Multi-sectoral Nutrition Programming

Exploring impact

ENN

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Contents

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Acronyms

AMMA	Action Against Malnutrition through Agriculture
BCC	Behavioural Change and Communication
DFID	Department for International Development (now FCDO)
ENN	Emergency Nutrition Network
ENSURE	Enhancing Nutrition, Stepping Up Resilience and Enterprise
FCDO	Foreign, Commonwealth and Development Office (formerly DFID)
FNC	Zimbabwe Food and Nutrition Council
GMP	Growth Monitoring Programmes
HARVEST	Feed the Future Cambodia Helping Address Rural Vulnerabilities and Ecosystem Stability Project
HDDS	House-hold dietary diversity score
HKI	Helen Keller International
HMIS	Health Management Information System
NGO	Non-Government Organisation
IMCI	Integrated management of childhood illnesses
INVC	Integrating Nutrition in Value Chains Project
IYCF	Infant and Young Child Feeding
JAA's	The SUN Movement join assessment
JME	Joint malnutrition estimates
MAD	Minimum accepted diet
MCBM	Multi-Sectoral Community Based Model for Stunting Reduction
MCHN	Mother and Child Health Nutrition
M&E	Monitoring and Evaluation
MSNP	Multi-sectoral nutrition programmes
MQSUN+	Maximising the quality of scaled up nutrition
N@C	Nutrition at Centre
NiPN	National Information Platform for Nutrition
NGO	Non-governmental organisation
NRTM	Near real time monitoring system
RAIN	Realigning Agriculture to Improve Nutrition
SUN	Scaling up Nutrition Movement
SUN KM	Scaling up Nutrition Knowledge Management
TRT	Karnali Zone, Nepal government-funded Targeted Resource Transfers
WALA	Wellness and Agriculture for Life Advancement Project (Malawi)
WASH	Water, Sanitation and Hygiene
USAID	United States Agency for International Development

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Executive summary

Multi-sector nutrition programmes (MSNPs) have gained increasing prominence over the last two decades in order to address the many direct and underlying determinants of malnutrition. The Scaling Up Nutrition (SUN) Movement has played a critical role in mobilising governments and partners to drive forward such initiatives. However, given the challenges of setting up multi-sector monitoring and evaluation (M&E) systems, and due to the design of many multi-sector programmes, the ability to determine the impact of such programmes in achieving their ultimate objective of stunting reduction is often limited. Growing evidence of national and sub-national success stories, including in the most recent Maternal and Child Undernutrition Progress series, reinforces the crucial importance of MSNPs to address the underlying determinants of undernutrition. However there remains little exploration of the efficacy, effectiveness and impact of such approaches compared to single sector interventions and limited information on appropriate designs of M&E systems for MSNPs. This report, commissioned by Irish Aid, synthesises the available evidence on the impact of MSNPs and documents the type and quality of M&E systems established to measure impact. It aims to answer the question: Do MSNPs collect data that allows for the generation of evidence on impact and, if so, what is the level of reported impact?

Specifically, the following questions are explored:

1. Were evaluation designs sufficiently rigorous to allow for impact to be evaluated?
2. As precursors to impact, what is the level of coverage[1] and convergence[2] of interventions within MSNPs? Are these indicators assessed and, if so, how are they assessed?
3. What impact, if any, do MSNP evaluations demonstrate on primary nutrition outcomes (stunting, wasting, underweight and anaemia?)
4. Are MSNP evaluations able to demonstrate an impact on secondary nutrition outcomes such as infant and young child feeding (IYCF) indicators, Water, sanitation and hygiene (WASH), food security, household dietary diversity score (HDDS), minimum acceptable diet (MAD) and income/ expenditure?
5. Do MSNP evaluations consider the scale-up of interventions?

A systematic search was conducted to identify relevant evaluation reports, programme implementation reports, programme description documents, programme proposals, research reports, peer-reviewed publications and systematic reviews/ meta-analyses. Forty-five evaluation reports were identified that met the inclusion criteria (30 of which have impact data for analysis). To enrich the answers to the questions posed, these were accompanied by 11 country assessments from the 2018 Joint-assessment by the multi-stakeholder SUN platform (JAA) (from Bangladesh, Burundi, Cambodia, Ethiopia, Guatemala, Kenya, Malawi, Nepal, Niger, Philippines and Senegal), eight country case studies developed by the Emergency Nutrition Network (ENN) (from Ethiopia, Senegal, Kenya, Niger, Zimbabwe, Nepal, Bangladesh and Philippines) and a broader synthesis by Maximising the Quality of Scaling Up Nutrition Plus (MQSUN+) which included an additional six SUN country case studies (from El Salvador, Madagascar, Benin, Lao PDR, Pakistan and Guatemala).

Key findings:

- Of the evaluations included in this analysis, we found that of the reviewed MSNPs, the predominant sectors engaged were agricultural (n=25/30) and health sectors (n=19/30). Nearly two- thirds had some form of food, cash or asset transferred to beneficiaries either at the household or community level. The average length of most projects evaluated was five years with a range of three to 10 years.
- The majority of evaluations reviewed were of the pre- and post-test design with no comparison group. These were specifically designed to look at improvements over time on primary and secondary outcomes rather than draw conclusions on impact versus a control.
- Even the most rigorously designed evaluations noted the difficulty in attributing any or all impacts on the outcome indicators to the intervention alone.
- Of the reviews that included a control group, and therefore able to measure impact most robustly, the majority (7/11 (64%)) showed a positive impact on one or more primary nutrition outcomes (child stunting, wasting, underweight or anaemia).

[1] the proportion of the eligible population for whom a programme, service or intervention is available.
[2] the extent to which programmes, interventions or services from multiple sectors are able to reach the same household or individual, in a coordinated manner, in order to address the key determinants of undernutrition.

- Secondary nutrition outcomes were more widely measured in evaluations with 72% (18/25) showing a positive improvement in household dietary diversity and 65% (13/25) indicating a positive improvement in IYCF indicators.
- Two of the highest rigour evaluations did not include coverage estimates for their intervention indicating that there can be a mismatch between the strength/quality of the design and the extent to which it provides essential information especially relevant for MSNPs.
- While all of the 30 evaluations reviewed were of programmes engaging multiple sectors, with multiple interventions targeted at a common group (for example, the first 1000 days of life), interventions were often not delivered jointly or in a coordinated way across sectors.
- Most programmes had yet to go to national scale, despite many having national rollout ambitions. Only eight of 30 evaluations provided information on scale-up.

Recommendations:

Programme design and scale-up: Careful attention is needed when designing multi-sector programmes so that interventions or services from multiple sectors are able to reach the same target households or individuals in a coordinated manner. This convergence of sector programming is important for providing a comprehensive package of services that has the potential to impact the multiple interconnected drivers of malnutrition in a given context. MSNPs should be embedded in government structures and services and placed under government ownership to ensure programme coverage, convergence and scale-up at national level. Indicators to assess programme coverage should be integrated into national information systems within a broad range of sectors (health, agriculture, education) and a more objective way of comparing levels of programme convergence and reviewing lessons learnt in this regard should be explored. Process evaluations that look more qualitatively at project implementation with a particular focus on the integration of sectors should also be encouraged by the donors funding interventions.

Measuring impact: Guidance on effective and standardised MSNP evaluations is needed, as well as greater availability of funding for quality, large-scale evaluations to take place. A minimum level of rigour should be set, ideally allowing for at least the assessment of change in outcomes between time points interpreted against the backdrop of secular trends. Ensuring the inclusion and importance of secondary nutrition outcomes (such as HDDS, food insecurity scores, indicators of IYCF and WASH practices, standardised measures of women's empowerment and indicators of household finances) rather than largely focusing on stunting impact is both important and more realistic for many programmes. Donors can play a key role in ensuring these standards are set and met and that programmes have sufficient funding allocated to enable rigorous evaluations and the measurement of impact. Innovative solutions allowing for the regular monitoring of undernutrition need to be developed to reduce reliance on standard impact-evaluation and periodic surveys. The use of the growth monitoring programme as a means of tracking improvements in nutrition should be explored. This could be achieved without rolling out national measurement of length or height through sentinel site surveillance or targeting children at certain ages.

Context

The last two decades have seen an increased focus on multi-sector nutrition programming (MSNP) in order to address the varied direct and underlying determinants of malnutrition and to achieve global nutrition targets. Multi-sector approaches, defined as programmes that include scaled up, proven interventions to address both the immediate (through nutrition-specific interventions) and underlying determinants of malnutrition (through nutrition-sensitive interventions) and involve more than one government sector or ministry, have been a central objective within the Scaling Up Nutrition (SUN) Movement. To meet this objective, the SUN Movement has played an important role in mobilising governments to coordinate actions across relevant sectors and stakeholders to better address malnutrition in a multi-sector manner.

In 2017, the Emergency Nutrition Network (ENN) began exploring SUN Movement country examples of MSNPs to understand the types of programmes currently being implemented by governments and partners and to understand some of the best practices, challenges and lessons learnt. Subsequently, ENN developed a series of eight case studies exploring sub-national implementation of multi-sector approaches in Kenya, Senegal, Nepal, Ethiopia, Bangladesh, Niger, Zimbabwe and the Philippines, as well as a series of synthesis papers that highlighted key emerging lessons. To situate the findings within broader work, ENN conducted a literature review to explore if the findings identified in the country examples were reflected in the wider evidence base. Several key themes emerged from this process, particularly in relation to monitoring and evaluation (M&E) systems and how, or if, impact was measured. Key findings included:

- There is a lack of indicators to monitor the benefits of multi-sector approaches compared to those of single sector interventions. There is also a lack of consistency and standardisation of indicators collected and the frequency of data collected.
- Evaluations of national-scale, government-led MSNPs often do not directly and effectively link their interventions to improvements in population nutrition status, such as stunting, assessed by anthropometric indicators or biomarkers.
- Finally, there is often little or no attempt to use randomisation or quasi-experimental techniques to determine the impact of MSNPs.

Given these key findings, this review aimed to assess the extent to which other MSNPs are exploring their level of impact, particularly nutrition outcomes. As well as nutrition outcomes, two other important areas of impact for MSNPs are coverage and convergence (see **Box 1**). As MSNPs aim to address the underlying and immediate determinants of malnutrition by offering interventions from more than one sector, the geographical reach of programmes (i.e., the coverage) and the extent to which the components converge on the most vulnerable households and individuals (i.e., convergence) are essential for assessing impact. By reviewing both the literature and a broad range of MSNP evaluation reports, this review aimed to address the question of whether MSNPs collect data that allows for the generation of evidence on impact and, if so, what is the level of reported impact?

Specific questions explored include:

1. Were evaluation designs sufficiently rigorous to allow for impact to be evaluated?
2. As precursors to impact, what is the level of coverage and convergence of interventions within MSNPs? Are these indicators assessed and, if so, how are they assessed?
3. What impact, if any, do MSNP evaluations demonstrate on primary nutrition outcomes (stunting, wasting, underweight and anaemia?)
4. Are MSNP evaluations able to demonstrate an impact on secondary nutrition outcomes such as infant and young child feeding (IYCF) indicators, Water, sanitation and hygiene (WASH), food security, household dietary diversity score (HDDS), minimum acceptable diet (MAD) and income/ expenditure?
5. Do MSNP evaluations consider the scale-up of interventions?

The review is timely as the work coincided with efforts by Maximising the Quality of Scaling Up Nutrition Plus (MQSUN+) to document nutrition data initiatives and develop recommended standardised indicators for multi-sector programming. It is intended that this piece of work will complement this and other similar initiatives and allow for insights into how future MSNPs can better incorporate indicators to measure impact.

Methods

Data source and selection criteria

We conducted a desk review of documents obtained using a variety of search approaches. A wide variety of programme documents were analysed including the SUN MSNP case studies, case studies from ENN exploring MSNPs at sub-national level in eight countries, the 2018 Joint-assessment by the multi-stakeholder SUN platform (JAA)[3] and the synthesis of the eight country case studies analysed by ENN as well as a broader synthesis developed by MQSUN+ together with a wide range of published and grey literature articles on MSNPs.

A systematic search was also conducted to identify national MSNPs' M&E system recommended indicators, donors' handbooks of indicators for MSNPs, evaluation reports, programme design documents and any other relevant programme-related publications including technical briefings, peer-reviewed publications and implementation reports. This included web searches using a number of databases (PubMed, POPLINE, Google, Google Scholar, AgriLink) as well as searches related to MSNPs on the websites of major donors, non-governmental organisations (NGOs) and universities.

Some documents were obtained by contacting organisations funding or implementing MSNPs via email and also by reviewing reference lists of summary reports. We searched for relevant evaluation reports, programme implementation reports, programme description documents or programme proposals, research reports, peer-reviewed publications and systematic reviews or meta-analyses. There was no limitation on the date of document for the search and, during the search, we relaxed the definition of MSNPs to include programmes that addressed either/or nutrition-specific and nutrition-sensitive pathways (see eligibility section below) to avoid missing relevant documents. The search was carried out in June 2019 and updated in May 2020.

Country and programme eligibility

All programmes that were both multi-sector and either nutrition-sensitive or nutrition-specific (see our working definitions in **Box 1**) were included, regardless of geographic location or country. There was no restriction based on the primary objective of the programme (e.g., child survival, food security, nutrition programme, safety net programme, gender programme, micro-finance intervention, various combinations), targeting approach (e.g., under two years of age, under five years of age, adolescent, women of reproductive age, all age groups), programme scale (e.g., multi-country, national, sub-national, small programme) or intervention entry point. However, one of the outcome indicators had to be stunting.

Selection process and analysis methods

We identified 45 evaluation reports that met our inclusion criteria. These were accompanied by 11 country assessments from the 2018 JAA, the synthesis of the eight country case studies published by ENN and the broader synthesis by MQSUN+ which included an additional six country case studies. These case studies aimed to enrich the answers to the questions posed.

To explore the generation of evidence for impact, we assessed the following five areas across the evaluations:

1. **Rigour:** the extent to which impact was measured in a rigorous manner and thus the findings can be deemed credible (for example, was there a control group? Was the control group appropriate and adequate and used in the final analysis? Were appropriate statistical measures used for analysis? Was an impact pathway described or a theory of change used?)
2. **Convergence and coverage of the delivery:** assessed by exploring the extent to which programmes, interventions or services from multiple sectors were able to reach the same geographical districts as well as vulnerable households or individuals in a coordinated manner. Convergence can be achieved through the alignment of multiple sectors (through common targeting criteria, shared beneficiary lists and/or cross-referral pathways) to provide

[3] The SUN Movement's approach to monitoring and evaluation largely consists of a process of internal self-reflection (Joint-Assessment exercise (JAA)) wherein SUN members at country-level gather on an annual basis to jointly assess progress and challenges. The Strategic Review of the SUN Movement, 2019–2020 recognised the limitations of the JAA process – the self-evaluative nature of JAAs introduces the potential for biased assessments of current realities. However, to date, the JAAs remain a central monitoring tool for countries and was thus used within this review to provide insights into MSNPs' impact.

a comprehensive package of services that impacts nutrition. As there is typically not a standardised indicator for convergence, programmes were evaluated based on the convergence measure selected within each programme design (for example, the extent to which there were shared beneficiary lists or targeting criteria). Coverage was assessed by exploring the extent to which geographical coverage was achieved and how many districts, for example, had access to a package of interventions or set of services. The level of districts reached was typically compared to the intended level of the scale-up of MSNPs in order to demonstrate the geographical reach.

