (e.g. hygiene kits or cooking utensils,) or linking members with other local programmes for additional support (e.g. food security and livelihoods programmes), needs to be explored. Practical solutions to address issues of distance and transportation need to be identified (e.g. rotating venues to vary transit time among different group members and reducing session frequency from twice to once per week). Motivation and engagement can be improved by providing recognition to MtMSG members and the lead mothers for what they do, through certificates or a simple ceremony, or more simply through refreshments provided during the sessions.

The recommendations and suggestions from lead mothers and members are very valuable. Mothers feel they are not just part of the initiative but leading it. All the recommendations are practical and feasible in the medium to long term, but FHI 360 will need to network and link with other partners and programmes to respond successfully to each of them.

Conclusion

Despite some challenges in methodology within this setting, this qualitative assessment has shown the value of MtMSGs in this context in regard to improving the understanding of optimal IYCF and mutual support generated between mothers. Notably, the evaluation has identified key areas that can be enhanced to support the lead mothers and strengthen mothers' engagement for future benefits. Following this, FHI 360 will continue supporting the MtMSGs and expanding the interventions in other villages. At the same time, thanks to the initial encouraging feedback and experiences, FHI 360 will also start supporting father-to-father support groups in recognition of men's critical role in the improvement and care of the health and wellbeing of their families.

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Kenya: Linking information to action. Synthesis of coverage assessment findings



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Screening for acute malnutrition in a Kenya

© Kelsey Jones, Kenya, 2013

What we know:

Since August 2010, Kenya has adopted IMAM programming as part of routine health services. Semi-Quantitative Evaluation of Access and Coverage (SQUEAC) surveys are conducted regularly to provide localised, contextual information on IMAM services.

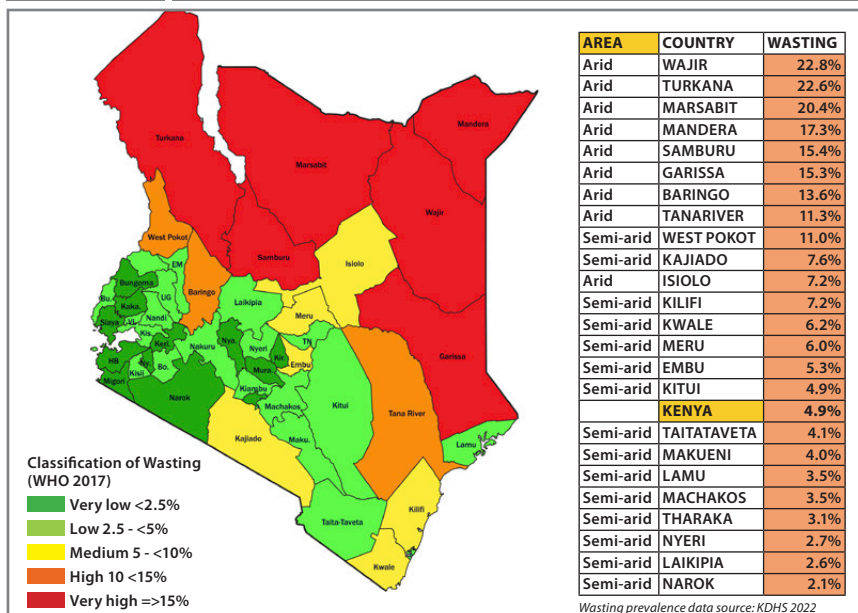
What this adds:

The need to systematically combine SQUEAC survey results to generate all-inclusive recommendations for improving IMAM coverage across the Arid and Semi-Arid Land counties (ASALs) was recognised. This article explores the synthesis of findings from 18 independent surveys. Most IMAM programmes in ASALs have attained coverage above 50% targets, but there is room for improvement. Key barriers and facilitators are explored and recommendations to improve policy, programmes, and coordination are provided.

In Kenya, around 5% of children aged under five years are wasted and about 18% stunted (KNBS, 2022). However, the national prevalence of wasting obscures important sub-national patterns – particularly in the ASALs where wasting is generally more prevalent than the national average (Figure 1). The scale-up of IMAM servic-

es in the ASALs is a key component of Kenya's country roadmap toward achieving and sustaining the Global Action Plan targets on wasting. IMAM is implemented by the Ministry of Health in collaboration with UNICEF, the World Food Programme, and implementing partners as part of the emergency nutrition response in the ASALs.

Figure 1 Wasting prevalence in different Kenyan counties



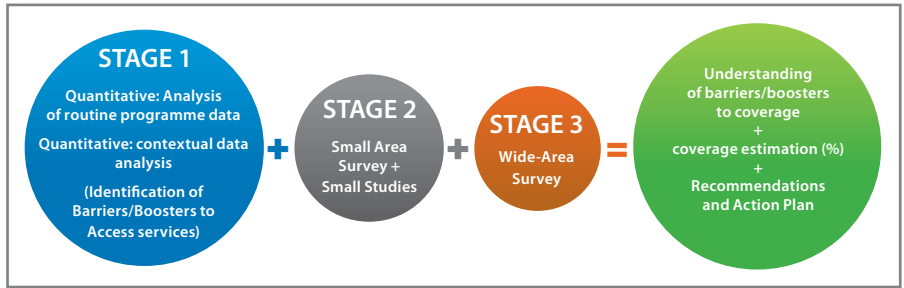
The Kenya Nutrition Information Technical Working Group (NITWG) recognised the need to systematically review localised data, from SQUEAC surveys, to generate all-inclusive recommendations to address key challenges to IMAM coverage across the ASALs. This single, high-level comprehensive outlook could then be used for advocacy, planning, and resource mobilisation, informing the scale-up of IMAM in the ASALs.

Methods

Conducting independent SQUEAC surveys

A total of 18 coverage assessments were conducted between May and July 2023 across 10 ASALs: Turkana, Marsabit, Samburu, West Pokot, Baringo, Isiolo, Tana River, Mandera, Garissa, and Wajir. These assessed Outpatient Therapeutic Programmes (OTPs) and Supplementary Feeding Programmes (SFPs) according to the key steps summarised in Figure 2. In Turkana and Marsabit, six and four separate

Figure 2 Key steps used to conduct SQUEAC surveys in Kenya



surveys were conducted at the sub-county level, respectively. This was due to the geographical expansiveness of these counties.

Synthesis of SQUEAC surveys

We conducted a 'quasi' meta-analysis that collated the results of the 18 SQUEAC surveys. First, the single coverage estimates for either

programme (OTP or SFP) were compiled for comparison. From each survey area, coverage barriers and facilitators were collated into an Excel worksheet. Each survey area was allocated a separate worksheet. This was the 'level one' analysis of OTP/SFP barriers/facilitators.

In 'level two', barriers and facilitators were reviewed and categorised into four general groups: community-level issues, geographical factors, caregiver determinants, and health system issues. The barriers and facilitators that were similar in each of the general groups were further organised into more granular sub-category themes. Sub-categories were then coded in a drop-down menu for ease in enumerating which survey areas reported each sub-category. Our threshold for determining whether a barrier or facilitator (sub-category) was common was that it must have been reported by nine (50%) or more survey areas (counties or sub-counties).

Key informant interviews were also conducted to draw on a broader perspective and to complement county-specific issues. Purposively selected national-level interviewees included: the Ministry of Health National Manager for Emergency Nutrition (n=1), the Ministry of Health Monitoring and Evaluation Manager (1), national staff of implementing partners supporting IMAM (4), the UNICEF Monitoring & Evaluation Specialist (1), the Nutrition Sector Coordinator (1), the UNICEF Emergency Nutrition Specialist (1), nutrition supply chain officers (2), national-level World Food Programme staff (1), the UNICEF Data and Monitoring Nutrition Support Officer (1), and UNICEF Nutrition Specialists at zonal level (2). Guide questions for the key informant interviews were drafted and distributed appropriately across these key informants. This gathered additional information about IMAM coverage that may not have been addressed through the SQUEAC survey methodology alone.

The information collected from key informants was categorised into common themes. These were then triangulated with the synthesised barriers and facilitators to inform the national outlook of issues affecting IMAM programming in Kenya's ASAL areas (Figure 3).

Results

Programme coverage

There were seven OTP and five SFP survey areas that reported single coverage estimates of less than the 50% minimum standard for rural areas (Figure 4) (Sphere, 2018). When SFP and OTP cov-

Figure 3 Analysis framework for SQUEAC survey synthesis

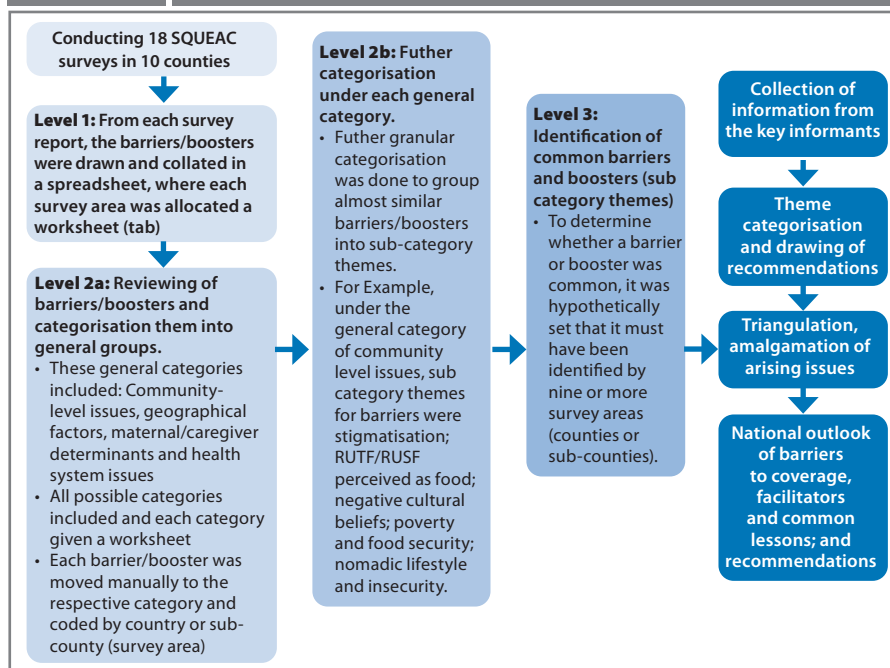
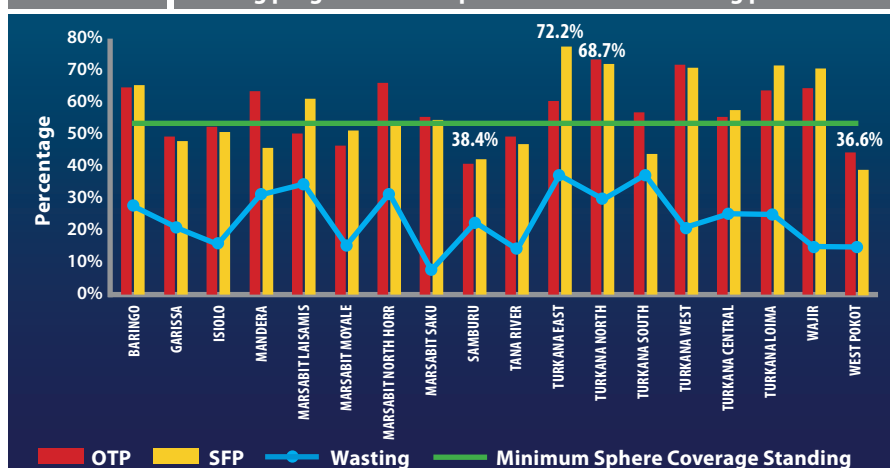


Figure 4 Single coverage estimates for outpatient and supplementary feeding programmes compared to observed wasting prevalence^{a,b}



^a Wasting prevalence was taken from recent Standardised Monitoring and Assessment of Relief and Transitions (SMART) surveys (July 2022 or January 2023).

^b In Turkana and Marsabit counties, sub-counties were assessed separately due to the expansiveness of these areas. Highest and lowest coverages are labelled.

erage and wasting data were merged, and regression analysis performed, a positive relationship was observed – coverage increased in line with increasing wasting rates. Almost two in every three survey areas (64%) with high wasting rates (over 15%) had higher coverage rates (greater than 50%) for both OTP and SFP. From the synthesis, we noted that areas with higher wasting prevalence also had many nutrition partners supporting IMAM programming, thus explaining the higher cov-

erage estimates. However, this did not come into play for areas with high levels of insecurity (such as Samburu and Laisamis).

Common barriers to coverage and treatment

In both OTPs and SFPs, 94% of survey areas reported the sharing of ready-to-use therapeutic food (RUTF) or ready-to-use supplementary food (RUSF) – or exchanging them for money

or food – as a major barrier (Table 1). Similar findings were reported by key informants, who noted nutrition commodity sharing was commonplace. Some caregivers who consumed alcohol would also exchange RUTF for money or alcohol. Maternal workload was also highlighted as a key barrier, as well as poor active case finding and referral. Long distances to health facilities and migration (due to drought or floods) were also important barriers to access.

Table 1

Barriers and facilitators to outpatient and supplementary feeding programme coverage^a

Outpatient Therapeutic Feeding Programme			Supplementary Feeding Programme		
Commonly reported barriers	Survey areas	%	Commonly reported barriers	Survey areas	%
RUTF sharing or exchange for money or food	17	94%	RUSF sharing or exchange for money or food	17	94%
Poor active case findings and referral system	15	83%	Challenges with HCWs	16	89%
Challenges with CHVs	15	83%	Long distance from health facility	16	89%
Maternal workload	14	78%	Maternal workload	15	83%
Long distance from health facility	13	72%	Poor active case finding and referral	15	83%
Poor knowledge on causes and treatment of severe wasting	12	67%	Migration due to drought and floods	15	83%
Negative cultural beliefs, practices, and myths	12	67%	Challenges with the CHVs	14	78%
Migration due to drought and floods	12	67%	RUSF and other commodity stockouts	14	78%
Poverty and food insecurity	11	61%	Stigmatisation of households with moderate child wasting	13	72%
Stigmatisation of households with severe child wasting	10	56%	Poverty and food insecurity	12	67%
Poor documentation/records	9	50%	Maternal knowledge and perceptions	12	67%
Nomadic lifestyle and insecurity	8	44%	Poor knowledge on causes and treatment of moderate wasting	11	61%
Poor health seeking behaviours	8	44%	Negative cultural beliefs, practices, and myths	10	56%
Alcoholism	8	44%	Poor health seeking behaviours	10	56%
Challenges with HCWs	8	44%	Nomadic lifestyle and insecurity	9	50%
RUTF and other commodity stockouts	8	44%	Poor or impassable roads	9	50%
RUTF is perceived as food	7	39%	RUSF perceived as food	8	44%
Limited defaulter tracing and follow-up	7	39%	Limited defaulter tracing and follow-up	7	39%
Maternal knowledge and perceptions	6	33%	Poor documentation/records	7	39%
Commonly reported facilitators	Survey areas	%	Commonly reported facilitators	Survey areas	%
Awareness on causes and treatment of severe wasting	18	100%	Awareness of and limited stigma regarding moderate wasting	18	100%
Health Care Worker capacity to implement IMAM	18	100%	Active case finding and referrals	18	100%
RUTF and other supplies available (no stockouts)	17	94%	HCW capacity to implement IMAM	17	94%
Positive health seeking behaviours	16	89%	Collaboration between HCWs, CHVs, communities, and leaders	16	89%
Community Health Volunteer capacity to implement IMAM	16	89%	Active outreach services and mass screening	16	89%
Active case finding	14	78%	CHV capacity to implement IMAM	15	83%
Support supervision and programme review	14	78%	Family led MUAC and self-referral	15	83%
Family led MUAC and self-referral	13	72%	Positive health seeking behaviours	13	72%
Active outreach services	13	72%	RUSF supplies available (no stockouts)	13	72%
Stakeholder support and coordination	12	67%	Stakeholder support and coordination	12	67%
Collaboration between HCWs and CHVs	10	56%	Defaulter tracing mechanisms	11	61%
OTP services available at health facilities	9	50%	Support supervision and programme review	11	61%
Availability of screening, referral and reporting tools	9	50%	SFP services available (at various service points)	10	56%
Active community and leader's involvement	8	44%	Availability of equipment	7	39%
Defaulter tracing mechanisms	8	44%	Proximity to health facilities	6	33%
Recognition of role of CHVs	6	33%			

^a Only commonly reported barriers / facilitators have been shown here (i.e. those reported in six or more survey areas)
 RUTF/RUSF = Ready-to-use therapeutic/supplementary food; CHV = Community Health Volunteer; HCW = Health Care Worker;
 MUAC = Mid-upper arm circumference

Kenya's community health strategy was launched in 2006 to improve community access to healthcare. Since then, most counties have adopted it – including all the survey areas featured in this article. However, continued challenges were observed in regard to the community health strategy. In some areas, there were no community health volunteers (CHVs). Where they existed, numbers were often not adequate to support in active case finding, defaulter tracing, and referral. Some CHVs had capacity gaps, as was reported by a partner staff key informant.

“Knowledge of IMAM by CHVs has enhanced screening and active case finding in the community. However, a good number of CHVs have not been trained on IMAM due to limited resources.”

