



United Nations
System

Standing Committee on
Nutrition

FINDINGS FROM A REVIEW OF COUNTRY LEVEL PROGRAMMING IN NUTRITION-SENSITIVE AGRICULTURE

*Sponsored by the Government of CANADA,
Department of Foreign Affairs Trade and Development (DFATD)*

March 2014



United Nations
System

Standing Committee on
Nutrition

TABLE OF CONTENTS

Acknowledgements.....	3
Acronyms.....	4
Executive Summary.....	5
INTRODUCTION.....	8
1. BACKGROUND AND RESEARCH TO DATE.....	8
1.1) Terminology: What is meant by “Nutrition Sensitive Agriculture”?.....	8
1.2) Impact pathways.....	9
1.3) Reviews and evidence base.....	12
1.4) Key Recommendations for Improving Nutrition through Agriculture.....	14
2. CROSS-CUTTING THEMES: WOMEN’S EMPOWERMENT AND RESILIENCE.....	15
2.1) Building resilience for vulnerable groups and local food systems.....	15
2.2) Women’s empowerment and gender equality.....	16
2.3) Improving Nutrition Knowledge and Practices.....	19
3. HOW NUTRITION SENSITIVE AGRICULTURE IS BEING PROMOTED.....	19
3.1) District or village oriented initiatives.....	20
3.2) Nutrition promoting value chains.....	20
3.3) “Home grown” school feeding programmes.....	21
3.4) Biofortification.....	22
3.5) <i>National capacity development initiatives</i>	23
3.6) Operational research.....	23
4. PROGRAMME EXAMPLES.....	24
4.1) Programme examples from United Nations agencies.....	24
The UN Food and Agriculture Organization (FAO):	24
The CAADP Nutrition Capacity Development Initiative, Improved Food Security and Complementary Feeding (IMCF), nutrition mapping for the Integrated Phase Classification scale.....	24
The UN World Food Program (WFP):	25
Purchase for Progress, “Home Grown” school feeding programmes.....	25
4.2) Programme examples from research institutions.....	27
Institute of Development Studies (IDS):	27
Leveraging Agriculture for Nutrition in South Asia, Strengthening Agri-food Value Chains for Nutrition, Nutritious Agriculture by Design, Agridiet.....	27
International Food Policy Research Institute (IFPRI):	29
Transform Nutrition, Realigning Agriculture to Improve Nutrition, impact assessment of Helen Keller International homestead food production.....	29
4.3) Programme examples from donors.....	31
United States Agency for International Development (USAID):	31
Feed the Future, Strengthening Partnerships, Relationships and Innovations in Nutrition Globally.....	31
World Bank:	35
New Agriculture Action Plan 2013-2015, the South Asia Food and Nutrition Security Initiative, Secure Nutrition.....	35
4.4) Programme examples from international NGOs.....	37
Action against Hunger (ACF International): <i>Increasing nutrition sensitivity in emergency response</i>	37
Helen Keller International (HKI): <i>Enhanced Homestead Food Production</i>	38
5. CHALLENGES TO IMPLEMENTATION.....	40
5.1) Sustained integration of nutrition indicators into agricultural project design.....	40
5.2) Identifying and reaching target populations.....	41
5.3) Sustaining coordination between line ministries.....	42
5.4) Institutional capacity building and ownership.....	42
5.5) Costing of multi-sectoral plans.....	43
6. CONCLUSION.....	43
REFERENCES.....	45

Acknowledgements

The review and preparation of this report were coordinated by Janice Meerman, with valuable input from Noreen Mucha and guidance provided by Dr. Marzella Wüstefeld (UNSCN Secretariat).

The following individuals and organizations are gratefully acknowledged for providing documents, comments and support to this paper at various stages of its development: Ewan Robinson, Nick Nisbett, Alyson Brody, Julia Powell, Samantha Reddin, Jessica Meeker, Dolf teLintelo, Spencer Henson, Tom Barker, Charlotte Huggett (IDS); Martina Park, Charlotte Dufour, Johanna Jelensperger, Gina Kennedy (now Bioversity), Ellen Muehlhoff, Terri Ballard, Neil Marsland, Angela Hindrichs, Frederica Damiani, Viviana Leone, Janice Alpert, Brian Thompson, Luca Russo, Chiara Deligia, Kae Mihara (FAO); Noora-Lisa Aberman, Jody Harris, Marie Ruel, Stuart Gillespie; Agnes Quisumbing (IFPRI); Jeff Waage, Ibi Wallbank, Members of the LCIRAH Management Committee (LCIRAH); Christine Bockstal, Richard Longhurst (now IDS), David Cheong (ILO); Anna Herforth (SPRING, World Bank); James Garrett (IFPRI at IFAD); Sean Kennedy, Marian Amaka Odenigbo (IFAD), Leslie Elder, Yurie Tanimichi Hoberg, Animesh Shrivastava (World Bank); Etienne du Vachat, Julien Morel (ACF); Jennifer Nielsen, Victoria Quinn (HKI); Paul Sommers (Center for Agricultural Business, California State University Fresno); Lidan Du, Sarah Titus (SPRING); Anne Peniston, Sally Abbott (USAID).

Funding from the Government of CANADA is gratefully acknowledged.

Acronyms

AgN-GLEE – Agriculture Nutrition Global Learning and Evidence Exchange
ACF – Action Contre La Faim
BCC – Behavior Change Communication
BRAC – (formerly) Bangladesh Rural Advancement Committee
CAADP - Comprehensive Africa Agriculture Development Plan
CBO – Community Based Organization
CSSR- Collective for Social Science Research
DG-ECHO- Directorate-General for Humanitarian Aid and Civil Protection (European Commission)
DHS – Demographic and Health Surveys
DIFID – Department for International Development
FAO – Food and Agriculture Organization
FTF – Feed the Future
FSNAU – Food Security and Nutrition Analysis Unit
GAIN – Global Alliance to Improve Nutrition
HKI – Helen Keller International
ICT – Information Communication Technology
IDS – Institute of Development Studies
IFPRI – International Food Policy Research Institute
IPC - Integrated Food Security Phase Classification
IMCF – Improved Food Security and Complementary Feeding
IYCF – Infant and Young Child Feeding
LANSA – Leveraging Agriculture for Nutrition in South Asia
LCIRAH – Leverhulme Centre for Integrative Research on Agriculture and Health
LSMS-ISA- Living Standards Measurement Study – Integrated Surveys on Agriculture
M&E – Monitoring and Evaluation
MICS – Multiple Indicator Cluster Surveys
NEPAD - New Partnership for African Development
NGO – Non Governmental Organization
P4P – Purchase 4 Progress
RAIN – Realigning Agriculture to Improve Nutrition
RBF – Results Based Financing
SPRING - Strengthening Partnerships, Relationships and Innovations in Nutrition Globally
TA – Technical Assistance
UNSCN – United Nations Standing Committee on Nutrition
USAID – United States Agency for International Development
WEAI – Women’s Empowerment in Agriculture Index
WFP – World Food Program

Executive Summary

This report presents findings from the UNSCN's review on Country Level Programming for Nutrition Sensitive Agriculture, and summarizes the current concept of and evidence base for nutrition sensitive agriculture, as well as provides an overview of cross-cutting gender considerations in programming, namely in regards to how nutrition-sensitive programming can contribute to improved gender equality. Resilience building and nutrition education are also discussed as cross-cutting themes.

Part 1 of the report provides background on terminology and research to date. The 2013 Lancet Series on Maternal and Child Nutrition defines nutrition sensitive interventions or programmes as those that address the underlying determinants of fetal and child nutrition and development— food security; adequate care giving resources at the maternal, household and community levels; and access to health services and a safe and hygienic environment—and that incorporate specific nutrition goals and actions (Ruel & Alderman, 2013). Agriculture is considered a prime candidate for nutrition sensitive programming; 1) because a large share of the malnourished resides in rural areas and 2) because agriculture is the source of food and other ecological services for both rural and urban people (Herforth et al., 2012).

Consensus has been reached on a model describing the various ways through which agriculture may achieve nutrition sensitivity. Most iterations of this model use six or seven pathways, all versions include agriculture as a direct and indirect source of food at household level, agriculture and trade policy as a driver of food prices; and agriculture as an entry-point for enhancing women's control over resources, knowledge and status (Kennedy & Webb, 2013). Reviews conducted over the past several years indicate that – overall – the evidence base for these pathways is weak, especially in regards to anthropometric data. The studies that do exist are usually poorly powered due to sample size and time frame (among others, Ruel & Alderman, 2013; Kennedy & Webb, Meeker & Haddad).

Largely overlooked by past research is the question of how to incentivize farmers and other professionals working in agriculture to include nutrition in their objectives (Meeker & Haddad, 2013). Also largely overlooked is the related question of what is logistically feasible in terms of evaluation. As most conventionally designed agricultural projects do not include nutrition indicators in their design, there are little evaluative data available on the subject. This is one of the reasons for the weak evidence base and, when considered within the context of the incentives issue, poses a challenge to proponents of nutrition sensitive agriculture.

Part 2 provides an overview of resilience building, women's empowerment and improving nutrition knowledge and practices. These three themes cut across all the agriculture to nutrition pathways and inform a variety of programming approaches.

Resilience building: Given growing recognition of the shortcomings of conventional emergency response programmes in addressing the underlying causes of malnutrition, recovery and rehabilitation programmes which aim to bridge the gap between short-term emergency measures and longer term development programming are becoming more common. The primary goal of such programmes is to build resilience of vulnerable groups through livelihood strengthening activities and social safety nets.

In terms of nutrition sensitive agricultural programming, resilience building is essential to strengthening local food systems and to changing local feeding practices. It decreases susceptibility to shocks and volatile food prices, and reduces risk aversion. The latter is highly relevant to increasing the nutrition sensitivity of agriculture, as risk aversion can pose a major impediment to production diversification and other nutrition-promoting activities.

In terms of nutrition sensitive agricultural programming, resilience building can be considered an important advocacy tool to rationalize the wide range of interventions required to address the underlying causes of malnutrition. In other words, resilience strengthening can be used to justify integrated programmes that require

participation across sectors, as well as a variety of aid modalities, to strengthen local food systems and improve local feeding practices. For example, in a situation where political pressure to improve nutrition is less strong than political pressure to reduce risk aversion or vulnerability to shocks, a resilience building approach may facilitate incorporation of nutrition sensitive considerations into a broader livelihood strengthening agenda and strengthen demand for coordination between agriculture and other sectors such as health, water and sanitation

One of the challenges to this type of programming in many countries concerns the setup of government institutions as well as donor coordination mechanisms. Mandates and performance indicators of line ministries and other government bodies do not always lend themselves to an integrated approach which includes a variety of objectives. Moreover, the donors that are most interested in nutrition may prioritize their support to emergency food security rather than long term agricultural approaches. As discussed in Section 5 of this report, these types of issues constitute a challenge to nutrition sensitive programming across the board. As such, the use of resilience building as an advocacy tool to push a multisectoral nutrition agenda forward is important.

Women's empowerment: Empowering women is considered absolutely fundamental to increasing nutrition sensitivity in agriculture. First, women make up a large percentage of the agricultural labor force in developing countries. Second, the resources and income flows that women control have been shown to have disproportionately positive impacts on nutrition security (among others, World Bank, 2007). Key areas through which women can exercise their autonomy in agriculture are: agricultural production; resources and assets; income; leadership and time allocation (Sabina Alkire et al., 2013).

Although women's empowerment in each of these domains poses challenges, time allocation is of particular concern because women's increased participation in paid and unpaid agricultural labor reduces time spent on activities that affect household nutritional status, namely caring for children, food preparation, water and fuel collection, shopping, housekeeping, and family health care.

As such, it is critical to take a "do no harm" approach to guard against the unintentional negative consequences of agriculture based activities aiming to promote gender equality. In addition to the issue of time allocation, other risks include gender-based violence as well as the ill-health effects that can come from working in unsafe agricultural environments. In order to avoid these unintended consequences, identification and tracking of potential "gender harms", together with development of a feasible mitigation plan, are essential to agriculture programmes aspiring to nutrition sensitivity.

Improving Nutrition Knowledge and Practices: Integrating nutrition education into agricultural and food system interventions which aspire to nutrition sensitivity is essential to achieving the social and behavioral change necessary for improved nutrition practices. This is because improved food security and purchasing power, while certainly associated with improved nutrition, may not be enough, in and of themselves, to improve nutrition outcomes (among others World Bank, 2007; IYCN, 2011). Simply put, improved access and availability do not automatically translate into improved dietary intake. This fact underlies the entire premise of nutrition sensitive programming in agriculture.

Part 3 of the report provides basic information on common programming approaches to nutrition sensitive agriculture, namely:

- District or village oriented initiatives which involve i) interventions for increasing nutrition sensitivity of local small-scale production systems, and/or ii) using agriculture as a delivery platform for nutrition specific interventions;
- Nutrition promoting value chains, which can leverage existing agricultural value chains to increase low income, small-scale farmers' participation in the production and sale of high nutrient foods or which support the creation of new value chains for high quality nutritious food products;
- 'Home grown' school feeding programmes are supplied partially or wholly by local producers and feature nutrient rich foods;
- Biofortification, which uses transgenic and conventional methods to breed staple food crops to have increased micronutrient value;

- National capacity development initiatives, which work directly with government personnel from agriculture and nutrition to develop a unifying nutrition strategy and legislation endorsed across sectors;
- Operational research, often conducted through multi-institute consortia, which covers all other programme areas and aims to inform a wide range of stakeholders in national and international nutrition fora.

In **Part 4** specific examples are presented of agencies' programming experience in nutrition sensitive agriculture. UN Agencies (the Food and Agriculture Organization, the World Food Program); research institutions (International Food Policy Research Institute, Institute of Development Studies); and donors (US Agency for International Development; World Bank) and INGOs (Action Against Hunger, Helen Keller International) are represented. All of the examples correspond to the programming approaches described in Section four. Institutional capacity development, technical assistance, and operational research figure prominently.

Part 5 describes challenges to coordination (or at least convergence) as cited or implied in programme documents and mentioned in communications over the course of the study:

- The challenge of sustained integration of nutrition indicators into agricultural project design, especially in regards to the feasibility of measuring child growth as opposed to more proximate indicators of dietary diversity and quality.
- The challenge of identifying and reaching target populations, namely in regards to reconciling the inherent conflict of interest between production-oriented agriculture projects and those which aim to reach and empower vulnerable groups.
- The challenge of sustaining coordination between line ministries, as posed by conflicting mandates and funding streams.
- The challenge of institutional capacity building for and ownership of nutrition across sectors, which requires building sustained political commitment as well as meeting all the other previously cited challenges.
- The challenge of costing nutrition sensitive interventions, including the lack of definitive standards for interventions, estimating human resource needs, and selecting the most appropriate costing method for the context.

