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MIND THE GAP

Using diet cost and affordability metrics to inform food security and nutrition-sensitive social protection

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About the Mind the Gap Report

Achieving Sustainable Development Goal 2 (Zero Hunger) by 2030 is increasingly at risk due to the combined impacts of climate change, conflict, COVID-19, and rising living costs, which have reversed progress in reducing global hunger. Social protection systems, while essential for supporting vulnerable populations, often fail to account for nutritional needs—a key element in breaking the cycle of poverty, vulnerability, and malnutrition. This oversight represents a missed opportunity to advance the objectives of SDG 2, especially in a context where hunger has been rising since 2015.

Amid these challenges, the Mind the Gap report explores the role of social protection systems in addressing affordability gaps of nutritious diets. It is structured around the **Fill the Nutrient Gap (FNG)** analytical approach, which aims to understand the drivers affecting the availability, cost, and affordability of nutritious diets in specific contexts. The policy objective is to identify and implement interventions to improve diets, especially of nutritionally vulnerable people, including through the integration of nutrition into social protection systems. Through case studies from 12 diverse national contexts, the report presents actionable social protection pathways for reducing the affordability gap of nutritious diets and improving food security and nutrition outcomes.

Further information and evidence on the FNG can be accessed at: wfp.org/fillthenutrientgap

FNG
FILL THE NUTRIENT GAP
SYSTEMS ANALYSIS FOR NUTRITION

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Glossary

Energy-only diet: Otherwise known as a diet that meets energy needs only, is a combination of a few foods representing the minimum cost required to just meet daily energy needs.

Nutritious diet: Otherwise known as a nutrient-adequate diet, is an optimised combination of foods, reflecting staple preferences, representing the minimum cost of meeting macro (energy, protein, fat, carbohydrates) and micronutrient needs.

Affordability gap: The difference between food expenditure and the lowest cost of the nutritious diet. The larger the affordability gap, the higher the risk of inadequate diets that don't meet food, nutrition and health needs.

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Executive summary

Social protection provides a policy response to poverty, risk, vulnerabilities and social exclusion, including those related to food insecurity and malnutrition. However, social protection policies and programming often focus too narrowly on income poverty, overlooking other crucial components of vulnerability as well as biological poverty, which encompasses the basic nutritional needs for a healthy and productive life. Such a narrow framing results in social protection benefits being benchmarked against calorie requirements from commonly consumed foods only, rather than nutritious or healthy diets. This is despite the evidence that even when caloric needs are met in terms of quantity, the quality of a diet is not guaranteed, so age- and gender-specific nutritional risks to health and cognitive development remain unaddressed.

The World Food Programme's Fill the Nutrient Gap (FNG) is a methodology that estimates the cost and affordability of nutritious diets, and combines this with secondary data on local food systems and environments, to comprehensively understand the barriers to accessing and consuming nutritious diets in specific contexts. By adopting a systems approach, FNG analysis generates evidence to inform the design and implementation of food security and nutrition-sensitive (FSN-sensitive) social protection.

Specifically, it identifies and models the potential impacts of social assistance programmes on closing affordability gaps – defined as the gap between food expenditure and the lowest cost of meeting nutrient needs – to assist stakeholders across sectors in identifying entry points to enhance the food security and nutrition-sensitivity of social protection programmes. An FNG analysis also provides context-specific evidence to inform transfer values and packages at the sub-national level for policymakers and practitioners.

FNG analyses have been conducted in over 50 countries since 2016. This report and compendium of 12 FNG case studies underscores the importance of integrating FSN-sensitive design into national social protection systems to effectively address the nutrition and other essential needs of the most vulnerable populations. This will ultimately promote better human capital and economic development and strengthen their resilience against risks and shocks. Interventions need to be context-specific and consider social, economic and physical barriers and intersecting inequalities in access to healthy, nutritious diets. The affordability gap, as demonstrated in the twelve country case studies, is a useful indicator to assess the potential of FSN-sensitive social protection to catalyse policy and programmatic change.

Across all case studies and modelled interventions, this indicator was used to define which FSN-sensitive components could help social protection programmes improve access to healthy and nutritious diets for those most at risk of poverty and nutritional vulnerability. By identifying a set of tailored interventions, it can inform policy and programme design to address the needs of the populations targeted by existing social protection systems.

Integrating analytical tools such as the FNG into social protection planning and implementation can lead to more targeted and impactful interventions that not only alleviate hunger but address the drivers of food insecurity and all forms of malnutrition, thus contributing to the achievement of sustainable development goals related to zero hunger, poverty reduction, health improvement, gender equality, and reduced inequalities.

I. Introduction

As achievement of the Sustainable Development Goal for Zero Hunger (SDG 2) by 2030 seems increasingly unattainable, more focused efforts are urgently needed to tackle all forms of hunger and malnutrition. One powerful set of policy instruments is social protection, which has demonstrated its ability in numerous countries to reduce hunger, food insecurity and undernutrition. Social protection now reaches billions of people worldwide and plays a critical role in supporting them to meet their essential needs and manage the risks and shocks – including to their food security and nutrition – that they face throughout their lives. Adequate nutritious food is one of the most basic of all essential needs. It follows that food security and nutrition objectives should be fully integrated within all national social protection systems.

Despite their vast and increasing reach, social protection programmes often fail to account for nutritional needs, essential for the development of human capital and for people to be in good health and live full and productive lives. One reason for this is an apparent paradox: even if social protection improves income security (e.g. through cash transfers, subsidies and fee waivers) and food security (e.g. through in-kind food transfers, vouchers and agricultural inputs that stabilise consumption and promote productivity), this does not necessarily lead to improvements in nutrition, which is much more complex [1]. This oversight constitutes a missed opportunity to break the intergenerational cycle of poverty, vulnerability, and malnutrition, as well as a failure to focus resources and efforts on achieving both SDG 1 and SDG 2, because malnutrition creates poverty and is not just its consequence.

Between 2005 and 2015, the number of undernourished people in the world fell from around 800 million to 550 million. Since 2015, however, the global food and nutrition crisis, driven by the "4 Cs" – climate change, conflict, COVID-19, and cost-of-living spikes – have driven a reversal in the downward trajectory of global hunger. COVID-19 pushed an additional 150 million people into undernourishment in 2020-21, with the total reaching up to 757 million people in 2023 [2]. The 2024 Global Report on Food Crises estimated that people facing acute food insecurity increased from 193 million in 53 countries in 2021 to 282 million in 59 countries in 2023 [3].

Rising hunger and undernourishment have been accompanied by rising prevalence of overweight and obesity as well as micronutrient deficiencies, even (paradoxically) while chronic poverty has been decreasing. Globally in 2022, 22.3 percent of children under 5 were affected by stunting [4] while 5.6 percent were overweight [5]. Over half of pre-school-aged children and two-thirds of non-pregnant women of reproductive age suffer from at least one micronutrient deficiency [6]. This 'triple burden' of malnutrition disproportionately impacts low- and middle-income countries (LMIC) [7]. In the 2022 Global Nutrition Report, 143, 124 and 37 out of 194 countries presented high levels of at least one, at least two, or all three forms of malnutrition, respectively. The triple burden of malnutrition has significant negative socioeconomic impacts [4]. In Latin America and the Caribbean, for example, it has been estimated that malnutrition, including overweight and obesity, costs national economies up to 16 percent of their annual GDP.

The high cost and unaffordability of nutritious diets is one of the main drivers of malnutrition [2]. Therefore, identifying ways to better understand and improve affordability of nutritious diets through national policies and programmes – with social protection systems as a key entry point – is critical. The Fill the Nutrient Gap (FNG) analysis is a highly relevant example of the use of evidence to inform these policy and programmatic decisions and multi-sector actions. This document will explore the ways in which FNG has been used to inform policy dialogue and action on the use of social protection programmes and systems to improve affordability of nutritious diets.