– Key informant, nutrition partner

Demotivation, due to a lack of or a delayed stipend, was commonly reported for CHVs across the survey areas. We also observed that a barrier may have a geographical aspect due to geopolitical and sociocultural similarities. An example is maternal alcoholism, which was reported in Turkana Central, Turkana South, Turkana West, Samburu, West Pokot, Baringo, Laisamis, and North Horr. These areas border each other, and this finding calls for inter-county collaboration in addressing the challenge.

Common facilitators of coverage

Most health systems facilitators were common across the survey areas for both OTPs and SFPs. These included HCWs and CHVs' availability and their capacity to provide IMAM services, active case finding, active outreaches, and mass screening exercises. Also important were no stock-out of nutrition commodities, provision of supportive supervision and programme reviews. All the surveyed areas indicated awareness of the causes and treatment of severe and moderate wasting as a key community-level facilitator.

Common maternal/caregiver facilitators identified were positive health seeking behaviour, training caregivers to identify early signs of malnutrition in their children using MUAC (“Family-led MUAC”) and self-referral. Only Turkana North reported availability of active mother support groups as a facilitator.

What next?

The synthesis of findings from the independent surveys, together with the consolidation of insights from key informants, highlight actions to be considered to scale up IMAM across Kenya's ASALs.

Policy and strategy considerations

Developing and implementing a national strategy for peace, security, development, and humanitarian operations, as well as tackling poverty and infrastructural challenges, all remain important. Poverty and childhood malnutrition are interlinked – and they are mediated by inadequate diets, lower education, poorer living standards, and limited access to healthcare fa-

cilities and appropriate water, sanitation, and hygiene. This clearly articulates the need for policies and guidelines that prioritise overall poverty and malnutrition reduction.

Kenya has chosen the primary healthcare system to deliver universal health coverage. A ‘community health strategy’ has been given prominence in all the survey areas. However, challenges to full strategy implementation still exist, as only two counties are reported to be giving CHVs a monthly stipend. There is a need for county governments to collaborate with partners to develop and implement community health acts. These acts will provide a legal basis for counties to allocate funds for remuneration and provide adequate supervision of CHVs. This will result in CHVs who are better motivated, better equipped, and who are accountable when providing health services at community level.

Programmatic issues

Across 18 independent SQUEAC surveys, with a few exceptions (Turkana East, Turkana Loima, and Wajir), the OTP was found to perform better in both coverage and outcome indicators than the SFP. This is despite both programmes being implemented jointly in all the survey areas. This calls for further analysis to understand the associations and unique factors that could be causing this difference.

Maternal workload was highlighted as a key caregiver barrier. Programming should be designed to encompass male involvement in childcare activities and not purely focus on mothers and children. Counties and partners could also support establishing peer-to-peer support groups for fathers at community level, which have been proven to positively influence child feeding practices (Bogale et al, 2022; Atuman et al, 2023). Fathers can be involved in financial and resource support, as well as social and physical support, such as shared responsibility for the nutritional wellbeing and health of the child. A study in Ethiopia found that, for children aged 6–23 months, dietary diversity in the household increased by 13.7% when fathers were involved in infant and young child feeding (Gebremedhin et al, 2017).

Community engagement, sensitisation, and mobilisation clearly remain as barriers to increasing coverage for both OTPs and SFPs. Addressing these issues will be central to achieving greater coverage in IMAM programmes. As well as developing guidelines and strategy documents, it is critical for counties and partners to allocate resources for improved community engagement.

The sharing and commodification of RUTF/RUSF was a major barrier. This directly affects programme outcomes, increasing both length of stay and non-response in a programme. Ultimately, children who remain wasted remain at heightened risk of mortality and morbidity associated with malnutrition. Such practices also increase the cost of programmes. To curb this, it is critical to link households with malnourished children who have exited as ‘cured’ from IMAM programmes to social safety net schemes. However, in this analysis, only two survey zones reported the availability of social safety net pro-

grammes as a facilitator. National and county governments, and partners, must scale up social safety net and poverty alleviation programmes that integrate nutrition.

The adequacy and availability of nutrition supplies was a key facilitator leading to the success of the IMAM programme. Although the supply chain is government led, procurement is heavily supported by donors. Advocacy efforts should continue at both the national and county levels for resource allocation to cover nutrition supplies and for ring-fencing finances to protect any allocated funding for this task.

Coordination actions

Several coordination mechanisms for nutrition exist in the country at national level, providing opportunities for collaboration and to strengthen partnerships between the Ministry of Health and nutrition stakeholders. These include the Nutrition Technical Forum, ENAC, and NIT-WG. Counties could establish such coordination structures for inter-county information sharing and collaboration, seeking to address common barriers and documenting best working practices.

Conclusion

This systematic synthesis of findings from 18 SQUEAC surveys highlighted that most IMAM programmes in ASALs have attained OTP and SFP single coverage above 50% but there is room for improvement and a need to sustain the gains already made. OTP was noted to perform better compared to SFP.

The identified common barriers and facilitators, and additional key observations, provide relevant information for policy, advocacy, and programmatic efforts to scale up the management of wasting across the ASALs. Moreover, the synthesis diagnoses the need for inter-county collaboration in tackling specific barriers, given their geographical spread. Ultimately, systems need to be strengthened to prevent children from becoming wasted in the first place. Poverty alleviation, stronger community systems, and gender equity (all advocated for above) will not only reduce barriers to increasing treatment coverage but also promote prevention.

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Training mothers on the use of the multi-MUAC tape. Ethiopia, 2023

Trialling a multi-MUAC tape to screen at-risk infants under six months in East Africa

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We would like to express our deepest gratitude to the country offices and the dedicated health workers at the MAMI sites for providing exceptional care to at-risk mother–infant pairs, and the unwavering commitment of the mothers that made this multi-MUAC pilot possible. We would like to acknowledge the ministries of health in South Sudan, Ethiopia, Kenya, and Somalia, as well as MIHR MAMI International Consultant Hedwig Deconinck. We also extend our sincere thanks to ECHO, the Bill & Melinda Gates Foundation, the Department of Foreign Affairs Ireland, BHA, USAID, and Latter Day Saints Charities, who supported this research.

What we know:

There is building evidence that mid-upper-arm circumference (MUAC) is a reliable tool and a good predictor of mortality in infants aged under six months (Hoehn et al, 2021). However, practitioners have faced challenges in accessing and producing tapes for research and programming.

What this adds:

Operational pilots by GOAL, Save the Children, and MIHR of a prototype multi-MUAC tape found that healthcare workers (HWs) and caregivers in Somalia, Kenya, and South Sudan could effectively and feasibly use it to screen infants under six months of age. Recommendations for design improvements and contextual influences have informed an updated World Health Organization (WHO) and UNICEF MUAC tape for women and infants (aged six weeks to six months), which is now available from UNICEF regional and country offices.

The ‘management of small and nutritionally at-risk infants under six months and their mothers’ approach (MAMI) refers to the continuity of respectful quality care for at-risk mother–infant pairs across systems of health and nutrition. ‘At-risk’ or vulnerable pairs include infants and mothers who may be identified in many ways. They include infants born too early (preterm) or too small (low birth weight), infants who are wasted, underweight, or growing poorly, and mothers with nutrition, mental/physical health, and social problems (McGrath et al, 2024).

Since 2019, MUAC has been used in infants aged under six months in a limited number of settings, building valuable evidence of its application in this age group. These efforts have contributed to a recommendation on the use of MUAC to identify infants at risk of poor growth and development (MUAC <110mm, infants aged six weeks to six months) in the 2023 guideline on the prevention and management of wasting and nutritional oedema (WHO, 2023).

In 2022, a working group was convened by the MAMI Global Network to address challenges in accessing or producing a quality MUAC tape for use with infants. This was a time-sensitive challenge given imminent opportunities to include MUAC for infants aged under six months in research, and the potential for a WHO recommendation to emerge. While a MUAC template for infants aged under six months was available (Rana et al, 2021a), in-country replication was proving difficult to the necessary specifications.

The working group oversaw the design of a pilot ‘multi-MUAC’ tape, produced for research purposes by UNICEF in collaboration with WHO. The aim was to produce a practical, high-specification MUAC tape that was designed to assess infants aged under six months, while also incorporating mother’s assessment alongside. The tape also included children aged 6–59 months to avoid the need for multiple different MUAC tapes.

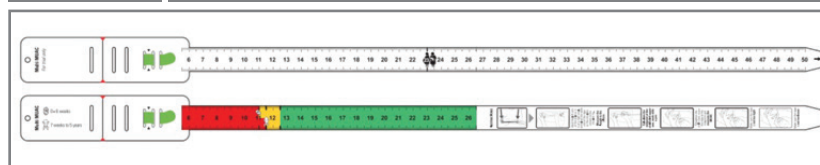
The multi-MUAC tape was piloted by three agencies (GOAL, Save the Children, and MIHR) to test its feasibility and effectiveness for screening infants aged under six months by HWs and caregivers. This article shares the collated findings of this collective effort.

Methods

Design and production

The multi-MUAC tape design (figure 1) was developed by the working group using the GOAL template as a strong starting point. One side measures infants and children (mm, colour-coded), while the other measures women (mm only). At the time of development there were no guidelines for the use of MUAC in infants. To identify infants at heightened risk of malnutrition requiring referral for further assessment and support, we used <110mm (infants aged 0–6 weeks) and <115mm (aged seven weeks and above). Infants above these cut-offs and <125 mm were still considered to be at risk of deteriorating nutritional status and referred to community HWs for additional counselling and support. The material thickness of the multi-MUAC tape was adjusted to address problems with the UNICEF MUAC tape for children aged

Figure 1 ‘Multi-MUAC’ tape design



6–59 months (Rana et al, 2021b). The tape design was managed by UNICEF Supplies Division and a limited number were rapidly produced for research purposes only.

Operational pilots

GOAL developed a study protocol that informed the basis for the operational pilots, adapted to each country’s context and capacity. In Ethiopia, GOAL tested the tape with HWs and caregivers in three study sites (figure 2). Save the Children tested the tape with HWs, caregivers, and community nutrition volunteers (CNVs) – community members who receive brief training on health and nutrition – in two study sites in Kenya and three in Somalia. In South Sudan, MIHR tested the tape with HWs in three study sites. Training on the use of the multi-MUAC tape varied by setting but in general was cascaded from nutrition supervisors (or equivalent) to the different HW cadres and caregivers.

Data collection

Data was collected over various time periods between December 2022 and July 2023. While all infants included in the pilots were aged under six months, the exact age of the infant at the time of assessment was not recorded. Information on measurement accuracy, which side of the tape was preferred, and any challenges in tape usage were collected from study participants. Information on preferred side of the tape was not collected in South Sudan, but recommendations for future development of the tape were gathered.

In Ethiopia, Kenya, and Somalia, HWs measured five infants each. In South Sudan, 10 infants were measured by each HW. Across the study sites, verification measurements were taken by the Nutrition Supervisor (or equivalent) on the same infants. In Kenya and Somalia, CNVs measured five infants each, with verification measurements taken by HWs on the same infants. Caregivers measured their own infant’s MUAC using the colour classification only, which was compared to measurements taken by HWs (Ethiopia) or CNVs (Somalia, Kenya).

Data analysis

To assess performance, absolute numeric MUAC measurements and risk classifications by colour were compared (HWs vs nutrition supervisors, CNVs vs HWs, and caregivers vs HWs/CNVs). For numeric MUAC measurements, a standard of error of +/- 1mm was applied across study sites. We also calculated the sensitivity and specificity of numeric MUAC measurements and risk classifications by colour using a MUAC cut-off of 125 mm (Figure 3).

Findings

Accuracy of MUAC measurements

Apart from in Kenya, over 70% of HWs and CNVs were able to correctly measure the infant’s numeric MUAC value to within 1mm, compared to measurements taken by trainers on the same infant (table 1). There was high specificity of numeric MUAC measurements by HWs and CNVs across all countries. Apart from CNVs in Kenya, there was high sensitivity of numeric MUAC measurements by HWs and CNVs.

Figure 2 Number of participants trained at each study site

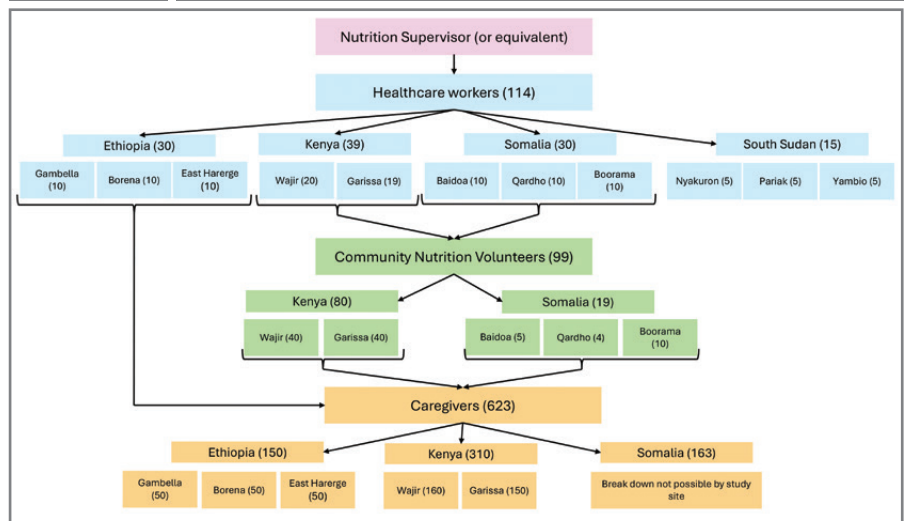


Figure 3 Calculating the sensitivity and specificity of measurements

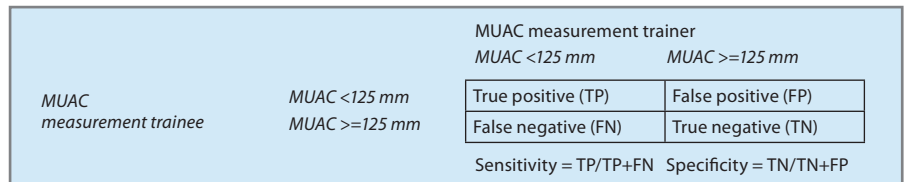


Table 1 Multi-MUAC measurement accuracy (>=125mm) by participant

	Measurements within +/- 1mm of the reference ^a		Sensitivity of numeric measurements		Specificity of numeric measurements	
	HWs	CNVs	HWs	CNVs	HWs	CNVs
Ethiopia	119 (79%)	-	97%	-	99%	-
Kenya	79 (43%)	105 (29%)	99%	65%	84%	89%
Somalia	142 (95%)	79 (81%)	97%	94%	97%	96%
South Sudan	106 (71%)	-	96%	-	95%	-

^a Reference = Measurement taken by a trainer on the same infant Healthcare workers (HWs); Community nutrition volunteers (CNVs)

Table 2 Risk classification (by colour) accuracy arranged by participant

	Colour classifications that matched the reference ^a			Sensitivity of colour classifications			Specificity of colour classifications		
	HWs	CNVs	Caregivers	HWs	CNVs	Caregivers	HWs	CNVs	Caregivers
Ethiopia	123 (82%)	-	135 (90%)	83%	-	87.5%	99.5%	-	99%
Kenya	163 (89%)	269 (75%)	288 (93%)	98%	67%	97%	85%	85%	98%
Somalia	147 (99%)	90 (93%)	151 (93%)	99%	95%	89%	97%	93%	98%
South Sudan	133 (87%)	-	-	95%	-	-	93%	-	-

^a Reference = Measurement taken by a trainer on the same infant Healthcare workers (HWs); Community nutrition volunteers (CNVs)

A higher percentage of HWs and CNVs were able to correctly identify infants’ risk classification using colour coding compared to numeric MUAC measurements. Similarly, a high percentage of caregivers were able to correctly identify the risk classification by colour (table 2). Across all countries, there was high sensitivity and specificity of risk classifications by colour for HWs, CNVs, and caregivers.

Challenges using the multi-MUAC tape

HWs reported some challenges in reading the tape (table 3) due to the small font size of meas-

urements, the window of the tape being too narrow (making the measurements difficult to read), and the infants wriggling during assessment. CNVs in Kenya reported challenges in reading and interpreting the tapes due to low literacy rates, coupled with small text size. Training also greatly varied between study sites. Response rates were low for questions on challenges (4–16%), so these results should be interpreted carefully.

The South Sudan MAMI team identified design problems with the women’s tape side that confused interpretation: specifically, the place-

Table 3 Reported challenges in multi-MUAC tape usage

	Reported challenges physically using the tape		Reported challenges reading the tape numerically		Reported challenges interpreting results	
	HWs	CNVs	HWs	CNVs	HWs	CNVs
Ethiopia	0	-	10 (33%)	-	0	-
Kenya	6 (15%)	5 (6%)	3 (8%)	12 (15%)	2 (5%)	9 (11%)
Somalia	0	0	0	1 (5%)	0	0
South Sudan	0	-	3 (20%)	-	2 (13%)	-

Healthcare workers (HWs); Community nutrition volunteers (CNVs)

ment of the breastfeeding mother image alongside the 235 mm measurement point implied to some that this was the cut-off to apply to breastfeeding mothers (rather than 230mm). While measurements were recorded in millimetres they were presented on the tape in centimetres, which also caused confusion. The length of the tape was reported as too long and inconvenient when measuring very young infants.