In conclusion, **Part 6** underscores the importance of monitoring and evaluation of dietary diversity in agricultural projects. Agitating for use of a "gender lens" in agricultural programming is also critical. While in some cases increased targeting and engagement of women in programming will surely result in slower economic growth than more conventional approaches, empowerment of women is a moral imperative whose time has come, and to which the agricultural sector should be held accountable.

Part 6 also notes that achieving empowerment and gender equality objectives requires making pro-nutrition approaches more compatible with the economic incentives which drive (and will continue to drive) agriculture and food systems. One strategy for doing this is increased advocacy on the part of the nutrition community regarding "win-wins" within agriculture. In many contexts, it is possible to frame nutrition sensitive programming not as a zero-sum game, but rather as an opportunity for modest efficiency gains.

In situations where the opportunity costs to production are glaring, another option for advocates is to acknowledge that trade offs will come at the expense of economic growth, but are likely to be highly compatible with the pro-poor development goals of empowerment, equity and social welfare. These goals are now widely recognized in economic development discourse and are increasingly included in most agricultural and rural development plans as an important foundation for poverty reduction.

INTRODUCTION

It is country governments who are ultimately responsible for increasing nutrition sensitivity in agriculture and other sectors. However, as the concepts of mainstreaming and multi-sectoral collaboration have gained traction, a range of agencies and organizations have embarked on programming initiatives which aim to help countries meet this formidable challenge.

This report presents main findings of the review. It also provides context on the concept of and evidence base for nutrition sensitive agriculture as well as an overview of cross-cutting objectives in this type of programming. These are: women’s empowerment, resilience building, and nutrition education for improving nutrition knowledge and practices.

The report is organized as follows: Chapter 1 provides a “primer” on nutrition sensitive agriculture, reviewing terminology and research to date; Chapter 2 discusses women’s empowerment, resilience building, and improved nutrition practices as three important cross-cutting objectives in the discourse and on the ground; Chapter 3 inventories various types of support being provided to countries to promote nutrition sensitivity in agriculture; Chapter 4 showcases examples of what various actors are doing and where; and Chapter 5 outlines challenges to implementation as identified by some of the organizations included in the review.

1. BACKGROUND AND RESEARCH TO DATE

1.1) Terminology: What is meant by “Nutrition Sensitive Agriculture”?

An official definition of nutrition sensitivity is now available via the 2013 Lancet Series on Maternal and Child Nutrition, as follows:

Interventions or programmes that address the underlying determinants of fetal and child nutrition and development— food security; adequate care giving resources at the maternal, household and community levels; and access to health services and a safe and hygienic environment—and incorporate specific nutrition goals and actions. Nutrition-sensitive programmes can serve as delivery platforms for nutrition-specific interventions, potentially increasing their scale, coverage, and effectiveness (Ruel and Alderman, 2013).

Agriculture, (along with social protection, health, early childhood development, education, and water and sanitation) is considered a prime candidate for nutrition sensitive programming by the Lancet Series and many others. Although a substantial amount of material has been written on why this is, a summary explanation is i) because a large share of the malnourished resides in rural areas and ii) because agriculture is the source of food and other ecological services for both rural and urban people (Herforth et al., 2012). As such, how to maximize agriculture’s positive impacts on nutrition, especially for mothers and children, is a question which has been raised repeatedly by the nutrition community in recent years. There have been calls to place a higher priority on “unleashing” (IFPRI 2012), “leveraging” (Pell et al. 2011), “reshaping” (Fan and Pandya-Lorch 2012), or “realizing” (IFAD 2011) the opportunities offered by agriculture to enhance nutrition and health (Webb & Kennedy, 2012; Webb, 2013).

In addition to nutrition sensitivity, the terminology now includes “nutrition enhancing,” which is endorsed by the Food and Agriculture Organization (FAO) as a description of:

[A]griculture and food systems that effectively and explicitly incorporate nutrition objectives, concerns and considerations, improve diets and raise levels of food and nutrition security.”

Nutrition enhancing actions may include:

“[M]aking more nutritious food more accessible to everyone or to specific targeted groups, supporting smallholders and boosting women’s incomes, ensuring clean water and sanitation, education and employment, health care, support for resilience and empowering women in a deliberate attempt to explicitly improve diets and raise levels of nutrition” (FAO, 2010).

In addition to the term “Nutrition Enhancing”, the FAO also endorses the related terminology: “Food Based Approaches for Reducing Malnutrition.” Also closely related to the concept of nutrition sensitivity, “food-based approaches recognize the central role of food, agriculture and diets in improving nutrition and focus on food as the primary tool for improving the quality of the diet and for addressing and preventing malnutrition and nutritional deficiencies” (FAO, 2010).

Regardless of semantics, most of the discourse on making agriculture work for nutrition is framed according to one or more of the impact pathways described below. However, it is also important to note that there are currently many projects and programmes which do not include explicit nutrition components in their design, but which have the potential to impact nutrition through some of these same impact pathways. These types of programmes can be considered “nutrition related”, though as long as specific nutrition objectives and actions are not present, they should not technically be considered “nutrition sensitive”. As discussed in Section 4, these types of programmes are common, especially within agencies whose mandates include food security and rural development. As such, they are acknowledged and in some cases discussed in this Report. However, whether or not these projects are in fact impacting nutrition outcomes will never be known for sure. It is for precisely this reason that the need to include nutrition indicators in agriculture based project design is considered urgent (please see Section 5.1 for details on this challenge).

1.2) Impact pathways

Many frameworks have been proposed for the various ways through which agriculture may plausibly improve nutrition outcomes, and there is now general consensus on a model which includes agriculture as a direct and indirect source of food at household level, agriculture and trade policy as a driver of food prices; and agriculture as an entry-point for enhancing women’s control over resources, knowledge and status (see for example World Bank/IFPRI 2007, Gillespie et al. 2012; Herforth 2012; Meeker & Haddad, 2013; Webb, 2013).

Most iterations of this model use six or seven pathways, similar to the list below. While each implicitly includes gender as a cross-cutting issue, pathways four through six are explicitly women oriented. Pathway four focuses on the positive aspects of agriculture’s impact on women, while five and six focus more on how agriculture can pose a challenge to women’s health and to how they spend their time. As such, these last two pathways are especially useful in seeking to understand what is meant by recommendations to “do no harm”. (See section 2 for more information on how women’s empowerment is fundamental to increasing nutrition sensitivity in agriculture).

1. **Agriculture as a source of food:** The most direct route from agriculture to nutrition, this pathway is based on two assumptions, 1) that own-production increases food availability and access at household level, and 2) that increased food availability and access will lead to increased intake at individual level.
2. **Agriculture as a source of income:** The main assumption here is that an increase in income (due to wages earned through agricultural labor or sale of agricultural products) is used to purchase and

consume not only more food, but higher quality, nutrient-dense food that is consumed by individual household members.

3. **Agriculture as a driver of food prices:** Agriculture and food system policies affect a range of supply and demand factors which influence the price of marketed food and non-food crops. These prices, in turn, affect the income of net seller households, the purchasing power of net buyers, and the budget choices of both. As with Pathway 2, it is assumed that changes in income or purchasing power (due, for example, to farm input subsidies, tariffs on food imports, or a subsidy on bread or another staple) will affect what foods households buy, with subsequent implications for individual intake.
4. **Agriculture to improve women's decision making power and control over resources:** Initiatives which involve women in agriculture based activities can positively affect their access to, and control over, resources and assets, consequently increasing their power to make decisions on the allocation of food, health, and care within their household. The assumption here is that empowering women, especially in regards to resource allocation, will have positive impacts on nutrition.
5. **Agriculture's impact on women's time allocation:** The benefits which come from increasing women's participation in agriculture based activities must be weighed against potential losses that may occur in regards to other activities associated with good nutrition. That is, women's participation in agriculture can affect their time allocation and the balance between time spent in income-generating activities and time allocated to household management and maintenance, care giving, and leisure. From a nutrition perspective, this pathway is especially important in regards to its impact on child care. For example, a rural livelihood diversification scheme might backfire because agriculture based employment (just like other types of employment) may make breastfeeding very difficult as the income generating activity takes the lactating mother away from the baby for long periods. Given these potentially high opportunity costs, nutrition-sensitive policies should always consider their net effect on women's time allocation, as introducing new demands for women's work may actually increase poor nutrition outcomes. One way to avoid this is through the introduction of labour-saving and productivity-enhancing technologies for the rural sector work traditionally done by women.
6. **Agriculture's impact on women's own nutrition and health:** Increasing women's participation in agriculture can affect their nutritional requirements, namely through increased energy expenditure, and their health, for example through exposure to agriculture-associated diseases. In addition to the woman herself, this is of particular concern both from a nutrition perspective for children during the "first 1000 days". Good nutrition during this period - from conception to a child's second birthday - is absolutely critical for physical and cognitive development later in life. As such, a mother who is at a deficit in terms of calories and nutrients due to labor requirements or exposure to zoonotic disease puts both herself and her baby or fetus at risk.

(Adapted from Gillespie, 2013; Ruel et al. 2013; Webb, 2013; Meeker & Haddad, 2013, USAID 2013)

1.3) Reviews and evidence base

Given the growing momentum for nutrition sensitive agriculture, a number of recent reviews have analyzed the evidence base for agriculture's impacts on nutrition and health. Most looked at a wide range of interventions and evaluations and used some iteration of the pathways model described above. Overall, key findings from these reviews are that projects which used stand-alone production strategies worked less well than integrated projects whose interventions included gender considerations and nutrition education components as well as actions to increase income and overall dietary quality (Webb & Kennedy, 2012, Gillespie, 2013). For example, Ruel (2001) showed that agriculture-based projects with a well-designed behavioural change component were successful at increasing micronutrient intake. In another example, Berti et al (2004) showed that agriculture based projects that invested simultaneously in human, financial, social

and other types of capital had a greater likelihood of effecting positive nutritional change than those which took a narrower approach.

Webb and Kennedy in a 2012 “Nature of the Evidence” brief, also found that projects which aimed to ensure that gains in one area were not off-set by losses in another had a higher likelihood of successfully impacting nutrition outcomes. For example, taking steps to ensure that an intervention promoting animal husbandry did not subsequently increase zoonotic diseases (thus avoiding nutrient loss through diarrhea) (Webb & Kennedy 2012). This approach is related to the tradeoffs considered in the gender-oriented pathways described above. Across the board, research to date indicates that the need to consider the *net* impact of interventions is imperative.

Table 1) Characteristics of Recent Reviews

Review paper	Systematic review?	Number of studies screened	Studies retained for review	Period of studies retained	Agriculture activities included
Ruel (2001)	N	Not specified	14	1995-1999	Home gardens, small animals, aquaculture, BCC
Berti et al. (2004)	N	36	30	1985-2001	Home gardens, animal husbandry, irrigation, cash cropping, credit, land distribution
Leroy and Frongillo (2007)	Y	Not specified	14	1987-2003	Animal husbandry, aquaculture, poultry, credit, BCC
World Bank (2007)	N	Not specified	52	1985-2007	All forms of agriculture activity
Bhutta et al. (2008)	Y	Not specified	29	1985-2004	Home gardens, animal husbandry, small ruminants, BCC
Kawarazuka (2010)	Y	Not specified	23	2000-2009	Aquaculture
Masset et al. (2011)	Y	7,239	23	1990-2009	Biofortification, home gardens, aquaculture, poultry, husbandry, dairy development.
Arimond et al. (2011)	N	>2,000	39	1987-2003	All forms of agriculture activity
Girard et al. (2012)	Y	3,400	37	1990-	Home gardens, biofortification, BCC, husbandry, poultry, aquaculture

Source: Webb & Kennedy, 2012

Webb and Kennedy also provide a matrix of recent reviews (see Table 1); and Webb, in a related paper, provides a comprehensive list of conclusions drawn by review authors (Table 2). One of the most important of these is, that overall, there is insufficient evidence to draw any firm general conclusions regarding the impact

of agriculture based interventions on nutrition. This lack of evidence is most severe in terms of anthropometric data and is attributed to badly designed interventions and weak evaluations. It is important to note that there is stronger evidence that agricultural interventions, designed in the right way, can improve household and child food consumption, both in terms of quantity and quality [Meeker & Haddad, 2013]. The studies that do exist are usually weakly powered due to sample size and time frame. As such, the current consensus is that there is a need for more research, both in terms of well designed interventions and in terms of rigorous evaluations, to expand and improve on the fledgling evidence base which has accumulated over the past decade. Hawkes et al. (2012), in a recent landscaping of current and planned research on nutrition sensitive agriculture, identified some of the most important knowledge gaps to be addressed in future research (see Box 1).

Table 2) Synthesis of Review Conclusions

1	Empirical evidence of positive net impacts on nutrition outcomes is scarce.
2	Where positive impacts have been documented, mechanisms are poorly articulated.
3	Positive impacts are more likely where integration of multiple sectors of activity was strong, yet understanding of the contribution of different elements remains weak.
4	Impacts can be achieved via multiple pathways, but analysis of the roles of different pathways is still lacking.
5	Women's combined roles in agriculture, dietary choices and healthcare matter a great deal to child nutritional status, but few agricultural interventions target all three domains.
6	The nutrition impacts of price/trade policies as mediated by agriculture and food choices at household level have been assumed rather than fully explored and measured.
7	The lack of empirical evidence of agricultural impacts on nutrition outcomes may say more about poor study design and methods used than it does about the interventions considered. That is, a lack of evidence to date does not negate the possibility that evidence of positive impacts may still be found.

Source: Webb, 2013

Although Hawkes et al. (2012) mention political economy in their list of research gaps, the question of how to incentivize farmers and other professionals working in agriculture to include nutrition in their objectives is not explicitly identified. Although a recent "State-of-the-Art" review by IDS on agriculture and nutrition highlights this question (Meeker & Haddad, 2013), the challenge of incentives has not been addressed by many proponents of nutrition sensitive agriculture and is only now beginning to be regularly acknowledged.

Also largely overlooked is the related question of what is logistically feasible in terms of evaluation. As most conventionally designed agricultural projects do not include nutrition indicators in their design, there are little evaluative data available on the subject. This is one of the reasons for the weak evidence base cited above and, when considered within the context of the incentives issue, poses a challenge to proponents of nutrition sensitive agriculture. Many agriculture-based stakeholders will question why nutrition should be made a priority in regards to programme objective and project design. Given this constraint, whether it is possible to evaluate the nutrition impact of agriculture based projects with the same degree of rigor that is currently applied to public health interventions is an unresolved question which has generated some debate in international fora and in the literature (Ruel et al., 2013, Pinstrup-Andersen 2013, FAO forthcoming, Herforth & Ballard, forthcoming). This question is closely related to the above-mentioned issue of including nutrition indicators in agricultural project design.