This document is divided into the following sections:

1. Introduction
2. The Fill the Nutrient Gap (FNG) methodology.
3. Costs of healthy diets and their contribution to affordability gaps.
4. The role of social protection systems in addressing affordability gaps.
5. The use of the affordability gap metric in the design of social protection interventions.
6. Programme and policy design for social protection and food systems transformation.
7. Summary findings and recommendations from selected FNG case studies.
8. Conclusion
9. Compendium of Case Studies.

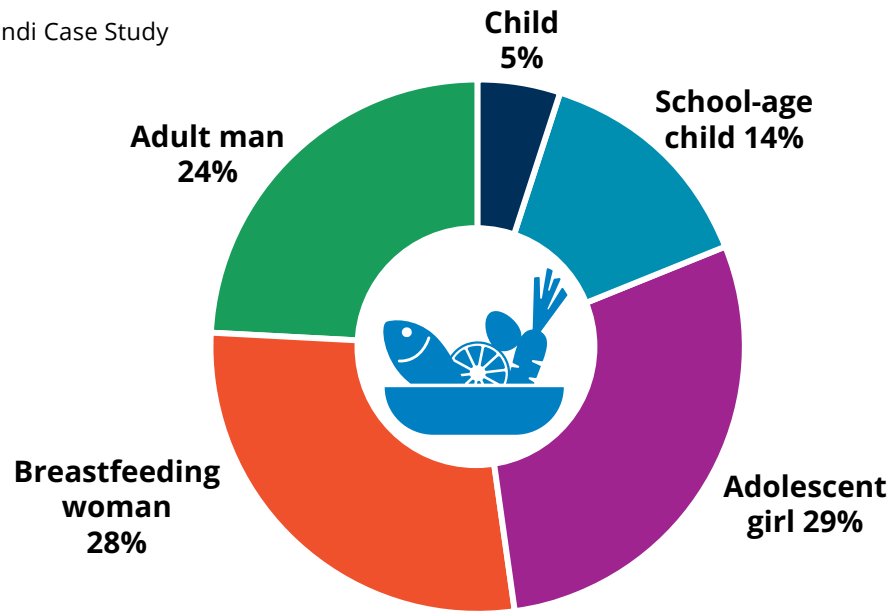
II. Fill the Nutrient Gap (FNG) methodology[1]

Fill the Nutrient Gap (FNG) [8][2] is an analytical approach that aims to understand the drivers affecting the availability, cost, and affordability of nutritious diets in specific contexts [9]. The policy objective is to identify and implement interventions to improve diets, especially of nutritionally vulnerable people. FNG analysis and decision-making have been applied in more than 50 countries across the world, since 2016. The FNG methodology draws on secondary data and linear optimisation techniques to answer two questions:

1. **Are nutritious foods available, accessible, and chosen for consumption?** Secondary data analysis: This requires information about food systems from databases, reports, peer-reviewed articles, and grey literature. The purpose is to understand the food system and food security and nutrition challenges, and based on that identify and model possible interventions and entry points to improve access and affordability of nutritious diets.
2. **What does a nutritious diet cost and is it affordable?** Diet cost and affordability analysis: This requires food price data and household food expenditure data. The purpose is to estimate the minimum cost and economic accessibility of a nutritious diet.

Figure 1: Distribution of the daily cost of a nutritious diet for the modelled household across individual household members (FNG 2019)

Source: Burundi Case Study



1 This section draws on WFP (August 2022) **Fill the Nutrient Gap: Analysis for Decision-Making Towards Sustainable Food Systems for Healthy, Nutritious Diets and Improved Human Capital** https://docs.wfp.org/api/documents/WFP-0000139306/download/

2 The FNG analytical approach was developed by the World Food Programme, with support from University of California Davis, Epicentre, Harvard University, International Food Policy Research Institute (IFPRI), Mahidol University, Save the Children and UNICEF [8].

In each country case study, the costs of an 'energy-only' diet and a 'nutritious diet' (adequate macro- and micronutrients) were modelled for a 5-person household comprising a breastfed child (12-23 months), a school-age child (6-7 years), an adolescent girl (14-15 years), a breastfeeding woman and an adult man. Adolescent girls and pregnant and breastfeeding women (PBW) have higher (micro)nutrient needs relative to their energy needs, so these two individuals account in many countries to almost 60 percent of the household's cost of a nutritious diet. Targeted nutritious food and supplements are often needed for these nutritionally vulnerable individuals.

Following this analysis, the potential impact of proven interventions to make healthy, nutritious diets more available and accessible is quantified, and a stakeholder consultation is undertaken across sectors to inform decision-making and identify priority interventions.

The FNG approach generates evidence to inform the design and implementation of food security and nutrition-sensitive (FSN-sensitive) social protection. Possible solutions include: improve the availability of nutritious foods; improve the affordability of nutritious foods (by lowering their cost); increase economic access to nutritious foods by increasing household income (e.g. with social cash transfers); improve the nutritional value of food (through bio- and/or post-harvest fortification).

There are several rationales for conducting an FNG analysis (see also [9]):

- Nutrition is a crucial pillar in the development of a healthy, productive nation. Good nutrition enhances physical and cognitive development, prevents disease, and increases the potential of the workforce and society. Improving diets, especially of children and women, brings immediate and long-term health, education, and economic benefits.
- Sustainable Development Goal 2, target 2.2 sets out the challenge to end all forms of malnutrition by 2030. Recognising that sustainable healthy diets must provide adequate nutrition, the FNG seeks to assess the extent to which people have sufficient resources so they can make the choice to eat nutritious foods and to understand the choices they make.
- How social protection systems can improve the availability, physical access, affordability, and choice of nutritious foods is central to the FNG analysis and policy recommendations.
- The FNG aims to strengthen analysis, build consensus, and improve decision-making to bring healthy, nutritious diets within people's reach, and is designed to contribute to national policy and programming planning cycles, with a myriad of potential entry points for nutrition-related action by different sectors.
- Integrating FNG findings into social protection planning and policy implementation should lead to better targeted and more impactful interventions that address the drivers of food and nutrition insecurity, thereby contributing to the achievement of SDGs related to zero hunger, poverty reduction, improved health, and social equity.

III. Costs of healthy, nutritious diets and their contribution to affordability gaps

The State of Food Security and Nutrition in the World (SOFI) has included the cost and affordability of a healthy diet since 2020, signalling its critical role in both food insecurity and malnutrition [10]. Affordability is influenced by individual purchasing power, which depends on both cost and income. Unaffordability of healthy diets is associated with food insecurity, poor quality diets and malnutrition [2]. In LMICs, a 5 percent increase in the real price of food is associated with a 9 percent increase in wasting risk among preschool children, while food inflation that occurs during the first two years of a child's life increases the risk of stunting when aged 2-5 years [11]. This evidence highlights the importance of meeting nutrient needs at nutritionally vulnerable life-stages, such as the first 1,000 days, from conception to 24 months of age [11].

A large proportion of diets that meet caloric needs are not of good quality in terms of safety, diversity, and nutritional value. Costs tend to increase with greater dietary diversity. On average, the cost of a healthy food basket is 60 percent higher than the cost of a diet that meets energy needs only [12]. Globally, it was estimated that 5 percent of people could not afford even an energy-only diet, while 23 percent cannot afford a nutrient adequate diet, and 38 percent (almost 3 billion people) are unable to afford a healthy diet that meets energy requirements, essential nutrients, and dietary diversity guidelines [2]. With food costs rising constantly due to price inflation and shocks, the unaffordability of a healthy diet is a critical driver of global hunger, malnutrition and poverty.