When asked which side of the tape they preferred, 79% of HWs and 59% of CNVs who responded found the coloured side of the tape (the child side) easier to use. However, the response rate was also low for this question (26% HWs, 31% CNVs).

In Somalia and the Garissa region in Kenya, data on the challenges in using the tapes in infants were reported per group of caregivers (not individuals). Caregivers reported difficulties in using the tape in Wajir (Kenya) (32% of caregivers), Garissa (Kenya) (13% of groups), and Ethiopia (19% of caregivers). Caregivers reported challenges in reading / interpreting the results in Wajir (21% / 37% of caregivers), Garissa (20% / 13% of groups), and Somalia (6% / 3% of groups), respectively. A range of challenges in physically using the tape were reported by caregivers, such as in estimating the midpoint of the infant's arm, measuring small infants due to crying and wriggling, and confusion on how to lace the tape correctly through the windows.

Suggestions to improve the MUAC tape

The respondents highlighted several design changes that could improve the multi-MUAC tape. These included increasing the font size of measurements, colour coding both sides, and reducing the number of windows through which the tape is laced. The MUAC design team recognise that three windows through which to lace the tape is greater than many tradition-

al MUAC tapes, but this was done to reduce the lateral movement of the tape and reduce measurement inaccuracies more common with a single window design. Respondents also suggested using millimetres on the tape (to improve accuracy and precision), reducing tape length, and improving tape durability (in reference to the colouring fading quickly). One team suggested moving the pregnant and breastfeeding woman images to the head of the tape to avoid confusion. To improve legibility, including colour coding only in the middle of the tape was also suggested.

Respondents were eager to ensure that cut-offs are adjusted to align with specific contexts and national protocols (e.g. cut-offs for women should align with admission criteria for supplementary food programmes where operational). Using '0–6 weeks' and 'seven weeks and above' as classification descriptors was noted as inconsistent with both the MAMI Care Pathway (which uses 'infants under six weeks' and 'infants six weeks to six months') and the latest WHO recommendation ('six weeks and above').

Discussion and conclusions

As the studies were opportunistically implemented by different agencies at different operational settings, implementation varied between study sites. Qualitative data and discussions with the implementing teams indicated considerable variation in training and delivery modality. There was also considerable variability in the quality of data collection, with a large amount of missing data for qualitative findings from Somalia and Kenya. Results should therefore be interpreted carefully.

Our findings indicate that the majority of HWs, CNVs, and caregivers could feasibly and effectively use the multi-MUAC tape to screen infants aged under six months, to varying degrees. Caregivers found the tape most challeng-

ing to use and interpret, followed by CNVs, and then HWs. Several factors affected the usability of the piloted tape: some of these were specific to the tape design, and some not. Our experience emphasises that while the tool itself may be simple, contextualised training and support will be important for practice.

The multi-MUAC tape was developed as a first-step test prototype, anticipating it would likely need amending and adaptation to contexts. Our findings have been shared and they informed a subsequent version that has been co-developed and produced by UNICEF and WHO under the Wasting and Nutritional Oedema (Acute Malnutrition) Technical Advisory Group (Infants Sub-Working Group) (WHO, 2024). This version only includes infant MUAC cut-offs for those aged six weeks and over, for consistency with the 2023 recommendation (WHO, 2023). There are two versions with 21cm or 23cm cut-offs for pregnant women/mothers (figure 4).

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To order mother/infant MUAC tapes, please contact UNICEF regional and country offices for supplies, guidance and to provide user feedback.

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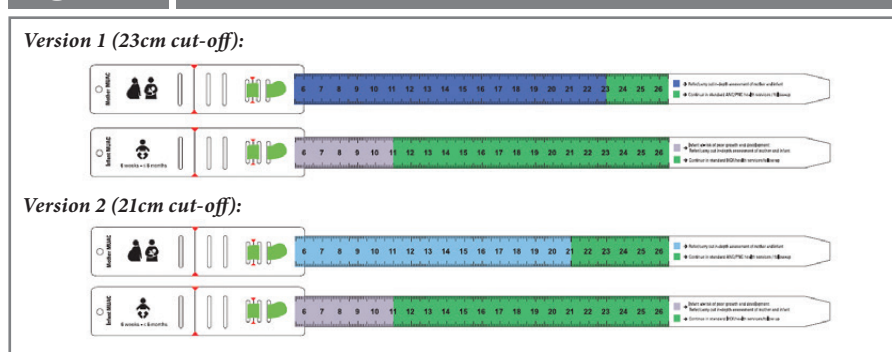
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Figure 4 Mother/infant MUAC tapes available from UNICEF



A focus group discussion with mothers of children aged under five years in Badimalika, Nepal



Experiences implementing a rapid nutrition determinants assessment in Nepal



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What we know:

An understanding of nutritional determinants and causal pathways is critical for designing contextualised and targeted programmes that address undernutrition in all its forms. Current assessment approaches are useful but may be time and resource intensive.

What this adds:

As part of its broader work to support innovative solutions to respond to moderate wasting in children under five, the MWI, in partnership with Action Against Hunger, piloted a rapid nutrition determinants assessment (NDA) approach in Nepal. This article describes the development of this qualitative approach and challenges, opportunities, and lessons learned through the experience.

Background

Most NDAs, also called nutrition causal analysis assessments (NCAs), seek to understand the multi-sectoral nature of nutrition determinants within a given area, to inform contextualised programmatic responses. In recent years, the Link NCA method – spearheaded by Action Against Hunger – has been a popular method for assessing nutrition determinants through a participative, mixed-method approach. A key strength of Link NCA has been its ability to not only show relationships between various factors but also to describe how determinants are related to each other and the relative importance of each to the risk of developing undernutrition. Although fruitful, this approach has proven to be time and resource intensive, reducing its accessibility, especially in emergency and/or underfunded contexts.

The Nutrition Determinants Working Group (NDWG), a sub-working group of the GNC's Nutrition Information Systems Global Thematic Working Group (GNC, 2024), discussed the need to develop a simple and affordable toolkit to help identify – and explain the relationship between – context-specific determinants, while promoting community engagement. The ultimate goal would be to encourage a more efficient and effective use of nutrition determinants data by programme implementers. This article describes the experiences of the GNC's MWI, in partnership with the NDWG and Action Against Hunger, with funding from Irish Aid, in developing and testing a rapid qualitative NDA in Nepal.

The MWI aims to contribute to addressing the challenges that nutrition stakeholders have in developing, accessing, and utilising feasible, effective, and innovative solutions to respond to moderate wasting in children under five years old at scale. It seeks to support the development of programmatic solutions through a range of contextualised options, including the current standard of traditional nutritional supplementation with the provision of specialised nutritious foods. The MWI aims to use the outputs of the Nepal experience to feed into a larger pilot that supports countries to diversify and better con-

textualise approaches for the management of moderate wasting.

Rapid NDA

The Rapid NDA methodology was developed by Action Against Hunger and further contextualised in situ by the Action Against Hunger Nepal and MWI teams. The methodology aimed to fill specific information gaps, be quick to implement, be accomplished by a small team, and include a community validation exercise. Considering these specific needs, a qualitative approach was considered most appropriate.

The specific objectives of the assessment were to identify key determinants of undernutrition among the study population and to understand how determinants of wasting interact with each other, so as to determine which causal pathways are likely to explain most cases of wasting. The MWI in Nepal was specifically interested in moderate wasting. However, as communities could not differentiate causes of wasting and stunting, or the associated severity, the respondents were not asked to limit their responses to moderate wasting. Therefore, general undernutrition was considered in this setting.

Sampling and data collection

Three pilot locations were selected in collaboration with Nepal's Nutrition Technical Committee and the Integrated Management of Acute Malnutrition Working Group. Locations were selected to represent the three different geographical areas of Nepal – the mountains, the hills, and the 'terai' (lowlands) – to compare nutritional determinants in these areas. This would provide a contextualised analysis for the design of locally resourced solutions to improve the relevance and efficiency of moderate wasting programming in these locations.

The assessment was designed to be quick and easy to implement. Therefore, the number of community consultations was reduced from that required by a Link NCA (table 1) while trying to maintain the scope of thematic areas covered for it to remain relevant for the multi-sectoral analysis of nutrition determinants. The Action

	Rapid NDA	Link NCA
Methodology	Qualitative	Qualitative and quantitative, including a review of secondary data sources
Timeframe (data collection and analysis)	One or two weeks	20+ weeks
Objective	Studies the relationships between determinants for undernutrition	Studies potential differences in causal mechanisms of undernutrition and anaemia
Data validation	Community validation of data, with a focus on community priorities	Triangulation of data between several qualitative and quantitative sources, including community validation
Implementation area	Sub-district (municipality) level (samples one locality)	District level (samples four localities)
Community consultations	10–11 key informant interviews	
Nine focus group discussions	54 key informant interviews	
48 focus group discussions		
Team	Can be implemented by programme/local teams with training and specialised support	Can be implemented by local teams with training and specialised support
Implementation reach	One country and three finalised studies	29 countries and 52 finalised studies
Proof of concept	Promising but needs to be tested in more contexts and in contrast to other methods	Demonstrated reliability

	Data collection and validation
Day 1	Initial community meetings 2x key informant interviews
Day 2	3x focus group discussions 3x key informant interviews
Day 3	3x focus group discussions 3x key informant interviews
Day 4	3x focus group discussions 3x key informant interviews
Day 5	Data synthesis and analysis
Day 6	Community validation

Against Hunger research team was comprised of one supervisor and two research assistants. The team was further supported by a community mobiliser, with technical support provided by the MWI/Action Against Hunger team both in country and remotely. The team spent a maximum of six days in each location, which included three and a half days for data collection, one day for data synthesis and analysis, and one day for community validation (table 2). Government stakeholders were involved in the assessment preparation and as respondents during data collection.

In each location, the research team conducted 10 or 11 semi-structured interviews and nine focus group discussions. Focus group discussions were with community leaders, traditional healers, health staff, representatives of local organisations, and the carers of children aged under five years.

Assessment tools

Interview guides covering the main determinant categories of undernutrition were developed for the semi-structured interviews and focus group discussions. These categories were: health and nutrition, mental health and care practices, food security and livelihoods, WASH, and gender. The interview guides were organised by sector but included questions for each determinant within that sector. Therefore, the team had the flexibility to ask questions according to feedback from the community. A variety of visual aids were used with the objective of assisting respondents to consider various determinants of undernutrition in the study area and to categorise them in terms of importance. Seasonal and historical calendars were used to identify temporal variations in determinants and their effect on child outcomes (figure 1).

The community validation exercise remains a critical part of the data collection process and is intended to provide an additional level of sense-checking of the information emerging. For this process, active participants from the focus group discussions and key informant interviews are asked to come together and prioritise major and important determinants first through choosing individually (three stones for major and one stone for important) and then through group consensus. The outcome is intended to elucidate a more in-depth understanding of the community’s experience of the determinants and the various pathways.

Data analysis

Qualitative data was recorded manually in a notebook and reproduced electronically at the end of each data collection period in a sampled location, usually at the end of each day. The data was compiled in an Excel spreadsheet organised according to the five determinant categories to allow for an efficient analysis. Synthesis sheets (figure 2) allowed all determinants to be tracked to see the frequency with which they were raised throughout the sessions. All views were analysed using qualitative content analysis methods, whereby raw data was condensed into categories or themes and coded based on valid inference and interpretation.

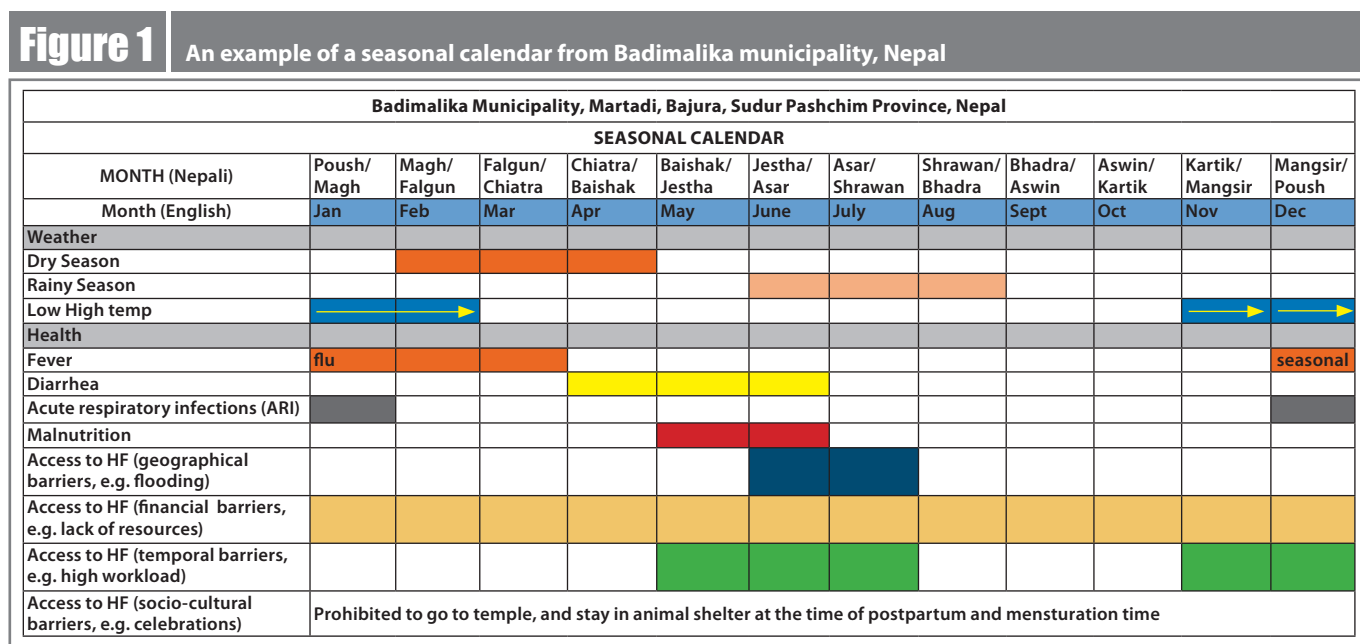


Figure 2 Example of analysis framework

Determinant	FGD1 (Mothers)	FGD2 (Fathers)	FGD3 (Mothers)	FGD 4 (Mothers)	FGD 5 (Mothers)	FGD 6 (Fathers)	FGD 7 (Mothers)	FGD 8 (Mothers)	FGD9 (Fathers)	Total
A	Limited access to health services									0
B	Limited utilisation of health services									0
C	Low birth spacing/ early, repetitive or unwanted pregnancies		✓	✓						2
D	Low birth weight									0
E	Low nutritional status of women	✓								1
F	Caregiver well-being									0
G	Non-optimal breastfeeding practices									0
H	Non-optimal complementary feeding practices									0
I	Low quality of interactions between a child and a caregiver									0
J	Low access to quality diet	✓	✓							2
K	Low access to income sources	✓	✓	✓		✓		✓	✓	6
L	Low access to markets	✓		✓						2
M	Low coping capacities								✓	1
N	Inadequate accessibility, availability and, quality of water at household level									0
O	Poor sanitation practices					✓				1
P	Poor personal hygiene practices					✓		✓		2
Q	Poor food and environmental hygiene practices		✓			✓		✓		3
R	Heavy workload of women	✓			✓	✓				3
S	Low female autonomy/ decision-making	✓	✓		✓		✓			4
T	Low social support for women						✓			1

For each location, the teams developed pathways based on how the community explained their experiences of the key nutrition determinants. These pathways were then confirmed with the community during the validation process.

General findings

The findings produced from the Rapid NDA include a weighted matrix of nutrition determinants and a series of pathways describing how the community experiences those determinants through to illness and/or wasting. The assessment produced municipality-specific determinants and pathways. However, the scope of this

article does not cover these details. Instead, it presents generalised findings to provide an example of the type of information produced.

Women's workload and quality of diet were consistently ranked among the priority determinants of undernutrition in all three municipalities. Across the five determinant categories, the communities perceived gender to have the strongest influence on undernutrition, followed by food security/livelihoods, and WASH. Health and nutrition came next, followed by mental health and care practices. The dominance of gender across the three municipalities is an interest-

ing finding and shows its critical importance to the community and their perceptions of how it influences child nutrition outcomes. Unfortunately, gender issues such as female time poverty are often complex cultural issues with limited programming designed to address them.