Box 1) Some Research Gaps in the Agriculture-Nutrition Nexus

1. Research that considers the full pathway of change from agricultural inputs, practices, value chains, food environment to nutrition outcomes.
2. The indirect effect of changes in agriculture on nutrition, through income and economic growth and associated changes in health and investments in health and education services.
3. The effects of agricultural policy on nutrition as mediated through the value chain.
4. Governance, policy processes and political economy as it relates to the development of agriculture-for-nutrition policies and programmes, the ability to implement them (and scale up) and for them to achieve their stated goals once implemented.
5. The way research on agriculture and nutrition is conducted, such as the development of methodologies and appropriate metrics.
6. Consumers as a broader target group, notably rural workers and non-rural populations.
7. The rural and urban poor at risk from nutrition-related non-communicable diseases
8. Cost-effectiveness

Source: Hawkes et al, 2012, in Meeker & Haddad, 2013

1.4) Key Recommendations for Improving Nutrition through Agriculture

In addition to work on evidence of impact, a review and synthesis of available guidance on agriculture programming for nutrition was recently conducted (Herforth, 2012). Subsequent to the release of the synthesis, “Key Recommendations for Improving Nutrition through Agriculture” were published in 2012. Though initially under FAO’s purview, these Recommendations (formerly “Principles”) were drafted in consultation with a broad range of partners (CSOs, NGOs, government staff, donors, UN agencies¹) who contributed resources, comments, and verification of main conclusions. The current version of the document resides with the UNSCN, and provides two sets of guidance: one for programming and investment, and the other for policy dialogue and formulation. Overall, the recommendations can be summarized as follows:

- Empower women
- Facilitate production of diverse, nutrient-dense foods and improve processing
- Incorporate explicit nutrition objectives and indicators into design
- Assess the nutrition context at local level
- Target the nutritionally vulnerable
- Collaborate and coordinate with other sectors
- Expand markets and market access for vulnerable groups
- Increase market access and opportunities for nutritious foods
- Incorporate nutrition behavior change communication
- Maintain or improve the natural resource base

These Recommendations are cited widely in the current discourse on nutrition sensitive agriculture.

¹ The main platform for consultation was the *Agriculture to Nutrition Community of Practice*, an informal global network of professionals working on issues pertaining to the intersection of agriculture and nutrition and hosted on the UNSCN website www.unscn.org.

2. CROSS-CUTTING THEMES: BUILD RESILIENCE TO SHOCKS, EMPOWER WOMEN AND IMPROVE NUTRITION KNOWLEDGE AND PRACTICES

A number of cross-cutting issues underlie the effectiveness of potential pathways from agriculture to nutrition, and so were useful to keep in mind when assessing the programming landscape. As mentioned above, integrated nutrition sensitive agriculture projects whose interventions include gender considerations and nutrition education components work better than those which do not. This is because empowering women and improving nutrition knowledge and practices are essential to the sustained success of any nutrition program, regardless of sector or context. In contrast, building resilience is a concept which, historically, has been most often applied in emergency food security contexts. However it is now routinely considered in the design of nutrition-sensitive programmes as well, primarily as a framework within which to promote a variety of nutrition activities.

2.1) Building resilience for vulnerable groups and local food systems

Although emergency response programmes provide an important funding platform for nutrition and food security activities, the interventions funded by these programmes are typically short-term and supply-driven with little emphasis on addressing the root causes of malnutrition (e.g. therapeutic feeding, general food aid, seed distribution). For example, a recent evaluation of DG-ECHO food assistance projects found less than 50 percent included nutrition-related results or outcomes (Haver et al., 2013). These programmes may mitigate the immediate effects of a crisis but will have little long-run impact on nutrition's underlying causes.

Acknowledgement of this shortcoming is increasingly common (WFP, 2013) and as a result, recovery and rehabilitation programmes which aim to bridge the gap between short-term emergency measures and longer term development programming are becoming more common. The primary goal of such programmes is to build resilience of vulnerable groups through livelihood strengthening activities and social safety nets.

In terms of nutrition sensitive agricultural programming, resilience building is essential to strengthening local food systems and to changing local feeding practices. It decreases susceptibility to shocks and volatile food prices, and reduces risk aversion. The latter is highly relevant to increasing the nutrition sensitivity of agriculture, as risk aversion can pose a major impediment to production diversification and other nutrition-promoting activities.

Resilience building can also be considered an important advocacy tool to rationalize the wide range of interventions required to address the underlying causes of malnutrition. In other words, resilience strengthening is a way to justify the integrated approach that requires participation across sectors, as well as a variety of aid modalities (Feed the Future, 2013), to strengthen local food systems and improve local feeding practices.

Agriculture based interventions which fit a resilience building framework include technical assistance for improving storage, promoting locally adapted improved seed varieties, schemes for diversifying crop production and livelihoods, nutrition education, and incorporation of nutrition indicators into early warning systems. All of these interventions are cited in the section below on programming approaches. Depending on the context, a resilience building rationale may facilitate their funding and implementation. For example, in a situation where political pressure to improve nutrition is less strong than political pressure to reduce risk aversion or vulnerability to shocks, a resilience building approach may facilitate incorporation of nutrition sensitive considerations into a broader livelihood strengthening agenda and strengthen demand for coordination between agriculture and other sectors such as health, water and sanitation. Conversely, if improving nutrition *is* a priority item on the agenda, it can be highlighted as a unifying objective for cross sectoral resilience building activities involving health, sanitation, and other sectors. In this context, a

“nutrition lens” can also be used in the design and implementation of social safety nets, including transfer programmes in emergencies and non-emergencies.

One of the challenges to this type of programming in many countries concerns the setup of government institutions as well as donor coordination mechanisms. First, the mandates and performance indicators of line ministries and other government bodies do not always lend themselves to an integrated approach which includes a variety of objectives. For example, the Ministry of Agriculture may be less oriented towards providing rehabilitation and recovery support to vulnerable households than in promoting overall sectoral growth. Second, the donors that are most interested in nutrition may prioritize their support to emergency food security rather than long term agricultural approaches (du Vachat, 2013). These types of issues constitute a challenge to nutrition sensitive programming across the board. (See Section 5.3 for more details). As such, the use of resilience building as an advocacy tool to push a multisectoral nutrition agenda forward is important.

2.2) Women’s empowerment and gender equality

Empowering women is considered absolutely fundamental to increasing nutrition sensitivity in agriculture. First, women make up a large percentage of the agricultural labor force in developing countries. Second, the resources and income flows that women control have been shown to have disproportionately positive impacts on nutrition security (World Bank 2007). For example, women’s empowerment has been linked to over 50 percent of the global reduction in child stunting from 1970 to 1995 (Smith & Haddad, 2000).

As such, despite variations in how researchers use the agriculture nutrition pathways, all concur that women’s social status, control over resources, time allocation, and health and nutritional status are key mediators in the pathways between agriculture inputs, intra-household resource allocation, and child nutrition (Ruel & Alderman, 2013).

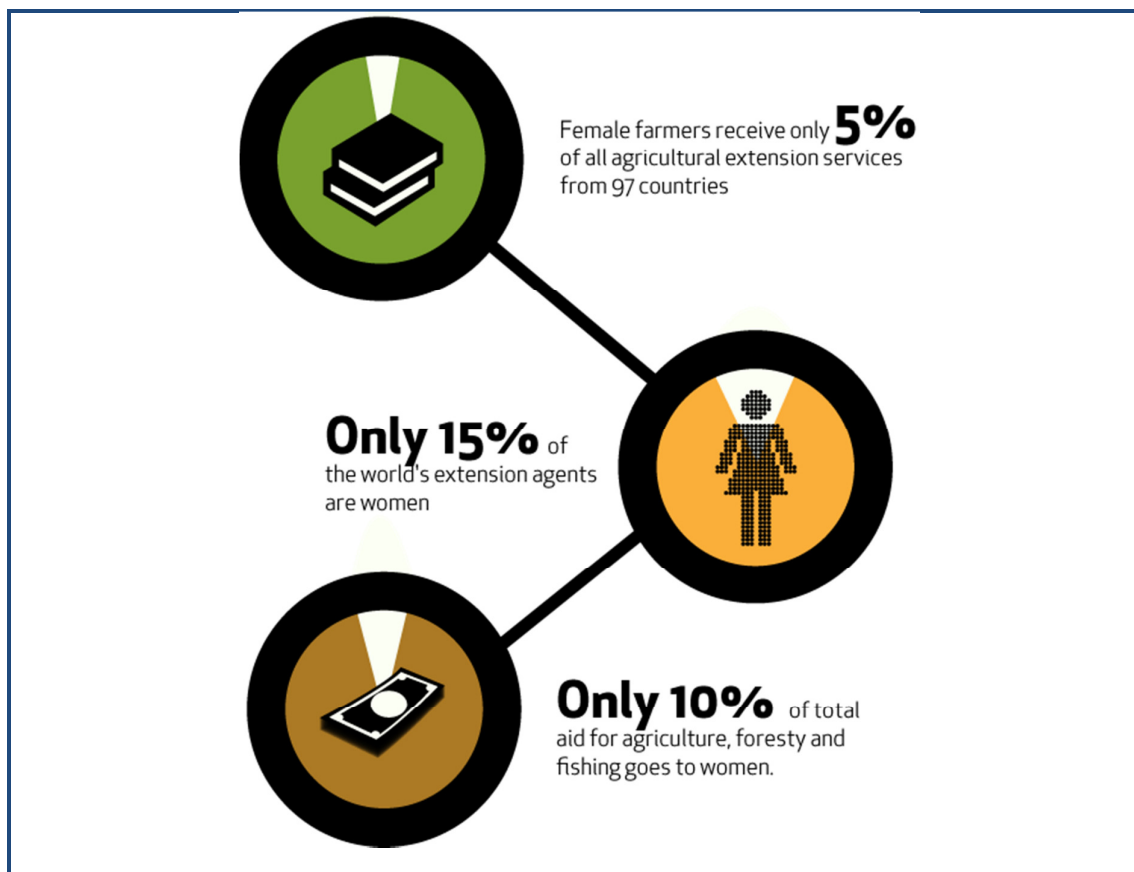
A recently developed measurement tool – the Women’s Empowerment in Agriculture Index or WEAI – includes five domains to describe and assess the roles and extent of women’s engagement in the agricultural sector, including implications for nutrition (see Section 3 for more on the WEAI):

1. **Agricultural production:** A woman’s empowerment in agricultural production is contingent on the degree to which she participates in household choices about crop diversification and other production strategies (e.g. food versus cash crops). The main constraint to gender parity within this domain is the fact that women’s agricultural work can be less visible and less valued than men’s, it is often in addition to childcare and house work and involves cultivation of lesser valued crops. As such women’s power in household decision making may be compromised.
2. **Resources and assets:** Women farmers are often disadvantaged regarding access to and control of agricultural productive resources. This includes limited access to land due to legal restrictions on inheritance, ownership and use; limited access to financial services due to gender discrimination and lack of collateral; and limited access to extension services due to cultural taboos and lack of transportation (see Figure 1). Women may also have unequal access to off-farm employment opportunities. Meeting these challenges requires strengthening women’s land ownership, titling, access and use rights; promoting women-friendly agricultural credit and other financial services; and designing extension services that address cultural barriers and other factors that may limit women’s participation.
3. **Income:** If women are able to increase their income, their household decision-making power also increases, and the frequency of sole or joint control over household expenditures increases. This is relevant to household choices about agricultural production (i.e. Domain 1) as well as more generally in regards to how household income is spent, for example on nutritious foods or nutrition and health

services.

4. **Leadership:** While women often volunteer as organizers for community events and services, they may not occupy positions of political prestige. As such, women's leadership in the community, measured by membership in economic or social groups and comfort speaking in public, is an important indicator of women's empowerment. Within agriculture, women can be empowered to take leadership roles through capacity building in all stages of production (including processing and agribusiness). When combined with nutrition education, this type of capacity building may also improve the nutrition sensitivity of agricultural activities.
5. **Time:** Rural women typically work longer hours than men, especially if unpaid domestic and childcare responsibilities are included in the tally. Time allocated to workload versus leisure is thus an indicator of empowerment, and is closely related to the time allocation challenge noted by the pathways model discussed above. To reiterate, paid or unpaid agricultural labor reduces time spent on activities that affect household nutritional status (e.g. caring for children, food preparation, water and fuel collection, shopping, housekeeping, and family health care). Introduction of labour-saving and productivity-enhancing technologies can help mitigate this issue. (See Section 3.1 for specific examples.) When feasible, child care is an important part of the solution, as is nutrition education which can inform women regarding risks such as heavy work during pregnancy (adapted from Sabina Alkire et al. 2013)

Figure 1) Women's Access to Extension Services



Source: FAO, 2013

As demonstrated by the WEAI, mainstreaming gender considerations into agriculture-based programmes is essential to increase their nutrition sensitivity. However, it is equally important to take a “do no harm” approach which guards against unintentional negative consequences of interventions that target women. In addition to the issue of time allocation, other risks include gender-based violence as well as the ill health effects that can come from working in unsafe agricultural environments. As mentioned above, zoonotic disease is one example.

In order to avoid these unintended consequences, identification and tracking of potential “gender harms”, together with development of a feasible mitigation plan, are essential to agriculture programmes aspiring to nutrition sensitivity. These activities are best conducted via ex-ante and ex-post gender and social analyses which gather information on who is benefiting from interventions, develop strategies to ensure equitable intra-household access to resources, and estimate any additional labor time commitments that will be created by the intervention (table 3). In addition, environmental safeguard analyses, while not necessarily gender specific, are extremely important in terms of guarding against the ill effects of irrigation and animal husbandry projects that increase the risk of vector-borne and zoonotic diseases.

Table 3) Considerations for Gender Mainstreaming in Agriculture for Nutrition

Nutrition-Sensitive Agriculture Project and Programme Planning Design
<ul style="list-style-type: none"> • Conduct ex-ante gender analyses prior to programme and project design • Include a gender expert or focal point in the planning team to ensure that interventions are women and nutrition-sensitive. • Promote gender assessments in formative research, monitoring, impact evaluations, reporting, and other core or ancillary activities
Monitoring & Evaluation
<ul style="list-style-type: none"> • Include gender-specific objectives, indicators and targets to encourage reporting on gender-related impacts and progress in empowerment. • Disaggregate data by sex and age groups where possible (implies investment in country-level systems that allow for this disaggregation and their dissemination).