The distribution of unaffordable diets is highly unequal, both across and within countries. In low-income countries (LICs), 88 percent of people are unable to afford a healthy diet [2]. Also, in LICs, wealthier people are most likely to be overweight or obese, but this is often reversed in high-income countries (HICs), because obesogenic diets are cheaper than diverse, nutritious diets [13]. Within all countries, women, girls, young children and rural residents face greater challenges in meeting their nutrient needs [14]. On the other hand, growing evidence points to barriers to affording and physically accessing nutritious diets in urban areas, especially among migrants and informal workers with no eligibility for social protection, and in contexts of rapid urbanisation.

The table below compiles findings from the 12 FNG country case studies (see the compendium of this report) on the cost of the diet and the percentage of the population that cannot afford an energy-only diet and a nutritious diet. Note that these statistics are indicative only, and are not directly comparable. The studies were done in very different contexts in different years (from 2016 to 2021), using different sources of data according to availability in each country.

The first observation is that the cost per capita of an energy-only, diet is relatively cheap, around a dollar a day in six African countries and two dollars a day in the two LAC countries. However, the cost of a nutritious diet is considerably higher, around four dollars a day in some African countries and above eight dollars a day in the

two LAC countries. On average, the cost of a nutritious diet is at least double the cost of an energy-only diet, and often four times as much, due to the higher cost of nutrient-dense foods, such as vegetables and animal-source foods.

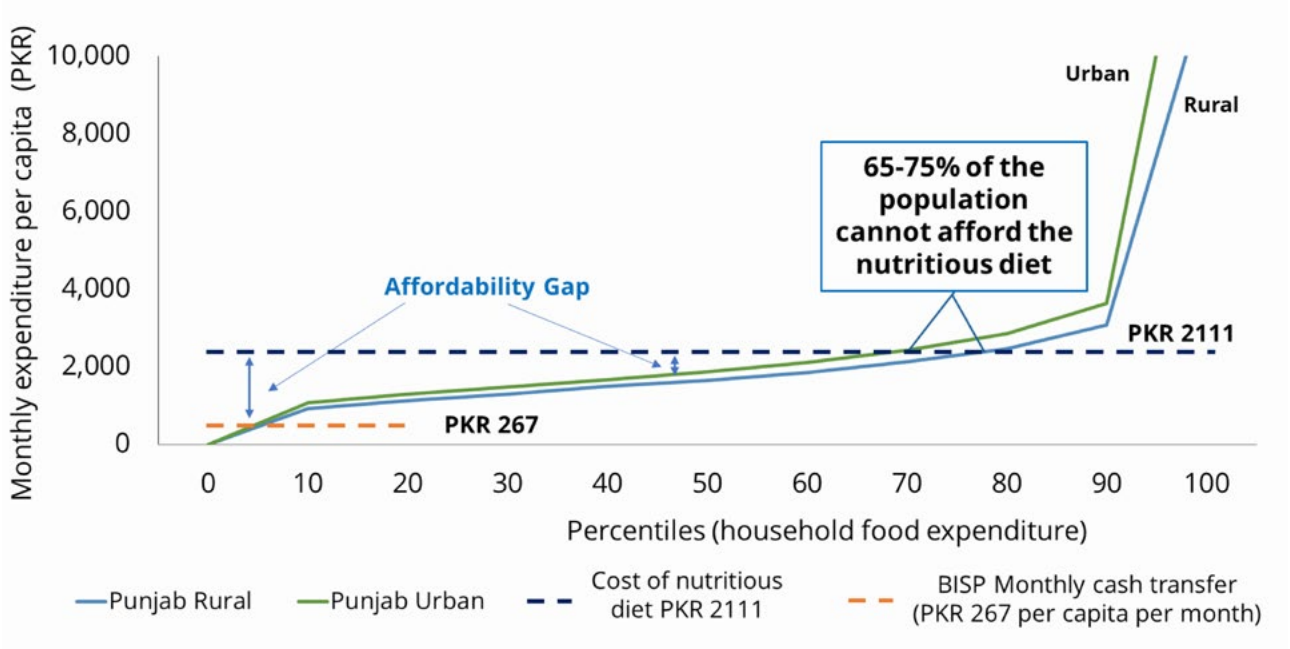
Table: Cost (2020 purchasing power parity dollars) of energy-only and nutritious diets and their affordability across 12 selected countries.

Country (year data collected)	Cost of the Diet (USD/capita/day)			Unaffordability (percent of population)	
	Energy-only diet (ED)	Nutritious diet (ND)	Difference	Energy-only diet (ED)	Nutritious diet (ND)
AFRICA					
Burundi (2018-19)	1.0	1.94	2x	30%	70%
Ethiopia (2018-19)	0.9	3.8	4x	7%	74%
Lesotho (2017)	1.2	4.8	4x	7%	56%
Mauritania (2019)	1.6	3.8	2.4x	n/a	54%
Tunisia (2016)	0.6	2.7	4.5x	n/a	n/a
Zambia (2019-21)	0.5	1.6	3x	13%	53%
ASIA					
Indonesia (2019)	1.2	3.0	2.5x	0%	12%
Nepal (2020)	1.2	2.9	2.5x	1%	22%
Pakistan (2013-14)	n/a	n/a	n/a	5%	66%
Philippines (2015)	2.4	4.5	2x	3%	32%
LAC					
Dominican Rep. (2019)	2.0	8.3	4x	0%	33%
Ecuador (2014)	2.5	8.6	3.5x	4%	48%

Except in Burundi, one of the world's poorest and most food insecure countries, relatively small proportions of households are unable to afford an energy-only diet, in most cases less than 10 percent. In Indonesia and Dominican Republic, almost everyone can meet the cost of an energy-only diet. However, because a nutritious diet is considerably more expensive, much higher proportions of households cannot afford the cost of a nutritious diet. In the African case studies, more than half and, in Ethiopia, three-quarters of households face an affordability gap. In the Asian and LAC case studies, where income poverty is generally lower, the proportion of households that cannot afford a nutritious diet is less than half, except for Pakistan. The best performer in this cluster of countries is Indonesia, where only 12 percent of households cannot afford a nutritious diet. Food poverty or unaffordability is closely related to income poverty, and in Indonesia less than 10 percent of the population lives below the national poverty line.

In Punjab, Pakistan, the lowest cost of a nutritious diet was determined to be PKR 2,111/ capita/ month. The BISP cash transfer – at that time, PKR 267 – could cover only 13 percent of the cost, if all the cash were spent only on food. 65–75 percent of people could not afford a nutritious diet. Poorest deciles face largest affordability gaps.

Figure 2: Affordability gap in Punjab and adequacy of the BISP cash transfer (FNG 2017, using data from 2013-2014)