The importance of the determinants to undernutrition are weighted twice: once through the focus group discussions and key informant interviews, and then again through the community validation. This two-stage process is important for providing a full picture of how the determinants are related to each other and to child

Figure 3 Summary of nutrition determinants and their ranking for Rolpa district

Category of determinant	Determinant	No. of times mentioned in FGD and KIs	Ranking from FGS and KIs	Community Validation ranking
Food security & livelihoods	Low access to income sources	13	1	6
Gender	Heavy workload of women	12	2	3
Food security & livelihoods	Low access to markets	5	3	2
Gender	Low female autonomy/decision-making	5	3	8
Health and nutrition	Low nutritional status of women	4	4	10
Food security & livelihoods	Low access to quality diet	4	4	1
Water, sanitation & hygiene	Inadequate accessibility, availability and quality of water at household level	4	4	5
Health and nutrition	Limited utilisation of health services	2	5	9
Health and nutrition	Low birth spacing/early, repetitive or unwanted pregnancies	2	5	13
Health and nutrition	Low birth weight	2	5	14
Mental health & care practices	Caregiver well-being	2	5	11
Mental health & care practices	Non-optimal complementary	2	5	15
Water, sanitation & hygiene	Poor personal hygiene	2	5	12
Water, sanitation & hygiene	Poor food and environmental hygiene	2	5	4
Health and nutrition	Limited access to health services	1	6	7
Mental health & care practices	Non-optimal breastfeeding practices	1	6	0
Mental health & care practices	Low quality of interactions between a child and a caregiver	1	6	0
Food security & livelihoods	Low coping/resilience capacities	0	0	0
Water, sanitation & hygiene	Poor sanitation practices	0	0	0
Gender	Low social support for women	0	0	0

nutrition outcomes. Figure 3 shows an example findings framework from Sunil Smriti Rural Municipality, Rolpa district. Here, while focus group discussions and key informant interview respondents rated *low access to quality diet* within the fourth level of importance for undernutrition, the community validation process rated it as top priority. Even when sufficient income is available for food purchases, nutritious foods are not always available in the local market and/or not prioritised for purchase. This clarifies the importance of this determinant when seeking to address the local wasting burden.

Challenges, opportunities, and learnings

Logistical and linguistic challenges

The standard challenges with implementing an assessment in a country like Nepal applied, particularly with respect to the geographical terrain and difficulties in accessing certain areas. In addition, Nepal's linguistic diversity meant that composition of data collection teams needed to be carefully planned to ensure adequate knowledge of the local language within the team, as well as an appropriate gender balance.

Unfamiliarity with identifying causal pathways

The data collection teams were familiar with the conceptual framework for nutrition (UNICEF, 2021) but unaccustomed to identifying causal pathways, meaning this step took a significant amount of support. During training, data collectors and supervisors need enough time to understand the basic theory behind causal pathways. Support, supervision, and monitoring should be planned until teams are well versed in this aspect of the assessment.

Skills for qualitative data collection and analysis

The analysis of qualitative data requires setting aside assumptions and biases regarding behav-

iours, practices, and motivations; this proved challenging for some team members. Time needs to be invested in equipping teams with the skills required for the impartial collection and analysis of data, and it should not be assumed that those with previous data collection experience necessarily have these skills. A strong and experienced supervisory structure is required to control for bias and to promote deeper probing and triangulation of potentially important causal factors that might be missed by less experienced technicians.

Practical training sessions and pre-testing

Time constraints meant that there were no practical sessions or pre-testing during training. This led to some misunderstandings on how to conduct the community feedback and validation sessions in the first location. Therefore, this exercise was done differently in each location until the methodology was mastered. Sufficient practical sessions are standard good practice and should not be compromised in any training schedule.

Balancing time, capacity, and quality

In theory, a key strength of this type of assessment is the shorter implementation time frame, and that it can be accomplished by regular programme teams. However, the assessment demands were strenuous for such a small team implementing an unfamiliar methodology in the required timeframe. They worked long hours to find and organise the participants, conduct the data collection, and carry out data entry and analysis. The small team felt significant pressure to move quickly and, in some cases, did not take enough time to probe further on some issues that could have deepened the analysis. Once a team is familiar with the methodology it is unlikely that the time pressures will be so great. However, extending the assessment by a few more days would limit staff burnout and ensure enough time for the proper probing required in qualitative research.

Depth of information required

Historical and seasonal calendars were developed to record significant religious, socio-cultural, climatic, and economic events and other phenomena over the past 10–15 years. However, these tools were not used adequately at the analysis stage, largely due to the time investment required to develop pathway maps with teams unfamiliar with the concept. It remains to be determined if these tools deepen the general understanding of the context in the specific area, or if the other data collection is sufficient for analysis.

Conclusion

The value of the assessment approach is evident. Overall, both the implementers and the local authorities have found the information generated by the Rapid NDA to be relevant and useful and intend to use the results for a determinants-centred programme design process. From the causal pathways developed, the municipal governments involved in Nepal stated having a clearer appreciation of the multisectoral facets to undernutrition.

The NDA tools package itself was found to be simple, affordable, and efficient, and ensured a community engagement process for validation of the results. This study indicates that Rapid NDA is a potential approach to qualitatively study determinants of undernutrition when resources are limited. As with the introduction of any new methodology, a balance between timeframe, capacity, and quality is needed. Although developed within the context of supporting determinants-based programming for moderate wasting, the methodology itself and findings generated have a much broader relevance to all forms of undernutrition. This Rapid NDA methodology may be particularly useful in ongoing programme locations to fully understand the evolving needs and priorities of communities and ensure interventions are designed accordingly. Since completion of the MWI's support for the initial pilot, the team at Action Against Hunger Nepal is continuing to expand to new areas so that they may better understand their context and programme effectively.

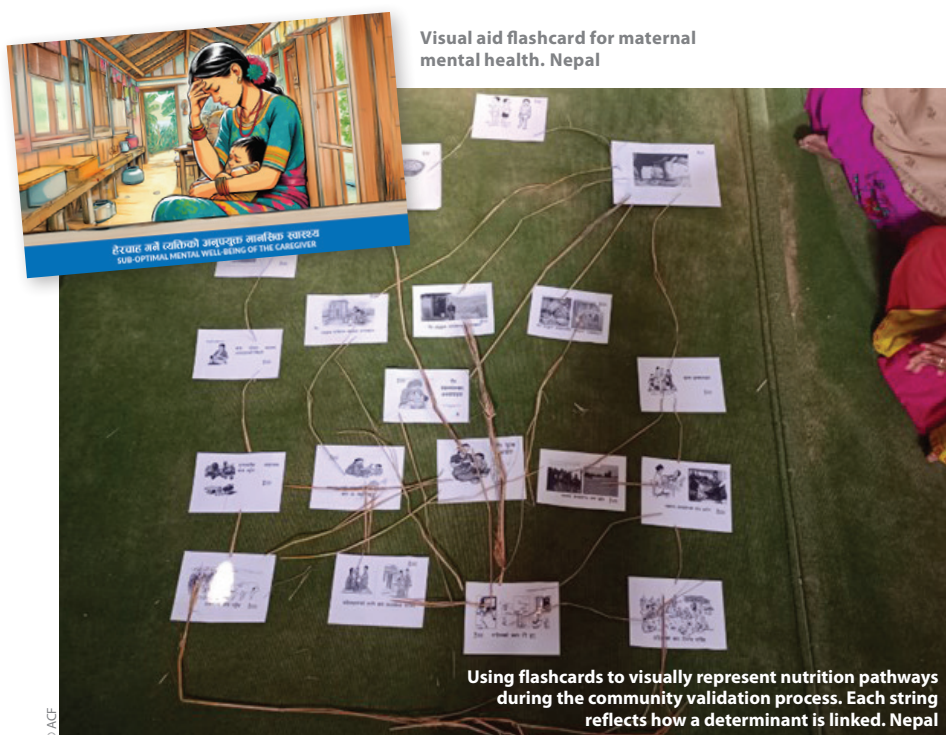
Next steps

The piloting process for Rapid NDA has helped to: refine the assessment preparation; determine an ideal team size and assessment timeframe; contextualise the tools; define the analysis procedures; strengthen the local team's experience of this type of qualitative assessment; and, of course, generate usable information on nutrition determinants to support programme planning purposes. The MWI and Action Against Hunger intend to share the tools and methodology widely once a second phase of implementation of the assessment approach concludes.

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Visual aid flashcard for maternal mental health. Nepal

Using flashcards to visually represent nutrition pathways during the community validation process. Each string reflects how a determinant is linked. Nepal

Baxnaano: Integrating social protection, health, and nutrition in Somalia

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Baxnaano beneficiary mothers with her child. Somalia

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What we know:

Recurrent and protracted crises have affected Somalia for over 30 years and resulted in widespread poverty and food insecurity. Social protection programmes can reduce poverty and vulnerability to shocks and stresses. Integrating health and nutrition conditionalities is known to generate positive impacts on uptake of services and nutrition-related outcomes.

What this adds:

This article describes the development of Somalia's first national social protection platform, and discusses the challenges, lessons learned, and subsequent adaptations. To address the challenge of low uptake of services in particular, a pilot health and nutrition conditional cash transfer is to be provided in areas of well-supported integrated health and nutrition programmes.

Protracted conflict and cycles of droughts and floods have afflicted Somalia for over 30 years (Ullán de la Rosa & Arrey, 2021). This has triggered a humanitarian crisis and has led to widespread poverty and food insecurity (Pape & Karamba, 2019). Nearly 70% of Somalia's population lives in poverty, with 4.3 million people in need of urgent humanitarian assistance in 2023 (IPC, 2023). An estimated 1.5 million children under five years of age are facing wasting, with 331,000 experiencing severe wasting. The combined impact of conflict, natural disasters, and limited availability of basic services is eroding household resilience to future shocks, reducing the chances of future generations breaking free from this cycle of poverty and vulnerability.

To alleviate poverty, push economic revival, and engender societal transformation, in 2019 the federal government collaborated with the World Bank, UN, and other development partners to launch its first national social protection platform – Baxnaano (which translates to “uplifting”).

Baxnaano: The national social protection platform

Baxnaano, which is housed at the Ministry of Labor and Social Affairs (MoLSA), has ena-

bled the federal government to provide safety net support to the country's poorest people and respond to the impact of climate-related shocks. It operates with the full engagement of Federal Member States (FMS) authorities, in collaboration with humanitarian and development partners involved in social protection across the country. The national platform continues to evolve with the vision of empowering the poor and vulnerable beyond simple cash assistance. Baxnaano provides support through two current programmes (Regular and Shock Response) and will launch a third programme (Economic Inclusion) in November 2024. Baxnaano will also pilot an additional health and nutrition conditional cash transfer from July/August 2024.

The Baxnaano Regular Programme is a long-term, unconditional cash transfer programme. It aims to address chronic poverty and food insecurity, build resilience, and enhance the human capital of recipient households. As part of the programme, beneficiaries are provided with information on available health and nutrition services and encouraged to seek care as needed. The programme routinely covers 200,000 poor and vulnerable households with pregnant and breastfeeding women and/or children under five years in 25 districts across all FMS and Somaliland. A total of USD 20 per month is provided to each

beneficiary household over a period of three years. After the standard three years, beneficiary households must undergo recertification regarding eligibility for continued support.

The Baxnaano Shock Response Programme is a short-term, unconditional emergency cash transfer programme that aims to smooth food consumption and protect human life. The programme also aims to protect the physical assets of poor and vulnerable households in the aftermath of shocks, thus enabling recovery. The programme covers 668,000 households affected by shocks (338,000 drought-affected households, 260,000 locust-affected households, and 70,000 flood-affected households). A total of USD 60 per month is provided to shock-affected households for a period of six months.

The Baxnaano Economic Inclusion Programme will aim to enhance the economic inclusion of poor and vulnerable youth (including women) in urban and rural areas. Under this programme, the government will launch a pilot to test labour market interventions for 1,000 youth and women by November 2024. The interventions will focus on improving employability and supporting job creation by providing life skills training, technical skills training with a formal training provider or a master craftsman, business development services, labour intermediation, stipends, and grants.

MoLSA engaged the World Food Programme in 2019 to support the field implementation of the Regular and Shock Response programmes. As government social protection systems are becoming available, implementation arrangements are transitioning from UN assisted to direct government implementation modalities. The health and nutrition cash transfer pilot will be entirely government implemented in the Banadir region, which includes the capital city, Mogadishu.

Baxnaano: Challenges faced

A key challenge experienced during the design phase of Baxnaano was a lack of an existing government-led structure to bring together humanitarian partners involved in cash assistance programmes. For example, many partners maintain their own separate lists of beneficiaries, raising concerns surrounding effectiveness, duplication, and targeting. To this end, MoLSA is building capacity to consolidate social protection programmes by encouraging the use of Baxnaano's new targeting and delivery systems including the Unified Social Registry (USR) and the government's payment mechanism. The use of common systems will greatly improve coordination, transparency, and efficiency, while allowing different agencies the flexibility to respond to varying priorities.

Another challenge faced during implementation was the nascent government capacity and weak systems present in the country (particularly those still under Al-Shabaab control). Low uptake of available services and an extremely limited supply of nutrition and health services is an additional hurdle. Additionally, limited quality education, water, sanitation, and hygiene services, as well as limited employment and skill development opportunities, persist. To overcome these challenges within the social protection sector, MoLSA leveraged the UN to support an initial launch of life-saving social protection interventions, while simultaneously building key national social protection systems. This has led to a gradual transition to government imple-

mentation and the introduction of more complex social protection interventions, including conditional cash transfers and economic inclusion. To address the limited availability of basic services, the government is leveraging support provided by international development partners to implement health programmes through the UN and civil society.

In Somalia, where protracted conflict, recurrent shocks, and the provision of cash transfers for an extended duration are common, concerns regarding dependency and reduced labour market participation often emerge. In line with evidence (Bastagli et al 2016), for Baxnaano these concerns are avoided through small, frequent, and reliable unconditional cash transfers provided over a longer time horizon, combined with conditional cash transfer top-ups for vulnerable households. These transfers are provided through digital payments to beneficiaries' mobile wallets to ensure transparency and reliability.

Limited data availability remains a persistent challenge for Baxnaano and other social protection programmes that target the poor. To address the data gap, MoLSA has developed key social protection information systems – such as the USR and the Management Information System. The USR collects socioeconomic data to enable dynamic data sharing among potential stakeholders and objective data-driven targeting of pro-poor programmes. Looking ahead, the government plans to launch a National Socio-Economic Survey to collect USR data from all accessible households in Somalia by November 2024. All 1.88 million accessible households in Somalia (excluding Somaliland) are expected to be covered in the survey.

Baxnaano: Lessons learned

In Somalia, the importance of leveraging UN capacities and local non-governmental organisations to implement social protection interventions, under government leadership, was important. This is true of all fragile, conflict-affected, or violence-affected contexts. As these programmes are launched with support from development partners, it is also critical to concurrently build government systems and capacities to ensure sustainability. A transition from UN to government implementation is possible once key policy principles – such as 'do no harm', data protection and privacy, and inclusive systems – are adhered to. Despite this, it remains important to focus on the end goal of eventually transferring ownership to the government, ensuring that short-term interventions do not become a protracted situation.

Another lesson is the importance of starting with simple interventions and gradually moving towards more complex and diversified social protection programmes in fragile contexts. In the case of Baxnaano, a roadmap was used to develop a government-led social protection programme. The unconditional cash transfer was initially launched, followed by shock response emergency cash transfers, now leading to more complex interventions such as the health and nutrition conditional cash transfer described below.

The Baxnaano Health and Nutrition Co-responsibility Cash Transfer

The first 1,000 days in a child's life are critical for growth and development (Likhar & Patil 2022). A child's ability to develop, grow, learn, and thrive are significantly impacted by the extent to which mother and child are appropriately fed and cared for throughout this period. This window of opportunity is affected by the pregnant mother's health, diet, and stress levels. After birth, the child's environment, health, diet, and care practices are key factors. To improve maternal and child health and nutrition outcomes, Baxnaano plans to implement a Health and Nutrition Co-Responsibility Cash Transfer (H&N CCT) targeted to the poorest 20% households in selected areas of Banadir.

Low uptake and utilisation of nutrition and health services is an issue experienced across Somalia, including under Baxnaano's regular programme. The regular programme prioritises targeting of poor households with pregnant women and mothers of children aged 0–5 years. Although beneficiaries are encouraged to visit health facilities and access health and nutrition services, programme monitoring data revealed few beneficiaries have actually done so. The H&N CCT seeks to overcome this challenge and encourage uptake of nutrition and health services by introducing co-responsibilities (conditions) before beneficiaries are eligible to receive cash transfers. To address supply-side challenges and create demand, the new H&N CCT will leverage existing health programmes financed by international development partners, such as Damal Caafimaad (World Bank supported) and Better Lives (UK aid supported). These programmes are improving access to health facilities, capacity of health staff, and availability of high-impact services – such as antenatal care, postnatal care, facility births, immunisation, supplementation, and treatment for acute respiratory and gastrointestinal infections.