Source: Adopted from (among other publications) FAO, 2013; USAID 2013, SIDA 2013

2.3) Improving Nutrition Knowledge and Practices

Integrating nutrition education into agricultural and food system interventions which aspire to nutrition sensitivity is essential to achieving the social and behavioral change necessary for improved nutrition outcomes. This is because improved food security and purchasing power, while certainly associated with improved nutrition, may not be enough, in and of themselves, to improve nutrition outcomes (among others World Bank, 2007; IYCN, 2011). Simply put, access and availability do not automatically translate into improved dietary intake. This fact underlies the entire premise of nutrition sensitive programming in agriculture. It is why the evidence base is strongest for integrated projects that include behavior change components and it is why nutrition education and other strategies to improve nutrition knowledge and practices are an essential component in nutrition sensitive programming.

However, in practice, integration efforts often tend towards parallel nutrition education and agriculture interventions rather than the agriculture intervention incorporating direct nutrition education of participants; for example, agriculture extension agents providing basic nutrition concepts in Farmer Field Schools (McNulty, 2013) and other venues. This is a popular strategy and was identified repeatedly over the course of this review. Unfortunately, the ability of agriculture extension agents to be effective behavior change agents is questionable in many contexts, due to lack of training and time constraints (Herforth, 2010, in McNulty, 2013; Fanzo et al., 2013; see Sections 2.2, 3.1 and 5.2 for more on the limits of agricultural extension). In addition, those promoting healthy eating from the health sector are often reluctant to request collaboration from the agriculture sector to promote home gardens or nutritious crops for family consumption (IFPRI, 2006, in McNulty, 2013).

How to move beyond a parallel approach to achieve true integration of nutrition education and agricultural interventions is a consideration across the board for the programming examples discussed in Chapter 4.

3. HOW IS NUTRITION SENSITIVE AGRICULTURE BEING PROMOTED?

Approaches to improving nutrition through agriculture run the gamut from homestead gardening interventions implemented in and by individual communities to national capacity development initiatives. As such, one option (of many) for mapping common programming approaches is from the “bottom up”, looking first at decentralized programmes which are geographically circumscribed, small-scale and which target households and individuals, and then moving progressively up and out in scope to broader based programmes which target a wide range of actors and which are working to enable the national environment for nutrition in agriculture and related sectors.

This section provides some basic information² on these different types of approaches, all of which are being employed by agencies covered in the review.

3.1) District or village oriented initiatives

Most district and village oriented initiatives fit (roughly) into one or both of the following categories: 1) interventions for increasing nutrition sensitivity of local small-scale production systems, and 2) using agriculture as a delivery platform for nutrition specific interventions:

1. These include support to homestead gardens, livestock, dairy and aquaculture ventures as well as promotion of home or community based food processing and preservation techniques. Technical assistance for soil management, conservation of indigenous food plants, integrated horticulture-aquaculture systems, greenhouses, and integrated agro-forestry systems also fall into this category. However as mentioned above, these activities can only be considered truly “nutrition sensitive” when implemented in conjunction with nutrition education and counseling, and when their design ensures the net effect on women’s time allocation is positive (World Bank 2007; Herforth et al., 2012; FAO, 2013a; Ruel and Alderman, 2013; Meeker and Haddad, 2013). As such, behavior change communication and nutrition education as well as the afore-mentioned introduction of labor saving tools and technologies, especially those which facilitate work done by women, are considered essential components of these types of programmes. Examples of the latter include plastic drum seeders for direct seeding, mechanized mills to replace hand pounding or grating; rainwater

² Only a cursory review is provided here as these approaches have already been covered extensively in the literature. For just a few examples, see: World Bank 2007, World Bank 2013; Herforth 2012; FAO 2013a; Spielman and Pandya-Lorch, 2009; Hawkes et al. 2012.

harvesting, protected springs, wheelbarrows, donkey carts, and treadle pumps to facilitate collection of water and firewood (World Bank, 2013).

2. A classic example of the second category is adding infant and young child feeding (IYCF) and/or other nutrition counseling to food security or rural development projects, especially in regards to food based approaches to complementary feeding. Other types of interventions that could conceivably fit this model are nutrition specific projects which target beneficiaries through pre-existing input subsidy programmes, cash transfer and other agriculture-based social protection schemes, and use of farmer's collectives, rural community groups and other informal organizations as a venue for demonstrations and distribution of nutrition educational materials and counseling.

Ex-ante gender and social analyses are critical to the success of these types of programme activities. Formative research on household and individual-level barriers to good practices may be especially useful. When possible, these approaches may also benefit from recruitment, training and sustained participation of both community health and agricultural extension staff. However, this may prove unrealistic in many contexts. As mentioned above, women may not be able to access extension agents. Moreover, nutrition often falls through the cracks for agriculture extension agents who conventionally focus on crop productivity and technology transfer. Health workers, who are traditionally focused on screening and treatment of acute malnutrition, may also be difficult to train on these types of interventions (Fanzo et al., 2013).

3.2) Nutrition promoting value chains

Nutrition promoting value chain programming can also be (roughly) divided into two types: i) leveraging existing agricultural value chains to increase low income, small-scale farmers' participation in the production and sale of high nutrient foods³ (e.g. legumes, animal source foods, fruits and vegetables) and ii) supporting the creation of new value chains for high quality, nationally sourced nutritious food products (e.g. a complementary food made from locally sourced peanuts or other crops).

Both types of programming are based on the "push-pull" model which aims to link participants to promising, higher-value markets via provision of technical assistance, training, and asset transfers (van Haeften et al. 2013, in Frankenberger et al., 2013). Areas of intervention may include training in and introduction of new technologies for reduction of post-harvest losses, improvement of infrastructure such as storage and wholesale markets, and introduction of tools for risk reduction. Examples of the latter include ICT for price information; support to development of warehouse receipt systems; and promotion of contract farming. Improving food safety (often in regards to reducing aflatoxin contamination) is an underlying goal in nutrition related value chain programming, with implications for producers (better adherence to standards) and consumers (better quality food)⁴.

Value chains programmes have great potential for empowering women, for example, via creation of informal food processing and distribution enterprises which increase access to credit as well as purchasing power and social standing. While not a new idea, it is worth noting that this potential may be especially well realized in

³ In some cases the emphasis may be on non-food items that hold high market value. However in these cases the line between "nutrition sensitive" programming and "business as usual" value chain programming is very thin.

⁴ These approaches apply best to "short chains", which are found mainly in low and middle-income countries and are characterized by a direct, traceable relationship between production and consumption. There are also "long chains", which include multiple "links" mid-chain which significantly transform food, (e.g. from a chicken to a chicken nugget). These are currently most prevalent in middle and high-income countries. Approaches to improving the nutrition sensitivity of longer chains focus more on reform and regulation of mid-stream "links" to improve nutritional content of the final product, (e.g. public sector investment in oil blends to reduce saturated fat content without a concomitant price increase) (Hawkes, in FAO, 2014).

contexts where women are traditionally barred from participating in market-based activities. “Women only” food processing groups, for example, provide a culturally acceptable way to circumnavigate these constraints.

As with other approaches, strategies to change perceptions and behavior must be included in programme design. For example, social marketing of the products in question through media campaigns may make all the difference in terms of increased demand for the products in question.

It is important to note that the nutrition sensitivity of value chain programming can be reduced in projects which require minimum assets for market access. In such cases, the ultra poor – who are at very high risk of undernutrition – may be excluded (Du, 2013). As mentioned above, resilience building may be useful as an objective in this context, justifying provision of microfinance or other social assistance schemes and the use of a “nutrition lens” to include nutritionally vulnerable groups in the programme’s design. In some cases the best way to do this may be to target nutritionally vulnerable rural households as the primary *consumers* of a nutrition-promoting value chain’s product, as with the peanut-based complementary food example mentioned above.

3.3) “Home grown” school feeding programmes

School feeding programmes supplied partially or wholly by local producers are typically pre-existing school feeding programmes that have been retrofitted to include a “home grown” component. As such, sustained success depends on national or municipal institutional capacity and predictable funding. These programmes are a relatively new concept and have only been implemented in a few countries (e.g. Brazil) at national scale. They aim to increase availability of and access to nutritious food for both schoolchildren and smallholders. They also aim to increase market access (and reduce risk aversion) for smallholders via increased demand for locally produced nutritious foods. These programmes generally include a subsidized input package as a strategy to encourage inclusion of low income producers. They may also include technical assistance for natural resource management and other good production practices, and support for organization of farmers cooperatives. Depending on procurement capacity, local school feeding initiatives may be constrained to areas where agricultural productivity is high, thus limiting their potential for scale up (Espejo et al., undated; FAO, 2013b).

3.4) Biofortification

Biofortification uses transgenic and conventional methods to breed staple food crops to have increased micronutrient value. It provides a practical strategy for reaching malnourished rural populations who may have limited access to diverse diets, supplements, and commercially fortified foods. Marketed surpluses of these crops may make their way into retail outlets, reaching consumers in rural and eventually urban areas (Saltzman, 2013a).

Examples of biofortified crops currently in various stages of development include:

- Provitamin A sweet potato, maize, plantains, bananas and cassava (conventional)
- High zinc rice and wheat (conventional)
- Iron fortified pearl millet and beans (conventional)
- Provitamin A and iron fortified bananas (transgenic)
- Provitamin A sorghum (transgenic)
- Provitamin A rice (transgenic)
- High iron rice (transgenic)

Depending on programme rollout, biofortification programmes may be small-scale or have extensive coverage. Late stage programmes aim for national coverage, while earlier stages are limited to a few pilot locations

where trials to validate bio-availability, production viability and on-farm adoption are conducted. Although biofortification programmes target varieties that already have preferred agronomic and consumption traits, (e.g. high yield and cultural acceptability), a well-designed dissemination strategy is considered essential to successful delivery and marketing of biofortified crops. Prior to national release, consumer acceptance, varietal adoption and seed and grain value chain studies are conducted. A consortium of national, regional and international research institutions and implementing agencies share delivery and dissemination efforts (Saltzman, 2013a). As such, an important aspect of biofortification programmes is capacity building for national agricultural research institutions.

3.5) National capacity development initiatives

Capacity development initiatives for improving nutrition through agriculture aim to “reinvent” nutrition’s role in food security policy dialogue. In terms of policy advice and advocacy, this requires convincing decision makers that maximizing production of staple foods and commodities is insufficient in and of itself to reduce household food insecurity and malnutrition. Despite a critical mass of evidence in support of this point, the general consensus in many countries is that food security is best measured by national grain stock levels, and that positive nutrition outcomes will follow automatically from improved food security and income growth. National Agriculture Plans and National Development Frameworks are critical entry points for capacity building programmes aiming to dispel this notion. These programmes work directly with government personnel from agriculture and nutrition to develop a unifying nutrition strategy endorsed across sectors, as well as legislation which includes explicit nutrition objectives and indicators. As such, they target policymakers, investors and intergovernmental agencies as enablers for better cross sectoral regulation and investment. In addition to reformulation of policy documents, activities can include situation analyses, needs assessments, stakeholder mapping, and development of roadmaps for implementation. Other common components include funding and technical assistance for improving horizontal and vertical collaboration, financial and management capacity, and institutional arrangements. The ultimate goal of these programmes is better institutional design and placement of the national nutrition “architecture”, characterized by credibility, political backing, funds, and capacity to coordinate activities across sectors and various levels of decentralization.

3.6) Operational research

A number of consortia and agencies are currently conducting country based, operational research on strengthening the links between nutrition and agriculture. The overarching goal of these programmes is provision of evidence for pro-nutrition policy reform in agriculture and related sectors. The scope of research is thus very wide, covering all other programme areas cited above and following up on the knowledge gaps cited in Section 1.3. As a result, although these programmes do not (for the most part) provide technical assistance themselves, they are playing a role in informing national policy processes as well as projects at decentralized level. While the ultimate target populations are women and children in the first 1000 days, more proximate target populations include: smallholders, low income consumers and other value chain members; media and consumer groups; government field staff; community based organizations (CBOs); non-government organizations (NGOs); public health program implementers; and policymakers, investors and intergovernmental agencies as enablers for better cross sectoral policy, regulation and investment (Harris, 2013).

Operational research activities include:

- Stakeholder mapping and network analysis, case study analysis and other landscaping research to assess institutional and operational nutrition capacity at central and decentralized levels;
- Value chain analysis;
- Econometric analysis of primary and secondary data within and across countries;

- Impact evaluation of other nutrition promoting programmes;
- Reviews and systematic reviews; and
- Innovations in metrics, tools and M&E.

4. PROGRAMME EXAMPLES

As mentioned above, “Key Recommendations for Improving Nutrition through Agriculture” (FAO, 2013) exist and are widely endorsed. However the question of what constitutes “nutrition sensitive agriculture” in regards to specific projects remains. The issue is of particular importance when reviewing extant (or closed) food security and other programmes which may include the word “nutrition” in their title, or claim to address malnutrition in their rhetoric, but which do not include an explicit nutrition component in their design. Also mentioned above, these types of programmes can be seen as “nutrition related” with potential to impact nutrition, but as long as specific nutrition objectives and actions are not present, they should not technically be considered “nutrition sensitive”. Although formal selection criteria were not included in the UNSCN Mapping exercise’s design, to the extent possible, this consideration informed the choice of which programmes were profiled. Unless otherwise noted, it can be assumed that the programmes⁵ showcased below include - at minimum - an explicit nutrition objective.

4.1) Programme examples from United Nations agencies

In addition to programme examples for the Food and Agriculture Organization (FAO) and the World Food Program (WFP) presented below, examples for the International Fund for Agricultural Development (IFAD), the International Labor Organization (ILO), the World Health Organization (WHO), the International Atomic Energy Agency (IAED) and the United Nations Children’s Fund (UNICEF) were also mapped out and are available in their respective briefs on the UNSCN website.

The UN Food and Agriculture Organization (FAO):

The CAADP Nutrition Capacity Development Initiative, Improved Food Security and Complementary Feeding (IMCF), nutrition mapping for the Integrated Phase Classification scale

As the UN agency whose mandate is to increase agricultural productivity, improve nutrition, raise standards of living in rural populations and contribute to global economic growth, a variety of FAO programmes are working to improve nutrition through agriculture. FAO is active in many countries across most the programme areas cited above, not least in regards to national capacity building. **The CAADP⁶ Nutrition Capacity Development Initiative** provides a case in point. Led by the New Partnership for African Development⁷ (NEPAD) and the African Union Commission and supported by Regional Economic Communities, this initiative has thus far been organized around three regional workshops (including preparation and follow-up at country level), for West Africa, East and Central Africa, and Southern Africa. Involving fifty-one countries in total, these workshops aimed to assist countries in conducting relevant situation analyses and developing road maps for integrating nutrition into their National Agriculture and Food Security Investment Plans. In addition to nutrition and agriculture, country workshop teams have included representatives from finance, planning, education, and health, as well as civil society and the private sector (Dufour, 2013). (Please see FAO Brief for CAADP Workshop materials from the East Africa workshop.)