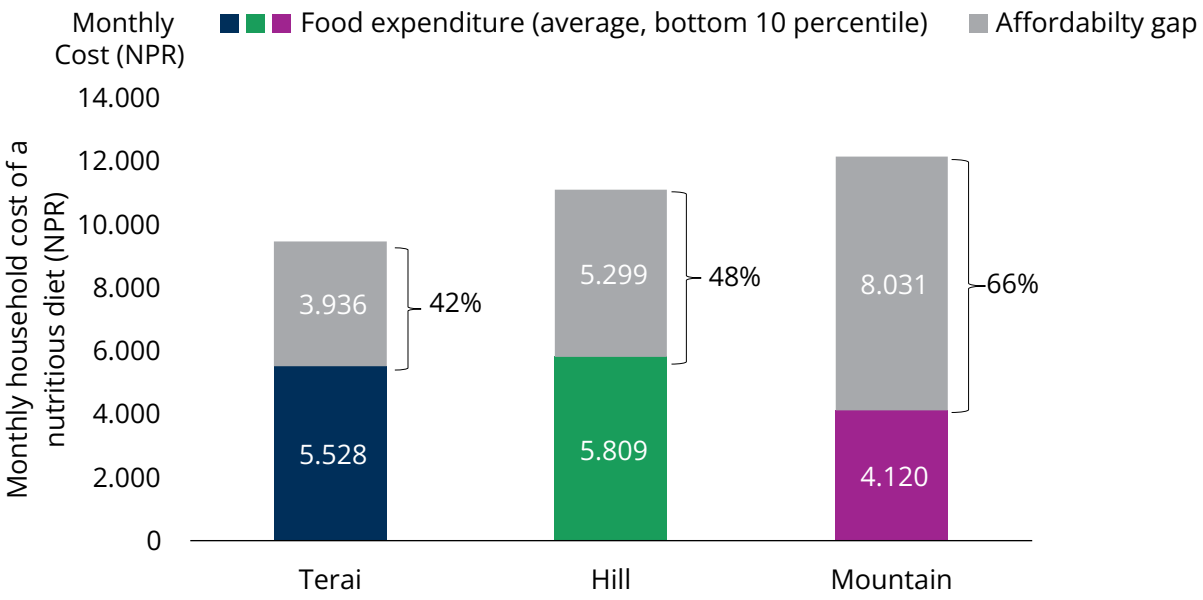
Source: Pakistan Case Study

Within countries, costs and affordability gaps vary. In some cases, costs are higher in urban areas (e.g. in Burundi, the capital city), but in other countries costs are higher in rural areas e.g. in Nepal (the remote Mountain areas). In Ecuador, the cost of the nutritious diet is higher in urban than rural areas, but non-affordability is higher in rural areas (53 percent of households) where poverty is higher than in urban areas (45 percent of households).

In Ethiopia and Mauritania, costs of nutritious diets are highest in rural pastoralist regions. In Mauritania, 80 percent of pastoralist households cannot access or afford a nutritious diet, because of "low availability and higher prices of fresh and nutritious foods" [Mauritania case study]. In Asian countries, higher costs and affordability gaps are associated with remoteness, for instance in Indonesia's eastern provinces, "which are more remote and where food commodities tend to be more expensive" [Indonesia case study].

In Nepal, 5 percent of households in Kathmandu city and 26 percent in the lowland Terai, but 45 percent in the mountain areas, cannot afford the lowest cost nutritious diet. "Poor transport infrastructure means lower availability and higher prices of nutritious foods such as meat and fish in these remote areas" [Nepal country case study].

Figure 3: Affordability gap for households in the bottom decile and non-affordability rate (proportion of all households unable to afford the nutritious diet), by agroecological zone (FNG 2021, using data from 2020)



Source: Nepal Case Study

IV. The role of social protection systems in addressing affordability gaps

Poverty compromises the quantity, quality and diversity of foods that can be purchased and consumed. Living conditions for the poor are typically unhealthy and unsanitary, especially in urban informal areas, where the nutrition transition increases consumption by the poor of cheap ultra-processed foods, leading to the coexistence of micronutrient deficiencies with overweight, obesity, and related non-communicable diseases (NCDs) [15]. NCDs such as diabetes, cardio-vascular disease and hypertension are now the number one cause of mortality worldwide (74 percent of deaths) [5], yet most NCDs are preventable by modifying risk factors such as unhealthy diets [7]. Malnutrition, including micronutrient deficiencies, in pregnant women can result in low birthweight, a predictor of childhood wasting as well as stunting, poor health, and impaired educational and economic performance later in life – reinforcing the intergenerational transmission of poverty and malnutrition [15].

Social protection provides a policy response not only to poverty, risk, and vulnerabilities, but also to food insecurity and malnutrition, by enabling access to nutritious foods and health and nutrition services. Poor quality diets can be tackled through social protection interventions that improve people's purchasing power, facilitate access to nutritious foods, and ensure uptake of essential health and nutrition services [16] [17].

But social protection programming is often narrowly framed around cash transfers to alleviate income poverty, rather than a more comprehensive approach to addressing biological poverty [18].

A meta-analysis found that cash transfer programmes can reduce stunting in children, through key impact pathways including increased access to a diversity of food groups as well as health and nutrition services [19]. Typically, however, cash transfer programmes contribute only a portion of household cash needs, so they are insufficient to fully close healthy diet affordability gaps.

As seen above, the Pakistan BISP cash transfer could only cover 13 percent of the cost of a nutritious diet in Punjab. In the Ethiopia case study, households in the bottom food expenditure decile were found to face an affordability gap of 77 percent. Transfers from the Productive Safety Net Programme (PSNP) reduce but do not eliminate this gap, by covering 31 percent of the cost of a nutritious diet. In Lesotho, the Child Grants Programme (CGP) was shown to cover 8 percent of the cost of a nutritious diet for modelled households, while the cash-for-work programme covered 38 percent. In Karnali, Nepal, Child Grant cash transfers were found to cover only a third of the cost of the nutritious diet for children aged 6-23 months and only 2 percent of the total modelled household's nutritious diet cost.

Direct food transfers also reduce the amount of cash a household has to spend on buying food. In Zambia, school meals reduce the cost of a healthy diet for school-aged children by 14 percent, but this contribution could be much higher if more nutritious school meals were provided (as discussed below).

To guarantee nutritional outcomes, social protection programmes must be intentionally designed to ensure diets and nutritional outcomes improve, by considering not only progress in terms of coverage but also enhancing the adequacy, comprehensiveness, quality and responsiveness of programmes. Social protection will not enable people to sustainably escape from poverty and hunger unless it incorporates a food security and nutrition lens [20].

FSN-sensitive social protection requires multi-sectoral collaboration, as it integrates nutrition objectives and actions into programme design, to address both the immediate and underlying determinants of malnutrition [17].

V. The use of the affordability gap metric in the design of social protection interventions

Social protection benefits are often benchmarked against the poverty line or the cost of a basic/common food basket that meets calorie requirements only, rather than the cost of a diversified, healthy diet. This means that benefits are often inadequate, leaving people unable to meet their nutritional needs. The gap in affordability between a limited energy-only diet and a complete nutritious diet partly explains why a marginal increase in income, or even a reduction in poverty headcount, does not necessarily guarantee improved nutrition outcomes.

The assumption that income security automatically ensures food security, and that food security is equivalent to nutrition security, led to an over-reliance on cash transfers as a social protection mechanism to address both food insecurity and malnutrition [18] [20]. When many evaluations found that cash transfers improved food security indicators but not anthropometric nutrition outcomes, it was recognised that benefits need to be higher, linkages across sectors need to be strengthened, and policies need to be better integrated and coordinated [20].

Understanding the gap between food expenditure and the lowest cost of meeting nutrient needs, also known as the affordability gap [21] can inform policies and programmes aimed at improving food security and nutrition. Being able to afford a nutritious diet does not guarantee that people will consume adequate diets, but it is a prerequisite, or essential first step. As there are several immediate, enabling, and underlying determinants of nutrition [22], comprehensive and multisectoral approaches are needed. Social protection can provide a platform through which FSN-sensitive interventions can be implemented, while an understanding of the affordability gap can help to assess the adequacy of transfers and inform the design of comprehensive intervention packages.

VI. Programme and policy design for social protection and food systems transformation

The USP2030 coalition and working group on Social Protection and Food Systems Transformation (2021) identifies five dimensions of social protection that are fundamental to progressively realise the human rights to food, nutrition, and social security: coverage, adequacy, comprehensiveness, quality, and responsiveness [23]. This section explores how the cost and affordability of nutritious diets can inform efforts to boost each of these five dimensions and adds a sixth dimension – sustainability.

1. Coverage

Social protection coverage can be interpreted in one of two ways: either as the proportion of the total population that is reached by at least one social protection benefit (if universal coverage is the objective as per SDG target 1.3), or as the proportion of poor, vulnerable and food insecure people who are reached (if the priority is to leave no-one behind).