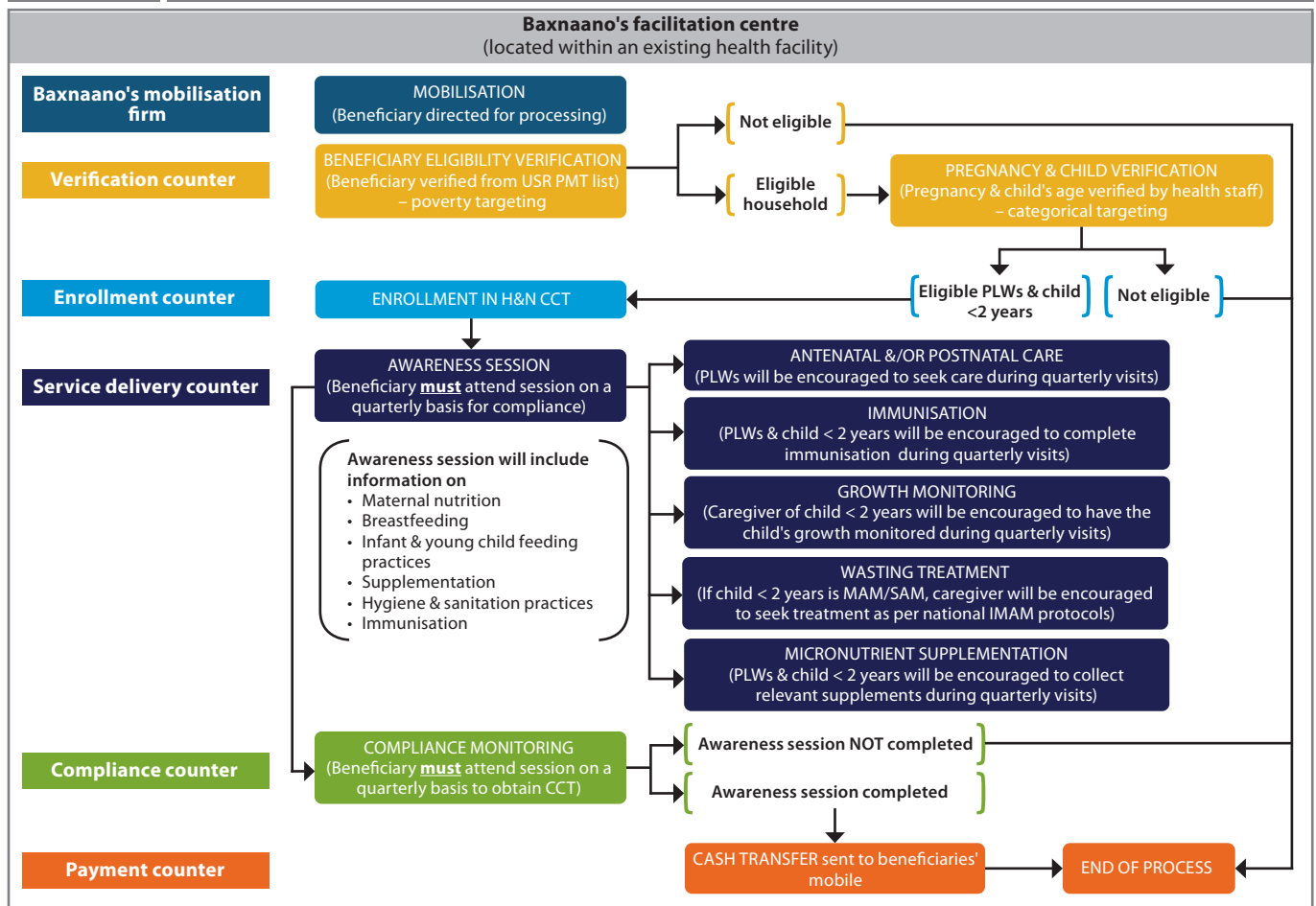
The H&N CCT – *Wasiila Caafimaad*, in Somali – will target 16,000 pregnant and breastfeeding mothers, and children aged under two years in District Daynile of the Banadir region. Beneficiaries will be the poorest 20% of households from District Daynile. Eligible women will be enrolled and participate in the programme during pregnancy, up to the point their child reaches two years of age. Health and nutrition interventions will include antenatal and postnatal care, maternal and child immunisations, health and nutrition awareness sessions, micronutrient supplementation, growth monitoring, and wasting treatment, where appropriate. All interventions will be carried out at Baxnaano facilitation centres, established in health facilities. These health facilities are supported by existing health and nutrition programmes. Figure 1 outlines the process flow and interventions for the H&N CCT.

A total of USD 30 will be provided to these women upon attending a health awareness session on a quarterly basis. The health awareness session acts as a key behaviour change communication instrument, encouraging beneficiaries



Baxnaano beneficiary mother with her child, Somalia

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Figure 1 Process flow for Baxnaano's H&N CCT

to use available services. The payment is both an incentive for mothers to adhere to the programme and a vehicle for improving nutrition security – as mothers can utilise these funds to purchase food and other items. The payment is designed as a top-up to any other support being received by targeted households, including from social protection or humanitarian programmes.

MoLSA and the Ministry of Health are responsible for the coordination and implementation of the pilot. Continuous support and collaboration will be provided by the respective FMS and district health authorities, UN agencies, and other international development partners.

The key outcome expected from the H&N CCT is an increased uptake of an essential package of health and nutrition services. The increased uptake may result in reduced risk of low birthweight, improved vaccination rates, reduced risk of anaemia and micronutrient deficiencies among pregnant and breastfeeding mothers and children, and reduced risk of maternal and child morbidities. Pilot outcomes will be assessed through an impact evaluation, consisting of a baseline and an endline survey. Data from the Baxnaano Management Information System, government and third-party spot checks, and process evaluations (questionnaires, focus group discussions, and key informant interviews) carried out by a third-party monitoring firm will be used to monitor the H&N CCT. Programmatic data on the H&N CCT will be available starting in November 2024.

“Focused on the transition toward a longer-term development agenda, which builds the government’s capacity to implement its own social protection programmes. This is key to ensuring sustainability, inclusivity, efficiency, and transparency. Our new H&N CCT initiative is the first of its kind and will support the government’s vision to build the human capital of our citizens and bring sustainable economic growth in Somalia.”

– Key informant, nutrition partner

Conclusion

Baxnaano has been able to reach 200,000 of the poorest and most vulnerable households, with 100% being female beneficiaries since its inception in 2019. Approximately US\$ 500 million has been dispersed to beneficiaries across the country. Most recent estimates from the regular programme indicate that the cash transfers are being primarily used for purchasing food (99%), purchasing clothing and other household items (52%), accessing healthcare (49%), repaying debts (44%), and paying educational fees (38%). Moving forward, MoLSA and the

World Bank will continue to invest in developing human capital through social protection interventions and systems that redistribute income to the poor, reduce poverty, build human capital, and improve labour market outcomes.

The H&N CCT builds on lessons learned, increasing the nutrition sensitivity of the existing programme. If the pilot is successful, the government plans to expand the H&N CCT to all districts where supply-side interventions are being made available through Damal Caafimaad. MoLSA is therefore:

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Stunting in the first year of life: Pathway analysis of a birth cohort

This is a summary of the following paper: *Mwangome M, Ngari M, Brals D et al (2024) Stunting in the first year of life: Pathway analysis of a birth cohort. PLOS Global Public Health, 4, 2, e0002908. <https://doi.org/10.1371/journal.pgph.0002908>*

Malnutrition among infants aged under six months has often been overlooked, leading to gaps in our understanding of the causes of early infancy stunting. The World Health Organization (WHO) 2013 conceptual framework for childhood stunting divides contributing factors into three main domains: context (community and societal factors), causes (household and family, feeding, and infection-related factors), and short-

and long-term consequences of stunted growth (health, developmental, and economic outcomes). The framework itself does not elucidate potential pathways and relationships between factors that contribute to stunting, limiting application to prioritising and designing interventions.

This study was set up to examine pathways including parental and household characteristics, birth size and gestation, and illness in infancy with stunting at birth and months three, six, and 12 using an a priori hypothesised framework. It was a secondary analysis of a birth cohort of 1,017 infants recruited from four health facilities in Burkina Faso and followed up for one year.

Among the 1,017 infants included in the study, after excluding perinatal deaths, 522 (51%) were male. The median gestational age was 38.9 weeks (interquartile range: 38.2 to 40.2). Forty-eight (4.7%) infants were born prematurely, and 189 (19%) had low birth weight. Of the 48 infants born prematurely, 34 (71%) also had low birth weight. A total of 454 infants were born in a health facility (45%), while 399 (39%) and 164 (16%) were born at home with and without a community-based assistant present, respectively.

The prevalence of being stunted at birth and at months three, six, and 12 was 7.4%, 23%, 20%, and 18% respectively. The fractions of

month 12 stunting attributable to being stunted at birth, month three, and month six were 11% (95% CI 5.0–16%), 32% (95% CI 22–41%), and 40% (95% CI 31–49%) respectively. Modelling showed male sex and maternal characteristics had direct effects on stunting at birth and three months, but not subsequently. Premature birth, twin birth, and being stunted at a previous time point were directly associated with stunting at months three, six, and 12. Both maternal and paternal characteristics were directly associated with preterm birth. Non-exclusive breastfeeding had a borderline positive direct effect on stunting at month six but not at month 12.

The study's limitations lie in its reliance on an older dataset from an untreated birth cohort, which makes replication challenging. Changes in healthcare services since 2004 may have influenced associations. Estimating gestational age using less accurate methods and the lack of variables such as maternal mental health status are among the limitations. Future studies, through treated cohorts, should encompass all factors in the WHO framework for childhood stunting and additional items identified here for a comprehensive pathway view.

Through this review, the authors uncover complex connections among child, maternal, paternal, and household characteristics. To improve birth size, it is crucial to focus on improving women's nutritional status before conception and during the first trimester of pregnancy, improving socioeconomic conditions, and promoting exclusive breastfeeding. By analysing pathways, we can better understand the shared and distinct links between wasting, stunting, and underweight, fostering collaboration across communities of practice to develop more unified strategies.



Community-based health worker in Burkina Faso conducts education session with mother-to-be

Intimate partner violence and child stunting in South Asia

This is a summary of the following paper: *Lakhdar MP, Ambreen S, Sameen S et al (2024) Association between maternal experiences of intimate partner violence and child stunting: A secondary analysis of the Demographic Health Surveys of four South Asian countries. BMJ Open, 14, 1, e071882. <https://doi.org/10.1136/bmjopen-2023-071882>*

Women experiencing intimate partner violence (IPV) may face adverse health outcomes and behaviours during pregnancy, leading to unfavourable pregnancy outcomes. Physical abuse during pregnancy can directly result in injuries, impacting pregnancy outcomes, including miscarriages and maternal and foetal mortality. Women subject to IPV are more likely to miss prenatal check-ups, potentially resulting in adverse pregnancy outcomes such as low birthweight and preterm births. Maternal IPV is also linked to poor nutrition and inadequate weight gain during pregnancy, as well as increased stress and depression. These can indirectly affect maternal and neonatal outcomes such as foetal death, preterm birth, low birthweight, and small for gestational age infants. In turn, these

outcomes may significantly impact a child's early growth and physical development, potentially leading to wasting and stunting.

Researchers aimed to determine whether there was an association between maternal exposure to IPV – i.e. sexual violence, physical violence, or both – and child stunting, measured based on the height-for-age z-score of children aged 6–59 months. The authors used data from the seventh round of the demographic and health surveys in four South Asian countries (Pakistan, Nepal, India, and the Maldives). A Cox proportional regression method conducted separately on each country's data was used to estimate the association between maternal IPV and child stunting.

The prevalence of women who were ever exposed to IPV (since age 15) ranged from 10%

(Maldives) to 31% (India). The burden of child stunting was the lowest in the Maldives (14%), followed by Nepal (33%), and then highest in both India and Pakistan (around 36%).

Although crude data showed a higher prevalence of child stunting in women who experienced IPV across all four countries, only India and Nepal demonstrated a significant association after adjusting for maternal age, education, number of children, household wealth ranking, and place of residence. In India, children whose mothers were exposed to IPV showed a 7% increase in the prevalence of moderate and severe child stunting (OR 1.07, 95% CI 1.01–1.14). In Nepal, severe stunting was strongly associated with the prevalence of physical IPV (OR 1.66, 95% CI 1.01–2.87). There were no other statistically significant associations that showed a higher prevalence of stunting among ever-abused women.

The study findings suggest that maternal exposure to IPV could be associated with child stunting. However, further research investigating the relationship between IPV and child outcomes, and using improved and advanced statistical analyses, is required. Further research may provide substantial evidence to enhance public awareness and potentially reduce the burden of child stunting in South Asian countries.

Postnatal interventions for infants under six months: A systematic review

This is a summary of the following paper: Rana R, Sirwani B, Mohandas S et al (2024) *Effectiveness of postnatal maternal or caregiver interventions on outcomes among infants under six months with growth faltering: A systematic review. Nutrients, 16, 6, 837.*

<https://doi.org/10.3390/nu16060837>

Early life growth faltering (also referred to as failure to thrive) and malnutrition are major global public health problems. Infants aged under six months with growth faltering are a particularly vulnerable group. These first six months of life are a period of rapid maturation and development with unique dietary needs. The mother or carer thus plays a critical role in fulfilling the child's nutritional requirements.

To inform the updated World Health Organization (WHO) guidelines on the prevention and management of growth faltering among infants under six months, this review examined the effectiveness of postnatal maternal or caregiver interventions on seven domains. Anthropometric recovery, child development, anthropometric outcomes, mortality, readmission, relapse, and non-response among infants aged under six months were all considered.

A total of 13 studies with preterm and/or low birth weight infants contributed to the final synthesis, which assessed the effects of breastfeeding counselling or education (n = 8), maternal nutrition supplementation (n = 2), mental health (n = 1), relaxation therapy (n = 1), and cash transfer (n = 1) interventions. Overall, the evidence from these studies had serious indirectness and a high risk of bias.

The evidence was limited in scope and primarily ranged from 'low' to 'very low' certainty. Breastfeeding counselling or education compared to standard care might increase infant weight at one month, weight at two months, and length at one month, but with very uncertain evidence (very low quality). Maternal nutrition supplementation, in comparison to standard care, may not result in increased infant weight at 36 weeks postmenstrual age and may not reduce infant mortality by 36 weeks postmenstrual age (low quality).

Moreover, interventions for maternal mental health compared to standard care might not increase infant weight, length, and head circumference at two months, with the evidence ranging from low to very low quality. The effects of relaxation therapy versus standard care on infant weight, length, and head circumference at three months are highly uncertain (very low quality). Lastly, the evidence regarding cash transfers compared to standard care on child development scores at three months, changes in weight and head circumference z-score from birth to three months post-discharge, and readmission by three months remains highly uncertain, with very low-quality evidence.

Based on review findings, strong new WHO recommendations for maternal interventions for infants under six months with growth faltering will be challenging to make because these need a more secure underpinning evidence base. The WHO guidelines of 2013 and 2023 both recommend providing counselling and support, including mental health support, to mothers or caregivers of infants with severe malnutrition, both for inpatient and outpatient care. Given that the 2023 guidelines are still based on 'low' to 'very low' quality evidence, with little change since 2013, the authors urged the need for well-designed, well-targeted future trials assessing postnatal maternal or caregiver interventions on infants aged under six months with growth faltering, stating that this is more urgent than ever.

Rwanda: Before and after study of a national supplementary feeding programme

This is a summary of the following paper: Hebert K, Nsengiyumva E, Kayitesi C et al (2024) *Before and after study of a national complementary and supplementary feeding programme in Rwanda, 2017–2021. Maternal and Child Nutrition. https://doi.org/10.1111/mcn.13648*

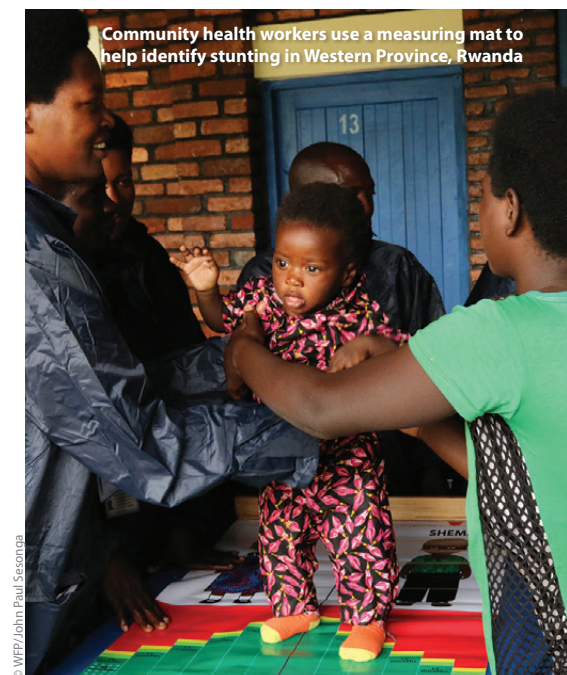
According to the National Institute of Statistics of Rwanda and the Ministry of Health, 33% of all Rwandan children aged under five years are stunted. Stunting prevalence rises from 23% in children aged under six months to 39% at 18–23 months of age, showing a marked increase during the window of time when complementary foods are typically introduced. Many households struggle to access energy- and nutrient-dense complementary foods and only 22% of children aged 6–23 months are fed in accordance with all recommended infant and young child feeding practices.

To address the high burden of malnutrition among children from the most vulnerable households, and in addition to other ongoing nutrition-related interventions, the government initiated a national food supplementation programme. This study assessed the effectiveness of locally produced nutrient-dense fortified blended foods (FBF), which were provided to children aged 6–23 months and pregnant and lactating women living in vulnerable households in Rwanda, on stunting prevalence among children. This

initiative was a unique example of the successful nationwide distribution of fully subsidised FBF products for poor households.