Other FAO projects provide nutrition technical assistance for community based projects, including training for basic nutrition education (as well as behavior change communication in some cases), provision of inputs and

⁵ More details and references for the examples in this section can be found in each agency’s brief.

⁶ The Comprehensive Africa Agriculture Development Plan (see: <http://www.nepad-caadp.net/>)

⁷ NEPAD’s Agriculture and Food Security Programme is guided by the CAADP framework (see <http://www.nepad.org/foodsecurity>).

training⁸ for homestead food production, and training for government field staff in use of participatory approaches for targeting and design of nutrition sensitive agricultural development projects.

In collaboration with universities, national and international research institutes, and other partners, FAO also conducts operational research. A current example is the “improving the dietary intakes and nutritional status of infants and young children through improved food security and complementary feeding” or **IMCF Project**. Based in Cambodia and Malawi, IMCF evaluates the impact of combining behaviour change communication with interventions promoting production and consumption of diverse, locally available, nutrient-dense and affordable foods. IMCF is funded by Germany’s Ministry of Food, Agriculture and Consumer Protection; partners include the Institute of Nutritional Sciences (Justus-Liebig University, Giessen), Bunda College of Agriculture, Malawi, and Mahidol University, Cambodia. The project is nested within larger food security programmes in both countries

FAO is also working to improve nutrition sensitivity of agriculture based emergency response. For example, in Somalia, **FAO’s Food Security and Nutrition Analysis Unit (FSNAU)** has developed a nutrition situation map to complement its early warning Integrated Food Security Phase Classification (IPC) scale⁹. Based on an integrated analysis of nutrition information, the map clearly indicates the distribution, severity and magnitude of malnutrition in the country. This product, updated twice a year in tandem with the IPC, provides early warning of pending threats to nutrition security through facilitating targeting of agricultural interventions based on levels of nutritional vulnerability (as opposed to targeting based only on food insecurity as identified by the IPC). The FSNAU is working loosely with the Regional Food Security and Nutrition Working Group based in Nairobi.

The UN World Food Program (WFP):

Purchase for Progress, “Home Grown” school feeding programmes¹⁰

WFP’s current Strategic Plan (2008-2013) places strong emphasis on building resilience and promoting nutrition for WFP’s beneficiaries as well as delivering food aid. As a result, WFP’s scope of work has widened, creating greater opportunity to involve agriculture and other sectors in its programming. A strong example is **Purchase for Progress**, or P4P. Currently being piloted in twenty countries, P4P aims to increase participation of local, small-scale farmers in WFP’s food procurement system. While provision of fresh and culturally adapted food products to WFP participants is the underlying aim of this programme, a penultimate objective is to increase availability of and access to high nutrient foods for participating producer households. P4P activities include facilitating smallholder’s access to markets and credit, and linking them to local food processing industries. As such this programme aims for both promoting nutrition through value chains and building resilience through emergency response. P4P’s design is also informed by its Gender Strategy. See Box 2 for details on how P4P is working to safeguard and strengthen women’s capacity in agriculture.

⁸ Inputs and training may be provided to a variety of populations, including extension agents, community volunteers, and/or project participants.

⁹ The IPC integrates food security, nutrition and livelihood data in a single scale to provide information about the nature and severity of a crisis as well as information regarding strategic response.

¹⁰ Research to date has not verified whether P4P programming routinely includes explicit nutrition objectives or indicators.

Box 2) How is P4P strengthening women's capacity in agriculture?

- ✓ P4P promotes and encourages procurement of crops and food products women control. For example, in **Burkina Faso**, the programme deliberately purchases cowpeas because this crop is traditionally female-produced. Country data show that women represent 56 per cent of smallholders delivering commodities through P4P in Burkina Faso. (Notably, the quantities each female farmer supplies are very limited, accounting for only 15 per cent of total tonnage procured as of January 2011.)
- ✓ P4P works with women's farmers groups and facilitates their organization where they do not exist. Women's farmers groups facilitate joint purchase and leasing arrangements, thus increasing access to land. For example, in **Mali**, P4P works with three women-only groups who have collectively sold over 80 metric tons of food crops through the programme.
- ✓ Wherever possible, P4P partners with in-country organizations which are themselves working to ease structural constraints to women's capacity. For example, in **Ethiopia**, P4P is working with a cooperative union which prioritizes women and female headed households in the distribution of fertilizers, seeds, and other agricultural inputs. This union also packs fertilizers in smaller-than-usual quantities which are well suited to women's needs, transport capacity, and production volume.

Source: WFP and ALINE, 2011

Under P4P, WFP is exploring the possibility of linking development partners that promote the uptake of biofortified crops to local WFP vendors in selected countries. Some P4P pilots are also linking local small scale farmers to "homegrown" WFP-funded school feeding programmes.

Local procurement for school feeding has also been a subject of operational research for WFP. With funding from the Gates Foundation and in collaboration with IFPRI, the New Partnership for Africa's Development (NEPAD) and other partners, WFP is working to develop a systematic approach to design and implementation of school feeding programmes that use locally procured food. Outputs to date include case studies (Ghana, Brazil, India and Thailand) as well as a proposed framework for implementation (Espejo, undated).

4.2) Programme examples from research institutions

A number of research institutes are conducting country based, operational research on strengthening the links between nutrition and agriculture. Two of the most active are the Institute of Development Studies (IDS) and the International Food Policy Research Institute (IFPRI). These institutes are partners in Leveraging Agriculture for Nutrition in South Asia (LANSA), Transform Nutrition, and other nutrition/agriculture oriented consortia (please see briefs for complete lists). As mentioned above, the overarching goal of these large operational research programmes is creation and dissemination of evidence for pro-nutrition policy reforms in agriculture and related sectors.

IDS and IFPRI are also conducting multiple other research projects focused on value-chains, national capacity building, and other programme areas cited in the previous section. (Information on a third research organization – the Leverhulme Centre for Integrated Research on Agriculture and Health – is available in the briefs portfolio on the UNSCN website.)

Institute of Development Studies (IDS):

Leveraging Agriculture for Nutrition in South Asia, Strengthening Agri-food Value Chains for Nutrition, Nutritious Agriculture by Design, Agridiet

LANSA or Leveraging Agriculture for Nutrition in South Asia (funded by DFID, 2012-2018), is led by the MS Swaminathan Research Foundation (India) and also includes IDS, BRAC (Bangladesh) CSSR (Pakistan) IFPRI, and LCIRAH. Focus countries are India, Bangladesh, Afghanistan and Pakistan. The majority of LANSA's research portfolio addresses women's empowerment either explicitly or implicitly, as all the consortium's studies aim to address the same overarching question: How can South Asian agriculture and related food policies and interventions be designed and implemented to increase their impacts on nutrition, especially the nutritional status of children and adolescent girls?. The programme is organized around three pillars

1. How can agriculture and food policies be more strongly linked to other underlying determinants of nutrition such as women's status, poverty induced food insecurity and sanitation?
2. How can policies in areas such as food storage and trade, and public-private engagement be made more likely to reduce undernutrition?
3. How can agricultural interventions be designed to improve diet quality and improve nutrition directly, while simultaneously ensuring livelihood security

Over 20 projects are planned for LANSA's portfolio of research studies. These range from an econometric analysis of how different agricultural income streams impact dietary diversity and nutrient intake, to a feasibility study assessing the extent to which a digital learning tool for improved agricultural practices can incorporate nutrition (LANSA, 2013). IDS-led activities include landscape and critical analyses of nutrition programmes in the context of agriculture, district level studies, and a review and comparative analysis of agri-food value chain based interventions (LANSA, 2013). As such, district oriented initiatives, nutrition promoting value chains, and national capacity development initiatives figure especially prominently in IDS work for this consortium.

Through **Strengthening Agri-food Value Chains for Nutrition** (funded by DFID, 2012-2016), IDS research is supporting creation of new value chains for high quality nutritious food products (e.g. groundnut-based supplemental foods, cereal and legume-based complementary foods) (Anim-Somuah et al., 2013). This project aims to help reduce undernutrition by identifying opportunities to promote food-based approaches led by the private sector. It aims to mobilise private sector resources, capacities and know-how to achieve this goal. Activities include mapping current and potential value chains for nutritious foods and case studies of working with businesses on provision and marketing of those foods. It is also building national capacity by providing country-level guidelines for policy actors seeking to work with the private sector on nutritious food.

This project is ongoing in Ghana, Nigeria and Tanzania. See Box 3 for more details on this project's work in Ghana.

Box 3) Mapping the nutrition potential of groundnut and complementary food products in Ghana

Through the Reducing Hunger and Undernutrition theme of the IDS Accountable Grant on Strengthening Evidence-Based Policy, IDS conducted a **value-chain mapping of nutrient dense foods in Ghana**. The [resulting report](#) (2013) identifies and assesses the potential of groundnut products and complementary food products for reducing undernutrition. It maps current value chains for groundnut and complementary food products, concentrating on whether they meet the key criteria of availability, affordability, acceptability and nutritional quality. It analyzes the challenges that inhibit these products from having greater nutrition impact and includes options for interventions to increase the provision of these food types to key target populations. .

The report highlights four broad challenges to the provision of nutrient-dense foods in Ghana:

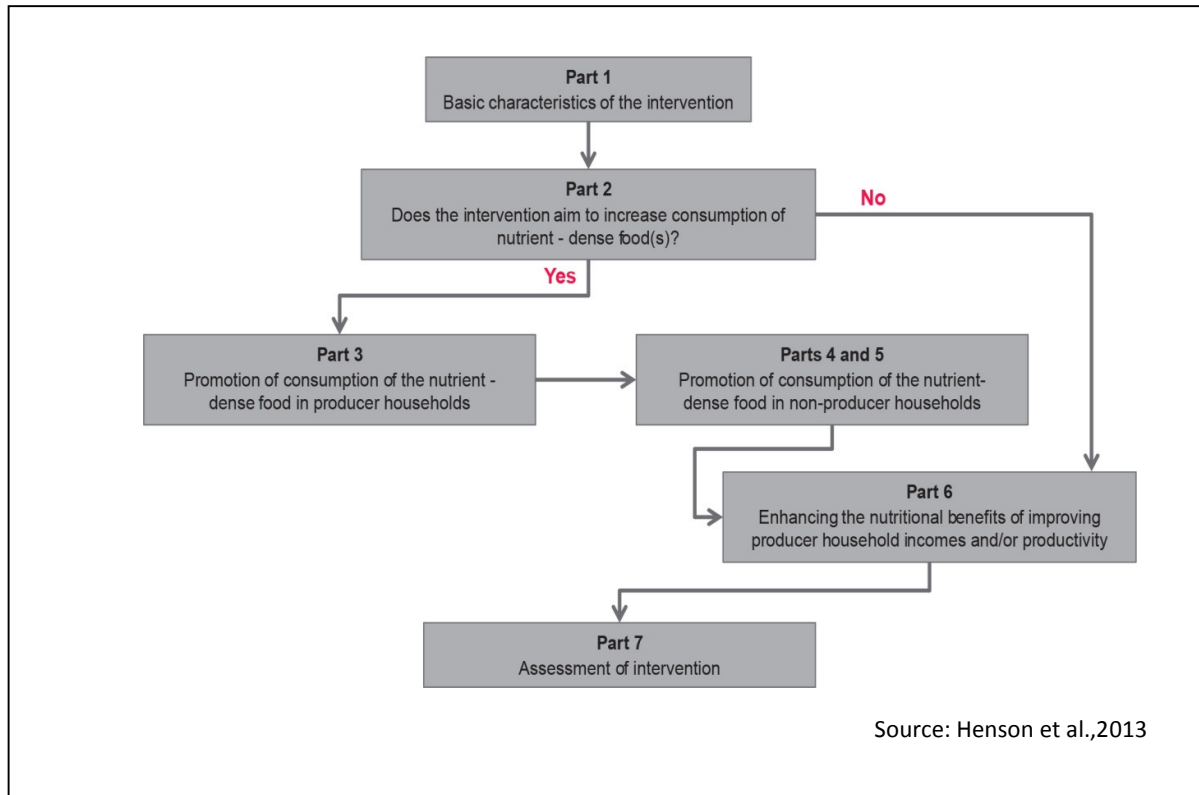
- Aflatoxin contamination concerns a broad array of foods. It requires coordinated value chain action and the generation of incentives to implement improved practices.
- The absence of mechanisms to signal the nutritional value of foods to consumers spans many products and is a key area for policy intervention.
- Traceable value chains are largely absent in domestic food markets; fostering traceable value chains is key to establishing incentives and upgrading nutrient quality and food safety.
- private sector actors in Ghana face challenges to building viable business models to market nutrient-dense foods so they reach poor consumers.

These four cross-cutting challenges are key areas for broader policy and programmatic interventions to enhance the provision of nutrient-dense foods through value chains. Policy guidelines tailored to the Ghanaian context and building off the initial mapping exercise are forthcoming.

Source: Robinson, 2013

The result of collaboration between IDS and GAIN, **Nutritious Agriculture by Design** is a programme planning tool which aims to guide the design or adjustment of agricultural interventions towards better linkages with nutrition, see Figure 3. The tool was developed for USAID in the context of its Feed the Future programme (see FTF section below) and is structured around potential agriculture to nutrition pathways (based on Hawkes et al. 2012). It uses a value chain approach and as a result places particular emphasis on the role of the private sector including small firms and informal sector businesses. To date, Nutritious Agriculture by Design has been piloted by existing USAID projects in Kenya (see Box 4 for findings) and Bangladesh. It has also been piloted in a Feed the Future workshop in Tanzania (Henson et al., 2013).

AgriDiet (funded by Irish Aid and the Higher Education Authority, 2013-2016) is a joint research project between University College Cork, University College Dublin, the Ethiopian Development Research Institute, Haramaya and Mekelle Universities in Ethiopia, Sokoine and St Augustine's Universities in Tanzania and IDS. The project aims to critically assess how agricultural and broader socio-economic policies and practices in Ethiopia and Tanzania address nutritional goals, especially for children and young women, and the possibilities for scaling-up of successful projects. Outputs include a review of pro-nutrition agricultural interventions in Ethiopia and Tanzania, including analysis of recent impact evaluations and in-depth case studies, development of country-level stakeholder platforms, and development and delivery of knowledge mobilisation strategies that respond to local stakeholders' needs and actively engage them in the update and application of research knowledge. AgriDiet provides support to national capacity building as well as district oriented initiatives which aim to increase nutrition sensitivity of local production systems.