3. **Impact on primary nutrition outcomes:** assessed by exploring the extent to which identified MSNP evaluations demonstrated an impact on stunting, wasting, underweight and/or anaemia in women or children.
4. **Impact on primary nutrition outcomes:** assessed by exploring the extent to which the identified MSNP evaluations demonstrated an impact on secondary nutrition outcomes including IYCF indicators, WASH, food security, HDDS, MAD, income/expenditure and women's empowerment.
5. **Scale-up:** assessed by exploring the extent to which evaluations reported a plan for scaling up interventions, a key aspect of achieving broader impact.

Evidence on impact on either primary or secondary outcomes could only be assessed in those evaluations with at least two measurement time points, i.e., at baseline and at midline/endline (n=30).

Box 1: Working definitions used in this report

Multi-sector nutrition programmes: Programmes implemented by actors of more than one government sector/ministry or programmes/interventions that address undernutrition through both nutrition-specific and nutrition-sensitive pathways.

Nutrition-specific intervention: An intervention that contributes to addressing the immediate determinants of foetal and child nutrition and development – adequate food and nutrient intake, feeding, caregiving and parenting practices and low burden of infectious diseases (from SUN Lancet definitions).

Nutrition-sensitive intervention (from SUN Lancet definitions):

- Any sector intervention (other than health) that incorporates a nutrition objective
- Any intervention that contributes to addressing the underlying determinants of foetal and child nutrition and development – food security, adequate caregiving resources at the maternal, household and community levels, access to health services, a safe and hygienic environment and reduced vulnerability to shocks
- Any intervention that contributes to a reduction in malnutrition (undernutrition/overnutrition)

Impact: The effect an intervention has on nutritional status and secondary outcomes that affect nutritional status. Ideally, impact should be assessed by comparing a control to intervention group(s) from baseline to follow-up using at a minimum a quasi-experimental approach. For this narrative review we have also identified and included evaluations that do not meet these criteria. Evaluation or impact study refers to any report, peer reviewed or grey literature describing the impact of a multi-sector programme on nutritional status or secondary outcomes (as defined by White et al, 2014).

Coverage: In this context, this focuses on 'availability coverage'. This is the proportion of the eligible population for whom a programme, service or intervention is available. In this case, we are focusing on the geographical reach of multi-sector nutrition programmes. An area may be considered 'covered' if multiple services, which address the key determinants of undernutrition, are available even if these services are not being jointly implemented. The term coverage should go beyond availability to also consider access to and acceptability of programmes. However, these facets of coverage are not yet generally considered for multi-sector programming.

Convergence: In this context, this refers to the extent to which programmes, interventions or services from multiple sectors are able to reach the same household or individual, in a coordinated manner, in order to address the key determinants of undernutrition. Convergence can be achieved through the alignment of multiple sectors (through common targeting criteria, shared beneficiary lists and/or cross referral pathways) to provide a comprehensive package of services that impacts nutrition.

Scale-up: As defined by the USAID SPRING programme, this is a process of expanding nutrition interventions with proven efficacy to more people over a wider geographic area that maintains high levels of quality, equity and sustainability through multi-sector involvement.

Findings

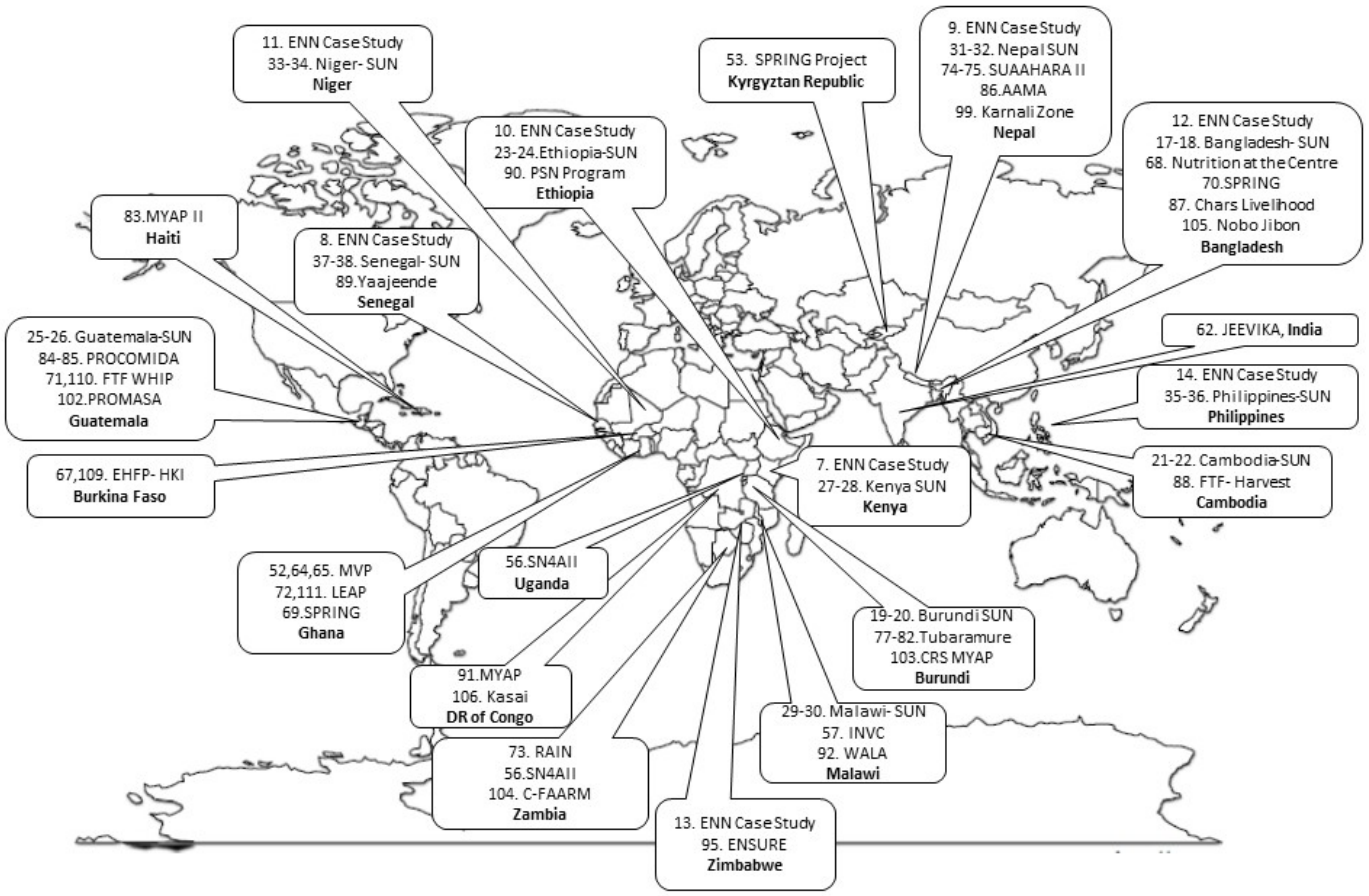
The programmes included in our analysis (45 evaluations, 30 of which have impact data, and 11 SUN focal countries) ranged across three continents: Latin America and the Caribbean, Asia and Africa, as shown in **Figure 1**. The full data extracted from the evaluation reports can be found in **Annex 1**. The evaluations enabled an analysis of rigour and impact while the case studies enabled a richer description around some of the precursors to impact (including coverage, convergence and scale-up).

Do MSNPs collect data allowing for the generation of evidence on impact and, if so, what is the level of reported impact?

Our review of documents related to MSNPs demonstrates that the importance of evaluating and documenting their impact is understood by many stakeholders in the nutrition community. However, the challenges of exploring impact are also well recognised. For example, the country case studies developed by ENN and MQSUN+ were not able to fully examine the impact of such multi-sector approaches, perhaps due to the early timing of the studies. Several key donors and global and national organisations involved in MSNPs have supported efforts to better document the impact of MSNPs, developing detailed policies, indicator handbooks and tools for data collection to contribute to the strengthening of the M&E systems for MSNPs. For example, the Food Security and Health Bureau of the United States Agency for International Development (USAID) and the Department for International Development (DFID) have produced M&E guidance documents including handbooks of indicators for MSNPs [45-47].

The evaluations of MSNPs explored in this paper revealed some critical insights into the impact of MSNPs. Of the 30 evaluations included in this

Figure 1: Geographical range of evaluations included in this review



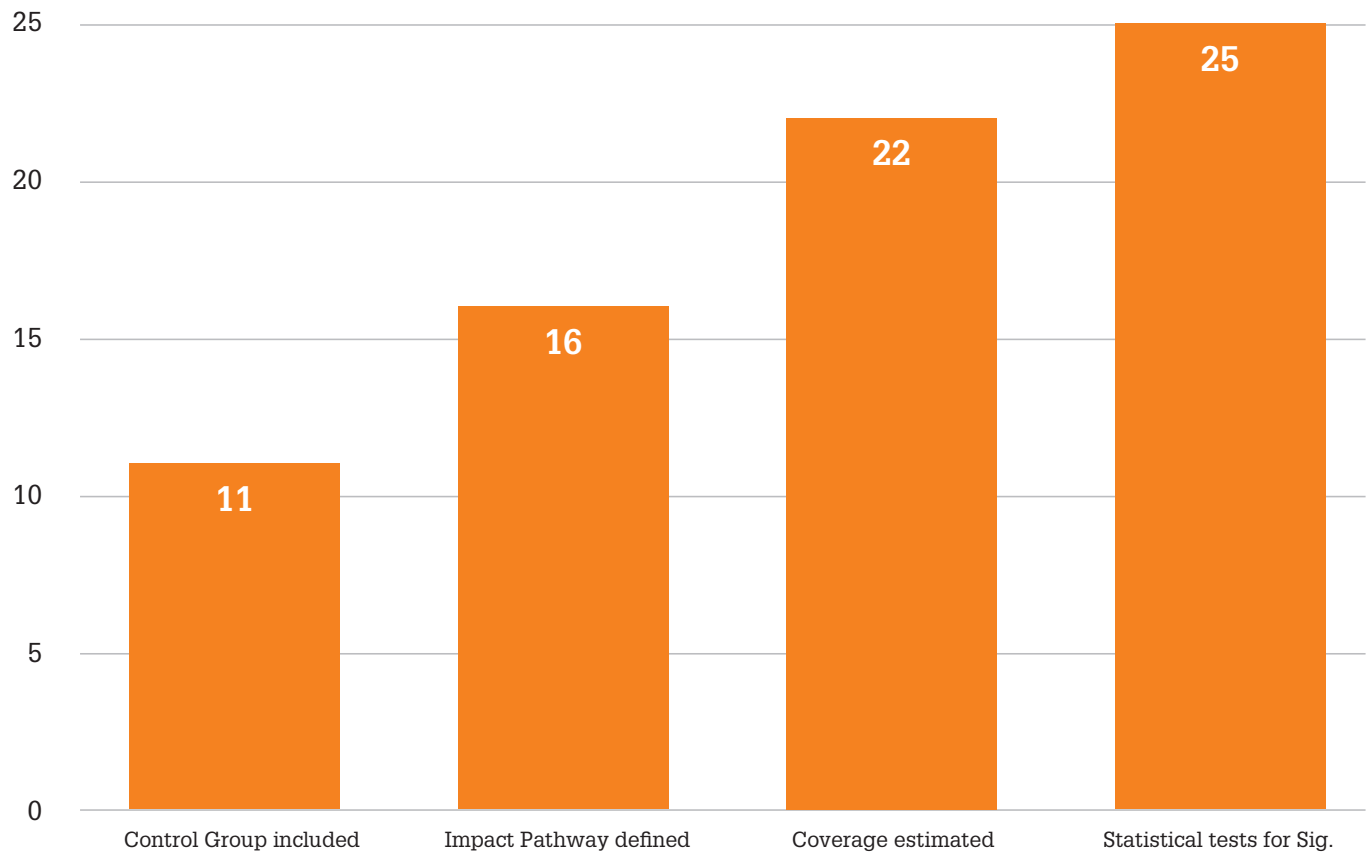
analysis, we found that the predominant sectors engaged in the MSNPs reviewed were the agricultural (n=25) and health sectors (n=19). Nearly two- thirds had some form of food, cash or asset transferred to beneficiaries either at the household or community level. The average length of most projects evaluated was five years with a range of three to 10 years. Combined agriculture/health interventions predominantly focused on increasing household food supply via community-based improvements in farming knowledge and practice including establishing homestead gardens and livestock rearing and improving agricultural value chains. Other sector combinations included agriculture/nutrition, health/ nutrition and social protection/nutrition.

1. Were evaluation designs sufficiently rigorous to allow for impact to be evaluated?

When exploring the impact of MSNPs, it is important to first consider to what extent findings are credible and to what extent evaluation designs were sufficiently rigorous to allow for impact to be evaluated. Rigour was explored based on study design and the extent to which it was fit-for-purpose to provide evidence of impact. Four basic gauges of rigour were examined as a first step followed by a more detailed examination of the chosen evaluation design. The four basic gauges of rigour were: whether there was an appropriate and adequate control group that was used in the final analysis, whether robust statistical analysis was used, whether coverage estimates were included and whether a theory of change or impact pathway was described. The absence/presence of these indicators are presented in **Figure 2**.