Survey data collected in 2017, 2018, and 2021 included anthropometric and biochemical data, demographic and socioeconomic status, food security, and feeding practices – including the provision of FBF. Primary statistical analysis compared the nutritional status of children before and after FBF introduction. There was a reduction in stunting from 47% (2017–2018) to 35% (2021), equivalent to a 42% reduction in the odds of being stunted ($p < 0.001$). At baseline, a high proportion of children were anaemic and iron deficient, and there was a significant reduction in the odds of these at endline.

The remarkable reduction in stunting over a five-year period can be attributed to several factors. Notably, the study highlights the use of a targeted approach to reach the most vulnerable children and a high rate of daily and weekly consumption of the FBF during the last three years of the evaluation (2018–2021). General improvements over time to sociodemographic and household markers, as well as substantial efforts by the government to improve live-



lihoods, health, and wellbeing over the same period, were also important.

One of the study's limitations was the absence of a control group for comparing the intervention effects, as it was deemed unethical to withhold FBF from households. Further, the study was only conducted in the lowest tier of Rwanda's social support scheme households, limiting the generalisability of the results to only households with similar characteristics.

Adolescent pregnancy and child undernutrition: A meta-analysis

This is a summary of the following paper: *Welch C, Wong C, Lelijveld N et al (2023) Adolescent pregnancy is associated with child undernutrition: Systematic review and meta-analysis. Maternal & Child Nutrition, 20, 1, e13569. <https://doi.org/10.1111/mcn.13569>*



A midwife provides health care to an adolescent girl at Dhamainagar community clinic in Bangladesh

© UNICEF / Suman Paul Hirnu

Adolescent pregnancy is linked to foetal growth issues, raising concerns about childhood wasting and underweight. However, little is known about how young maternal age influences childhood anthropometry after the neonatal stage. This review and meta-analysis explored the association between adolescent pregnancy and child wasting and underweight, delving into possible social and biological factors.

Peer-reviewed literature from 1990 onwards were systematically reviewed for studies reporting wasting and/or underweight in children aged under five years born to adolescent mothers (aged 10–19, or ≤ 24 where relevant) in low- and middle-income countries. Of a total of 92 studies identified, 57 were included for meta-analysis, while all underwent qualitative synthesis. Flexibility in inclusion criteria was extended to include infants aged under one month and mothers aged 20–24 years, subject to meeting all other eligibility criteria. This was due to their being limited studies focusing solely on infants aged one month and mothers under 20 years.

Results from the meta-analysis showed that children born to adolescent mothers (≤ 24 years)

compared with adult mothers were associated with 1.12 times greater odds of moderate underweight ($p = 0.04$) and 1.21 times greater odds of severe underweight ($p < 0.01$) in children aged 1–59 months. Pooled analysis for child wasting, presented as odds ratios, showed no statistically significant association between adolescent pregnancy (≤ 24 years) and moderate wasting (OR 1.05, $p = 0.17$) or severe wasting (OR 1.16, $p = 0.59$) in children aged 1–59 months compared to adult pregnancy.

While the pooled OR indicated associations between the subgroup of adolescents aged 10–19 years versus adult pregnancy and moderate and severe wasting, findings were not significant (moderate wasting, OR $p = 0.08$; severe wasting, OR 1.15; $p = 0.83$).

In Asia, adolescent pregnancy (≤ 24 years) was found to be associated with a 16% higher likelihood of moderate underweight ($p = 0.02$) and a 9% higher likelihood of moderate wasting ($p = 0.04$) in children aged 1–59 months compared to pregnancies among adults. Additionally, for severely underweight children in Asia, there was a 23% higher likelihood for those born to adolescent mothers ($p = 0.03$). However, no

effect of adolescent pregnancy on severe wasting was found. In sub-Saharan Africa, adolescent pregnancy showed no effects on moderate underweight or moderate to severe wasting. No data was presented on severely underweight.

The study's strengths were a systematic approach, broad geographical coverage, and the large number of papers included in the review. That said, using numerous cross-sectional studies and open-source datasets does introduce limitations. Efforts were made to validate and remove duplicates, but some datasets may have been overrepresented in the meta-analysis – impacting reliability. Certain countries like Bangladesh and India were overrepresented, influencing stronger associations in Asia.

This review shows that being born to an adolescent mother, compared to an adult, increases the risk of child underweight and, in Asia specifically, moderate wasting. Reviewed evidence suggests that maternal nutritional status may play an intermediary role. This underscores the importance of interventions to delay adolescent pregnancy and improve adolescent nutritional status, aiming to mitigate childhood undernutrition and break the intergenerational cycle of malnutrition.

Bangladesh: Experiences of adolescent mothers in caring for their preterm babies

This is a summary of the following paper: *Shumona S, Ahmad E, Shema M et al (2024) Perception and experiences of adolescent mothers and communities in caring for their preterm babies: Findings from an in-depth study in rural Bangladesh. BMJ Pregnancy and Childbirth, 24, 1, 145. <https://doi.org/10.1186/s12884-024-06345-x>*

Bangladesh has one of the highest incidences of preterm births globally. The country also has a high prevalence of early marriage and adolescent pregnancy. According to the Bangladesh Demographic and Health Survey (2017–2018), 71% of women aged 20–49 years were married by the age of 18. The survey also highlights that 28% of adolescent girls aged 15–19 years have begun childbearing. However, despite high rates of adolescent pregnancy and preterm birth, there is a lack of documentation regarding adolescent mothers' experiences and the interventions needed to assist them in preterm infant care.

To address this gap, a qualitative study was conducted in rural villages of central Bangladesh to understand both mother and community perspectives on preterm birth and preterm care. The study focused primarily on adolescent mothers aged 15–19 years who had delivered preterm babies within the previous six months. Additionally, adolescent mothers of full-term babies and

older mothers who had experienced preterm birth in the same timeframe were included to compare perceptions and experiences. Secondary participants included the immediate family members of preterm infants, community members, and healthcare providers.

Findings revealed diverse perceptions of the ideal gestation period – described in months, rather than weeks. Most participants relied heavily on dates provided during hospital visits to estimate their due dates, underscoring the critical role of antenatal care. Although participants' understanding of causes of preterm birth was generally limited, “poor nutritional status of the mother or inadequate eating” was one of the most mentioned causes for premature birth. All participants described preterm infants as “undernourished”, “small”, and/or “weak”, with “low weight” and having a “frail appearance” or “long and thin hands and legs” also a focus. Despite both adolescent and adult mothers mentioning the need for the provision of extra care to pre-

term babies, adolescent mothers faced challenges pointing to what this care entailed. Adolescent mothers were found to have low decision-making abilities and often consulted family members, depending on female family members for caregiving and emotional support.

Traditional practices persisted, including bathing children after birth and non-exclusive breastfeeding by giving honey and warm water. Participants in the study widely shared the view that, for undernourished and weak preterm babies to grow, they must be fed well. For severely preterm babies unable to breastfeed, milk was expressed and the baby then fed with a spoon. None of the participants demonstrated awareness of the significance of regular weight monitoring for infants.

Various factors – including local knowledge, socio-cultural practices, and health system limitations – shaped the understanding of and care practices for preterm infants among both adolescent and adult mothers. Improving birth outcomes requires increased awareness among adolescents, women, and families regarding preterm birth, alongside improvements in the quality of preterm birth services offered at healthcare facilities.

The Field Exchange editorial team would also like to highlight the importance of strengthening interventions to delay early marriage as a root cause.

Characteristics of global data on adolescents' dietary intake

This is a summary of the following paper: Demmler K, Beal T, Ghadirian M et al (2024) *Characteristics of global data on adolescent's dietary intake: A systematic scoping review. Current Developments in Nutrition, 8, 1, 102054. <https://doi.org/10.1016/j.cdnut.2023.102054>*

Despite data on adolescents' dietary intake being essential to improve nutrition status, the availability of high-quality disaggregated data remains limited and with large global differences. These knowledge gaps hinder the assessment of adolescent diets and the development of evidence-based interventions to improve adolescent health and that of future generations.

A systematic scoping review was conducted to investigate the availability, characteristics, and gaps in global adolescent dietary data. This included peer-reviewed and grey literature articles (from 2010 onwards) on the dietary intake of male and female adolescents aged 10–24 years. Studies from all countries and languages were included, incorporating any information related to types of food consumed, diet composition, dietary diversity, or

meal patterns. Studies with insufficient methodological information, sample sizes less than 25, school-based data sets containing less than six schools, and studies that focused on pregnant or unhealthy study populations were excluded. Data, including year(s) of data collection, age, gender, sample size, dietary assessment methods, number of food items/groups, study design, location, and representativeness, were extracted. Of the 722 articles that were included, 677 (94%) were peer reviewed, representing 1,223 data sets, and 45 (6%) were grey literature, representing 98 data sets. Half of all data sets were from high-income countries. Most of the data was collected in cross-sectional surveys and over half of the data sets (57%) were from national representative surveys.

The literature search revealed that there was no dietary data for adolescents in over one-third

of countries globally. Most of these countries were in Sub-Saharan Africa. Furthermore, 14% of all countries (n=22) – primarily in Sub-Saharan Africa, and Europe and Central Asia – lacked nationally representative dietary data. The review identified a limited amount of detailed dietary information. In many countries, data on adolescent diets was available for fewer than seven food items/groups, which did not allow for quantification of intake. In the absence of a validated dietary diversity score for adolescents, assumptions were based on the Minimum Dietary Diversity score for children aged 6–23 months. Despite the existence of the validated Minimum Dietary Diversity for Women (ages 15–49 years, assessing 10 food groups), a seven-food group count was chosen as a threshold. This was assumed to provide a meaningful characterisation of adolescent dietary intake. A significant limitation of this review was that only peer-reviewed journals from one database (PubMed) were included.

The study highlights the critical significance of addressing adolescent nutrition, emphasising the pressing need for enhanced, accessible, and comprehensive data on adolescents' dietary intake to support effective nutritional interventions.

Finding the most vulnerable: How to identify malnourished infants

This is a summary of the following paper: Mahmud I, Guesdon B, Kerac M et al (2024) *Mortality risk in infants receiving therapeutic care for malnutrition: A secondary analysis. Maternal & Child Nutrition, e13635. <https://pubmed.ncbi.nlm.nih.gov/38433606/>*

This secondary analysis investigated inpatient therapeutic care data for 3,692 infants (aged under six months) across 34 field sites, between 2002 and 2008, from 12 countries: Afghanistan, Burundi, the Democratic Republic of Congo, Ethiopia, Kenya, Liberia, Myanmar, Niger, Somalia, Sudan, Tajikistan, and Uganda. Admittance criteria was comprised of 1) infant too weak to suckle effectively, 2) not gaining weight at home, 3) weight-for-length z-score < -3, and/or 4) presence of bilateral pitting oedema. Multiple variables were collected at admission and discharge, with death at discharge being the outcome of interest in this analysis. Logistic regression was used to examine the association of various anthropometric deficits and mortality.

In this admitted population, 95.8% were underweight, 82.8% wasted, and 77.8% stunted (figure 1). When applying the Composite Index of Anthropometric Failure (CIAF) – which combines underweight, wasted, and stunted into a single indicator of anthropometric deficits – 96.8% of children fell under this classification. Infants with multiple anthropometric deficits were often more severely wasted, stunted, and underweight than those with a single anthropometric deficit. This underscores the urgent need for targeted interventions to address the specific needs of these vulnerable infants.

A total of 141 infants died during inpatient therapeutic care, of which 116 were severely wasted and 138 were severely underweight. Severely wasted infants had double the odds of mortality (OR 2.1, 95% CI 1.2–2.7, p=0.009)

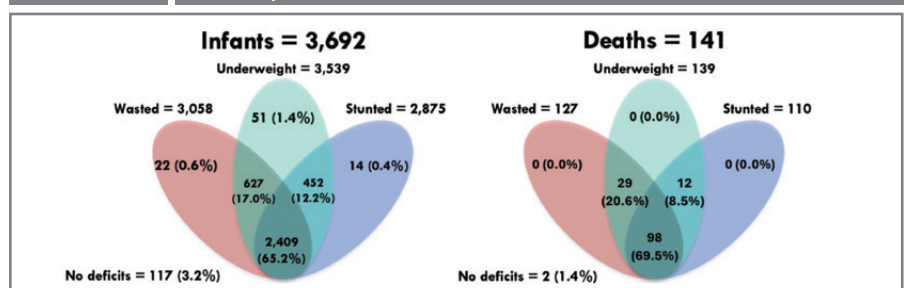
compared to anthropometrically normal infants. Severely underweight infants had over triple the odds of mortality (OR 3.3, 95% CI 0.8–13.6, p=0.09), although this was not a significant finding due to the broad confidence interval observed. Notably, weight had fewer missing values and flagged data, making this assessment more practical. Sex differences were observed, where boys had greater odds of inpatient mortality than girls (OR 1.40, 95% CI 1.02–1.92, p=0.03). In this analysis, the only infants to die were those with multiple anthropometric deficits, although their odds of mortality were not significant due to the broad confidence intervals observed.

The study excluded participants with missing data and/or outlier data based on predetermined guidelines, which may increase our confidence in the statistical analysis, but may also introduce selection bias into the sample. As this

study took place across multiple sites, variation in measurements taken by different staff may have introduced measurement bias. However, the inclusion of multiple sites increases both the sample size and the generalisability of the findings. Seasonality may also affect our interpretation, as measurements were taken at different time points in different locations. This analysis lacked data on participants' co-morbidities, congenital anomalies, prenatal and birth history, or breastfeeding practices. These factors could potentially influence the observed associations between anthropometric deficits and mortality.

These results are not generalisable beyond this inpatient setting – which is a subgroup of already malnourished children – so the findings should be interpreted with caution. This analysis does reinforce existing knowledge that there are sex differences in malnutrition-related mortality and that children with concurrent forms of malnutrition face the greatest mortality risk. Using more comprehensive indicators, such as CIAF, offers a more holistic understanding of undernutrition and risk of infant mortality. Yet, more research is needed to determine the added benefit of CIAF whilst balancing its additional burden/complexity for programme staff. Wasting and underweight appear to correlate more strongly with mortality compared to stunting in this setting.

Figure 1 Prevalence and overlap of different anthropometric deficits and mortality



Are children with disabilities more likely to be malnourished?

This is a summary of the following paper: *Rotenberg S, Chen S, Hunt X et al (2023) Are children with disabilities more likely to be malnourished than children without disabilities? Evidence from Multiple Indicator Cluster Surveys in 30 countries. BMJ Nutrition, Prevention & Health, e000779. <https://www.medrxiv.org/content/10.1101/2023.09.25.23296066v1>*

Challenges in accessing adequate nutrition hinder children's development and compromise their wellbeing. Despite evidence suggesting that children with disabilities are at a greater risk of malnutrition, nutrition programme exclusion, and mortality from severe wasting – compared to children without disabilities – there is limited evidence on the nutritional outcomes of children with disabilities in large-scale global health surveys.

Factors that lead to increased risk of malnutrition in disabled children include feeding difficulties, inadequate energy intake, and a higher occurrence of common childhood illnesses (such as acute respiratory infection, fever, and diarrhoeal disease). These are worsened when coupled with inequities in maternal education, poverty, parental employment status, and inadequate water, sanitation, and hygiene and ICT access. Without sufficient focus on disability, it will be impossible to achieve the Sustainable Development Goal to 'end all forms of

child malnutrition' or meet global child mortality reduction targets.

This study analysed data collected between 2017 and 2021 during the implementation of the sixth round of the UNICEF-supported Multiple Indicator Cluster Survey from 30 low- and middle-income countries. Estimations were completed, providing adjusted prevalence ratios for stunting, wasting, and underweight. The study compared children aged two to four years with and without disabilities by country and sex. To ensure comparative analysis, the survey questions were standardised across the different countries included in the study.

Of the 229,621 children included in the study, 15,071 (6.6%) had disabilities. After adjustment, the overall findings indicated that children with disabilities were at a greater risk of being stunted (RR 1.16, 95% CI 1.11-1.20) than children without disabilities. The same

was true of wasting (RR 1.28, 95% CI 1.18-1.39) and underweight (RR 1.33, 95% CI 1.17-1.51), where significant differences were also observed. In sex-disaggregated analyses, both boys and girls with disabilities were significantly more likely to be malnourished than boys and girls without disabilities. This study affirms existing evidence that shows a higher prevalence of malnutrition in young children with disabilities compared with those without.

The study highlights several programmatic and policy implications. Recommendations include the development of tailored and financed programmes within the primary healthcare system that target children with disabilities, as well as using proactive referral mechanisms for those at risk of malnutrition. Also, the training of healthcare workers and establishing of parental support programmes aimed at addressing stigma, cultural attitudes, and barriers were highlighted.

In summary, children with disabilities face notably higher risks of various forms of malnutrition (wasting, stunting, underweight). This emphasises the urgency of enhancing disability inclusion within nutrition programmes. To effectively address the nutritional needs of this group, a two-way approach strategy is essential – integrating children with disabilities into regular nutrition initiatives while also providing targeted programmes to address their specific requirements.