Figure 3) “Nutritious Agriculture by Design”: Sequence of tool application

International Food Policy Research Institute (IFPRI):

Transform Nutrition, Realigning Agriculture to Improve Nutrition, impact assessment of Helen Keller International homestead food production

Transform Nutrition (funded by DFID, 2011-2017) is a research consortium led by IFPRI whose members include Save the Children, IDS, the International Centre for Diarrheal Disease Research (Bangladesh), the Public Health Foundation of India, and the University of Nairobi. The programme is currently active in Bangladesh, Ethiopia, Kenya and India and is designed to reflect the current consensus that nutrition specific interventions, nutrition sensitive activities, and an enabling environment which supports both types of approaches are all necessary for sustained and significant progress in reducing undernutrition. As such, the programme’s three research pillars address the following three questions:

1. How can *direct nutrition-specific interventions* targeted to the first 1,000 days be appropriately prioritized, implemented, scaled up and sustained in different settings?
2. How can *indirect (social protection, agriculture, and women’s empowerment) interventions* have a greater impact on improving nutrition?
3. How can an *enabling environment* be promoted, and existing and enhanced political and economic resources be used most effectively to improve nutrition?

While Pillar 2 is the most overtly relevant to nutrition sensitive agriculture and the one which aims to build the evidence base for the relationship between local level gender norms, governance, and undernutrition, the programme’s overall design – Pillars 1 through 3 - aims to create a feedback loop between providing actionable evidence on upscaling direct interventions, improved capacity to maximize nutrition sensitivity for indirect interventions, and developing and sustaining a robust enabling environment. Related outputs are a

heightened profile of nutrition in national policy dialogue through communication processes and a strengthened country level networks of nutrition champions (Aberman and Powell, 2011). The programme's research portfolio includes over 40 projects, with IFPRI leading studies ranging from analysis of cross-country data to examine the relationship between gender inequalities and undernutrition, to impact evaluations of social protection schemes and agricultural growth programmes on nutrition, to stakeholder mapping of institutional capacity (Transform Nutrition, 2013a). Figure 5 provides a stakeholder mapping product illustrating the complexity of the nutrition landscape in Ethiopia. See also Box 4 for details of an agriculture-based Transform Nutrition research activity in Ethiopia.

RAIN or Realigning Agriculture to Improve Nutrition (funded by Irish Aid, 2011-2015,) is a **district oriented initiative** led by Concern Worldwide and based in Mumbwa District, Zambia. RAIN aims to reduce stunting in children under two through integrated agriculture, health and nutrition interventions. IFPRI leads monitoring, learning and evaluation for the project, undertaking impact and process evaluations. Other stakeholders include Mumbwa Child Development Agency, the Zambia Ministry of Agriculture and Cooperatives, and the Zambia Ministry of Health. Project components support i) improved production of high quality foods at homestead level to increase year-round availability of and access to good-quality foods at household level; ii) delivery of social behaviour change communication around optimal nutrition and health practices; iii) support to district level Ministries of Health and Agriculture to promote cross-sectoral synergies and optimise each sector's impact on stunting. Important outputs of the latter are evidence on multi-sectoral strategies for effectively addressing stunting, and research on interministerial collaboration for nutrition (Harris, 2013).

One of IFPRI's strengths is impact evaluation. As a result, many of its nutrition sensitive agriculture activities are assessment oriented. For example, in addition to both RAIN and Transform Nutrition, IFPRI also conducts impact evaluations for Helen Keller International's (HKI's) **Homestead Food Production Programs**. HKI has been implementing homestead food production (HFP) programs in Asia for the past 20 years and has recently begun implementing HFP programs in Africa as well. In order to better understand the potential of these types of programs to improve maternal and child health and nutrition outcomes, IFPRI is collaborating with HKI to evaluate programs in Cambodia and Burkina Faso (IFPRI, 2013).

IFPRI also collaborates with HarvestPlus and national research institutions on biofortification activities in a number of African, Latina American and Asian countries. Examples include bean cultivation and evaluation in Bolivia, El Salvador, Guatemala, and Panama; dissemination of high iron beans and cowpea and beta-carotene biofortified cassava, sweet potato, and maize in Brazil; dissemination of iron biofortified pearl millet and testing of high zinc rice and wheat in India, and dissemination of beta-carotene biofortified sweet potato and iron fortified beans in Uganda (Saltzman, 2013b). In these cases and others, IFPRI works with HarvestPlus and country partners to test and scale up distribution of these crops along with nutrition information and marketing campaigns.

Box 4) Transform Nutrition- Investigating synergies between food security and direct nutrition interventions in Ethiopia

The Agricultural Growth Program (AGP) is collaboration between the Ethiopian government, the World Bank and multiple international donors. Initiated in 2011, the AGP has rolled out in four high-rainfall regions of Ethiopia with strong agricultural potential: Oromia, Amhara, Southern Nations, Nationalities and People's Region (SNNPR) and Tigray. The programme's primary objective is "to increase agricultural productivity and market access for key crop and livestock products in targeted *woredas* with increased participation of women and youth".

Under Pillar 2, Transform Nutrition is conducting research in SNNPR and Tigray to assess whether food security interventions aimed at increasing smallholder food production have enhanced impacts on nutrition indicators when they are complemented by an IYCF intervention. The latter is being implemented by Alive and Thrive and the combined effects are being evaluated by IFPRI and other consortium partners. Data drawn from a large (over 7,000 households) baseline survey of AGP are being overlaid with data from recipients of Alive and Thrive's direct nutrition intervention as well as current AGP data that focus on women. IFPRI plans to re-survey these households applying non-experimental impact estimators in order to assess the synergistic impacts of the AGP and the IYCF intervention on undernutrition.

Source: Aberman and Powell, 2011; Berhane et al., 2011; ACDIVOCA, 2013; Transform Nutrition, 2013b

4.3) Programme examples from donors

In addition to programme examples for the U.S. Agency for International Development (USAID) and the World Bank presented below, examples for the Gates Foundation, Irish AID, and a number of other foundations and bilaterals were mapped out and are available in their respective briefs.

United States Agency for International Development (USAID):

Feed the Future, Strengthening Partnerships, Relationships and Innovations in Nutrition Globally

Feed the Future (FTF) is the U.S. Government's flagship global hunger and food security initiative. It is the principal vehicle through which the United States contributes to agriculture and food security related initiatives, including global compacts such as the G-8 L'Aquila Food Security Initiative and the G-8's New Alliance for Food Security and Nutrition. FTF draws on the resources of 10 federal agencies but is led by the United States Agency for International Development (USAID). It currently has missions in 19 countries¹¹.

Although improving nutritional outcomes¹² is cited along with income growth as a "topline goal", given the magnitude of the program – 9 million households reportedly participated in FTF projects in 2012 alone (FTF, 2013) - it would be unrealistic to expect FTF programming to be truly nutrition sensitive across the board. As such FTF is working actively to better integrate nutrition into USAID's agriculture projects' designs. An important example is inclusion of improved use of maternal and child health and nutrition services in FTF performance indicators; other indicators are improved agricultural productivity, expanded markets and trade, and increased investment in agriculture (Feed the Future, 2013).

¹¹ Bangladesh, Ethiopia, Guatemala, Honduras, Liberia, Mali, Nepal, Senegal, Tanzania, Zambia, Cambodia, Ghana, Haiti, Kenya, Malawi, Mozambique, Rwanda, Tajikistan, and Uganda

¹² Measured by a 20 percent reduction in stunting

A second important example is FTF's development and use of the **Women's Empowerment in Agriculture Index (WEAI)**. A collaboration between FTF, IFPRI and the Oxford Poverty and Human Development Initiative, the WEAI tracks women's engagement in agriculture across five domains, see Figure 4. The Index also measures women's empowerment relative to men within their households, providing a more robust understanding of gender dynamics (Feed the Future, 2013). FTF collected baseline data for the WEAI in the programme's focus countries in 2012. These and future waves of WEAI data collection will be used to track the contribution that FTF programming makes to women's empowerment. The Index will also contribute to impact assessments of specific activities.

Figure 4) Domains of empowerment measured by the WEAI

Domain	Indicators
Production	Input in productive decisions
	Autonomy in production
Resources	Ownership of assets
	Purchase, sale or transfer of assets
	Access to and decisions on credit
Income	Control over use of income
Leadership	Group member
	Speaking in public
Time	Workload
	Leisure

Source: IFPRI, 2012

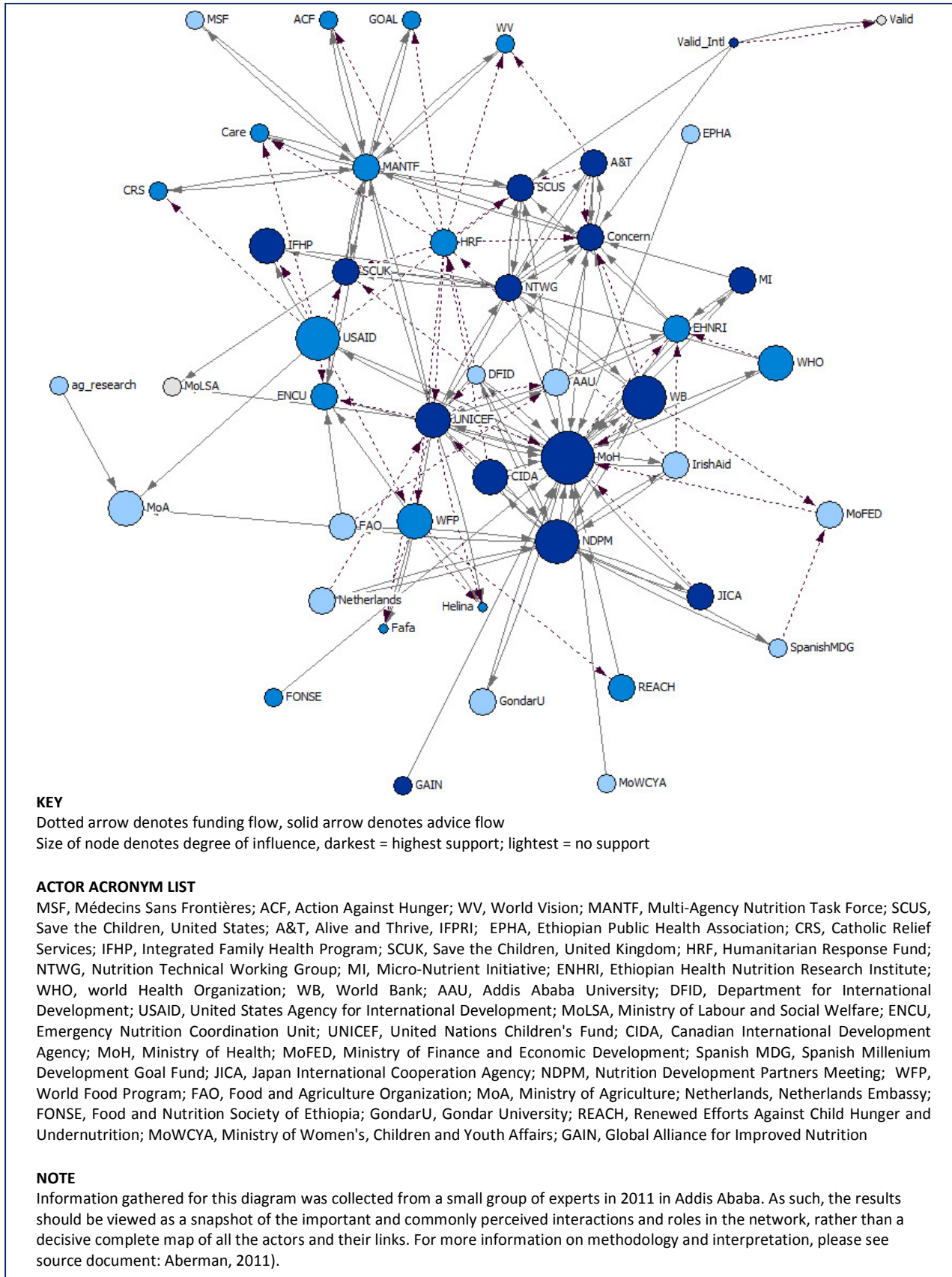
A third example is FTF's collaboration with GAIN and IDS on "Nutritious Agriculture by Design". Per the IDS section above, this programme planning tool aims to guide the design or adjustment of agricultural interventions towards better linkages with nutrition. It uses a value chain approach and as a result places particular emphasis on the role of the private sector including small firms and informal sector businesses. To date, Nutritious Agriculture by Design has been piloted by existing USAID projects in Kenya and Bangladesh. It has also been piloted in a Feed the Future workshop in Tanzania. See Box 5 for findings from the Kenya pilot tool application

In addition to these specific examples, FTF's 2013 Progress Report cites the following pro-nutrition activities as programme objectives:

- Incorporating nutrition outreach and behavior change activities into agriculture investments to ensure that increases in household food production and increases in income lead to the consumption of nutritious, diverse foods and the appropriate feeding of young children;
- Investing in value chains that improve the availability of high-quality staple foods, including food fortification;
- Integrating nutrition in related sectors and using indicators of undernutrition as some of the key measures of overall progress in these sectors;

- Investing in research on the effects of agriculture and food security policies and programs on the nutritional status of mothers and children, including impact evaluations of new and innovative programming approaches; and
- Enhancing capacity to monitor and evaluate national nutrition programs, including harmonization of indicators to track and report nutritional status (Feed the Future, 2013).

Figure 5) Results of a Transform Nutrition Stakeholder Mapping Exercise in Ethiopia



Although FTF programmes fit easily into the value chain framework (Du, 2013), most missions employ a variety of the programming approaches outlined in Section 3 of this report, including support to district or village oriented initiatives, increasing market access, biofortification, and national capacity development. See Box 6 for two country specific examples of how FTF missions are leveraging a variety of these approaches.

FTF is also accountable to USAID's new strategic approach to humanitarian crisis. Like FAO and WFP, USAID currently endorses a focus on resilience building and risk reduction in emergency assistance contexts (USAID, 2012).

Box 5) Nutritious Agriculture by Design findings: Kitchen and community gardens as a means to facilitate consumption of nutrient-dense foods by Kenyan milk producers

The Kenya Dairy Sector Competitiveness Program has explored the promotion of kitchen and community gardens by producer households. These gardens are seen as having two benefits. First, dairy production results in a large volume of manure that needs to be disposed of as part of good disease management and production practices. This manure has potentially great value as a fertilizer. Second, kitchen and community gardens can be an effective mechanism to enhance production of fruit and vegetables both for household consumption and to supplement income, especially of women. At the current time, efforts to promote kitchen and community gardens have been pursued at a relatively small scale, predominantly through promotional activities and training as part of routine farmer field schools. There is, however, considerable scope for these to be up-scaled.