- Over one-third of the 30 evaluations included a control group for comparison
- Half had a clearly defined impact pathway
- Two-thirds provided at least one coverage estimate for the intervention
- Three-quarters undertook some type of statistical test to assess if differences observed were significant

Figure 2: Inclusion of key characteristics associated with evaluation rigour



NB: Most evaluations contained more than one indicator of rigour

Figure 3: Assessment of the rigour of MSNP evaluations

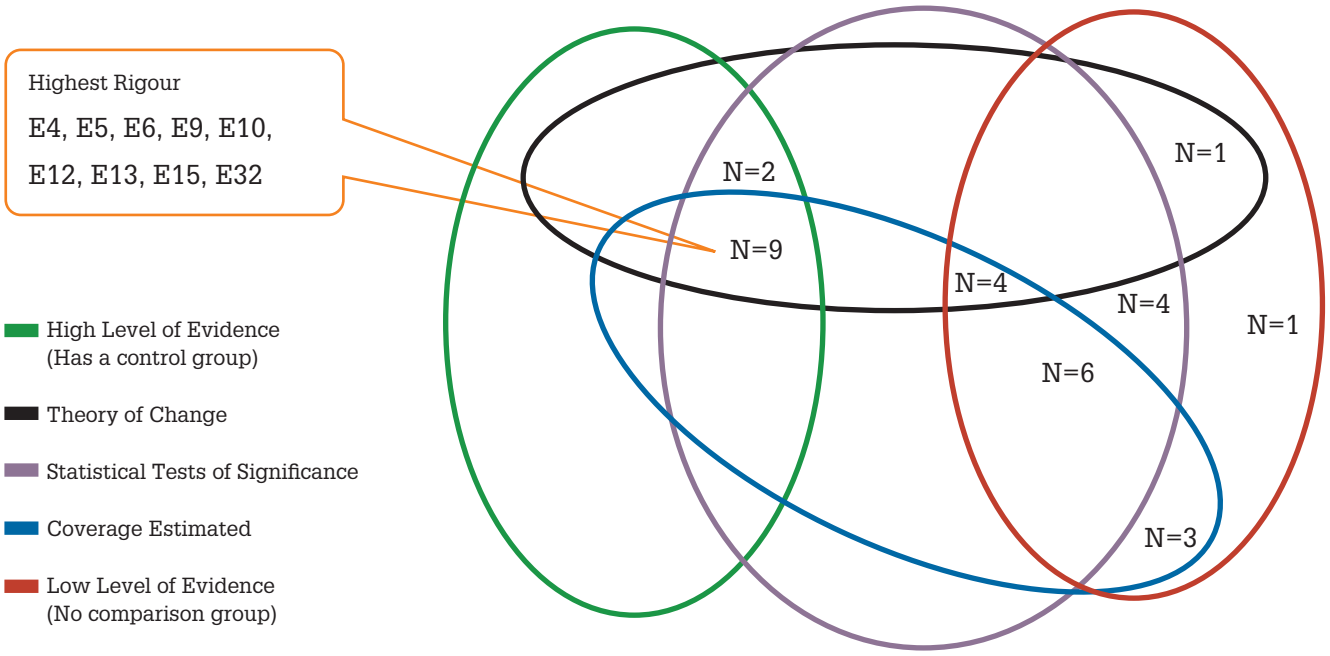


Figure 3 highlights which of the 30 evaluations met multiple aspects of these four gauges of rigour. Nine of the 30 studies reviewed demonstrated evidence of all four gauges.

Our more detailed examination of the evaluation design and statistical approach used a ranking system to classify the studies. A randomised controlled trial design using a double difference analysis approach[4] was classified as Level 1, the highest level of quality, whereas the evaluations that utilised health systems data from one time point, without a comparison group, were ranked as Level 5 (see **Table 1** for more details). The majority of evaluations reviewed were of the pre- and post-test design (Level 3) with no comparison group. These were specifically designed to look at improvements over time on primary and secondary outcomes rather than draw conclusions on impact versus a control.

Studies classified with the highest level of strength/quality tended to be designed to answer more specific research questions, for example the evaluation of a programme targeting pregnant and lactating women and children under two years of age in Burundi, Tubaramure (let's help them grow), was designed to answer questions about the optimal timing and duration of food supplementation (**77-82**). It was a four-armed cluster randomised control study with a baseline followed up by a repeated household survey four years later with over 3,500 children recruited in each round. It employed a double difference approach for statistical analysis. Another Level 1 evaluation, PROCOMIDA in Guatemala (**84-85**), was a cluster-randomised trial targeting pregnant and lactating women, comparing six treatment groups to a control group and also using a double difference approach for analysis. It aimed to answer questions related to the optimal size of family food rations and the most effective type of micronutrient-fortified individual food rations.

Evaluations employing a quasi-experimental design with a control, (i.e., Level 2 as shown in Table 1) were more likely to be used to assess the impact of interventions with a broader scope of nutritional outcomes. One example is the evaluation of the Millennium Village Project in Ghana (**52**, **64-65**) which

[4] The double difference or 'difference in difference' approach is typically used to estimate the effect of a specific intervention or treatment by comparing the changes in outcomes over time between a population that is enrolled in a programme (the intervention group) and a population that is not (the control group). https://www.publichealth.columbia.edu/research/population-health-methods/difference-difference-estimation

was independently evaluated using a standard quasi-experimental approach with a double difference analytical test. This project included a broad range of interventions related to food production, health, WASH, nutrition, business development and infrastructure improvement. Baseline and follow-up surveys were undertaken at the household, individual and community level inclusive of anthropometric measurement, blood and cognitive and learning tests for 35 treatment and 68 control villages.

Two of the higher-ranked evaluations (in Level 1 or 2) did not include coverage estimates for their intervention indicating that there can be a mismatch between the strength/quality of the design and the extent to which that design provides essential information especially relevant for MSNPs.

Five evaluations (of the 30 examined) did not undertake any tests to examine if differences over time were statistically significant (Nutrition at the Centre in Bangladesh (**68**), a multi-year programme in Katanga Province in DRC (**91**), a sustainable nutrition programme in Zambia and Uganda (**100**), an agriculture nutrition programme in Zambia (**104**) and a child survival project in Kasai in DRC (**106**)).

The low level of rigour in many of the evaluations affects the ability of MSNP interventions to truly demonstrate a level of impact as opposed to single sector interventions. Increasing the rigour of the evaluations and the designs of MSNPs should be a priority and greater emphasis is needed on using scientifically robust techniques to measure the impact of multi-sector programming.

Table 1: Rigour of evaluation evidence, ranked on study design and statistical analysis

Level	Evaluation design	Statistical analysis approach	N=45
1a	Randomised controlled trial	Double difference approach	3
1b	Randomised controlled trial	Simple difference approach	3
2a	Quasi-experimental with randomly selected treatment arm participants and non-randomly selected control arm participants	Double difference approach	1
2b	Quasi-experimental with randomly selected treatment arm participants and non-randomly selected control arm participants	Simple difference approach	0
2c	Quasi-experimental with non-random selection of treatment arm participants but advanced methods for the selection of control arm participants	Double difference approach	1
2d	Quasi-experimental with non-random selection of treatment arm participants but advanced methods for the selection of control arm participants	Simple difference approach	0
2e	Standard quasi-experimental	Double difference approach	6
2f	Standard quasi-experimental	Simple difference approach	3
3a	Single arm prospective longitudinal study	n/a	0
3b	Repeated cross-sectional surveys (Baseline-endline)	n/a (Some studies used Confidence Intervals or t-test to test for significant change from baseline to end line)	22
3c	Endline cross-sectional without or with sub-standard baseline data	n/a	0
4a	Programme data analysis (not collected by an independent team)	Fresh analysis by the evaluation team	2
4b	Programme data analysis (not collected by an independent team)	Adopt estimates calculated by the programme team	0
5a	Analysis of data from non-programme sources collected during the same period of programme implementation	n/a	1
5b	Analysis of national or sub-national routinely collected data as part of routine monitoring and evaluation or nutrition and health information system	n/a	3

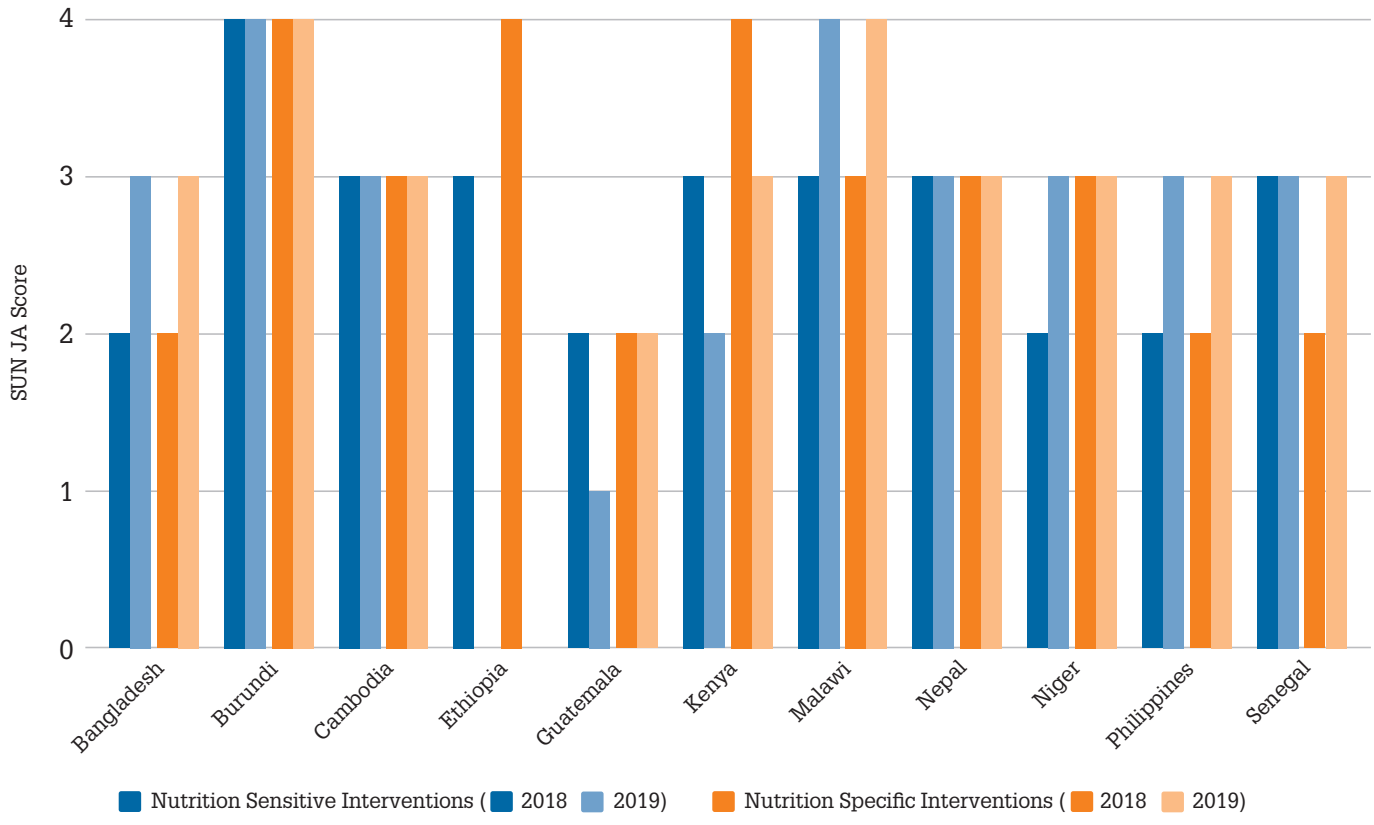
2. As precursors to impact, what is the level of coverage and convergence of interventions within MSNPs? Are these indicators assessed and, if so, how are they assessed?

A key attractive feature of MSNPs compared to single sector interventions is their potential to improve the coverage and convergence of interventions. Achieving significant coverage and convergence are considered important precursors to achieving impact and reducing undernutrition at national level. Their assessment is therefore critical to illuminating if, how and why MSNPs achieve impact. However, measuring convergence and coverage is challenging, particularly at national level. As part of the SUN Movement's work on monitoring and evaluation for multi-sector programmes, countries have been encouraged to explore the extent to which interventions have shared vulnerability criteria and targeting as well as developing indicators for which set of services are being provided in a specific geographical area.

Coverage

As noted above, the review found that two-thirds of evaluations provided at least one coverage estimate for the intervention. However, there appears to be much room for improvement in standardising coverage estimates and tracking both the coverage of nutrition-specific and nutrition- sensitive interventions as well as the coverage of MSNPs as a whole. For example, the SUN Movement's JAAs offer little information on coverage estimates. In the 2018 and 2019 JAAs, no countries, out of the 11 explored, reported on the geographical coverage of MSNP implementation (**17-38**). However, the self-reported scores attributed to the scaling up of nutrition-specific and nutrition-sensitive interventions in the assessments suggest that most of the countries concerned had achieved, or were near to achieving, the planned level of geographical scale-up (**Figure 4**). Some reported slower progress in scaling up nutrition-sensitive interventions compared to the scale-up of nutrition-specific interventions, suggesting discrepancy between the coverage of the two types of interventions.

Figure 4: Level of scaling up of nutrition-specific and nutrition-sensitive interventions according to the 2018 and 2019 JAAs



NB: 0=Not started; 1=Planning has begun; 2=Implementation initiated; 3=Implementation complete and operational; 4=Target achieved

Looking at specific country examples of national nutrition information systems, we noted that indicators of coverage were usually absent such as in the Nigeria, Niger and Ethiopia case studies (**39, 40**). Finally, a study on how the National Information Platform for Nutrition (NiPN) approach can be used to support scaling up MSNPs and maximise their impact also highlighted the lack of data for measuring the coverage of the MSNPs even in contexts where M&E systems are relatively well established such as Guatemala (**44**).

The ENN sub-national level case studies found a variety of coverage targets and achievements for MSNPs. For example, in Kenya, the United States Agency for International Development (USAID) funded Accelerated Value Chain programme was found to have extensive national coverage – almost half the counties in Kenya at the time of the case study. For many other countries, however, the goal was not national coverage but rather achieving coverage in a set number of vulnerable districts. For example, in Senegal, the Yaajeende project prioritised certain areas based on vulnerability and the project was reported to have achieved up to 84% coverage in the three prioritised regions (Matam, Kédougou and Kolda).

In Nepal, the rollout of the MSNP was designed in an incremental fashion and was initially piloted in six districts with a plan to scale up to all 75 districts in five years. Coverage within the districts was also planned in an incremental manner, the target being coverage of 50% of the high-priority localities in each district within the planning period. At the time of the original case study, the MSNP had a reported geographical coverage of 43.59%.

One reason why assessing the coverage of MSNPs is challenging is that there are limited standardised indicators and methods for determining the coverage of individual nutrition interventions. A 2017 review of 57 national nutrition information systems conducted by the SUN Movement assessed whether coverage data was collected on a routine basis for essential maternal and child nutrition interventions that were delivered either through health facilities or other programmes (**39**). They found that coverage assessment of most nutrition indicators relied on periodic survey data to provide service coverage trends over time. However, governments and other development actors require well-functioning management information systems in various sectors to provide timely, accurate and comprehensive data for informed decision making and planning. Including appropriate nutrition service indicators in health management information systems (HMIS) provides one mechanism to regularly track coverage of nutrition interventions and identify potential bottlenecks to be addressed in order to improve performance. However, the reality is that most country HMIS are not publicly accessible and many of the nutrition policies do not clearly state whether, and how frequently, these key nutrition indicators are monitored through the HMIS. For example, the SUN review found that only 18 out of 57 countries were monitoring micronutrient supplementation delivered to pregnant women through antenatal services through their HMIS. For breastfeeding and IYCF counselling services delivered at the health facility level, results from the NutriDash 2015 database showed that 33 out of 57 and 27 out of 57 countries respectively reported monitoring these indicators in their HMIS. When nutrition-specific interventions are implemented through multiple sectors, their information systems can track relevant outcome indicators, for example, tracking coverage for iron supplements and deworming delivered through schools or tracking the delivery of fortified foods to pregnant women through safety net programmes.

These findings show that further work is needed to ensure that coverage targets are developed for MSNPs and that these are regularly monitored and embedded within national monitoring systems.