Children with disabilities lack access to nutrition, health, and other services

This is a summary of the following paper: *Rice I, Opondo C, Nyesigomwe L et al (2024) Children with disabilities lack access to nutrition, health and WASH services: A secondary data analysis. Maternal & Child Nutrition, e13642. <https://doi.org/10.1111/mcn.13642>*

Poor diets, inadequate access to nutrition and health services (NaHS), and poor water, sanitation, and hygiene (WASH) all increase the risk of malnutrition and infection, especially for individuals with disabilities. The authors explored access to NaHS, household WASH, and dietary adequacy among households with and without children with disabilities, in Uganda. The study used cross-sectional secondary data from a survey conducted in 2021 and followed the PECO framework (STROBE, 2024) reporting guidelines. Adjusted logistic regression was used to explore associations between disabilities, access to NaHS, WASH, and dietary adequacy.

Of the 6,924 households included in the final analysis, half of households with children with disabilities reported not having access to all the services they needed. Deworming and vaccination were reported as both the most important and most difficult-to-access services. After adjusting for confounders, households with children with disabilities reported 30% reduced access to services on average, when compared to households without disabilities present (OR=0.70; 95% CI 0.55-0.89, p=0.003). Interestingly, improved WASH adequacy was strongly associated with improved access to services, including for households with children with disabilities.

Households with children with disabilities experienced a higher prevalence of illnesses, including diarrhoea and skin infections.

The proportion of malnourished children (mid-upper arm circumference <12.5cm) was higher among households with children with disabilities than households without (6.3% vs. 2.4%, p<0.001). Only 61% of children aged over two years with disabilities reportedly ate three meals a day – and just 14% had an adequate diet.

The study found that households with children have insufficient access to essential NaHS, especially those households with children with disabilities. There are concerning gaps in access

“This suggests that about a third of children do not have access to an adequate quantity of food, while nearly three quarters do not have access to an adequately diverse diet, with implications for undernutrition, particularly micronutrient deficiencies.”

to NaHS services in Uganda and households of children with disabilities reported worse access, particularly for those with low WASH adequacy.

Surveys were conducted by professional surveyors, reducing the risk of information bias, and the sample size was large with limited missing data. However, the cross-sectional secondary data used in the study is inherently limited and the sample of three districts may not be representative of Uganda as a whole. It was also not possible to adjust for individual confounders or analyse alongside other information as the data was collected at household (and not individual) level.

Nevertheless, the findings clearly indicate that few children are receiving an adequately diverse diet, putting them at risk of malnutrition, including micronutrient deficiencies. Gaps in these essential services exacerbate inequalities and have implications for the nutrition and health outcomes of children, families, and communities. To better address the need for access to essential NaHS for families in Uganda, it remains vital that these services are inclusive, accessible, and comprehensive.

References

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Poor water, sanitation, and hygiene (WASH) increase the risk of malnutrition and infection

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Impacts of cash transfers on maternal and child health outcomes in sub-Saharan Africa

This is a summary of the following paper: Ngamasana E & Moxie J (2024) *Cash transfer, maternal and child health outcomes: A scoping review in sub-Saharan Africa*. *Global Health Action*, 17, 1, 2309726. <https://doi.org/10.1080/16549716.2024.2309726>

Cash transfer programmes are poverty alleviation interventions that policymakers and funders can draw on to improve maternal and child health outcomes in low- and middle-income countries. There is, however, a lack of evidence on the effectiveness of such programmes to positively impact these outcomes. Most evaluations tend to focus on the utilisation of healthcare services and other social determinants of health. Specific health outcomes related to mortality, individuals' capacity to function, or the subjective sense of well-being are often overlooked. In a time of competing priorities, the allocation of scarce resources needs to rely on a strong evidence base. The authors therefore conducted a review of evidence in sub-Saharan African countries, where there are substantial operational differences with other regions (e.g. Latin America).

Authors synthesised current empirical evidence by searching PubMed Central and Google Scholar and supplemented this database search with a backward citation search for studies con-

ducted in sub-Saharan Africa for the period 2000–2021. They identified 21 peer-reviewed articles that reported on studies conducted in six sub-Saharan African countries – Malawi, Kenya, South Africa, Nigeria, Tanzania, and Zambia.

Among the 21 articles included, only one reported on mortality. In this study from Nigeria, the provision of cash transfers was associated with substantial increases in child survival that was driven by a large decrease in foetal deaths (a 29% absolute decrease in the treatment group compared to the control). Potential causal mechanisms included conditionalities attached to the cash payment, whereby pregnant women had to attend at least three antenatal care visits, a health facility delivery, and one postnatal visit.

Thirteen articles reported on health outcomes related to individual capacities to function – episodes of illness, assessment of depressive symptoms, and incidence of HIV and herpes virus. Participants who received conditional cash transfers reported reduced likeli-

hood of illness episodes in the past 30 days and reduced likelihood of difficulties in performing normal activities due to illness. Lack of conditional cash transfers was associated with higher school dropouts, which in turn were associated with a higher risk of HIV and herpes. Unconditional cash transfers were associated with a lower likelihood of reporting depressive symptoms.

Three studies reported outcome measures related to participants' well-being. Unconditional cash transfer programmes were found to be associated with improved quality of life and studies reported positive effects on a few subjective outcomes such as self-reported overall satisfaction with life.

Protective health promoting behaviours were reported in four of the articles. Three studies reported a positive effect of conditional cash transfer programmes on the incidence of HIV and other sexually transmitted infections through behavioural mechanisms. One study reported an increased likelihood of receiving the tetanus toxoid vaccine during the perinatal period.

The main limitation of this review was the limited number of studies reporting on some of the outcomes of interest. However, the quality of evidence was high as most studies were randomised controlled trials. Overall, the review suggests that conditional cash transfer programmes are effective in improving child survival and functional health status and in promoting healthy behaviours, whereas unconditional cash transfers are more effective for impacting measures of well-being.

Navigating school health programmes amidst COVID-19: A scoping review

This is a summary of the following paper: Carducci B, Dominguez G, Kidd E et al (2024) *Pivoting school health and nutrition programmes during COVID-19 in low- and middle-income countries: A scoping review*. *Journal of Global Health*, 14. <https://doi.org/10.7189%2Fjogh.14.05006>

Nutrition profoundly influences the development of children and adolescents aged 5–19 years. Recognising its significance, the International Commission on Financing Global Education Opportunity prioritised health and nutrition interventions for improved learning outcomes. This scoping review addresses the gap in the literature concerning school health and nutrition programme adaptations during the COVID-19 pandemic, aiming to synthesise evidence on strategies, impacts, and challenges. The goal was to guide stakeholders on immediate and long-term responses to mitigate adverse effects on children and adolescents in low- and middle-income countries due to reduced access to essential school-based resources. The review searched literature from January 2020 to June 2023, focusing on primary and secondary studies conducted in low- and middle-income countries involving children and adolescents aged 5–19 years.

This review encompasses 23 studies, each presenting different adaptation strategies and programme emphases. These include access to

school meals (n=8), health services such as immunisations, eye health, and water, sanitation, and hygiene activities (n=4), physical activity curriculum and exercise training (n=3), mental health counselling and curriculum (n=3), and multi-component approaches (n=5). Importantly, there was a notable absence of quantitative data on modified programme coverage, utilisation, and related impacts on children and adolescents' health and nutrition.

Findings revealed that multi-component programmes in various countries adopted diverse strategies in response to the COVID-19 pandemic. Some continued in-school nutrition programmes with adjustments for physical distancing, while others shifted entirely to virtual platforms or distributed services outside schools. School feeding programmes faced suspension challenges, prompting alternative approaches like distributing meals and food kits to students' homes or providing financial compensation. In-school health services were mostly halted, leaving students vulnerable to infectious diseases. Physical activity programmes shifted to virtu-

al formats, showing promise in reducing anxiety and improving physical fitness. Mental health programmes adapted to virtual counselling, facing challenges in maintaining student engagement and support.

This review underscores the scarcity of evidence concerning school health and nutrition programming during the pandemic. It stresses the necessity of monitoring such programmes regularly, both in ordinary times and during crises, to gauge the effectiveness of adapted initiatives and inform evidence-based policymaking. While adhering to World Health Organization global standards and indicators is essential at national and school levels, future research should prioritise establishing a comprehensive monitoring and evaluation framework for schools, utilising existing data sources to track key health and nutrition indicators for children and adolescents.

Following this review, the authors concluded that if we are to learn one thing from the COVID-19 pandemic and its impact on the health and well-being of children and adolescents, it is that:

“The continued provision of educational, health, and nutrition services should be of paramount concern for stakeholders and policymakers across all sectors and levels of government.”



Building synergies between child nutrition and social protection

This is a summary of the following paper: *UNICEF (2023) Building synergies between child nutrition and social protection to address malnutrition and poverty. UNICEF Programme Guidance.*

<https://www.unicef.org/reports/building-synergies-between-child-nutrition-and-social-protection-address-malnutrition>

Malnutrition in early childhood is both a cause and a manifestation of poverty, and poverty is both a cause and a consequence of malnutrition. Child malnutrition and poverty are therefore inextricably linked and should be tackled together, especially in contexts facing recurrent and multiple shocks. In many countries, interventions do not currently address the underlying drivers of child poverty and malnutrition, including the financial barriers.

There is evidence that social protection can both address child poverty and improve children's diets by removing economic barriers to nutritious foods, increasing access to nutrition services, and preventing negative coping behaviours. Well-designed cash transfers can improve child growth, reduce wasting and stunting, and improve birthweight. The impact on child nutrition is enhanced when cash transfers are combined with evidence-based nutrition interventions, to improve access to safe and nutritious foods, positive nutrition and care practices, and essential child services. There is also evidence that school meals, which are another form of social protection, can improve nutrition outcomes for school-age children and adolescents.

UNICEF's global nutrition and social protection technical teams designed this programming guidance to assist practitioners to support governments in intentionally developing synergies between child nutrition and social protection within their policies, systems, and programmes. Although actions and approaches to building synergies between child nutri-

tion and social protection are context specific, this guidance proposes a set of principles and a programme framework organised around five entry points and 10 priority actions (figure 1). These actions are not listed sequentially or in order of priority; rather, their relevance and use should be determined by the context and existing opportunities.

This guidance focuses primarily on social transfers, as this is the most common entry point for synergies between child nutrition and social protection. However, synergies within other parts of the social protection system are also explored. These include social insurance (including health insurance), labour market policies (including family-friendly policies), and the social welfare services workforce. Social transfers (cash, food, food vouchers, and other in-kind transfers) may be led and resourced by governments, partners, or both. They may exist at different levels of maturity, coverage, and scale. Humanitarian cash transfers may be delivered through national systems or – where systems are unavailable,

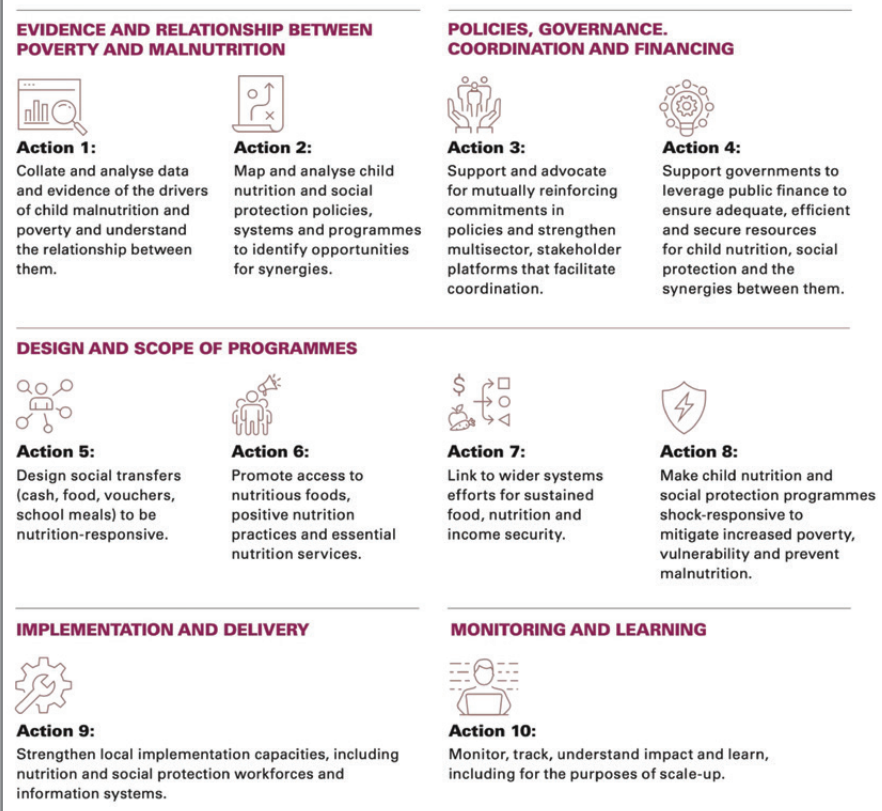
ineffective, or disrupted – directly by humanitarian actors.

Cash transfers combined with one or more complementary interventions are referred to as 'cash plus' programmes, which are often used as an entry point for delivering child nutrition and social protection programmes in synergy. This guidance builds on the concept of 'cash plus' and goes further to describe how synergies can be built between systems for sustained changes and impact at scale, including in the four systems of health, food, water and sanitation, and education.

The guidance includes examples and additional considerations that are outlined for humanitarian and fragile contexts, where government systems may be weak, overwhelmed, or disrupted. The document focuses strongly on case studies and provides references and tools alongside each action, which ensures practicality and ease of use/adaptation.



Figure 1 Actions to strengthen synergies between child nutrition and social protection



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Climate change and health: A draft resolution

This is a summary of the following paper: *World Health Organization (2024) Climate change and health – Draft resolution proposed by Barbados, Brazil, Ecuador, Fiji, Georgia, Kenya, Moldova, Monaco, Netherlands (kingdom of the), Panama, Peru, Philippines, Slovenia, United Arab Emirates and the United Kingdom of Great Britain and Northern Ireland.*

https://apps.who.int/gb/ebwha/pdf_files/WHA77/A77_ACONF7-en.pdf

In May 2024, the 77th World Health Assembly passed a Resolution on Climate Change and Health, emphasising the serious impact of climate change on global health and calling for urgent, integrated action to address the profound impacts of climate change on health and nutrition. Climate change is identified as a significant threat to public health, affecting well-being through extreme weather events, changing ecosystems, and driving up diseases.

The resolution highlights that extreme weather and climate change threaten food security, leading to malnutrition in all its forms. It recognises this is a complex issue that requires integrated approaches to address. It acknowledges that climate change exacerbates health inequalities, disproportionately affecting vulnerable populations, particularly women and girls. It stresses the need for a comprehensive approach to tackle these health challenges and address the root causes of climate-sensitive health issues.

The resolution calls for coordinated action to build sustainable and climate-resilient health systems. This includes integrating climate considerations into health policies and fostering collaboration across various sectors to address the interlinkages between the environment, the economy, health, nutrition, and sustainable development. It advocates for a "health-in-all-policies" approach, ensuring that climate adaptation and mitigation strategies include

health and nutrition considerations. It also emphasises the need for international cooperation, financial support, and the sharing of knowledge and technologies to build climate-resilient health systems. The value of initiatives such as the COP27 Initiative on Climate Action and Nutrition in helping drive a global shift on climate and health action is acknowledged. By adopting these measures, the resolution aims to enhance the ability of health systems to respond to the nutritional and health challenges posed by climate change.

For more information on the 77th World Health Assembly, please visit <https://www.who.int/news-room/events/detail/2024/05/27/default-calendar/climate-health-events-at-wha77>

A note from the Field Exchange editors

The importance of a WHO resolution lies in its ability to set global health priorities and mobilise international action. Resolutions by WHO can guide national policies, direct funding, and stimulate research and innovation. By formalising commitments to address climate change and health, WHO resolutions can drive countries to integrate these issues into their public health strategies, ensuring a coordinated and effective response. This global alignment can help secure the necessary resources and political will to implement changes that protect and improve health in the context of climate change.

Global resilience report

This is a summary of the following paper: *UNICEF, World Food Programme, Standing Together for Nutrition et al (2024) Global resilience report: Safeguarding the nutrition of vulnerable children, women, families and communities in the context of polycrisis.*

<https://micronutrientforum.org/wp-content/uploads/2024/05/Global-resilience-report-FINAL.pdf>



Recently, the world has experienced a devastating combination of factors – a ‘polycrisis’ – that is deepening food and nutrition insecurity. The knock-on effects of the COVID-19 pandemic, climatic and economic crises, and new and protracted conflicts are all contributing. However, despite challenges, many governments have demonstrated notable capacity to safeguard their most vulnerable populations. These case studies provide lessons for government policymakers and funders to prepare for ongoing and future crises.

The number of acutely malnourished (wasted) children, and the number of people who are moderately or severely food insecure, has risen sharply and still remains above pre-pandemic levels. Wasting among children, adolescent girls, and women increased by 20–25% between 2020 and 2022 in the countries most affected by the global food and nutrition crisis. Women were disproportionately affected, as the food insecurity gender gap increased by 2.5 times. An estimated 47 million additional women and girls fell into poverty.