Source: Hensen et al., 2013

Strengthening Partnerships, Relationships and Innovations in Nutrition Globally or SPRING is a USAID-funded project whose goals include leveraging agriculture to improve nutrition. SPRING positions itself between FTF and USAID's other flagship foreign assistance programme: the Global Health Initiative. To date, SPRING's main work in nutrition sensitive agriculture has been a review and analysis of FTF projects to determine where opportunities for improving nutritional outcomes might be increased. Results of the analysis were presented in 2012-2013 at five regional Agriculture-Nutrition Global Learning and Evidence Exchange or "AgN-GLEE" workshops in Uganda, Guatemala, Thailand, and the United States. Given the breadth of FTF projects, the GLEE findings can be considered relevant lessons learned for nutrition sensitive agriculture programming in general. As such they are presented in Section 4, below.

World Bank:

New Agriculture Action Plan 2013-2015, the South Asia Food and Nutrition Security Initiative, Secure Nutrition

The Bank's current Agriculture Action Plan, or AAP (FY 2013-2015), includes nutrition as one of seven emerging areas of emphasis alongside the following five core business lines:

1. Raise Agricultural Productivity
2. Link Farmers to Markets and Strengthen Value Chains
3. Facilitate Rural Non-Farm Income
4. Reduce Risk, Vulnerability, and Gender Inequality
5. Enhance Environmental Services and Sustainability

The current AAP also includes "increasing the share of agriculture projects with an explicit focus on nutrition" as a Key Action. As such, beginning with its FY2012 portfolio, the Bank has committed to reviewing all approved agriculture projects in terms of nutrition sensitivity. Initial results show 12 percent of all FY12 and

10 percent of all FY13 agriculture projects included an explicit nutrition component (Tanimichi-Hoberg, 2013). Most (if not all) of these components can be categorized according to the programming approaches outlined in Section 2 of this report. For example, support to and technical assistance in community-based nutrition education, food safety initiatives, nutrition modules in extension services, and dissemination of biofortified crops.

Although the Bank aims to exceed these FY12 and 13 baselines, there is no figure available regarding a target number. This is largely due to the fact that investments by the Bank are loans - as opposed to grants - and as such are demand-driven and cannot be pre-determined. In addition, nutrition sensitivity within agriculture, while increasingly recognized as an important goal, remains undefined within the parameters of conventional agriculture-based programming. As long as this knowledge gap exists, demand for this type of project from Bank client countries will likely remain low relative to more conventional designs.

Box 6) FTF programme examples

- ✓ In **Nepal**, an FTF project is implementing an array of nutrition-sensitive agricultural activities simultaneously, including technology development and adaptation of nutritionally significant crops and improved breeds for backyard poultry; support to kitchen gardens; integration of nutrition in the curriculum of agriculture extension teams; nutrition education to promote diet diversity; and strengthened government food laboratory capacity to enable analysis of the nutritional value of locally available foods. These activities will be complemented by direct nutrition activities including community health programs that target pregnant women and children.

Source: Feed the Future, 2013

- ✓ In an effort to increase nutrition sensitivity, FTF's Community Connector (CC) Project in **Uganda** has made several major modifications in activities, selection of target districts, and indicators. The FTF Mission in Uganda has been supportive to these changes because CC has a built-in "*Collaborating, Learning, and Adapting*" (CLA) component, which allows the project to make modifications in its design, based on what works in the field. The CLA component uses simple questionnaires administered via mobile phone to collect nutrition and food security data systematically, with modifications based on the Mission's subsequent analysis of these data. While not all partners are used to constant monitoring and change; this learning component narrows gaps in the understanding of field situations and provides valuable information to both front-line implementers and the Mission itself.

Source: Du, 2013

That said, it is important to note that almost fifty percent of all Bank supported agriculture projects approved in 2012 have been categorized as "nutrition related" (Tanimichi Hoberg, 2013). As with most of the other agencies profiled in this Exercise, these projects include components that are implicitly related to nutrition but contain no explicit mention of nutrition in their project design documents. These projects may be unintentionally improving nutrition outcomes through one or more of the current AAP's five priority "nutrition related" themes. However, as mentioned at the beginning of this and other sections, as long as specific nutrition objectives and actions are not present, these projects cannot technically be considered "nutrition sensitive".

One example of a Bank-based initiative which does meet "nutrition sensitive" criteria is the **South Asia Food and Nutrition Security Initiative** (SAFANSI). SAFANSI is a multi-donor trust fund that supports linking food security and nutrition in the South Asia region (Afghanistan, Bangladesh, Bhutan, India, Nepal, Pakistan, and Sri Lanka) through three broad program areas:

- Analysis: improving evidence and analysis on ways to achieve food and nutrition security in South Asia;
- Advocacy: improving awareness of food and nutrition security-related challenges, and advocacy for action among relevant stakeholders; and
- Capacity Building: strengthening regional and in-country policy and programming capacity to achieve food and nutrition security outcomes (World Bank, 2013).

The ultimate objective of SAFANSI is to increase the commitment of governments and development partners to more effective and integrated food and nutrition-related policies and investments. For example, SAFANSI's **Multisectoral Simulation Tool (MST)** aims to help countries understand how different types of interventions at varying scales are likely to impact nutritional outcomes and the cost of reaching their nutrition goals. The MST uses a causal model that links multisectoral interventions to nutritional outcomes. It allows users to determine what time, money, and effort is required to operate a given intervention at a desired scale. To date, the MST has been piloted in Bangladesh.

A second example of a nutrition sensitive Bank initiative is **Secure Nutrition**. This is a Bank-funded virtual platform whose primary objective is narrowing knowledge gaps regarding nutrition sensitive service delivery and M&E within agriculture. Secure Nutrition aims to influence Bank projects as well as contribute to the global knowledge public good. The platform's core staff is multisectoral, comprised of staff from agriculture, nutrition, and the Bank's Poverty Reduction and Equity Group. One rationale for the multisectoral makeup of Secure Nutrition is to facilitate "silo breaking" within the Bank. However Secure Nutrition is also reaching beyond the Bank to facilitate information exchange and dialogue with CSOs, academic research institutions, and bilaterals. The platform currently has 14 partner organizations.

One important Secure Nutrition knowledge product is **Improving Nutrition through Multisectoral Approaches**. Published in 2012, this report provides operational guidance on how to mainstream nutrition into agriculture, social protection and health-based projects to maximize the impact of Bank investments on nutrition outcomes for women and young children. Although targeted first and foremost at Bank field staff, the findings of this report are also relevant to external programming efforts.

4.4) Programme examples from international NGOs

Action against Hunger (ACF International):

Increasing nutrition sensitivity in emergency response

ACF routinely supports emergency nutrition activities in tandem to interventions promoting longer-term food security, as well as improved water, sanitation & hygiene (WASH). Its primary target populations are those affected by conflict or natural disasters. As such, this INGO provides a case study of efforts to integrate a range of nutrition-promoting activities within a resilience building framework, as discussed in Section 2.3. For ACF, these include distribution of emergency rations, provision of inputs and training for homestead gardening, post-harvest handling and food processing techniques, BCC and awareness raising, emergency cash transfers, and cash-for-work programmes targeting women. See Box 7 for selected country specific examples.

In addition to its on-the-ground work, ACF also recently published **Maximizing the Nutritional Impact of Food Security and Livelihoods Interventions** (Le Cuziat and Mattinen, 2011). A technical manual for field workers, this publication reflects ACF's stepped-up efforts to increase nutrition sensitivity within its own humanitarian and emergency response.

Box 7) ACF programme examples

- ✓ **Occupied Palestinian Territory:** As part of a broader food security and WASH project, ACF designed a nutrition sensitive activity using a cash-for-work scheme specifically targeting women. One hundred and sixty women from Gaza and the West Bank were paid to produce two iron rich processed foods: *maftoul* (couscous) made from fortified wheat flour, and grape molasses. These products did not go to market but rather were distributed directly to vulnerable families (and one orphanage) where children were suffering from anaemia. Processing food within a “women-only” environment is a culturally acceptable manner for Palestinian women to get more involved in the local economy and to improve their social standing.
- ✓ **Nigeria:** In collaboration with Save the Children, ACF is initiating the Child Development Grant Program, a large-scale (60,000 households) social protection program based in the northern Region. Pregnant women and mothers of children under two are the primary beneficiaries. The unconditional cash transfer is accompanied by a BCC scheme comprised of nutrition education and health, care and hygiene advice. Technical assistance for an eventual handover to state governments is a component of the program.
- ✓ **Pakistan:** Since 2010, ACF and its six partners in the Pakistan Emergency Food Security Alliance programme have worked to save lives, protect livelihoods and increase the resilience of households and communities in Pakistan’s worst flood-affected provinces. Over time, the programme has evolved from a stand-alone food security and livelihoods alliance to an aligned food security and nutrition treatment and awareness consortium. Current approaches and activities directly support the alignment of food security activities with nutritional objectives. Examples include: Mainstreaming of nutrition awareness sessions to all beneficiaries of food security and livelihoods interventions; targeting of food security activities which prioritize households with children under two and pregnant and lactating women; referral of Pakistanis discharged from nutrition treatment to food security services; awareness raising about the causes and consequences of malnutrition through one-on-one counseling support and advice at health clinics and within participating communities – including cash-for-training sessions; and development and sharing of best practices and lessons learned within the consortium. The latter includes increased advocacy for more aligned approaches between Clusters, partners and line ministries to prevent duplication and to encourage uptake of an integrated approach by humanitarian organizations and local stakeholders.

Source: Adapted from ACF, 2013

Case studies of the potential for agriculture-based nutrition-sensitivity within Burkina-Faso, Kenya and Peru were also recently published by ACF. The final report provides a tri-country review (du Vachat, 2013) of opportunities and constraints to implementation. Some of the findings from this report are cited in Section 5, below.

Helen Keller International (HKI):

Enhanced Homestead Food Production

As mentioned above (see IFPRI), HKI has been implementing **Enhanced Homestead Food Production (E-HFP)** programmes in Asia (Bangladesh, Cambodia, Nepal, Indonesia, the Philippines and Vietnam) for the past 20 years and has recently begun implementing E-HFP in Africa (Burkina Faso, Côte d’Ivoire, Mali, Niger, Senegal and Tanzania).

E-HFP provides a model example of the district or village oriented programming approach discussed in Section 3.1. Beginning with provision of technical assistance to female village leaders, E-HFP emphasizes production of nutrient-dense foods, but may also involve products with high market value. Examples include training in low-cost technologies such as the cultivation of bed systems, crop rotation and mulching for continuous soil

improvement, selection of varieties for year round production, vegetable diversification, grafting, the use and preparation of compost, integrated pest management, water management; and improved poultry management including shed construction, feed preparation, and protection from predators. In Cambodia diversified fish farming has also been successfully introduced.

Via these interventions, female community leaders establish demonstration plots and then use them as a platform to train and supply other women to establish their own improved homestead food production. Demonstration plots also serve as a platform for nutrition, hygiene and health education. They are also used to promote discussion of discriminatory gender norms and to enhance women's influence on household decisions, particularly around food and care.

Concomitant to these community based interventions, HKI advocates with government partners for extension services to optimize agriculture and livestock production. It also provides training to Ministry of Health personnel using the Essential Nutrition Actions (ENA) and Essential Hygiene Actions (EHA) frameworks to strengthen provision of nutrition counseling and related services and to reinforce capacity-building at the community level. HKI also engages in policy dialogue with health partners to promote sustained support for the ENA within the health sector and communities.

See Box 8 for details of the E-HNP programme in Bangladesh, including results from a trend analysis.

Box 8) HKI's Enhanced Homestead Food Production programme

The most diversified E-HFP program is in **Bangladesh**, where interventions include:

- ✓ Optimal techniques for homestead production of nutrient-dense vegetables, fruits and poultry at Village Model Farms (VMFs) and individual households
- ✓ Essential Nutrition Actions and Essential Hygiene Actions
- ✓ Improved marketing practices and information access
- ✓ *Nurturing Connections* integrated gender and nutrition curriculum
- ✓ Enhancing linkages for women to agricultural extension and health services

Source: HKI, 2013

As of 2013, E-HFP had reached over 1 million Bangladeshi households. Across communities E-HFP participants were significantly more likely to report non-traditional roles in household income generation and decision making than non-participants. **They** were also enabled by a group marketing structure to sell surplus even without freedom to travel to markets.

In the targeted communities of **Barisal division**, surveys five years apart found that among participants in the program:

- ✓ Average vegetable production over a 2-month period increased from 3 to 70 kg per household;
- ✓ Average egg production over a 2-month period increased from 16 to 67;
- ✓ The proportion of children 6-23 months who consumed at least 3 different food groups in one day increased from 43 to 86 percent. Among these children's mothers the proportion increased from 34 to 62 percent.
- ✓ Prevalence of acute malnutrition (low weight for height) decreased from 25 to 17.5 percent
- ✓ Median household income generated by E-HFP over a two-month period increased from 0 to 1000 *takas*.

Source: HKI, 2010

5. CHALLENGES TO IMPLEMENTATION

Although Chapter 4's examples cover a range of activities, all depend on collaboration across sectors. Indeed, the need for multi-sectoral coordination underpins all the programming approaches covered by this review and is widely recognized as essential to nutrition sensitive programming generally (IFPRI, 2012; World Bank, 2013; Gillespie et al., 2013; Ruel and Alderman, 2013; Levinson and Balarajan, 2013). It is also widely recognized as challenging. Reasons include lack of knowledge and evidence about the impact of agriculture and other sectors on nutrition; constraints posed by institutional and sectoral administrative structures; limited resources in terms of staff time, budgets and related disincentives; and the political economy of cross-sector work. Examples of how these issues manifest as specific challenges are discussed below. Each issue – indicators, targeting, working across line ministries, and costing – was cited in programme documents and/or mentioned in communications during the review.

5.1) Sustained integration of nutrition indicators into agricultural project design

Conventional nutritional analysis of a target population includes assessment of micronutrient status, collection of anthropometric data, and context-specific understanding of both the proximal and distal causes of malnutrition. Staff with this expertise are often limited to a small nutrition division or unit within the Ministry of Health and may have limited or no reach into the Ministry of Agriculture. As such sustained M&E of stunting and other nutrition indicators within agriculture poses a problem, as nutrition specialists would need to analyze the success of nutrition activities within food security and other agriculture-based programmes regularly. This requires (1) full cooperation and disclosure on the part of project managers and other actors based in agriculture and (2) a considerable amount of time and capacity on the part of the nutrition team.

In many countries and projects, neither variable is guaranteed. For example, despite the fact that FTF includes a 20 percent reduction in stunting as a key outcome indicator for the success of its projects, SPRING's review of the programme found that stunting was too "high level" an indicator for many FTF projects to monitor. As a result the review recommends adding periodic measurement of more proximate "intermediate indicators", namely household level dietary diversity, to the programme's design (Du, 2013). A recent study on the use of nutrition impact indicators in agricultural interventions¹³ shows similar results. Given the scope and size of projects surveyed, impact on diet was found to be the highest level indicator for which it is realistic to expect observable changes (Herforth and Ballard, forthcoming). FAO routinely advocates for assessment of household and individual dietary diversity for precisely this reason, and as mentioned in the beginning of this Report, **the evidence is stronger that agricultural interventions, designed in the right way, can improve household and child food consumption, both in terms of quantity and quality.** Integrated household surveys which cover a variety of topics (e.g. the Living Standards Measurement Study-Integrated Surveys on Agriculture) have been cited as one option for systematic collection of dietary diversity indicators within an agriculture-based context (FAO, 2012).