Convergence

Convergence, in this context, as previously noted, refers to the extent to which programmes, interventions or services from multiple sectors are able to reach the same community, household or individual in a coordinated manner. Convergence can be achieved through the alignment of interventions taking place across multiple sectors (through common targeting criteria, shared beneficiary lists and/or cross referral pathways and common delivery modes or schedules) to provide a comprehensive package of services targeting the vulnerable.

This review found that while all of the 30 evaluations reviewed were of programmes engaging multiple sectors, with a majority targeting a common group (for example, the first 1000 days of life) with a set of interventions, those interventions were often not delivered jointly (by the same team/individuals) or in a coordinated way (with common schedules and cross referrals).

- One third of the evaluations did not demonstrate either a common target group or a joint mode of delivery (by the same team) (N=10).
- One third did define a common target group but delivered the intervention using separate usually non-coordinated teams from the different sectors (N=10).
- The remaining third included four evaluations of programmes delivering the intervention jointly from the various sectors, but **without** a common target, and six that delivered sector components jointly while targeting a common group (E3, E5, E9, E12, E16, E18).

Six interventions had both a common target group and evidence of joint delivery. For example, the PROCOMIDA intervention in Guatemala was designed so that beneficiaries were only able to receive food rations and micronutrient supplementation once they had attended a nutrition behaviour change and communication (BCC) session and had their health cards checked at designated health convergence centres. The same team delivered all the interventions at the centres although the evaluation did report challenges with staffing and other constraints that reduced the quality and frequency of BCC. For the Tubaramure intervention in Burundi, the food component included training on home gardens, fruit tree cultivation and small livestock breeding. During these trainings, facilitators also included sessions to establish community saving and lending schemes. Tubaramure had two other components: a health component, designed to improve the provision of preventive health services by training clinic staff, and a BCC component which encouraged the adoption of best WASH, health and nutrition practices via volunteer lead mothers and trained health promoters. Joint delivery was possible because the same team of health promoters delivered both the food and care components.

ENN's in-depth analysis of the multi-sector programming at sub-national level found that in some countries (particularly Ethiopia, Nepal, Niger, Zimbabwe and the Philippines) considerable effort has been made to ensure the convergence of interventions. For example, Ethiopia's 16-intervention MSNP implemented shared work plans across the health, agriculture, livestock and education sectors and used a shared beneficiary list of vulnerable children enabling the convergence of services to the most vulnerable in the community (**43**). Similarly, the MQSUN+ synthesis found positive examples of convergence. For example, in Benin, community-based groups were used to identify and refer cases of malnutrition to a group of local multi-sector stakeholders that enabled beneficiary identification for the delivery of interventions from multiple sectors – namely, agriculture, health and social protection. In El Salvador, local stakeholders formed multi-sector councils and used spreadsheets to register stakeholders' interventions and beneficiaries. This provided a single record of registration of interventions across sectors, by household members.

Despite these examples, it is worth noting that no indicators to capture the 'level of convergence' have currently been developed. Even where efforts had been made to achieve convergence, there were no examples of where convergence was being used as an indicator within monitoring and reporting systems as an indicator for monitoring collaboration. Neither are there any examples of MSNPs collecting robust data on the proportion of households in the intervention area in full receipt of multi-sector/multiple interventions. Given that convergence is an important pillar of the multi-sector approach, evaluations of MSNPs should aim to reflect on the planned levels of convergence and the success or lessons learnt from the convergent delivery model used. See **Box 2** for an example of a project in India that has been putting

Box 2: India's focus on convergence

Although not meeting the inclusion criteria for this report, India's National Nutrition Mission (known as POSHAN Abhiyaan) provides an interesting example in relation to multi-sector convergence. India has explicitly recognised the importance of convergence in its nutrition strategy, making it one of its key strategic pillars since 2018. The goal of this pillar is to ensure that all nutrition related activities converge on households with mothers and children in the first 1000 days. In order to achieve this, POSHAN Abhiyaan developed a framework of relevant interventions, indicators and targets for programmes implemented across sectors. Convergence action plan committees were set up at each administrative level (national, state, district and village levels) and were tasked with operationalising the framework. These committees were given the mandate to develop a convergence action plan, conduct periodic reviews of progress, monitor and track progress of the actions in the plan and facilitate efforts to achieve targets.

convergence at the forefront of its implementation and M&E systems. More research into developing standardised indicators of convergence is warranted.

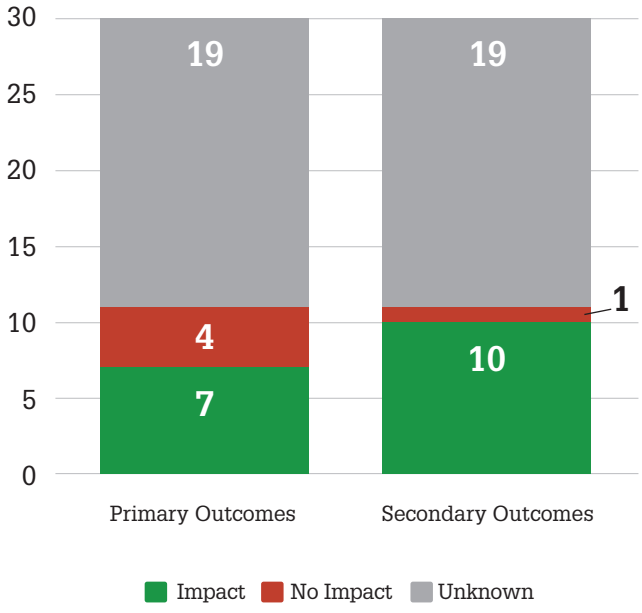
3. What impact, if any, do MSNP evaluations demonstrate on primary nutrition outcomes (stunting, wasting, underweight and anaemia?)

The primary nutrition outcomes that were considered within this review were stunting, wasting, underweight in children under five years of age and anaemia in either women or children. As noted above, many of the evaluations (19/30 (63%)) were not designed to measure intervention impact since they did not have a control group (**Figure 5**). Evaluations with a pre- and post-design are able to comment on any improvement in nutrition indicators but not strictly impact. However, even the most rigorously designed evaluations noted the difficulty in attributing any or all impacts on the outcome indicators to the intervention alone.

Impact

Of the reviews that included a control group, and therefore able to measure impact most robustly, the majority (7/11 (64%)) showed positive impact on one or more primary nutrition outcomes (stunting, wasting, underweight or anaemia) (**Figure 5**).

Figure 5: Evaluations reporting positive impact on primary or secondary outcomes



Tubaramure, the food-assisted, multi-sector health and nutrition programme in Burundi, found that between 2010 and 2014, there was an increase in child stunting rates (from 68% to 75%) in the control area but no change in the treatment arms (64% at both time points). The Tubaramure programme thus reported a significant protective effect on child stunting relative to the control arm (**77-82**). This particular result also highlights the importance of control groups in assessing the effectiveness of an intervention since, if this MSNP did not have a control group, the lack of improvement in stunting would likely have concluded that the programme had no impact on stunting.

The 2015 evaluation of PROCOMIDA, the food assisted maternal and child health and nutrition programme in Guatemala (**84-85**), with its six treatment arms compared to a control, was also able to demonstrate the impact on stunting. The provision of family food rations, conditional on attending a BCC session, plus individual rations of corn-soy blended flour or micronutrient powders, significantly reduced the prevalence of stunting at 24 months of age (by 11 percentage points). The PROCOMIDA programme specifically targeted and enrolled women during pregnancy and provided the package of interventions to the same mothers and families for the whole first 1000 days period (conception to two years of age). With this intensive and prolonged approach, the programme achieved its main objective of reducing stunting. The researchers admit that they would like to have conducted more evaluation rounds, such as during late pregnancy, to assess participation at that time However, due to the high costs and intensive logistics of this type of design, they had to prioritise only a few time points.

USAID's SPRING Bangladesh project (**70**) noted that the ability to isolate its impact in the assessment was limited by other active programmes being implemented by Feed the Future in the control areas (the Feed the Future programme included agriculture interventions and women's empowerment initiatives to reduce the burden of undernutrition). However, the evaluation did find that, in the SPRING intervention areas, severe stunting decreased significantly from 16% to 10% between 2013 and 2017 while increasing in areas only covered by Feed the Future programme (from 7% to 12%). There was no impact on moderate stunting. Lastly, the evaluation of the Millennium Village project in Ghana, which included a broad range of interventions related to food production, health, WASH, nutrition, business development and

infrastructure improvement (**52, 64-65**), reported a reduction in stunting from 28% to 13% in the intervention areas between 2012 and 2016.

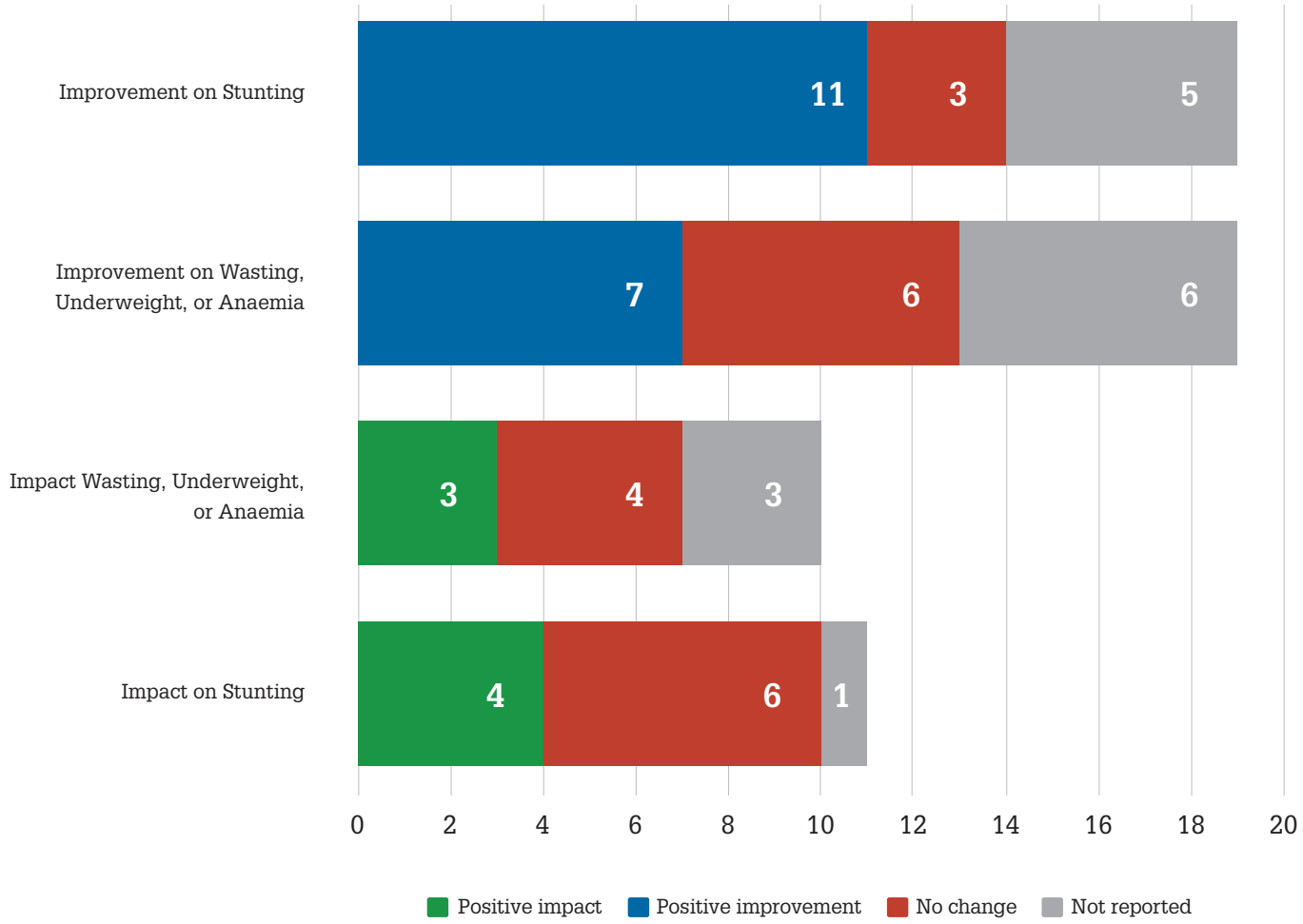
Around 36% (4/11) of the evaluations demonstrated no impact on any of these outcomes. These evaluations included a Chars (riverbank) livelihood project targeting extremely poor households in island chars on the Jamuna river in Northern Bangladesh, with a cash stipend coupled with nutrition BCC and micronutrient supplementation (**87**), a protective safety net project trading food rations for public works in Ethiopia (**90**), a farmer field and life group intervention coupled with community- based BCC in care groups in Katanga Province, DRC (**91**) and finally an agricultural intervention to improve livelihoods, food security and dietary diversity in Zambia (**104**).

General trends in stunting reduction can create additional challenges to seeing statistically significant impacts, for example the Chars livelihood project saw reductions in stunting prevalence in both the control and intervention groups but no statistically greater reduction in the intervention group.

Improvement

Many of the evaluations did conduct before/after surveys to assess changes in primary nutrition outcomes and, although these changes cannot be directly attributed to the intervention, 10/19 (52%) did see positive trends in stunting reduction using this methodology while 7/19 (37%) noted positive trends in wasting, underweight or anaemia (**Figure 6** and programmes detailed in **Table 2**).

Figure 6: Distribution of studies showing impact or improvement in primary nutrition outcomes for children



NB: 'improvement' (blue) refers to positive changes based on before/after assessments; 'impact' (green) refers to positive changes compared to a control group.