Globally, coverage of social protection is lowest in LICs, where rates of poverty, food insecurity and malnutrition are high, and highest in HICs, where extensive and relatively generous programmes protect vulnerable population cohorts against poverty and hunger. In Africa, for instance, only an estimated 19.1 percent of the population was covered by at least one social protection benefit in 2023, but in Europe and Central Asia the figure was 85.2 percent [24]. It follows that, where resource constraints prohibit universal coverage, progressive realisation requires starting with identification of the poorest and most food insecure. Note that the income poverty line is not sufficient, as this measure typically considers only calorie sufficiency of a diet consisting of basic foods (different ones in different countries). A better indicator for doing this assessment and targeting is identifying households that are least able to afford the cost of a healthy, nutritious diet – in other words, those that face the largest affordability gap.

FNG analysis can unpack affordability gaps and nutritional vulnerability within population groups by life-cycle stage, geographic location, socio-economic status and more, helping policy makers to leave no one behind in their coverage expansion efforts [21] [9]. For example, by conceptualising needs at the intra-household level, FNG analysis in Ecuador revealed the elevated cost of meeting nutrient requirements for pregnant adolescent girls, because of their heightened iron requirements and the physiological burden of early pregnancy. The intersection of this vulnerability with economic, geographic, and social inequalities drives affordability gaps which are higher for specific cohorts in specific locations.

Social protection programmes must take these vulnerabilities and inequalities into account when assessing and expanding programme coverage – are those with the greatest unmet needs being reached? In the case of Ecuador, the answer to that question led to the modelling and piloting of a new social assistance programme specifically targeted to rural pregnant adolescent girls, in the absence of any form of support tackling their compounding vulnerability to malnutrition and its intergenerational transmission through their children.

2. Adequacy

The adequacy of social transfers is crucial for effectively meeting people's essential needs and the risks they face at a given point in their life-cycle. To this end, addressing diet affordability gaps and ensuring that adequately nutritious diets are economically accessible to all citizens and residents, ensuring people can live full and healthy lives and prevent any form of malnutrition. As noted earlier, the size of affordability gaps varies across and within countries, depending on the prices and availability of different nutritious foods in different markets at different times and what people can spend on food, including monetised own production. Adequacy of social transfers is also undermined by regular price inflation, occasional food crises and price spikes, seasonality that in many countries affects food supplies and prices throughout the year, and competing needs within households that dilutes and reduces the use of cash for food purchases.

Context- and time-specific affordability gaps imply that the amount paid as social transfers might need to be adjusted for different locations or different population cohorts, and should also be responsive to price shocks, to be able to fill the nutrient gap for people with different needs and resources. In Indonesia, the FNG analysis recommended reviewing the size of voucher-based transfers by province, "to ensure it is adjusted to accommodate variations in the prices of nutritious foods and people's food expenditures".

On the other hand, this should not be done in a way that creates perceptions of inequitable treatment between people. For example, the cost of living tends to be higher in urban areas than in rural areas, but does that mean that higher transfers should be paid to urban beneficiaries? Similarly, at the intrahousehold level, pregnant and breastfeeding women, adolescent girls and children, particularly in the first two years of life, are biologically more at risk of malnutrition. For example, meat is often distributed within households in favour of male members, with women and adolescents eating less and last. This motivates considering age and gender as priority entry points for social transfers and nutrition support. Without clear communication and awareness raising, this apparently preferential treatment of women and girls might be perceived as unfair, even though in reality it simply rectifies the biological nutrition gap.

Using the cost and affordability of a healthy and nutritious diet as an indicator, and considering market functionality, helps determine what level of support is adequate for the context. However, calculations of adequacy should not be limited to the monetary value of cash transfers or the composition of a food basket, but should inform the choice of social assistance modality, its frequency and duration, as well as communications about it.

Even though discussions around adequacy tend to be centred on the level of benefits provided – i.e. the amount, generosity or purchasing power of cash or in-kind transfers – considerations of adequacy extend further, to design features such as modality (i.e. the choice of instrument), frequency, duration, predictability, and timeliness (e.g. seasonality). These aspects are critical for the effectiveness of social protection, allowing people to plan, invest, and manage risks, in addition to meeting immediate consumption needs.

Alternatively, different combinations of social protection benefits can be provided in addition to cash transfers, such as school feeding, in-kind transfers, food vouchers, public works

projects, and utility fee waivers, with public works operating mainly in rural areas and waivers (for water, electricity, housing rent and/or public transport) applying mainly in urban areas. Subsidising living costs has the effect of increasing the disposable income of households for food purchases, so this also reduces the affordability gap. A powerful feature of the FNG methodology is that it analyses how to optimise the levels and combination of benefits provided, in order to minimise the affordability gap in each context.

Moreover, understanding that food and nutrition needs are differentiated within a household – depending on the age, gender, and biological state of its members – allows for a calibrated calculation of the affordability gap and for adjusting transfers accordingly. For example, the FNG analysis in Nepal concluded that the value of the Child Grant, which aims to improve child nutrition, needs to contribute significantly to the cost of a nutritious diet for children by being substantially increased, if it is to achieve the desired impact.

FNG analysis is not limited only to cash and food transfers. In the Philippines, FNG analysis found that the statutory minimum wage covers 50-86 percent of the cost of a nutritious diet, which leaves a significant affordability gap. WFP used these findings to initiate a discussion with government about the inadequacy of the minimum wage to meet the workers' nutritional needs.

3. Comprehensiveness

Comprehensiveness of social protection needs to be understood from two different angles:

1. Ensuring that all food security and nutrition needs (across the life-cycle) and risks (acute, chronic, seasonal, etc.) are considered – which requires more than just income transfers;

2. Recognising that social protection, as a demand-side intervention, cannot do everything on its own but requires deliberate linkages to the supply of quality social and economic services – health, nutrition, education, WASH, but also livelihood support – such that people receive not just a safety net but a trampoline out of poverty and vulnerability.

FSN-sensitive social protection systems must address the full range of economic and non-economic drivers of poverty and malnutrition [25]. In this regard, it is important to note that neither the Social Security (Minimum Standards) Convention (No. 102) of 1952 nor the Social Protection Floors Recommendation (No. 202) of 2012 is sufficient to ensure food security and nutrition [1]. This is because the nine social security contingencies (centred around employment-related risks) and the four social protection floor 'guarantees'[3] assume that delivering cash or in-kind transfers can eradicate food insecurity and malnutrition [26]. However, not only are transfer levels almost always inadequate, but malnutrition also has many non-income determinants, including lack of awareness about nutritious diets and healthy habits, unsafe water, unhygienic sanitation facilities, and inappropriate child-care such as buying infant formula instead of exclusively breastfeeding infants, which raises spending on food but actually compromises nutritional outcomes for young children.

It follows that income transfers alone will have a limited effect on nutrition outcomes if there remains an affordability gap, albeit smaller. Even with knowledge about healthy and nutritious diets, and even with universal access to health coverage (the fourth social protection floor guarantee), people do not necessarily make optimal dietary choices. This can be due to dietary preferences and habits, or to food environments that may not be supportive of healthy choices, and practical constraints such as lack of cold storage facilities, cooking fuel, and time. These deficits cannot be addressed by cash or food transfers. In such contexts, social protection must be combined with services and efforts from other sectors that address external limiting factors. Ensuring food security and improved nutrition outcomes for all requires a comprehensive package of bundled, layered and multisectoral demand- and supply-side interventions.

Comprehensive packages, including interventions to increase utilisation of preventative nutrition and immunisation services provided by the health sector, increase availability of more affordable nutritious foods at retailers frequented by participants of social assistance programmes, nutritious school meals and enhanced WASH infrastructure, can strengthen the impact of social protection programmes on nutrition outcomes. The ultimate objective must be to lift people above the 'biological poverty line', not just to reduce the gap to the income poverty line. Failure to reach the biological poverty line (which includes a healthy, nutritious diet) leads to and exacerbates income poverty.