Beyond the direct health and economic impacts on individuals and families, these crises disrupt the already fragile systems – food, health, education, water and sanitation, and social protection – that support access to nutritious foods, essential nutrition services, and positive feeding and care practices for children and women.

However, policy lessons can be learned from the positive impacts that were observed when some governments purposefully invested in strengthening systems that support nutrition. Adopting flexible delivery platforms for essential nutrition services, prioritising support for the most vulnerable, and adapting and scaling social protection programmes are examples of this. Governments also strengthened communities’ capacity, engagement, and empowerment, recognising them as the ‘first responders’ in a crisis and as essential contributors to safeguarding nutrition. The use of innovative digital technologies and strong coordination platforms also enabled systems to better adapt in the face of crisis. The detailed findings from this report are beyond the scope of this summary. However, based on lessons learned, the report does offer several policy and programme actions to strengthen the nutrition resilience of systems, before, during, and after a crisis:

First, put in place policies and programmes that enable all systems to be adaptive, absorptive, and transformative in the face of future shocks and crises. Second, increase the resilience capacity of key systems to maximise the prevention of malnutrition in countries most vulnerable to polycrisis. Third, strengthen the predictability and flexibility of funding to enable the building of stronger and more resilient systems. Fourth, strengthen the capacity, engagement, and empowerment of communities as participants and contributors to the nutrition resilience of systems. Fifth, strengthen data collection and build robust information systems to better target vulnerable households.



Closing Plenary meeting of the 77th World Health Assembly in Geneva

Improving maternal nutrition: The UNICEF acceleration plan

This is a summary of the following paper: *UNICEF (2024) Improving maternal nutrition: An acceleration plan to prevent malnutrition and anaemia during pregnancy (2024–2025)*. <https://www.unicef.org/media/153581/file/Maternal%20nutrition%20acceleration%20plan.pdf>



Appropriate nutrition is fundamental to the health and well-being of women and girls. Well-nourished women have better health and safer pregnancies. They also positively influence the survival, growth, and development of their children, influencing nutrition and health status throughout life and into the next generation.

“The evidence is clear: insufficient nutrient intake before and during pregnancy and while breastfeeding has debilitating and even deadly consequences for children.”

Recently, progress has been made to advance the rights of adolescent girls and women. However, many still struggle to access the nutritious diets, essential nutrition services, and positive nutrition and care practices needed to live full and healthy lives. There has been almost no change to the high rates of underweight and anaemia in

adolescent girls and women for the past two decades. In the countries most affected by the global food and nutrition crisis, acute malnutrition in mothers has risen by 25% since 2020. To see improvements in the nutritional status of pregnant adolescent girls and women, nutrition policies and programmes must confront the inequalities that create, reinforce, and perpetuate the immediate nutritional problems.

UNICEF and partners have launched a US\$320 million acceleration plan to improve maternal nutrition. This aims to prevent anaemia and malnutrition in pregnant women over the next two years (2024–2025), across 16 priority countries: Afghanistan, Bangladesh, Venezuela, Burkina Faso, Ethiopia, Madagascar, Mongolia, Myanmar, Nepal, Nigeria, Pakistan, the Philippines, Rwanda, Somalia, Sri Lanka, and Tanzania.

If fully funded, the plan will reach a total of 16 million pregnant women with a package of five essential nutrition services: nutrition infor-

mation, education, and counselling; healthy weight gain monitoring; multiple micronutrient supplementation; deworming prophylaxis and malaria control (according to context); and nutritional screening and referral for supplementation with balanced energy-protein if needed. The essential package of services will largely be delivered via antenatal care, with strong links to community systems. The five essential nutrition services included in the acceleration plan are not new, but they have not yet been implemented as a high-quality package and successfully taken to scale.

UNICEF and partners aim to support the implementation of the essential package of services by: strengthening advocacy and policies; improving the delivery of maternal health and nutrition services; increasing the capacity of service providers; increasing the supplies of essential commodities; and harnessing data and generating evidence and learning in both development settings (implementation research) and humanitarian settings (emergency preparedness and response).

Through this acceleration plan, UNICEF aims to harness the current momentum and commit to working closely with national governments and partners in scaling up the package of services across these 16 priority countries. These efforts will amplify women’s rights and voices at the country and community levels through the delivery of proven services, while documenting experiences and sharing learning on how to take these services to scale most effectively.

Making food systems work for complementary feeding

This is a summary of the following paper: *Micronutrient Forum (2024) Making food systems work for complementary feeding in low- and middle-income countries*. https://micronutrientforum.org/wp-content/uploads/2024/02/Making-food-systems-work-for-complementary-feeding-in-LMICs-Meeting-report_FINAL.pdf



While breastfeeding provides a critical foundation, it alone cannot meet the high nutrient needs of children aged beyond six months. Nearly half of all children globally are not fed enough of the right complementary foods at the right time. Limited national supply, high levels of food loss and waste, high prices relative to household incomes, low appeal, and safety concerns are leaving nutritious, complementary foods for children aged 6–23 months unavailable, inaccessible, unaffordable, and unappealing. These barriers not only jeopardise children’s immediate health but can also have a profound impact on long-term health and well-being.

In response to this issue, the Micronutrient Forum convened an expert meeting in December 2023 to discuss the question: “how can we make food systems work for complementary feeding?” The experts made recommendations in four core areas that currently limit the availability, affordability, accessibility, and appeal of safe and nutritious complementary foods: 1) knowledge and evidence gaps; 2) limited lo-

cal capability and capacity; 3) implementation barriers due to business constraints and supply chain inefficiencies; and 4) an unfavourable enabling environment. These recommendations serve as a roadmap for action to transform food systems and ensure access to nutritious complementary foods for young children.

The recommendations cover a wide range of topics, including reducing food loss and waste, using native, underutilised, and biofortified crops, and adopting complementary food composition standards. Adopting a “research and development as a service” model was also highlighted to support small- and medium-sized enterprises. This model, typically offered by suppliers, aims to lessen research and development expenses and facilitate market entry by providing technical assistance and capacity strengthening. Developing an investment pipeline for these enterprises to produce safe, high-quality complementary foods, is also necessary. To realise this vision, a systems approach must be taken by governments, food producers, suppliers, businesses, researchers, investors, and technical agencies.

Importantly, bold initiatives are already underway. The World Health Organization and UNICEF have established the Global Complementary Feeding Collective to foster global and regional cooperation. Technical organisations are providing support to improve the technical and business capacity of small- and medium-sized enterprises, enabling local food production and fostering sustainable business models. For example, in Cambodia and Zambia local initiatives are in place to produce fish powder, which can be used in homemade porridges. Egg production hubs have also been established in Ethiopia, Kenya, Malawi, and India, as another example.

Ultimately, transforming food systems to deliver safe and nutritious complementary foods through sustainable business models requires collaborative efforts and innovative solutions from both public and private sector actors. Networks and coalitions are set up to create an ecosystem that supports operational efficiencies, growth, innovation, and sustainability for small- and medium-sized enterprises. The Scaling Up Nutrition Business Network and the Alliance for Inclusive and Nutritious Food Processing are examples of this. Local food system actors also need access to patient capital and innovative financing mechanisms that will ‘de-risk’ their own investments.

The detailed findings of this report are beyond the scope of this summary. However, we encourage readers to explore the 51-page report and case studies found within.

Scaling up severe wasting programming

This is a summary of the following paper: *Action Against Hunger, International Rescue Committee, Save the Children UK, and UNICEF (2023) Scaling up coverage, quality and sustainability of early detection and treatment of severe wasting programming for children.*

<https://www.nutritioncluster.net/resources/delivery-systems-scale>

Child wasting, a preventable condition, critically impacts children's ability to survive and thrive. While evidence-based approaches to treat severe wasting exist, the challenge lies in effectively providing these services to the most at-risk children. The 'Delivery Systems for Scale' project (December 2022 to September 2023) was developed by International Rescue Committee, Action Against Hunger, and Save the Children, in partnership with USAID and with support from UNICEF. The project focused on three core areas: Country-driven support, coordination and learning, and technical and coordination support.

A project learning component reviewed global progress scaling up coverage, quality, and access to detection and treatment programmes for children with severe wasting from 2013 to July 2023, building on a 2013 global stocktake by Action Against Hunger and the Coverage Monitoring Network (ACF, 2013).

Over the past decade, significant progress has been made through collective efforts by national governments, NGOs, UN agencies, civil society, and donors. Increased financing resulted from joint advocacy and donor engagement, leading to incremental integration into national systems through expanded policies and resources. Developments in information systems laid the foundation for systematic adoption and tracking of national and

global targets. Country-level scaling action was supported through various global and regional activities to address barriers.

Key enablers for this progress included sustained advocacy, predictable technical support, and coordinated research agendas. Country-level technical working groups played a crucial role in mobilising action and addressing technical and operational shortfalls. The launch of the *UN Global Action Plan for Wasting in 2020* and the *2023 WHO Guideline for the prevention and management of acute malnutrition* present new opportunities to accelerate prevention and treatment efforts.

Despite this progress, the report showed that challenges persist. Health system fragility, inadequate human resources, limited political will, and insufficient funding continue to hinder scaling efforts. Collaboration between health and nutrition sectors, as well as engagement with the private health sector, remains critical. Fragmented knowledge management also poses barriers. Improvements in data collection, analysis, and use have been made, but gaps in data proficiency and accountability persist. The expansion of financing instruments requires better coordination and tracking to optimise resources effectively. Significant advancements in materials and supplies, particularly with Ready-to-Use Therapeutic Food, highlight the need for optimisation of national supply chains.



Moving forward, a child-centred systems approach is recommended to integrate prevention, early detection, and treatment of child wasting. There are five key recommendations from this analysis which can be taken forward. First, to define and implement methods to integrate routine detection and treatment of child wasting within national health systems. Second, to strengthen knowledge management by investing in retrospective and prospective learning and commit to simplicity and clarity in communication. Third, review and update success metrics, including targets, monitoring, and accountability frameworks, aligning them with national government priorities. Fourth, leverage the 2023 WHO *Guideline* and the 2020 UN *Global Action Plan for Wasting* rollout, along with momentum on universal healthcare, to address governance, prioritisation, and resourcing gaps with national actors. Fifth, define and strengthen collaboration with the private sector within frameworks that support child health and nutrition.

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ACF (2013) A decade of community-based SAM management 2013. <https://www.enonline.net/ourwork/othermeetings/communitybasedsam2013>



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Responding to nutrition in emergencies within the climate crisis

This is a summary of the following paper: *Nutrition in emergencies and the climate crisis: Global nutrition cluster scoping and options paper (2024)*.

<https://www.nutritioncluster.net/resources/nie-and-climate-crisis-global-nutrition-cluster-scoping-and-options-paper>

Climate change is one of the world's most pressing challenges, affecting up to 3.6 billion people in highly vulnerable contexts. The Global Nutrition Cluster (GNC) plays a crucial role in addressing this crisis within its humanitarian mandate, focusing on climate and weather shocks and seasonality shifts because of their impact on nutrition outcomes and their underlying causes. The GNC also considers environmental impacts and greenhouse gas emissions in its climate crisis work, given how environmental degradation exacerbates vulnerabilities and the climate crisis.

The GNC has been refining its approach to nutrition in emergencies (NIE) within the climate crisis, establishing a Climate Crisis Working Group and recognising climate as a strategic priority in 2023. The GNC commissioned a scoping of evidence, priorities, and opportunities across stakeholders to enhance its approach to supporting country clusters, GNC

global partner agencies, and other global clusters in responding to NIE in the context of climate crisis. This scoping aimed to identify relevant opportunities for the GNC in the face of the changing humanitarian landscape due to the increased frequency and severity of extreme weather events, emerging risks like disease outbreaks, and the complex relationship between nutrition and the climate crisis.

The scoping includes an initial articulation of a climate rationale for the GNC's approach, identifying action areas for climate crisis and NIE work and providing an overview of stakeholder needs and capacities. GNC stakeholders emphasised the importance of addressing this issue. Critical bottlenecks were identified, including existing challenges in NIE response, low government priority of the climate crisis, limited capacity to integrate climate predictions into country planning, and limited programming and coordination frameworks for climate crisis and NIE action.

To effectively address NIE in the climate crisis, the GNC supports a principled approach rather than a prescriptive one, described under four key areas. First, climate and environmental justice, anti-oppression, and localisation, ensuring the GNC's work addresses and does not worsen the unequal effects of the climate crisis on people's nutrition status and vulnerability. Second, adopting a NIE climate crisis lens so that climate crisis considerations are integrated into existing tools and approaches, for example strengthening climate risk in nutrition situation analyses. Third, climate-adapted NIE, whereby new coordination and programming approaches are developed for emerging climate-related risks, for example promoting sustainable, local solutions for complementary foods for children in emergencies and fragile settings. Finally, NIE climate and environmental impact mitigation, so that NIE programming mitigates negative climate and environmental impacts, for example in supply chains and waste management.

This approach leverages the GNC's strategic advantages, such as its extensive network, global reach, expertise in NIE and the climate crisis, and critical role in facilitating knowledge exchange and coordination across various levels and clusters. The scoping supports the GNC Climate Crisis Working Group's activities, GNC engagement with other clusters for the rollout of the IASC Climate Crisis Roadmap, and preparation for the GNC's next strategy.

Supporting infants aged under six months with feeding difficulties and disabilities

This is a summary of the following paper: *ENN, MAMI Global Network (2024). Identifying and supporting infants under 6-months with feeding difficulties and disabilities: An overview of resources and evidence. Emergency Nutrition Network (ENN), Oxford, UK.*

<https://www.ennonline.net/identifying-and-supporting-infants-with-feeding-difficulties-and-disabilities>

Feeding difficulties include a wide range of issues related to eating or drinking that deviate from age-appropriate norms, often associated with medical, nutritional, feeding skill, and/or psychosocial factors. These challenges can increase the risk of malnutrition and infections, as well as the onset or worsening of disabilities in children. Studies indicate that feeding difficulties affect a substantial proportion of children, with estimates ranging from 25-45% among those without disabilities and between 80-90% among children with disabilities.

Growing concerns about managing children aged under six months experiencing feeding difficulties or suspected/confirmed disabilities highlight a lack of attention and evidence-based guidance for this vulnerable age group. This has prompted the compilation of essential resources aimed at supporting both infants and their mothers. Disabilities are difficult to identify in children aged under six months and sometimes

only realised when developmental milestones are not being met. To address this, a document compiling key resources focused on children aged under six months and their mothers was developed to help consolidate existing guidance and research for mother-infant pairs. It is divided into four sections, with each providing a link to and brief description of a relevant suggested/highlighted resource.

First, practical resources on assessment tools are provided, with an emphasis on the significance of early detection of feeding difficulties or disabilities in infants. These issues can be overlooked during breastfeeding initiation and before the introduction of semi-solid/solid foods, when issues are more readily identifiable. Additionally, guidance is offered on providing caregivers with practical support to facilitate safe and comfortable breastfeeding. The section also provides general resources available that provide practical support for the feeding of infants under six months with disabilities and their



mothers. Resources specific to certain disabilities (e.g., cleft palate, Downs syndrome, etc.) are provided as well.

Secondly, a summary has been provided of some key policy documents related to disability. This includes organisational policies and guidance that have inclusive services and mainstream support in health and nutrition services.

Thirdly, a summary of the Disability Evidence Portal (DEP) is provided. This portal has been established as "a knowledge exchange platform that seeks to enable and empower decision makers with evidence-based knowledge to make decisions on how best to improve access, health, education, livelihood and social outcomes for people with disabilities worldwide... through acting as a repository of solutions, evidence and tools for strengthening decision-making within Disability-Inclusive Development."

This section also calls for more research on disability inclusion for infants. This group is often excluded from research, which has led to a lack of evidence on care required. Some of the reasons why more research is needed for this age group include the fact that they are more likely to be malnourished and that there are long-term nutritional consequences of disability and exclusion of children with disabilities in malnutrition protocols and guidelines.

The last section of the report provides a summary of ongoing initiatives that highlight the work that could be relevant to advance this agenda.

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About ENN

Emergency Nutrition Network (ENN) is a UK registered charity that strives to enhance the effectiveness of nutrition policy and programming by improving knowledge, stimulating learning and building evidence. We are passionate about being field-driven and are globally recognised as thought leaders and conveners in nutrition.

ENN is based in the UK but works globally and is made up of a team of technical experts in nutrition with decades of collective experience in the field. We work alongside governments, the United Nations, non-governmental organisations or charities, and research institutions worldwide to look critically at existing practices, raise awareness of issues and drive change so that those working to tackle malnutrition can do the best possible job. We do this by:

1. Capturing what works and what is needed to reduce malnutrition – working with people implementing programmes to help them examine their experiences and document their achievements and challenges.
2. Coordinating technical bodies to increase the global understanding of malnutrition – particularly focusing on the most nutritionally vulnerable including infants and children, adolescent girls and mothers who are pregnant or are feeding their infants.
3. Supporting global efforts to reduce malnutrition – bringing our knowledge and technical expertise to strengthen the activities of organisations working to reduce malnutrition at the global level.

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