Table 2: Evaluations reporting improvements in stunting as a primary nutrition outcome

Intervention name and dates of implementation	Programme outline	Stunting reduction	Under-weight reduction	Wasted reduction	Anaemia reduction
E1: Integrating Nutrition in Value Chains Project (INVC), Malawi, 2012-2016	USAID Feed the Future programme that aimed to improve value chains through farmers' clubs and used community care groups to provide nutrition education to pregnant women and women with children < five.	7%	–	2.8%	–
E7: Feed the Future Western Highlands Integrated Programme, 2013-2015	Programme seeks to increase agricultural productivity, improve market access and improve health and nutrition by implementing community-level agricultural training and nutrition behaviour change and communication activities.	7.2%	–	–	–
E8: Nutrition at Centre (N@C), Bangladesh, May 2013 to Dec 2017	CARE Bangladesh and Government of Bangladesh programme that integrated nutrition in existing community health system and other sectors: WASH, agriculture and gender.	14.2%	11.8%	–	–
E12: Action Against Malnutrition through Agriculture (AAMA), Nepal, 2008-2012	HKI implemented programme using volunteer 'Village Model Farmers' to model optimal vegetable gardening and poultry raising as well as women's groups to improve child nutrition.	10.5%	–	–	8.9%
E15: Feed the Future Cambodia Helping Address Rural Vulnerabilities and Ecosystem Stability (HARVEST) Project, 2010-2016	Focused on increasing incomes to influence nutrition outcomes. The approach integrated activities from a range of sectors – agriculture, fisheries, forestry, nutrition and more – to help families in rural areas to grow, purchase and prepare more nutritious foods.	15%	10%	0%	–
E18: SPRING-Ghana, 2014-2017	This programme implemented a '1,000-day household approach' which is a multi-sector strategy focused on linking nutrition, WASH and agriculture with an emphasis on priority household actions within the first 1000 day period.	4%	–	–	–
E21: Wellness and Agriculture for Life Advancement (WALA), Malawi, 2009-2014	NGO-led programme to prevent and mitigate food insecurity by targeting the most vulnerable communities and households, ensuring holistic provision of services to the selected groups.	5.3%	6.3%	–	–
E24: Enhancing Nutrition, Stepping Up Resilience and Enterprise (ENSURE), Zimbabwe, 2013-2018	Aimed to increase long-term food security among chronically food insecure rural households through expanded knowledge, increased capacity, improved means of producing food and income and access to savings coupled with building community assets that provide greater resilience to disasters.	9.3%	3.6%	–	–
E28: Karnali Zone, Nepal government-funded Targeted Resource Transfers (TRTs), Nepal, 2009- 2015	Research study to assess the effects of social welfare services in the form of targeted resource transfers plus an unconditional child cash payment, capacity building and behavioural change education	10%	16%	4%	–
E43: Mid Term Review, Save the Children, Nobo Jibon, Bangladesh, 2010-15	NGO-led programme to reduce food insecurity through maternal and child health and nutrition interventions, market-based production and income generation and disaster risk reduction interventions as well as a cross-cutting gender component.	8.5%	11.1%	4.9%	–

Impact or improvement on multiple outcomes

Few studies reported an impact on stunting as well as impact on other primary nutrition outcomes with only one study, Tubaramure (**77-82**), reporting impact on stunting in children and prevalence of anaemia in mothers. However, impact on multiple outcomes was reported within evaluations of MSNPs targeting maternal nutrition. For example, the enhanced food production project by the Helen Keller International in Burkina Faso (**67, 109**) reported that the prevalence of maternal underweight was significantly reduced among targeted mothers compared with control villages by 8.7 percentage points. The AAMA project in Nepal (**86**) found that among the Dalit (disadvantaged) population in Baitadi, there was a significant reduction in both anaemia and underweight in women of reproductive age. Total anaemia prevalence among the women in the intervention group was significantly reduced with an adjusted odds ratio of 0.59 (0.45 – 0.76); $p<0.05$. This means the odds of having anaemia were twice as high for women in the control group than women in the intervention group in the final evaluation.

Measuring the added value of being 'multi-sector'

Most of the evaluations reviewed simply looked at whether or not the MSNP as a whole had an impact on the outcome indicators and there was little exploration of each intervention's contribution and interaction with the others as part of a package of interventions. Only four of the impact studies reviewed looked at the added value of adding activities within other sectors to the nutrition component of the programme. Being able to tease out the effects of different combinations of interventions usually requires multiple study 'arms' beyond simply control and intervention. The cluster randomised trial of a USAID funded project in Haiti (**83**) that combined interventions to improve food production with improved access to mother and child health and nutrition (MCHN) services was able to conclude that improvements in secondary outcomes, i.e., household food/dietary diversity and adoption of agricultural innovations, were higher for the integrated MCHN/agriculture programme than for the MCHN-only and the agriculture-only intervention arms.

An evaluation of the Realigning Agriculture to Improve Nutrition (RAIN) project in Zambia (**73**), which used a quasi-experimental approach with random allocation to treatment arms, found that integrated food production and nutritional BCC had no added benefit over the food production intervention alone. The evaluation noted very low coverage of the integrated agriculture-BCC intervention arm with community health volunteers being a lot less active than their agricultural counterparts.

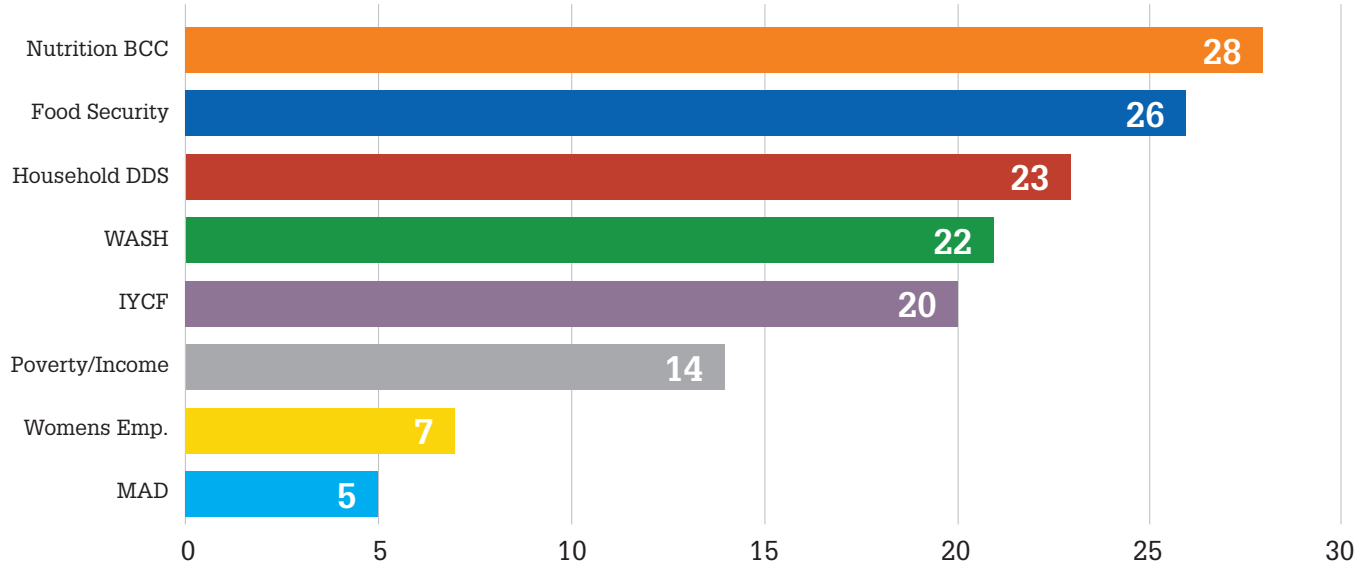
Another project that looked at the impact of integration by design was the Chars livelihoods project in Bangladesh (**87**) which integrated the supply of assets – livestock and cash transfer – to households alongside a nutrition BCC component. There was no impact on stunting in any of the intervention arms and a process evaluation found limited integration between the two sectors alongside poor monitoring of integration throughout the project. There was also reportedly poor coverage and intensity of the nutrition component of the intervention compared to the livelihoods arm.

The PROMASA Title II MYAP evaluation (**102**) in Guatemala also disaggregated outcome measures from the health and nutrition component by whether or not the respondents were exposed to the agricultural component and found that, for respondents participating in the agricultural component, dietary diversity was higher, suggesting added benefits of the multi-sector approach. The PROCOMIDA programme in Guatemala, while not able to disaggregate the effects of the different inventions, does have evidence to suggest that the provision of family food rations increased participation which increased exposure to BCC messaging, hence demonstrating the benefits of a multi-sector approach.

4. Are MSNP evaluations able to demonstrate an impact on secondary nutrition outcomes such as IYCF indicators, WASH, food security, HDDS, MAD, income/expenditure and women's empowerment?

As illustrated in **Figure 5**, more evaluations demonstrated an impact on secondary nutrition outcomes than on primary outcomes. Where secular trends or short timescales make it difficult to see significant impacts on stunting, secondary outcomes play an important role in the impact pathways being targeted by MSNPs and therefore their inclusion in M&E systems can be highly informative. The secondary nutrition outcomes considered across the evaluations were IYCF, WASH, food security, HDDS, MAD for children 6-29 months of age, income/expenditure and women's empowerment.

Figure 7: Secondary nutrition-related outcomes included in evaluations



NB: Most evaluations contained more than one secondary outcome

Figure 7 shows the distribution of secondary nutrition-related outcomes measured across the 30 evaluations reviewed. Most interventions aimed to ensure food security or reduce household hunger and improve household dietary diversity. A subset aimed to improve household income while an even smaller sub-group targeted women's empowerment. Most evaluations assessed more than one secondary outcome.

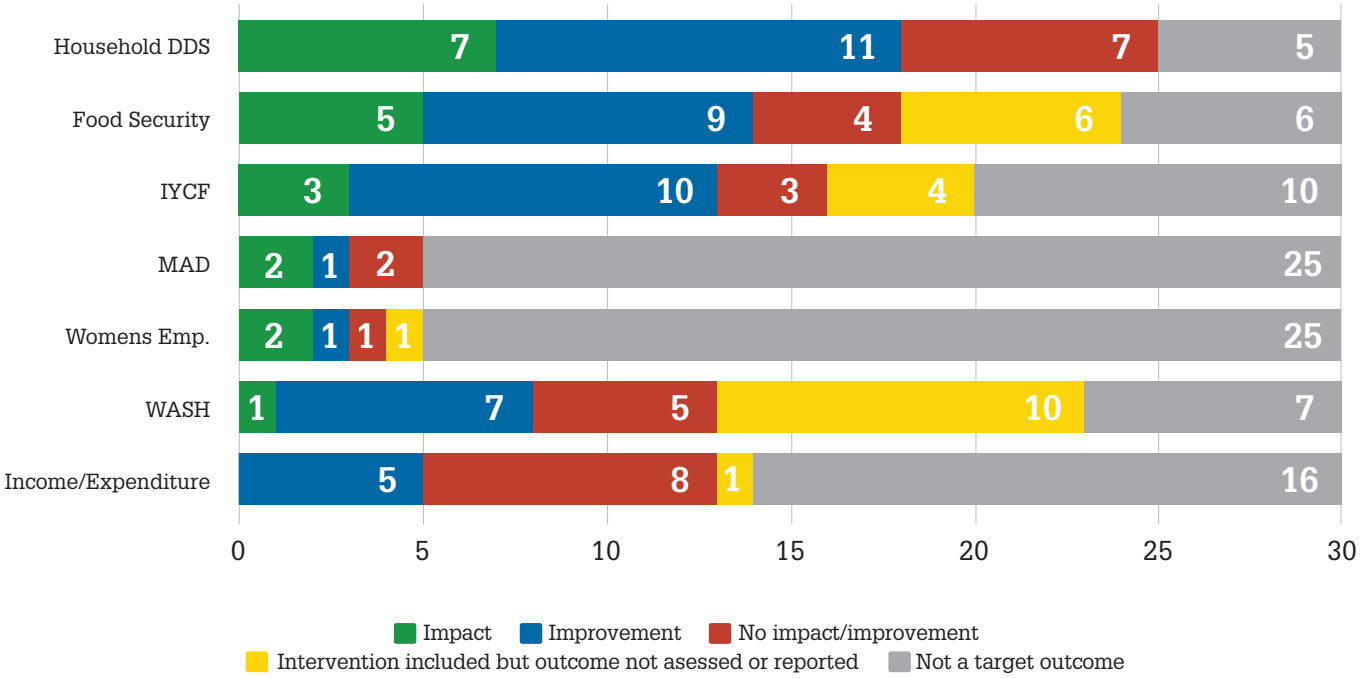
Nearly all of the projects included a BCC designed to improve HDDS, IYCF, WASH and, to a much smaller extent, women's ability to engage in household decisions related to nutrition. The least assessed secondary nutritional outcome was MAD.

Of those that intended to impact household dietary diversity, 72% (18/25) reported a positive impact or improvement (**Figure 8**). IYCF indicators were also commonly impacted or improved in those interventions that intended to do so (65%, 13/20), as were food security indicators (14/24, 58%). MAD and women's empowerment indicators were not commonly in the objectives of these MSNPs, however, where they were, positive impacts or improvements were seen (both 60%, 3/5). Indicators of income or WASH were often included in the intervention objectives, however many evaluations failed to find positive improvements or, in the case of WASH, either did not assess the impacts or did not report the findings (WASH positive findings: 35% (8/23), income positive findings: 36% (5/14)).

While DDS, food security, MAD and income are all quantifiable scores or amounts and relatively easy to compare, WASH, IYCF and women's empowerment are harder to measure. Most evaluations that did include these indicators used self-reported practices or knowledge scores to assess differences (either before/after or between intervention and controls). The PROCOMIDA programme in Guatemala (**84-85**) was one example where WASH indicators were part of the objectives but their impact was not reported in the final evaluation. The JEEViKA project in India, centred on empowering women to bring about changes in health and nutrition practices in their households and communities, mentions IYCF as part of its activities, however, there is limited evaluation of how it was impacted (**62**). Knowledge of dietary diversity for children 6-24 months of age was assessed but no other indicators pertaining to IYCF were included in the evaluation.

In the JEEViKA programme in India (**62**), women's empowerment was measured through self-reported, binary indicators on freedom of movement, household decision making and propensity for collective action on village issues. The programme evaluation found only weak and conflicting effects on the various measures of empowerment. The varying and broad definitions of women's empowerment indicators make comparison between interventions difficult. For example, the Malawi INVC project (**57, 112**) did report a positive impact on women's empowerment; however this was measured by ownership of reported

Figure 8: Evaluations reporting impact or improvement in secondary outcomes



assets, quite different to the JEEViKA programme. The ENSURE programme in Zimbabwe (**95**) used a combination of decision-making and asset ownership indicators to define women's empowerment as well as qualitative interview findings. These findings were compared to other contexts using the Women's Empowerment in Agriculture Index which provides a standardised score to assess asset ownership and decision-making powers. It is recommended that future MSNPs use similar standardised assessment scores in order to enable the comparison of impact across different contexts.

Evaluations with no reported impact

Only one evaluation of the 30 included reported no impact or improvements on any of the secondary outcome indicators examined. This was the Chars Livelihood evaluation (**87**) conducted in Bangladesh which included infrastructure improvements, the transfer of productive assets (cows and goats) and short-term social protection (cash stipends) coupled with BCC and micronutrient supplementation. The evaluation assessed IYCF, WASH, women's empowerment and income/livelihoods indicators. The authors noted that the nutrition component had only been implemented for two years prior to the evaluation being undertaken which was possibly why no impacts or improvements on secondary outcome indicators were measurable. The evaluation did, however, make some important recommendations that are useful for future programmes, namely (1) improving the frequency and duration of counselling sessions, (2) reducing and refocusing the types of messaging provided in counselling sessions, particularly in the areas of IYCF, which are both weak and did not appear to have been a strong focus of the programmes, (3) ensuring that such messaging is both adapted to the context and is practicable, (4) drawing from best practices to include interventions that tackle economic, social and gender barriers that prevent knowledge from being translated into practice (e.g., social mobilisation and group components of other similar interventions) and (5) integrating more effective monitoring systems to be able to track impact on outcomes much earlier and also create the right incentives for community volunteers.

5. Do MSNP evaluations consider the scale-up of interventions?

As noted in the section on coverage, many of the MSNP case studies conducted by ENN and MQSUN+ illustrated that MSNPs had clear scale-up plans and had achieved varying degrees of scale- up although most programmes had yet to go to national scale in spite of national rollout ambitions. One of the key findings from the ENN case studies was that scale-up takes time, particularly if national scale-up is the goal. When exploring evidence of scale-up from the evaluations, it was found that eight evaluations gave


Photo: Sayed Asif Mahmud/WFP

information about scale-up and the following findings were noted.