3 The four social protection floor guarantees include: (i) access to essential health care, including maternity care; (ii) basic income security for children; (iii) basic income security for persons in active age unable to earn sufficient income, particularly in cases of sickness, unemployment, maternity, and disability; and (iv) basic income security for older persons [26]

A common conclusion across several FNG analyses is that cash or food transfers should be complemented by targeted nutrition-specific interventions, such as food fortification, to boost not just food access but also diet quality. This more comprehensive approach is more expensive, because nutritious diets cost more than energy-only diets, but has the priceless advantage of ensuring food security as well as nutrition security. The examples below, drawn from the FNG case studies, speak to both comprehensiveness and adequacy, each of which is improved by combining different types of transfers and linking social assistance to other service providers. For instance, delivering interventions with improved nutritional value to participants in social assistance programmes requires explicit and deliberate collaboration between different sectors, such as agriculture, education (for school meals), health, food value chains, and vendors when using fresh food vouchers or fortified foods.

- In Burundi, FNG modelling found that fortifying maize flour and adding a glass of milk to the School Feeding Programme reduced the cost of the nutritious diet for school-aged children the most. These findings led WFP to support the delivery of fortified whole-grain maize flour for school meals.

- In the Dominican Republic, FNG modelling showed that adding fortified rice to the food basket reduced the cost of the nutritious diet of a 5-person modelled household by 21 percent, more than double the reduction of 9 percent that provision of unfortified rice would bring.

- In Ethiopia, FNG modelling found that a fresh food voucher restricted to the purchase of nutritious foods contributed more to closing the affordability gap than unrestricted food vouchers that would follow spending patterns of limited diversity.

- In Indonesia, where nearly half of all pregnant women are anaemic, FNG modelling of the SEMBAKO social assistance programme found that a more diverse basket that also included fortified rice would reduce the affordability gap significantly more than less diverse, unfortified baskets. The FNG country report recommended strengthening supply chains of nutritious foods to retail shops, and offering fortified rice at the same cost as unfortified rice, especially for nutritionally vulnerable groups and social assistance recipients.

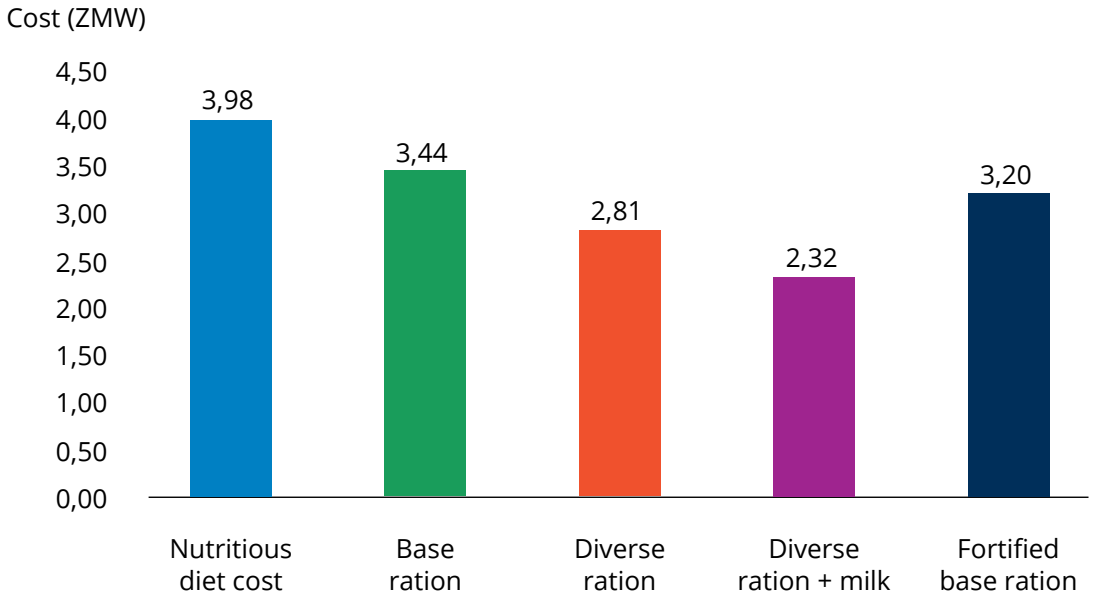
- In Lesotho, FNG modelling revealed that the provision of iron folic acid supplements to pregnant women and school meals, in addition to a cash grant, would halve the affordability gap for a household in the bottom food expenditure decile.

- In Mauritania, FNG modelling determined that an integrated multi-sectoral cash plus nutrition package would improve access to nutritious diets significantly more than cash transfers alone. If this package was targeted to pregnant and breastfeeding women and girls (PBWG), nutritious diets would be affordable for most households. In (agro-)pastoral zones where the affordability gap is largest, cash transfers need to be complemented by other supply- and demand-side interventions (e.g. goat milk and eggs, supplementation and fortification), to substantially improve access.

- In Nepal, providing micronutrient powder (MNP) to children and multiple micronutrient supplements to pregnant and breastfeeding women and girls (PBWG), and fortified blended food to both, would reduce the total cost of a nutritious diet to households by 29 percent.

- In Zambia, school meals currently contribute around 14 percent to the cost of a healthy diet for primary school children. FNG analysis found that this would increase to 42 percent if green leafy vegetables, vitamin-A rich fruit, fish and calcium-rich milk were added. For adolescent girls, however, the cost reduction would be less than half of this, at 19 percent, because of their higher energy and micronutrient needs.

Figure 4: Modelled impact on the daily cost of the nutritious diet for an adolescent girl when provided with basic and nutritious school meals.



Source: Zambia case study

4. Quality

Social protection systems which cover nutritionally vulnerable people through adequate and comprehensive benefits should also be of high quality – transparent, reliable, responsive to changing needs, and accountable to people through robust feedback mechanisms. Quality service provision helps ensure that people will make effective use of the services offered and contributes to the design and implementation of social protection systems that effectively deliver the services people are entitled to, including those that contribute to meeting nutritional needs and addressing nutritional risks.

Quality is essentially about putting people at the centre and ensuring that any support provided dignifies them. This should include responding to (healthy) food preferences, and understanding cultural determinants and norms. With this in mind, FNG modelling considers locally available and contextually acceptable foods to generate information on the cost of the local diet and suggestions about food packages that can be transferred that cover basic nutrition requirements. On the other hand, delivering quality programmes might require challenging negative cultural norms, such as gendered discrimination in the allocation of food that privilege men and boys over women and girls, particularly adolescent girls who have specific nutritional needs.

Understanding the costs and intervening to ensure that healthy and nutritious diets are affordable is essential to guarantee that individuals and households have access to food that fully meets their nutrient needs and preferences. In addition, consideration of context allows for programme sustainability and greater accountability to programme participants, therefore promoting agency. Sustainability and agency are the two most recently added pillars of food security [27].

Good quality provision of services also requires aligning their design and delivery with a country's or population cohort's specific characteristics and cultural, social, and geographical contexts. In Mauritania, the FNG analysis made clear the need to design programmes according to livelihood zones, which were shown to be strongly associated with differential nutrition outcomes. Context-appropriate interventions that are tailored to geographical areas and livelihood groups will be high quality programmes that support all six food security pillars (availability, access, stability, utilisation, agency, sustainability) as well as enhanced nutrition outcomes for all.

5. Responsiveness

A responsive FSN-sensitive social protection system identifies the most nutritionally vulnerable groups and adapts to their changing food and nutrition needs and risks. A system that prioritises those most vulnerable, adequately addresses needs and risks with the right modalities with multi-sectoral support should adapt flexibly to make evidence-based and informed decisions that put people at the centre. Such responsiveness enables social protection systems to ensure that people can meet their essential nutrition needs even when large-scale covariate shocks and individual- or household-level idiosyncratic shocks occur, as well as when people's needs change according to their life-cycle stage, by adjusting design features of social protection programmes such as their coverage, transfer modalities, level of benefits, payment mechanisms, and frequency of disbursement [28]. Other possible interventions include waiving cash transfer conditionalities or utility fees (as many governments did during COVID-19), reinforcing linkages to other sectors, and case management referrals to key social services.