The Burkina Faso project (**67, 109**) run by Helen Keller International from 2010 noted the intervention that involved setting up home food production gardens had been adopted spontaneously by neighbouring non-participating families and villages. Funding was also made available to extend the intervention to an additional 30 neighbouring villages after the first phase was completed (in 2012). In Bangladesh, the SPRING team (**70**) reported scaling up from 15 upazillas or districts to 40 during the five year period. The LEAP project in Ghana (**72, 111**) started a trial phase in March 2008 and then began expanding gradually in 2009 and 2010 followed by a rapid scale-up in 2015-2016. As of April 2017, the LEAP programme, which is a social cash transfer programme for extremely poor households, reaches over 213,000 households across the whole of Ghana with funding committed by the national government.

In Nepal, another Helen Keller International project (**86**) promoting nutrition-sensitive agriculture included a governance component. Its success was evident in the appointment of Village Health Focal persons as Local Resource Persons and in replication of some project activities to many other wards and to marginalised populations. A third project in Nepal, a large phased intervention called Suaahara II (**74-75**), was aligned by design with Nepal's Multi Sector Nutrition Plan, being implemented in 42 of Nepal's 77 districts from 2016 to 2021.

The Bihar Livelihoods project, JEEViKA (**62**), was a large well-funded project that was scaled up during its eight years of implementation. This relatively long period exemplifies that it does take time to scale up and for some of these programmes that have not scaled up this may simply because they are still in the first few years of their creation.

In the Democratic Republic of Congo, the evaluation of the Kasai Child Survival Project (**105**), which integrated nutrition within other health services, noted that the intervention contributed to the scale-up of integrated management of childhood illnesses (IMCI) in the Kasai Oriental Province by training eight trainers in IMCI. These trained personnel have since trained providers from other districts in the province and from other provinces as part of a national scale-up plan. However, the evaluation did note a lack of other activities conducted to encourage the scale-up of this approach to the rest of the country and beyond, such as sharing of experiences and lessons learnt following its implementation.

Discussion

Programme and evaluation design

Growing positive sentiment from national and sub-national success stories, including those in the most recent Maternal and Child Undernutrition Progress series, reinforces the crucial importance of MSNPs to address the underlying determinants of undernutrition [114]. However, we clearly found that MSNPs remain, to a large extent, poorly evidenced and there is a need for more, well-funded rigorously designed evaluations to demonstrate the impact of multi-sector interventions. When measuring the impact of MSNPs, the current predominant trend is to conduct a specially designed survey to assess change in the prevalence of stunting, as well as secondary nutrition indicators such as household food insecurity, food availability, dietary diversity, IYCF practices, nutrition knowledge and child morbidity. This approach has the advantage of ensuring the collection of reliable data on the indicators of interest and contributes to building national evidence in relation to MSNPs. However, the secondary nutrition indicators used to evaluate MSNPs are rarely included in national-level M&E systems and surveys that include stunting are difficult to organise at the national scale, are costly and often not conducted regularly enough to provide timely information to guide programme adaptation or continuation.

We also found that a wide range of methods/designs are being used in the evaluation of MSNPs indicating that minimum standards or a common framework have not yet been set or commonly adopted. In order to make any comments on programme impacts, an evaluation must at least include a quantitative single arm pre- and post-test design. However 6/45 (13%) of the evaluations reviewed did not meet this minimum standard. An even higher level of evaluation rigour is needed to attribute changes to an intervention. However, this is often costly and unattainable for many interventions. Those that included a control group in their evaluations to address this issue (11/30, 37%), such as the Tubaramure project in Burundi (**77-82**), were relatively small-scale programmes and designed to answer specific research questions. Attributing impact to large-scale, multi-sector programmes is a greater challenge.

The majority of the evaluations reviewed were undertaken by NGOs, predominantly funded by external donors and implemented at community level by civil societies or international NGO teams. It is not often clear from the evaluations the extent to which government and other national level actors were engaged in the design or the carrying out of the evaluations or in any discussions around the results. Many of the SUN Movement case studies, such as the country case studies explored by ENN, MQSUN+ and those included in the SUN's JAAs, are government-led MSNPs. However, they were less likely to have had, at the time of the studies, quantitative evaluation systems built into their design. As already mentioned, developing M&E systems for national-scale, multi-faceted programmes can be challenging. However, governments must be supported to build these systems in order to quantify impact and learn what works.

Evidence of coverage and convergence

The case studies explored within this review demonstrate a lack of coverage assessments for many MSNPs. Programme evaluations more commonly consider the scale-up of an initially small MSNP, however even this can often feel limited. As with impact assessments, the nutrition sector frequently relies on specific, siloed coverage assessments for individual nutrition-related activities. The inclusion of appropriate nutrition service indicators in HMIS, or other relevant sector information systems, would enable the regular tracking of coverage for large-scale integrated programmes alongside the tracking of other key indicators from other sectors.

There is a renewed effort globally to improve the availability and quality of information on nutrition outcomes including convergence, such as through the creation of NiPN, the aims of which include compiling existing nutrition data to give a snapshot overview of MSNPs. The findings of the recently published NiPN Guatemala case study indicates how this initiative can contribute to closing information gaps. The establishment of more national NiPN committees could also contribute to the improved monitoring of multi-sector programme coverage as well as impact.

The case studies provide some valuable examples of convergence occurring through joint targeting, shared beneficiary lists, community level joint planning and coordination and the sharing of joint platforms

for delivery. However, despite these encouraging examples, there are few MSNPs that have a clear goal towards achieving convergence and thus indicators to measure convergence. Instead, MSNPs have largely focused on scaling up a set of interventions across sectors rather than focusing on ensuring that vulnerable households/individuals receive a package of such interventions. More work is needed to encourage sectors to converge services for vulnerable communities and households and to strengthen national information systems to sufficiently monitor such shifts away from siloed ways of working.

The SUN Movement has played an instrumental role in encouraging coordination through the development of multi-stakeholder platforms and networks of relevant actors from civil society, businesses, academia and United Nations agencies at national and sub-national level. However, our review found few examples of convergence included in objectives or indicators for reviewing whether or not convergence was successfully achieved. Having indicators to review how convergent a programme is and reflect whether this was achieved or lessons had been learnt as part of MSNP evaluations could be a helpful next step in promoting successful convergent programmes at scale.

Impact on primary nutrition outcomes

A significant challenge for MSNPs is the measurement of the impact on stunting. Of those studies using a before/after assessment design, 53% (10/19) saw improvements in stunting. Of those studies assessing impact compared to a control group, 64% (7/11) reported a positive impact on stunting. A common means of determining the impact of MSNPs at national level is the analysis of trends depicted in successive large-scale surveys such as Demographic Health Surveys and/or multiple indicator cluster surveys. However, these have a five-year periodicity which makes it difficult to adjust programming when needed. Given that these are national cross-sectional surveys, the quality of anthropometric measurements is not always ideal and, without a control group, attributing the impact of a specific MSNP will always be difficult. Even with a control group, it can be difficult to see significant differences as a result of the intervention if there have been secular improvements in stunting across all groups. Another limitation is the difficulty of obtaining sub-national estimates, especially at district level, to identify locations that are lagging behind or doing particularly well on stunting reduction.

The alternative of implementing repeated Standardised Monitoring and Assessment of Relief and Transitions surveys at more regular intervals, as used by one MSNP reviewed, is usually too costly and not sustainable (**74, 75**). National growth monitoring programmes (GMPs) are another potential source of regular anthropometry which may have potential for monitoring nutrition in the population over time, however they usually only assess weight-for-age, not height-for-age (stunting) indices. In addition, the quality of measurement and national coverage of GMPs would need to be strengthened in order to be useful as a measure of impact. In countries where it might be difficult to scale up this approach countrywide, selected sentinel sites may be established. This approach was implemented in some countries for monitoring the prevalence of HIV at the beginning of the pandemic in the 1980s and 1990s (**76**).

Another challenge with measuring the impact on stunting is the long timescales required to see an effect, if any. While positive exceptions have been noted, it may not make sense to measure impact on stunting in children aged 6 to 24 months for a project that has only been implemented for 12 months. It can take years, if not generations, to have a meaningful impact on population-level stunting rates. While it is clearly encouraging when MSNPs do have a positive impact on stunting within these relatively short time periods, when there is no impact, it is difficult to know whether the programme is ineffective or whether there has just not been sufficient time to see an impact. It is also important to reflect on stunting not as a problem in itself but as a potential indicator of other problems; an influential article from 2019 reminds us that “stunting is not the problem we need to solve – it’s something that tells us there is a problem that needs solving” (**113**). This is where intermediate or secondary outcomes are important and perhaps more realistic for demonstrating impact in many instances.

Impact on secondary nutrition outcomes

Secondary or intermediate outcomes may present fewer limitations for measurement and potentially greater insight into the impact pathways for change than primary nutrition outcomes. Assessment of dietary diversity and food security (using measures such as ‘months of adequate diet’, ‘food insecurity scores’ ‘minimum dietary diversity score’ or ‘adoption of improved home production techniques’) is fairly straight forward in the household survey format and was frequently applied in the evaluations reviewed as

indicated in the results. The impact on intermediate outcomes such as the household dietary diversity score and food security score was much higher among the evaluations we reviewed than for primary outcomes; 91% (10/11) evaluations with a control group had a positive impact on these secondary outcomes. IYCF and WASH outcomes indicators were also commonly included, although fewer programmes achieved positive impacts on WASH. Women's empowerment, despite being an important nutrition related indicator, was rarely included in programme objectives and therefore not assessed in these MSNPs. Where it was assessed, the lack of standardised measurements makes extrapolation or comparison of findings difficult. Behaviour change components were a common element in many of the MSNPs, as were agriculture and finance elements. Hence, changes in household income or expenditure on food were other secondary nutrition indicators commonly included in MSNP evaluations.

While standardised scores of dietary diversity and food security, as well as knowledge of IYFC and WASH practices, are already included in many NGO-led monitoring systems, they are less common in national M&E systems. Not only should inclusion of a broad range of standardised, intermediate outcomes within national systems be encouraged but, ideally, countries should consider their own context-specific drivers of stunting and therefore tailor their secondary nutrition indicators accordingly, as was seen in the ENN Zimbabwe case study (13) (more detail in **Box 3**).

Box 3: Example of Near-Real Time Monitoring in Zimbabwe

One innovation in M&E has been seen in Zimbabwe where a near-real time monitoring system is used to collect data on the Multi-Sectoral Community Based Model for Stunting Reduction (MCBM), a government led MSNP launched in 2014 that was initially piloted in four districts. In order to track progress related to stunting reduction, UNICEF, in partnership with the Zimbabwe Food and Nutrition Council (FNC), with a grant from the Bill and Melinda Gates Foundation, developed and launched the multi-sector Near Real Time Monitoring (NRTM) system. This programme aimed to bring together the previous vertical monitoring mechanisms across sectors and harmonise a broad range of indicators to capture progress towards stunting reductions. The platform used an android and internet based web programme and compared indicators to districts where the MCBM was not yet operational. Throughout each month, data was collected by village health workers using data collection registers containing questions on a wide range of nutrition-specific and nutrition-sensitive indicators. These were submitted either to the local health facility nurse in charge or an environmental health technician who fed the data into a tablet. Dashboards for all indicators were then automatically developed and sent to health committees at ward, district and national level. An automated traffic light system on the dashboard measured indicators compared to baseline figures and standards set. When an indicator was in the red category, mobile text messages were sent to community members and district staff as well as the national FNC. The dashboard was cleaned by an M&E expert at district level monthly and then checked at the national level to ensure sufficient data quality. Reports were developed and shared with a broad range of stakeholders at ward, district and national level. These reports were analysed at ward level and fed into the development of micro-plans. From discussions with FNCs at district, ward and village levels, there was widespread agreement that the NRTM had been a vital part of the MCBM. It had provided them with data that helped them to set their priorities and action plans, revise their priorities where necessary and provide them with a sense of the progress they were making. It must be noted, however, that the system was not without numerous challenges and since external funding ended in 2017, its effectiveness and coverage has declined considerably indicating the need for M&E systems to have long-term, sustainable financing.

Recommendations

Based on our review, we make the following recommendations for MSNPs and their evaluation:

Programme design and scale-up: Careful attention is needed when designing multi-sector programmes so that interventions or services from multiple sectors are able to reach the same target households or individuals in a coordinated manner. This convergence of sector programming is important for providing a comprehensive package of services that has the potential to impact the multiple interconnected drivers of malnutrition in a given context. MSNPs should be embedded in government structures and services and placed under government ownership to ensure programme coverage, convergence and scale-up at national level. Indicators to assess programme coverage should be integrated into national information systems within a broad range of sectors (health, agriculture, education) and a more objective way of comparing levels of programme convergence and reviewing lessons learnt in this regard should be explored. Process evaluations that look more qualitatively at project implementation with a particular focus on the integration of sectors should also be encouraged by the donors funding interventions.

Measuring impact: Guidance on effective and standardised MSNP evaluations is needed as well as greater availability of funding for quality, large-scale evaluations to take place. A minimum level of rigour should be set, ideally allowing for at least the assessment of change in outcomes between time points interpreted against a backdrop of secular trends. Ensuring the inclusion and importance of secondary nutrition outcomes (such as dietary diversity scores, food insecurity scores, indicators of IYCF and WASH practices, standardised measures of women's empowerment and indicators of household finances), rather than largely focusing on stunting impact, is important and more realistic for many programmes. Donors can play a key role in ensuring these standards are set and met and that programmes have sufficient funding allocated to enable rigorous evaluations and the measurement of impact.

Innovative solutions allowing for the regular monitoring of undernutrition need to be developed to reduce reliance on standard impact-evaluation and periodic surveys. The use of the GMP as a means of tracking improvements in nutrition should be explored. This could be achieved without rolling out national measurement of length or height through sentinel site surveillance or targeting children at certain ages.

Photo: Evelyn Fey/BFA

Conclusion

The SUN Movement and its partners have made great strides in supporting the development of government-led MSNPs and creating an environment in which household members – especially women – are able to improve their own and their children's nutrition. The SUN Movement advocates for expanding the pool of resources for improving nutrition by incorporating gender and nutrition-sensitive strategies into health, agriculture, education, employment, social welfare and development programmes.

This review found that the convergence, coverage and impact of MSNPs are not systematically addressed in programme evaluations and that there is a wide range of methods/designs being used in the evaluation of MSNPs' performances and effectiveness. This review also revealed that many programmes do not measure impact and, those that do, do not do so through an established, routine M&E system but through specially designed research surveys. The importance of measuring impact on secondary nutrition indicators, beyond stunting, should not be underestimated. Beyond impact evaluations, qualitative process evaluations for reflecting on project implementation, particularly convergence and scale-up, should also be encouraged by the donors funding interventions. Due to the lack of evaluations of large-scale or national programmes and the predominate focus of small-scale quantitative research studies on stunting impact, there is currently a lack of evidence on the true impact of MSNPs. This needs to urgently change in order to secure long-term support for the multi-sector nutrition approach. Setting standards for impact evaluations to improve their quality and usefulness, as well as diversifying evaluation design to utilise national monitoring systems, placing greater emphasis on secondary outcomes and qualitatively reviewing implementation processes, will accelerate evidence supporting the theory of change behind the MSNP approach.

References

[1] Bhutta, Z A et al (2008) What works? *Interventions for maternal and child undernutrition and survival*. Lancet, 2008. **371**(9610): p. 417-440.

[2] Bhutta, Z A et al (2013) *Evidence-based interventions for improvement of maternal and child nutrition: what can be done and at what cost?* The Lancet, 2013. **382**(9890): p. 452-477.

[3] Scaling Up Nutrition (2010) *Scaling up nutrition: a framework for action*. Washington, DC: UNSCN, 2010. **392**.

[4] Schuftan, C and Greiner, T (2013) *The Scaling Up Nutrition (SUN) Initiative*. Right to Food and Nutrition Watch, 2013: p. 22-23.

[5] Menon, P et al (2019) *A Decade of Progress on Scaling up Health and Nutrition Interventions in India: a Countdown to 2030 Case Study* (P04-115-19). Current developments in nutrition, 2019. **3**(Supplement_1): p. nzz051. P04-115-19.

[6] SUN K M Team (2020) *Sub-national, multi-sector nutrition programming: Key findings from eight country case studies*, ENN, Editor. 2020: Oxford, UK

[7] Odhiambo, L K et al (2018) *Multi-sector programmes at the sub-national level: A case study in Homa Bay and Makueni counties in Kenya*, ENN, Editor. 2018.

[8] Youssoufane, A et al (2018) *Multi-sector programming at the sub-national level: A case study in the regions of Matam and Kédougou, Senegal.*, ENN, Editor. 2018.

[9] Banerjee, C et al (2018) *Multi-sector programming at the sub-national level: A case study in Kapilvastu and Jumla districts in Nepal.*, ENN, Editor. 2018.

[10] Odhiambo, L K et al (2019) *Multi-sector programmes at the sub-national level: A case study of the Seqota Declaration in Naedir Adet and Ebinat woredas in Ethiopia.*, E.G. ENN andProgramme Delivery Unit, Editor. 2019.

[11] Youssoufane, A et al (2019) *Multi-sector programmes at the sub-national level: A case study of the communes de convergence approach in Maradi N*, ENN, Editor. 2019.

[12] Banerjee, C et al (2019) *Multi-sector programmes at the sub-national level: Implementation of the National Plan of Action for Nutrition 2 – A case study in Sunamgunj and Rangpur, Bangladesh*, ENN, Editor. 2019.

[13] Borton, J, Dolan, C and Shoham, J (2020) *Multi-sector programming at the sub-national level: A case study of Chipinge and Chiredzi Districts, Zimbabwe*. 2020.

[14] Banerjee, C et al (2014) *Multi-sector programming at the sub-national level: A case study of Gingoog City and Diffun and Saguday Municipalities, Philippines*, ENN, Editor. 2020.

[15] White, H, Sabarwal, S (2014) *Quasi-experimental design and methods: Methodological briefs-impact evaluation no. 8*. In.; 2014.

[16] Pearson, A, Wiechula, R, Court A, Lockwood, C (2005) *The JBI model of evidence-based healthcare. Int J Evid Based Healthc 2005*, 3(8):207-215. https://www.ncbi.nlm.nih.gov/pubmed/21631749

[17] Bangladesh-SUN (2019) *Joint-Assessment by the multi-stakeholder platform, Bangladesh*. In.; 2019. https://scalingupnutrition.org/wp-content/uploads/2019/11/JA-Bangladesh-2019.pdf

[18] Bangladesh-SUN (2018) *Joint-Assessment by the national multi-stakeholder platform, in line with the SuN monitoring, rvaluation, accountability qnd learning (MEAL) system Bangladesh*. In.; 2019. https://scalingupnutrition.org/wp-content/uploads/2019/03/BANGLADESH-JA-2018-EN.pdf

[19] Burundi-SUN (2019) *Evaluation conjointe 2018 de la plateforme multi-acteurs, BURUNDI1*. In.; 2019. https://scalingupnutrition.org/wp-content/uploads/2019/03/BURUNDI-JA-2018.pdf

[20] Burundi-SUN (2019) *Joint-Assessment by the multi-stakeholder platform, reporting template, Burundi*. In.; 2019. https://scalingupnutrition.org/wp-content/uploads/2019/11/JA-Burundi-2019.pdf

[21] Cambodia-SUN (2018) *Joint-Assessment by the multi-stakeholder platform, Cambodia*. In.; 2019. https://scalingupnutrition.org/wp-content/uploads/2019/03/CAMBODIA-JA-2018.pdf

[22] Cambodia-SUN (2019) *Joint-Assessment by the multi-stakeholder platform, Cambodia*. In.; 2019. https://scalingupnutrition.org/wp-content/uploads/2019/11/JA-Cambodia-2019.pdf

[23] Ethiopia-SUN (2019) *SUN ETHIOPIA 2018-19 Joint Annual Assessment Summary and priotities*. In.; 2019. https://scalingupnutrition.org/wp-content/uploads/2019/11/SUN-ETHIOPIA-2019-JAA-SUMMARY-AND-PRIORITIES-002.pdf

[24] Ethiopia-SUN (2018) *Joint-Assessment by the multi-stakeholder platform, reporting template, Ethiopia*. In.; 2019. https://scalingupnutrition.org/wp-content/uploads/2019/03/ETHIOPIA-JA-2018-EN.pdf

[25] Guatemala-SUN (2019) *Joint-Assessment by the multi-stakeholder platform, Guatemala*. In.; 2019. https://scalingupnutrition.org/wp-content/uploads/2019/11/JA-Guatemala-2019.pdf

[26] Guatemala-SUN (2018) *Evaluación conjunta de la plataforma multiactor 2018, Modelo de informe, Nombre del país*. In.; 2019. https://scalingupnutrition.org/wp-content/uploads/2019/03/GUATEMALA-JA-2018-ESP.pdf

[27] Kenya-SUN (2018) *Joint-Assessment by the multi-stakeholder platform, Reporting Template, Kenya*. In. Kenya; 2019. https://scalingupnutrition.org/wp-content/uploads/2019/03/KENYA-JA-2018-EN.pdf

[28] Kenya-SUN (2019) *Joint-Assessment by the multi-stakeholder platform, Reporting Template, Kenya*. In.; 2019. https://scalingupnutrition.org/wp-content/uploads/2019/11/JA-Kenya-2019.pdf

[29] Malawi-SUN (2019) *Joint-Assessment by the multi-stakeholder platform, Malawi*. In.; 2019. https://scalingupnutrition.org/wp-content/uploads/2019/11/JA-Malawi-2019

[30] Malawi-SUN (2018) *Joint-Assessment by the multi-stakeholder platform' Reporting Template, Malawi*. In.; 2019. https://scalingupnutrition.org/wp-content/uploads/2019/03/MALAWI-JA-2018-EN.pdf

[31] Nepal-SUN (2018) Joint-Assessment by the national multi-stakeholder platform, in line with the SUN monitoring, evaluation, axxountability and learning, Nepal. In.; 2019. https://scalingupnutrition.org/wp-content/uploads/2019/03/NEPAL-JA-2018-EN.pdf

[32] Nepal-SUN (2019) Joint-Assessment by the multi-stakeholder platform, Nepal. In.; 2019. https://scalingupnutrition.org/wp-content/uploads/2019/11/JA-Nepal-2019.pdf

[33] Niger_SUN (2019) *Évaluation conjointe 2018 de la plateforme multi-acteurs, Modèlede rapport, Niger*. In.; 2019. https://scalingupnutrition.org/wp-content/uploads/2019/03/NIGER-JA-2018-EN.pdf

[34] Niger-SUN (2019) *Joint-Assessment by the multi-stakeholder platform, Niger1*. In.; 2019. https://scalingupnutrition.org/wp-content/uploads/2019/11/JA-Niger-2019.pdf

[35] Philippines-SUN (2019) Joint-Assessment by the multi-stakeholder platform, Philippines. In.; 2019. https://scalingupnutrition.org/wp-content/uploads/2019/11/JA-Philippines-2019.pdf

[36] Philippines-SUN (2018) *Joint-Assessment by the multi-stakeholder platform, Reporting Template, Philippines*. In.; 2019. https://scalingupnutrition.org/wp-content/uploads/2019/03/PHILIPPINES-JA-2018-EN.pdf

[37] Senegal-SUN (2018) Joint-Assessment by the multi-stakeholder platform, Senegal. In.; 2019. https://scalingupnutrition.org/wp-content/uploads/2019/03/SENEGAL-JA-2018-FR.pdf

[38] Senegal-SUN (2019) Joint-Assessment by the multi-stakeholder platform, Senegal. In.; 2019. https://scalingupnutrition.org/wp-content/uploads/2019/11/JA-Senegal-2019.pdf

[39] Siekmans, K (2017) *Mapping Nutrition information Systems in SUN Countries. 2017*. http://scalingupnutrition.org/wp-content/uploads/2017/07/170406-Mapping-Information-Systems-Methods-Overview.pdf

[40] SUN (2017) *National Nutrition Information-Peru case study. In: National information system for nutrition*. Nutrition International,; Scaling Up Nutrition, 2017. http://scalingupnutrition.org/wp-content/uploads/2017/11/PERU-Info-Systems-Case-Study.pdf

[41] SUN (2017) *National Nutrition Information System-Nigeria case study. In: National Information System for Nutrition*. Scaling Up Nutrition; 2017. http://scalingupnutrition.org/wp-content/uploads/2017/11/NIGERIA-Info-Systems-Case-Study

[42] DURE Technology (2019) *Overview of the nutrition information system in Niger*. In: Montpellier France; Agropolis International; Global Support Facility for the National Information Platform for Nutrition intiative; 2019. http://www.nipn-nutrition-platforms.org/IMG/pdf/nutrition-info-system-niger.pdf

[43] DURE Technology (2019) *Overview of the nutrition information system*

in Ethiopia. In.; 2019. http://www.nipn-nutrition-platforms.org/IMG/pdf/nutrition-info-system-ethiopia.pdf

[44] Directorate-General International Cooperation and Development (2019) *Inspiring the shift from nutrition policy to implementation: How existing data can support decision making in Guetemala*. In.: Directorate-General International Cooperation and Development; 2019. http://www.nipn-nutrition-platforms.org/Guatemala-57

[45] Trevors, T M (2014) *Harmonizing Nutrition Monitoring and Evaluation Across US Government Agencies*.

[46] Feed The Future (2019) *Feed The Future Indicators Handbook- Revised version*. In.; 2019. https://www.agrilinks.org/sites/default/files/ftf-indicator-handbook-march-2018-508.pdf

[47] ICAI (2014) *DFID's contribution to improving nutrition. In.: Independent Commission for Aid Impact*; 2014. https://icai.independent.gov.uk/wp-content/uploads/ICAI-REPORT-DFIDs-Contribution-to-Improving-Nutrition.pdf

[48] Shahan, A M, Jahan, F (2017) Opening the policy space: the dynamics of nutrition policy making in Bangladesh. 2017.

[49] Agaba, E, Pomeroy-Stevens, A, Ghosh, S, Griffiths, J K (2016) *Assessing Progress in Implementing Uganda's Nutrition Action Plan: District-Level Insights*. Food Nutr Bull 2016, 37(4 suppl):S142-S150. https://www.ncbi.nlm.nih.gov/pubmed/27909259

[50] Feed The Future (2016) *Synthesis of evaluations related to the Fedd The Future learning agenda*. In.; 2016. https://www.agrilinks.org/sites/default/files/resource/files/Final%20KDAD%20Evaluation%20Sythesis.pdf

[51] SNV (2019) *Achieving sustable nutrition for all- sustainable nutrition for all phase 1 policy paper*. 2019. https://www.agrilinks.org/sites/default/files/resource/files/Final%20KDAD%20Evaluation%20Sythesis.pdf

[52] Barnett, C, Masset, E, Dogbe, T, Jupp, D, Korboe, D, Acharya, A, Nelson, K, Eager, R, Hilton, T (2018) *Impact Evaluation of the SADA Millennium Villages Project in Northern Ghana: Endline Summary Report*. 2018.

[53] SPRING (2018) *Endline Nutrition Survey in the Kyrgyz Republic: Analytical Report. The Strengthening Partnerships, Results and Innovations in Nutrition Globally (SPRING) Project*. In. Qrlindo, VA; 2018. https://www.spring-ntrition.org/sites/default/files/publications/reports/spring_kyrgyz_endline_report_final.pdf

[54] SPRING (2018) *Uganda: Final Country Report. Arlington, VA: Strengthening Partnerships, Results, and Innovations in Nutrition Globally (SPRING) project*. In.; 2018. https://www.spring-nutrition.org/sites/default/files/publications/reports/uganda_final_coutnry_report.pdf

[55] MCHIP (2014) *Egypt SMART End-of-Project Performance Evaluation*. In.; 2014. https://pdf.usaid.gov/pdf_docs/pa00kcgv.pdf

[56] USAID (2012) *NEPAL FLOOD RECOVERY PROGRAM-EVALUATION REPORT*. In.; 2012. https://www.globalwaters.org/sites/default/files/Nepal%20Flood%20Recovery%20Program%20%28NFRP%29%20-%20Evaluation%20Report.pdf

[57] Feed The Future (2015) *THE FEED THE FUTURE INTEGRATING NUTRITION IN VALUE CHAINS PROJECT PERFORMANCE EVALUATION-FINAL REPORT*. In.; 2015. https://pdf.usaid.gov/pdf_docs/PA00KJBK.pdf

[58] I-TEC (2011) *UGANDA LIVELIHOODS AND ENTERPRISES FOR AGRICULTURAL DEVELOPMENT (LEAD)- MID TERM EVALUATION (FINAL REPORT)*. In.; 2011. https://pdf.usaid.gov/pdf_docs/pdacs547.pdf

[59] Food for the Hungry (2013) *Multi-Years Assistance Program-Mozambique: Final evaluation*. In.; 2013. https://pdf.usaid.gov/pdf_docs/PDACY467.pdf

[60] USAID (2013) *Mid-Term Evaluation Report:Sustainable Nutrition and Agriculture Promotion (Sierra Leone)*. In.; 2013. https://pdf.usaid.gov/pdf_docs/pa00kbs2.pdf

[61] Vision W (2019) *Nutrition Sensitive Value Chain Analysis (NSVCA) for Accelerating Healthy Agriculture And Nutrition (Ahan) Project-Final Report*. In.; 2019. https://reliefweb.int/sites/reliefweb.int/files/resources/AHAN%20NSVCA%20Final%20Report.pdf

[62] World Bank (2018) *A Decade of Rural Transformation: Lessons Learnt from the Bihar Rural Livelihoods Project-JEEViKA*. In.; 2018. http://documents.worldbank.org/curated/en/298391515516507115/pdf/122548-WP-P090764-PUBLIC-India-BRLP-Booklet-p.pdf

[63] Etherington, A and Anema, A (2014) *Multi-sector Nutrition & Food Security Project-Final Report*. In.; 2014. https://admin.concern.net/sites/default/files/media/migrated/final_evaluation_of_the_multi_sector_nutrition_and_food_security_project_0.pdf

[64] Masset,, E, Acharya A, Barnett, C, Dogbe, T (2013) *An impact evaluation design for the Millennium Villages Project in Northern Ghana*. Journal of Development Effectiveness 2013, 5(2):137-157.