The objective is not only to prevent all forms of malnutrition but also to prevent malnutrition from getting worse following a shock. It follows

that 'responsiveness' can be both proactive (e.g. putting in place specific components of FSN-sensitive social protection for vulnerable groups such as adolescent girls), or reactive (e.g. having mechanisms such as vertical and horizontal expansion in place for emergencies or food crises). Responsiveness should therefore include preparedness against recurrent, slow impact shocks such as droughts. It is equally important to understand how seasonality affects both household food security and malnutrition in vulnerable groups, in order to adapt and time social protection programmes to these seasonal calendars.

In times of shocks or fluctuations, an understanding of the baseline cost and affordability of diets as well as the identification of nutritionally vulnerable groups, helps to determine who to target and what levels of transfer and package values are needed. Understanding who is unable to meet the rising and fluctuating costs of healthy, nutritious diets, and is therefore at greatest risk of non-affordability due to their exposure to either covariate or idiosyncratic shocks, is critical to inform efforts to extend social protection coverage and identify priority measures in fiscally constrained environments. An understanding of the cost and affordability of nutritious diets as an indicator informed various national responses to the COVID-19 pandemic (e.g. in The Dominican Republic and Ecuador) and in the Philippines the FNG analysis helped inform the Super Typhoon Rai (Odette) Humanitarian Needs and Priorities.

6. Sustainability

Another helpful feature of the FNG analysis is that it can guide policymakers in supporting a key dimension of social protection programmes and systems, namely the overall sustainability of interventions from a political and practical point of view. The FNG provides different scenarios and options to improve the cost-efficiency and cost-effectiveness of programmes, by looking at

the most optimal combinations of benefits that can be extended and progressively expanded to people in need, also helping to inform fiscal allocations.

In Timor-Leste, for example, the FNG analysis was instrumental in doubling the budget of the national school meals programme, to improve child nutrition and human capital outcomes more effectively. It also ensured, by improving the programme's adequacy, that there was greater support for school meals at the political and societal levels, as its central role in nourishing the next generations was recognised.

Political acceptability and societal endorsement of programmes is a dimension of sustainability that is not often discussed, but is crucial. The recognition that programming decisions are driven by evidence and modelling, that guide progressive improvements, helps to build such support. The FNG adds another dimension to this recognition, namely the importance of addressing not just income poverty, but also biological poverty.

This dimension also intersects with the 'sustainability' pillar recently added to the definition of food security by the Committee on World Food Security [27]. Sustainability underscores the need to think holistically, to prevent maladaptation (e.g. not to neglect other dimensions like biological poverty by narrowly addressing a binding constraint like income poverty), and to ensure local contextually appropriate solutions that ensure acceptability and effectiveness in the long-run, not just in the short-term.

VII. Summary findings and recommendations from FNG case studies

This 'Mind the Gap' publication contains case studies from 12 different national contexts: 6 from Africa (Burundi, Ethiopia, Lesotho, Mauritania, Tunisia, Zambia); 4 from Asia (Indonesia, Nepal, Pakistan, Philippines); 2 from Latin America and the Caribbean (Dominican Republic, Ecuador).

The case studies highlight how evidence and recommendations generated by FNG analyses have been used, or could be used, to make social protection programming more FSN-sensitive, by reducing affordability gaps. The analyses are aligned with and build on the USP2030 policy framework, ensuring that information generated by the FNG not only informs efforts to improve the adequacy of social protection programmes, but also efforts to sustainably expand the coverage, comprehensiveness, quality and responsiveness of national systems.

Each case study starts with an overview of the country's nutrition and poverty challenges, and a summary of national policies related to social protection and nutrition, followed by findings from the FNG analysis on cost and affordability of nutritious diets, with modelled examples of how social protection programmes could make nutritious diets more affordable. Each case study concludes with a section highlighting current and potential pathways for the analysis to bridge research, policy, and practice.

These examples illustrate what could be done to reduce the affordability gap of a healthy, nutritious diet, through different combinations of social protection modalities and interventions from multiple sectors, and make a case for using healthy and nutritious diet cost and affordability metrics as shown by the examples of the FNG analysis to inform the design of FSN-sensitive social protection policy and programming.

Below are selected examples from the case studies of how FNG analysis and recommendations have been translated into policies and programmes, with WFP support.

Ecuador has the highest teenage pregnancy rate in the Americas. Nutritional requirements are higher for adolescents and for pregnant women, raising the risk of low birthweight babies, and calling for nutrition-specific interventions. FNG modelling included a basic food basket and an enhanced food basket, as well as the enhanced basket provided together with iron/folic acid (IFA) supplements. The two baskets lowered the cost of a nutritious diet for PBWG by 25 percent and 33 percent respectively, or by more than half (57 percent) in combination with the IFA supplements. WFP and partners used these findings to support the government to launch a national social protection programme for pregnant women, and a multisectoral intervention that aimed to prevent teenage pregnancy and address nutritional vulnerability in pregnant adolescents, including by delivering cash transfers to adolescents.

In **Lesotho**, findings from FNG analysis led to the implementation of micronutrient powder (MNP) supplementation programmes for all children aged 6-23 months. WFP and partners also designed and delivered a more nutritious school meal, with increased nutrient density during the lean season, and scaled-up school gardens.

In **Pakistan**, FNG analysis found that households across the country faced a large affordability gap, for example people in the bottom decile of food expenditure in urban Punjab faced an affordability gap of 50 percent, even after receiving cash transfers from the Benazir Income Support Programme (BISP). The recommendation was to make the BISP programme, which is also tasked to reduce stunting, more FSN-sensitive. Modelling showed that adding locally produced specialised nutritious foods for PBWG and children 6-23 months could reduce the cost of a nutritious diet to the household by 11-15 percent. These findings informed the design and launch of a conditional cash transfer programme called Benazir Nashonuma for PBWG and children 6-23 months of households enrolled in BISP, which provides cash and a specialised nutritious food to add to their diet, upon a quarterly visit to the health centre to receive regular health and nutrition services such as antenatal care, iron folic acid supplements, growth monitoring, immunization and nutrition awareness sessions.

In the **Philippines**, FNG analysis modelled the adequacy of cash transfers from the 4P Pantawid Pamilyang Pilipino Programme and a package of nutrition interventions under the Philippines Plan of Action for Nutrition (PPAN). For households in the bottom decile of food expenditure, a 25 percent affordability gap would remain even after the 4P cash transfer, which covers 10-22 percent of the cost of a nutritious diet if households spend 70 percent of this cash on food. Drawing on these findings, WFP assisted the government to finalise the PPAN for 2023–2028, which introduced more nutrition-specific and FSN-sensitive programmes that were projected to reduce the affordability gap to just 6 percent.

Tunisia's social protection system relies heavily on direct subsidies. FNG analysis modelled the impact of subsidising bread on the affordability of nutritious diets. In Siliana, with some of the country's highest poverty and unaffordability rates, removing the bread subsidy would increase the cost of a nutritious diet by 9 percent, and the proportion of households unable to afford a nutritious diet would rise from 24 percent to 28 percent. However, this would also release a 'subsidy dividend' that could be allocated to targeted FSN-sensitive interventions. The FNG analysis recommended phasing out subsidies and increasing the budget, coverage and adequacy of targeted social protection for the most vulnerable.