[65] Bendavid, E (2018) *The fog of development: evaluating the Millennium Villages Project*. The Lancet Global health 2018, 6(5):e470-e471. https://www.ncbi.nlm.nih.gov/pubmed/29653612

[66] Moss, C, Bekele, T H, Salasibew, M M, Sturgess, J, Ayana, G, Kuche, D, Eshetu, S, Abera, A, Allen, E, Dangour, AD (2018) *Sustainable Undernutrition Reduction in Ethiopia (SURE) evaluation study: a protocol to evaluate impact, process and context of a large-scale integrated health and agriculture programme to improve complementary feeding in Ethiopia*. BMJ Open 2018, 8(7):e022028. https://www.ncbi.nlm.nih.gov/pubmed/30030320

[67] Olney, D K, Pedehombga, A, Ruel, M T, Dillon, A (2015) *A 2-year integrated agriculture and nutrition and health behavior change communication program targeted to women in Burkina Faso reduces anemia, wasting, and diarrhea in children 3-12.9 months of age at baseline: a cluster-randomized controlled trial*. J Nutr 2015, 145(6):1317-1324. https://www.ncbi.nlm.nih.gov/pubmed/25904734

[68] Sekander, M, Khan, H, Nasri, T, Khandker, Haque, *R (2018) Endline Evaluation of Nutrition at the Center (N@C)-Care Bangladesh Intervention Program*. In.: CARE; 2018.

[69] SPRING (2018) *Ghana: Final Country Report. Arlington, VA: Strengthening Partnerships, Results, and Innovations in Nutrition Globally (SPRING) project (2018)*. In.; 2018. https://www.spring-nutrition.org/sites/default/files/publications/reports/spring_ghana_eop_report.pdf

[70] SPRING (2018) *Trends in Homestead Food Production and Nutrition Outcomes in the Feed the Future Zone of Influence, Bangladesh. Arlington, VA: Strengthening Partnerships, Results, and Innovations in Nutrition Globally (SPRING) project*. In.; 2018. https://www.spring-nutrition.org/sites/default/files/publications/reports/spring_bangladesh_endline_report_2018.pdf

[71] Feed The Future (2016) *Guatemala Case Study: Improving Nutrition Outcomes through the Western Highlands Integrated Program (WHIP)*. In.; 2016. https://www.spring-nutrition.org/sites/default/files/publications/case_studies/spring_guatemala_whip_outcomes.pdf

[72] Republic of Ghana MoG, Children and Social Protection (2018) *Livelihood Empowerment against Poverty (LEAP) 1000 program-Ehdline evaluation report*. In.; 2018. https://reliefweb.int/sites/reliefweb.int/files/resources/d-4106-LEAP%201000%20Report.pdf

[73] Harris, J, Nguyen, P H, Maluccio, J, Rosenberg, A, Mai, L T, Quabili, W, Rawat, R (2016) *RAIN project: Impact evaluation report*. International Food Policy Research Organization 2016.

[74] USAiD (2017) *SUAAHARA IIGOOD NUTRITION PROGRAMAnnual Survey Year One(2017)*. In.; 2018. https://www.careevaluations.org/wp-content/uploads/Suaahara-Two-Annual-Survey-Report-1.pdf

[75] USAID (2019) *SUAAHARA II GOOD NUTRITION PROGRAM-Annual Survey Year Two (2018)*. In.; 2019. https://pdf.usaid.gov/pdf_docs/PA00TD9X.pdf

[76] World Health Organization (2000) *Second generation surveillance for HIV: the next decade*. In.: World Health Organization; 2000.

[77] Leroy, J F, Olney, D, Ruel, M (2020) *Tubaramure, a Food-Assisted Integrated Health and Nutrition Program, Reduces Child Stunting in Burundi: A Cluster-Randomized Controlled Intervention Trial.* J Nutr 2018;148:445–452. doi: 10.1093/jn/nxx063.

[78] Leroy, J L, Olney, D, Nduwabike, N, Ruel, M T (2020) *Tubaramure, a Food-Assisted Integrated Health and Nutrition Program, Reduces Child Wasting in Burundi: A Cluster-Randomized Controlled Intervention Trial*. J Nutr. 2020 Nov 26:nxaa330. doi: 10.1093/jn/nxaa330.

[79] Leroy, J L, Olney D, Bliznashka, L, Ruel, M (2020) *Tubaramure, a Food-Assisted Maternal and Child Health and Nutrition Program in Burundi, Increased Household Food Security and Energy and Micronutrient Consumption, and Maternal and Child Dietary Diversity: A Cluster-Randomized Controlled Trial*. J Nutr. 2020 Apr 1;150(4):945-957. doi: 10.1093/jn/nxz295

[80] Olney, D K, Leroy, J L, Bliznashka, L, Ruel, M T (2019) *A Multisectoral Food-Assisted Maternal and Child Health and Nutrition Program Targeted to Women and Children in the First 1000 Days Increases Attainment of Language and Motor Milestones among Young Burundian Children*. J Nutr. 2019 Oct 1;149(10):1833-1842. doi: 10.1093/jn/nxz133

[81] Leroy, J L, Olney, D K, Ruel, M T (2016) *Tubaramure, a Food-Assisted Integrated Health and Nutrition Program in Burundi, Increases Maternal and Child Hemoglobin Concentrations and Reduces Anemia: A Theory-Based Cluster-Randomized Controlled Intervention Trial*. J Nutr. 2016 August 146(8):1601–1608, https://doi.org/10.3945/jn.115.227462

[82] USAID Burundl (2014) *Final Evaluation Report for the Tubaramure PM2A Program*. In.; 2014. https://pdf.usaid.gov/pdf_docs/PA00KG43.pdf

[83] USAID Haiti (2014) *Final Evaluation Report, The Haiti Title II Multi Year Assistance Programs (MYAP)*. In.;2014. https://www.globalwaters.org/sites/default/files/The%20Haiti%20Title%20II%20Multi%20Year%20Assistance%20Programs%20%28MYAP%29%20Final%20Evaluation%20Report.pdf

[84] Olney, D K, Leroy, J L, Bliznashka, L, Ruel, M T (2018) *PROCOMIDA, a Food-Assisted Maternal and Child Health and Nutrition Program, Reduces Child Stunting in Guatemala: A Cluster-Randomized Controlled Intervention Trial*. J Nutr. 2018; Sept 148(9): 1493–1505, https://doi.org/10.1093/jn/nxy138

[85] Mercy Corps Guatemala (2013) *External Midterm Evaluation Report: Review and Reporting for PROCOMIDA's Community Food Diversification Program for Mother and Child*. In. ;2013. https://pdf.usaid.gov/pdf_docs/PDACX324.pdf

[86] Helen Keller International (HKI) Nepal (2013) *Action Against Malnutrition through Agriculture (AAMA), Final Evaluation Report, Child Survival Project, Kailali and Baitadi Districts, Far Western Region Bajura Expansion District*. In.; 2013. https://pdf.usaid.gov/pdf_docs/PA00JH6B.pdf

[87] UKAID, Bangladesh (2016) *Final Report, Impact evaluation of the DFID Programme to accelerate improved nutrition for the extreme poor in Bangladesh*. In.; 2016. https://www.gov.uk/government/publications/evaluation-of-the-dfid-programme-to-accelerate-improved-nutrition-for-the-extreme-poor-in-bangladesh

[88] Maredia, M K, Suvedi, M, Pitoro, R, Ghimire, R (2017) *"Impact Evaluation of the Feed the Future Cambodia Helping Address Rural Vulnerabilities and Ecosystem Stability (HARVEST) Project," Food Security International Development Working Papers 262393, Michigan State University, Department of Agricultural, Food, and Resource Economics*. In.; 2017. https://ideas.repec.org/p/ags/midiwp/262393.html

[89] USAID Senegal (2018) *An Impact Evaluation of the Yaajeende Nutrition-Led Agriculture Program in Senegal (2011-2017)*. In.;2018. https://data.usaid.gov/api/views/hux8-4ppy/files/679ad07a-24ba-435f-b5cb-9827dfb0c58e

[90] USAID Ethiopia (2011) *Final Evaluation, Productive Safety Net Program: 2005-2011*.

[91] Food for the Hungry (2011) *Democratic Republic of the Congo, Multi-Year Assistance Program 2008-2011*, Katanga Province.

[92] USAID Malawi (2014) *Final evaluation, Catholic Relief Services, Malawi, WALA Program, Volume I – Main Report 2009-2014*.

[93] USAID Uganda (2013) Health Practices, Stroong Communities (HPSC), Mid-term Evaluation Report, September 2011, A Title II Multi-Year Assistance Program (MYAP), August 2008–July 2013

[94] Borwankar, R and Amieva, S (2015) *Desk Review of Programs Integrating Family Planning with Food Security and Nutrition. Washington, DC: FHI 360/FANTA*. In.;2015. https://www.fantaproject.org/focus-areas/food-security/desk-review-programs-integrating-family-planning-food-security-and-nutrition

[95] USAID Zimbabwe (2020) *Final Performance Evaluation of the ENSURE Development Food Assistance Program in Zimbabwe*. In.; 2020. https://www.fsnnetwork.org/resource/final-performance-evaluation-ensure-development-food-assistance-program-zimbabwe

[96] USAID Nepal (2017) *Feed the Future Nepal 2015 Zone of Influence Interim Assessment Report*. In.;2017. https://www.feedthefuture.gov/resource/feed-the-future-nepal-zone-of-influence-interim-assessment-report/

[97] UNICEF (2017) *Act for Performance, End-Project Review of the Project for Improving Child Nutrition in Four Countries in Sub- Saharan Africa*. In.;2017. https://www.government.nl/documents/reports/2018/04/24/end-project-review-of-the-project-for-improving-child-nutrition-in-four-countries-in-sub--saharan-africa

[98] Feinstein International Centre (2011) *Achieving Food and Nutrition Security: Lessons Learned from the Integrated Food Security Programme (IFSP), Mulanje, Malawi*. In.;2011. https://fic.tufts.edu/wp-content/uploads/Food-security-Malawi.pdf

[99] Renzaho, A M N, Chen, W, Rijal S, Dahal, P, Chikazaza, I R, Dhakal, T, Chitekwe, S (2019) *The impact of unconditional child cash grant on child malnutrition and its immediate and underlying causes in five districts of the Karnali Zone, Nepal - A trend analysis. Arch Public Health*. 2019 May 29;77:24. doi: 10.1186/s13690-019-0352-2.

[100] Intra-household dynamics and dietary diversity. Insights from Sustainable Nutrition for All in Uganda and Zambia. Technical Paper No. 3 https://snv.org/cms/sites/default/files/explore/download/sn4a_technical_paper_no_3_-_gender_0.pdf

[101] SPRING/Uganda Integration of Nutrition Assessment, Counseling, and Support into Routine Health Service Delivery. https://www.spring-nutrition.org/publications/briefs/integration-nutrition-assessment-counseling-and-support-routine-health-service

[102] USAID Guatemala (2011) *Title II Food Security Program, PROMASA, Save the Children, MYAP 2006-2011*. In.;2011. https://pdf.usaid.gov/pdf_docs/PDACT308.pdf

[103] USAID Burundi (2012) Catholic Relief Services, Multi-Year Assistance Program (MYAP). In.;2012. https://pdf.usaid.gov/pdf_docs/PDACX412.pdf

[104] USAID Zambia (2011) *Final Report for the End of Program Evaluation of the C-Farm Program* In.; 2011. https://pdf.usaid.gov/pdf_docs/PDACT868.pdf

[105] USAID Bangladesh (2013) *Save the Children, Mid-Term Review of Nobo Jibon Multi-Year Assistance Program (MYAP).* In.; 2013. https://pdf.usaid.gov/pdf_docs/PDACX396.pdf

[106] USAID Democratic Republic of Congo (2010) *Catholic Relief Services, Final Evaluation of the Kasai Child Survival Project*. In.;2010. https://pdf.usaid.gov/pdf_docs/pdacr848.pdf

[107] USAID Afghanistan (2012) *World Vision,Title II Multi-Year Assistance Program (MYAP) Health and Livelihoods Initiative in Ghor*. In.;2012. https://pdf.usaid.gov/pdf_docs/PDACU731.pdf

[108] Australian AID, Lao PDR, World Vision (2020) *Nutrtion Sensitive Value Chain ANalysis (NSVCA) for Accelerating Healthy Agriculture and Nutrition (AHAN) Project Newsletter*. In.;2020. https://reliefweb.int/report/lao-peoples-democratic-republic/ahan-project-newsletter-1

[109] Olney, D K, Bliznashka, L, Pedehombga, A, Dillon, A, Ruel, M T, Heckert, J (2016) *A 2-Year Integrated Agriculture and Nutrition Program Targeted to Mothers of Young Children in Burkina Faso Reduces Underweight among Mothers and Increases Their Empowerment: A Cluster-Randomized Controlled Trial*. J Nutr. 2016 May;146(5):1109-17. doi: 10.3945/jn.115.224261.

[110] USAID Guatemala (2017) *Feed the Future Zone of Influence Interim Assessment Report*. In.; 2017. https://cg-281711fb-71ea-422c-b02c-ef79f539e9d2.s3.us-gov-west-1.amazonaws.com/uploads/2019/05/guatemala_zone_of_influence_11.16.2018-508.pdf

[111] Carolina Population Center, Chapelhill, NC, USA (2017) Livelihood Empowerment Against Poverty Programme Endline Impact Evaluation Report. In.;2017. https://transfer.cpc.unc.edu/wp-content/uploads/2018/03/LEAP_Endline-Report.pdf

[112] USAID Malawi (2015) *Feed the Future, Zone of Influence Interim Assessment Report (2015)*. In.; 2017. https://cg-281711fb-71ea-422c-b02c-ef79f539e9d2.s3.us-gov-west-1.amazonaws.com/uploads/2018/03/Malawi_Feed_the_Future_Zone_of_Influence_Interim_Assessment_Report.pdf

[113] Leroy, J L and Frongillo E A (2019) "Perspective: what does stunting really mean? A critical review of the evidence." *Advances in Nutrition* 10.2 (2019): 196-204.

[114] Heidkamp, R.A., Piwoz, E., Gillespie, S., Keats, E.C., D'Alimonte, M.R., Menon, P., Das, J.K., Flory, A., Clift, J.W., Ruel, M.T. and Vosti, S., 2021. Mobilising evidence, data, and resources to achieve global maternal and child undernutrition targets and the Sustainable Development Goals: an agenda for action. *The Lancet*.

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