Finally, these recommendations from the **Nepal** FNG case study are applicable to most contexts:

- "Improve targeting of social assistance programmes to ensure that limited financial resources available for these programmes are effectively utilized and target those that are most in need (poorest households, households in vulnerable areas, people with disabilities, indigenous people and ethnic minorities)."
- "Programme design should take into consideration specificities in context, such as different geographical areas and local food systems. For example, in Mountain areas there might be challenges with food availability and high prices; cash transfer programmes should take this into consideration when setting transfer size."
- "Social and behaviour change strategies should complement FSN-sensitive social protection programmes, so that people can make healthier food choices for themselves and for their children while maximising the nutritional value of the cash transfer."

All three of these recommendations refer to the cost-efficiency or cost-effectiveness of social protection interventions for optimal impact, providing further support for the need to consider the sustainability dimension of social protection systems.

VIII. Conclusion

Good nutrition is a prerequisite for a healthy and productive life, i.e. for human capital formation and sustainable transitions out of poverty. Addressing nutritious diet affordability gaps is essential to effectively address the vicious cycle between poverty, food insecurity and malnutrition. National social protection systems are key entry points to achieve this – but only if they are adequately designed, effectively delivered, and linked to complementary social services and nutrition-specific interventions.

FNG analyses confirm that the affordability gap is a useful indicator that provides a context-specific understanding of where additional support is needed to ensure that people meet their nutrient requirements for healthy and productive lives, in consideration of food preferences and what local food systems offer. While cost of diet metrics are crucial for determining the affordability gap, they may not be enough. Even where the cost of a nutritious diet is relatively low, people could still face barriers to economic access due to limited income, and might face additional intersecting social and physical barriers that reinforce and amplify their vulnerability. While closing the affordability gap does not guarantee people will consume healthy, nutritious diets and address nutritional risks across the life-cycle, it is a prerequisite and its estimation can help inform social protection policy and programme design, by addressing the six key dimensions for achieving universal social protection – coverage, adequacy, comprehensiveness, quality, responsiveness, and sustainability.

Integrating the affordability gap into modelling FSN-sensitive social protection interventions involves acknowledging intersecting inequalities as key determinants of nutritional outcomes, and enabling feasible and context-appropriate interventions that leverage the local environment and are tailored to season, livelihood group, and geographical area, among other context-specific factors. Another critical implication of FNG results is that interventions and transfers targeted at the household must be complemented with interventions targeted at specific nutritionally vulnerable individuals within the household (e.g. children aged 6-23 months, adolescent girls, pregnant women) to achieve greater nutritional impact through improved diet affordability.

Moving forward, policymakers and stakeholders must prioritise the design and implementation of social protection initiatives that are responsive to the contextual nuances identified in this publication. FSN-sensitive social protection systems that are comprehensive, responsive and sustainable provide a critical pathway to the achievement of SDG 2 for Zero Hunger, and the use of cost and affordability of diet metrics, as modelled in the FNG analysis, helps ensure that no-one is left behind. Importantly, this is not a parallel agenda but one that is fully aligned with global commitments, by addressing blind spots (such as biological poverty) and filling not just nutrition gaps but policy gaps, to tackle poverty, vulnerability, intersecting inequalities and social exclusion in a truly multidimensional way.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IX. Compendium of Case Studies

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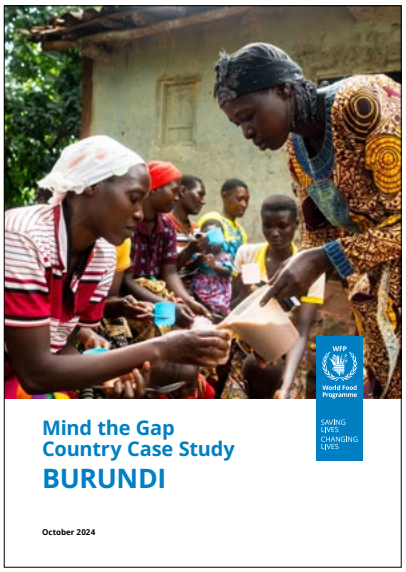

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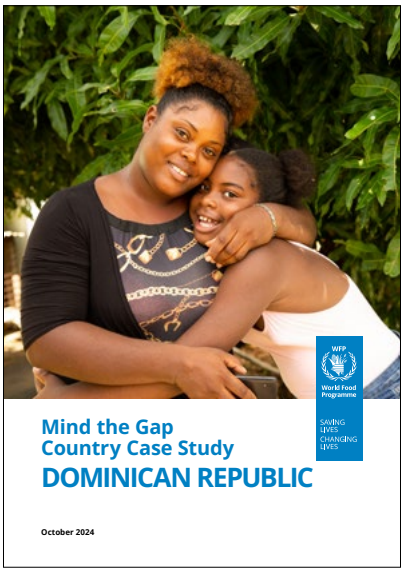

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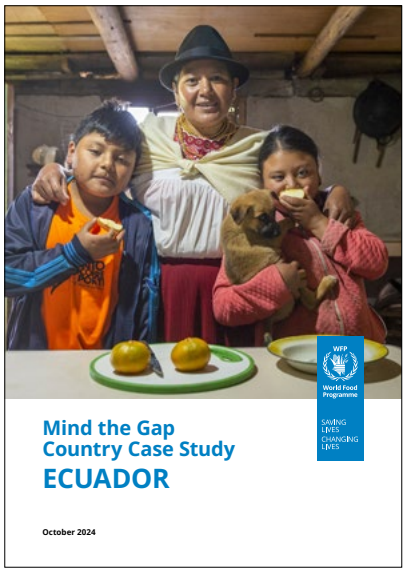

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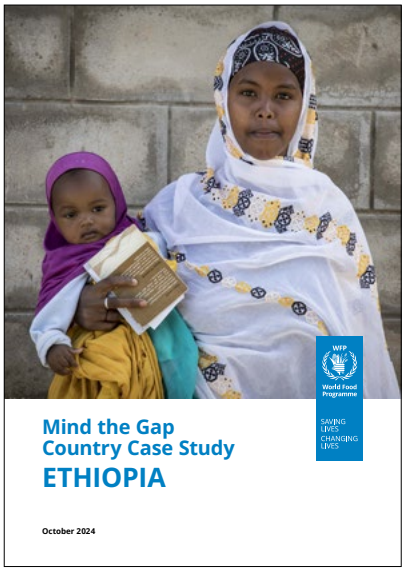

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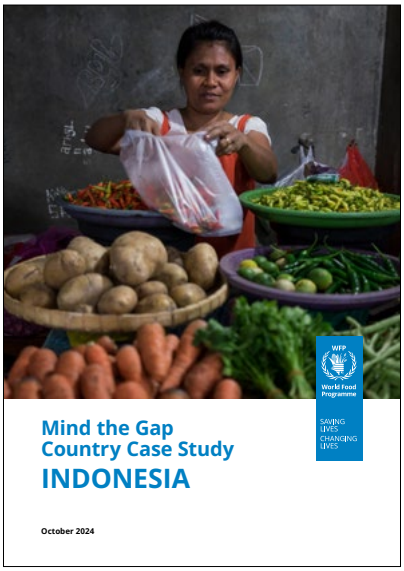

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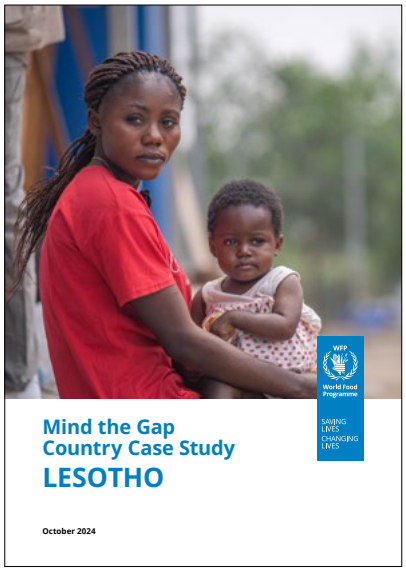

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