However, it is important to note that household dietary diversity is an insufficient indicator of improved nutrition at individual level and as such any agriculture based program aiming for increased nutrition sensitivity would need to consider other assessment methods as well. One solution which has been proposed repeatedly to address this capacity issue is use of independent M&E teams to carry out baseline, intermediate and endline nutrition and food security assessments at geographically representative sentinel sites (Levinson and Herforth 2013). This issue also strengthens the case to include both IYCF indicators *and* women's dietary diversity in national surveys such as DHS and MICS, especially in contexts of "overlap" where DHS or MICS data could be used to validate - or challenge - household level dietary diversity data collected during monitoring of agriculture-based projects. This proposal also helps to circumnavigate the issue of incentives,

¹³ Funded by the EU/FAO Programme on Improved Global Governance for Hunger Reduction, please see FAO Brief for more details.

also mentioned at the beginning of this Report, as it effectively outsources much of the responsibility of monitoring nutrition impact, a responsibility that many agricultural project managers would be hesitant to take on.

5.2) Identifying and reaching target populations

Most nutrition oriented interventions target women of child bearing age and children, the latter either under two as described as some version of “women and children during the first 1,000 days”, or under five. Target populations for food security and agriculture-based activities have a much wider scope. They are likely to include “smallholders” but may also include “producers”, “low income consumers”, “value chain actors” and a variety of other demographics which may not necessarily have much overlap with a population targeted according to nutrition criteria.

For example, as mentioned above, FAO’s IMCF project in Malawi is nested in a larger scale food security programme (≈ 1,000 villages). Direct programme participants in the food security project were identified through a participatory rural appraisal process to determine who was most vulnerable to food insecurity. Households with children under two were not identified as being at risk during the appraisal process¹⁴, moreover efforts made by the facilitators of the IMCF nutrition component to include these households in the beneficiary pool were unsuccessful. As a result, project impact may have decreased due to the mismatch between the target population of the food security programme and the IMCF interventions, which as mentioned above were mainly for IYCF and hence oriented towards mother and child health.

Gender-based targeting issues also pose a challenge. The SPRING review found that male smallholders were the primary beneficiaries of a majority of FTF’s value chain projects (Du, 2013). While presumably due to a constellation of factors, the importance of extension in this context cannot be overstated. As previously discussed, women’s access to agricultural extension services is often limited by cultural taboos, lack of transport and the fact that extension services are traditionally staffed by and serve men. A home economics department may exist to serve women, historically however, there is a “less important” gender bias attached to home economics agents, with the end result being that women extension agents and recipients receive less technical information and training than men (Fanzo et al., 2013). In addition, social norms in some countries determine a gender division of labor across crops¹⁵ such that high value cash crops traditionally fall under the purview of men, while low value crops are more likely to be grown by women (Vargas Hill and Vigneri, in FAO, 2014).

These traditional patterns may change in response to evolving social and economic circumstances (FAO, 2014). However, in situations where they prevail, they present a fundamental conflict of interest which applies not just to FTF but to any programme working to improve gender equality and nutrition within agriculture. As with M&E of nutrition indicators, they pose questions regarding the degree to which agriculture should be held accountable to nutrition. They also – again - spotlight the incentives issue, this time in terms of the need to increase compatibility between nutrition sensitive incentives and the economic incentives which underpin most agricultural development programming.

These issues are becoming higher profile on research agendas. They inform both LANSAs and Transform Nutrition’s study portfolios, for example in regards to use of tools like the WEAI. However the degree to which the incentives issue is a consideration in current project design is unclear. And while the SPRING Review cites increased engagement of women in production of high value crops as an important way to address this issue (Du, 2013), it also acknowledges that targeting remains a problem in many FTF projects. P4P’s capacity

¹⁴ It is important to note that households who were identified during the appraisal process - widows, people caring for orphans, and people with HIV/AIDS – are undoubtedly at heightened risk of malnutrition.

¹⁵ Social norms may also constrain women’s access to land, labor, credit, and output markets, as well as the previously mentioned extension services.

building activities for women provide some positive examples; including facilitating the organization of women's farmers' groups, easing structural constraints and increasing demand for female-produced crops (see Box 2). However, the extent to which these activities are being scaled up and sustained, especially in regards to shifts in market demand for "women's crops", is unclear.

5.3) Sustaining coordination between line ministries

Another incentives issue concerns challenges to sustained coordination between line ministries at central and other levels of government. As mentioned in the discussion on resilience, resource allocation and planning are issues, as in many countries different sectors are under substantial pressure to procure funding to carry out their own mandates. As such, there is a question of performance indicators.

For example, as previously noted, national grain stock levels continue to be upheld as an important measure of food and nutrition security in many countries. In this context - where agricultural growth and production of staple crops is paramount - most government actors involved in agriculture will have little incentive to reconcile the complicated gender issues, targeting mismatches and monitoring challenges cited above. A related point concerns input subsidies for staple crops. These programmes remain powerful political imperatives in some countries. They can comprise a significant portion of a Ministry of Food and Agriculture's budget and as a result may create further disincentives to nutrition sensitive approaches which prioritize crop diversification and other activities which are not staple crop oriented. Finally, when donors are themselves institutionally bound, the problem for country governments is compounded. In Burkina Faso, for instance, a World Bank agriculture programme manager cited difficulties in maintaining a dialogue between sectors within the Bank's country office, and acknowledged that links between nutrition and agriculture were weak within the Bank's own programme portfolio (du Vachat, 2013). A 2012 Bank guidance document proposes earmarking resources for cross sectoral products and operations as one way to mitigate the problem of institutionally bound donor agencies¹⁶ (World Bank, 2013).

A related concept, results-based financing (RBF), is also endorsed by the Bank although as of 2012, nutrition figured only "marginally" in the major Bank RBF trust funds (World Bank 2012). That said, a recent review of how RBF (i.e. performance-based budgeting and results-based incentives) is being implemented in Brazil and Peru concludes that this approach improved performance in decentralized multisectoral nutrition programming for those countries (Levinson and Balarajan, 2013). It is important to note that this same review also makes the case for "convergence" as distinct from "collaboration". The former is framed as the "synergistic interface" which may occur when nutrition sensitive and nutrition-specific interventions are implemented simultaneously (but not necessarily collaboratively) within the same geographical area and target population (Levinson and Balarajan, 2013).

5.4) Institutional capacity building and ownership

A number of the actors included in the review are working directly or through applied research to make the case for nutrition sensitive agriculture and to improve coordination between ministries at various levels of government. FAO's multi-country CAADP Nutrition Capacity Development Initiative is an especially clear, current and ambitious example. The afore-mentioned ACF report finds that although the workshop and roadmap process has increased prioritization of nutrition within agriculture in some countries, for others these workshops may have been too externally driven to create enough country ownership to sustain follow through. The report also notes that the monitoring capacity of the CAADP and FAO teams following the workshops has been limited and that some countries have not received sufficient technical assistance in finalizing full integration of nutrition considerations into their Agriculture and Food Security Investment Plans

¹⁶ Though the primary audience and context of this report is internal to the Bank, some of its proposals hold relevance in wider contexts.

(du Vachat, 2013). FAO itself cites similar challenges, namely ownership, multisectoral collaboration, and capacity constraints, as well as a number of other issues, including the temptation of “quick fixes” (e.g. requests from workshop participants for the “top 10 interventions” to increase nutrition sensitivity), what and how to monitor, and how to cost agricultural programming using a nutrition lens (Dufour, 2013).

In regards to applied research, both LANSAs and Transform Nutrition include institutional capacity building as part of their conceptual frameworks and both consortia include extensive landscaping and political economy analysis of the policy environment in their research portfolios. IDS has also developed *The Hunger and Nutrition Commitment Index* (HANCI), which ranks governments on their political commitment to reducing hunger and undernutrition. The HANCI index is based on three areas of government activity: policies and programmes, legislation, and public expenditure. Although the index includes indicators for both food security and nutrition, it draws a clear distinction between the two and measures commitment to each separately. Forty-five developing countries have been ranked according to this index (see IDS brief for more details)¹⁷.

5.5) Costing of multi-sectoral plans

Although costing and tracking information is essential to mobilizing financing, the challenge of how to cost agricultural programs that include explicit nutrition objectives and activities remains unmet. This issue was cited repeatedly by government personnel participating in the CAADP workshops and has likely been raised in other fora as well. Key constraints include the lack of definitive standards for interventions, difficulty of estimating human resource needs, and lack of knowledge on selecting the most appropriate costing method for the context.

As such, research on the cost and cost-effectiveness of nutrition-sensitive interventions is needed. However to do this effectively requires undertaking a multi-sectoral approach that receives high-level government engagement, including careful thought at different administrative levels and transparency regarding assumptions and calculations. Given these requirements, targets and coverage should be based on realistic expectations of institutional capacity (UNICEF / UN System Network for SUN, 2013).

6. CONCLUSION

Most of the programme examples presented in this report are recent or ongoing. As a result it has been difficult to gather information on either lessons learned or success stories. However, it is clear that constraints and challenges to implementation remain substantial. These include integration of nutrition indicators into agricultural project design; identifying and reaching target populations, especially in regards to women’s empowerment objectives; sustaining coordination between line ministries; and building institutional capacity and ownership. In addition, the question of how to cost agricultural programmes that include explicit nutrition objectives and activities looms large. Cited repeatedly by government personnel participating in the CAADP workshops, it is increasingly raised in other fora as well.

Meeting these challenges requires addressing a deceptively simple question: To what degree should agriculture be held responsible for nutrition? The obvious answer is that agriculture holds great potential in two essential welfare-improving areas: empowerment of women and improvement of diets. Given this

¹⁷ Although here is little publically available information on precisely how much of the information generated by IDs, IFPRI and other research institutes contributes to national policy debates on nutrition, it is important to note that research uptake figures prominently in these organizations’ rhetoric. DfID (and perhaps other donors) also include specific conditionalities for research uptake in their eligibility requirements.

potential, agriculture programmes which are part of broader national development plans should include both these areas as objectives in their design.

However, both the targeting and measurement issues discussed above illustrate how difficult it is to make this rhetoric a reality. Since performance indicators and criteria for target populations are often sectorally bound, the questions of how to design i) truly nutrition sensitive interventions in a realistic and sustainable way, and ii) practical M&E systems for assessing their impact, remain. The programmes described above are making progress in finding answers. One area that is increasingly identified for improvement is M&E of dietary diversity as the measurement of child growth seems unrealistic for many agricultural project designs. A second is development of indices like the WEAI and other strategies to agitate for use of a “gender lens” in agricultural programming. While in some cases increased targeting and engagement of women in programming will surely result in slower economic growth than more conventional approaches, it is clear that empowerment of women is a moral imperative to which the agricultural sector should be held accountable.

Closely related to the the challenge of increased gender equality is the challenge of making pro-nutrition approaches more compatible with the economic incentives which drive agriculture and food systems. As discussed in the World Bank section, nutrition sensitivity within agriculture, while increasingly recognized as an important goal, remains undefined within the parameters of conventional agriculture-based programming. As long as this is the case, demand for this type of programming will be low compared to “business as usual”. As such, guiding the discourse and research towards greater consideration of incentives is essential.

One strategy for doing this is increased advocacy on the part of the nutrition community regarding potential “win-wins”. For example, both labor saving technological change and agricultural research and other production-related productivity improvements contribute to overall sector growth as well as nutrition sensitivity. Unit costs of production are reduced, income generation increases, and demands on women’s time go down. Crop diversification can also be framed as a “win-win”, though this strategy may be difficult in certain situations, including those where subsidies for staple crops are a political imperative. Nevertheless even in these contexts, it may be possible to frame nutrition sensitive programming not as a zero-sum game, but rather as an opportunity for modest efficiency gains.

In situations where the opportunity costs to production are glaring, another option is to acknowledge that trade offs will come at the expense of economic growth, but are likely to be highly compatible with the pro-poor development goals of empowerment, equity and social welfare. These goals are now widely recognized in economic development discourse and are increasingly included in most agricultural and rural development plans as an important foundation for poverty reduction. As such, a political incentive can be created in situations where an economic one cannot. Increased advocacy regarding win-wins will not resolve the complex logistical challenges identified. However it can increase buy-in from outside the nutrition community and contribute to the layout of a broad framework for future priorities in nutrition sensitive development. Both are urgently needed to inform nutrition sensitive programming which is compatible with other sector goals.

REFERENCES

- ACDIVOCA. 2013. AGP-made Brochure, ACDIVOCA website. Available as of 20 September 2013 at: [http://www.acdivoca.org/site/Lookup/ACDIVOCA_AGP_AMDe_brochure_web/\\$file/ACDIVOCA_AGP_AMDe_brochure_web.pdf](http://www.acdivoca.org/site/Lookup/ACDIVOCA_AGP_AMDe_brochure_web/$file/ACDIVOCA_AGP_AMDe_brochure_web.pdf)
- ACF. 2013. ACF Experiences from the Field: Aligning Food Security and Livelihoods and Nutrition. ACF Newsletter. Paris: ACF.
- Aberman, N.L. 2011. Ethiopia Stakeholder Mapping Report. Addis Ababa: Transform Nutrition and IFPRI.
- Aberman, N.L., Powell, J. 2011. *Transform Nutrition: Research Programme Consortium* [PowerPoint slides]. Ethiopia Stakeholder Mapping Workshop, Addis Ababa, November 30, 2011.
- Ag Bendeck, M., Dufour C., Jelensperger, J., Pozarny, P. 2013. *Developing Capacities on Agriculture-Nutrition Linkages in Sub-Saharan Africa: The CAADP Nutrition Capacity Development Initiative* [PowerPointslides]. FAO Headquarters, Rome, April 18, 2013.
- Alkire, S., Meinzen-Dick, R., Peterman, A., Quisumbing, A., Seymour, G., Vaz, A. 2012. The Women's Empowerment in Agriculture Index. IFPRI Discussion Paper 01240. Washington DC: IFPRI.
- Anim-Somuah, A., Henson, S., Humphrey, J., Robinson, E. 2013. Strengthening Agri-Food Value Chains for Nutrition: Mapping Value Chains for Nutrient Dense Foods in Ghana. Sussex: IDS.
- Berhane, G., Dereje, M., Hoddinott, J., Koru, B., Nisrane, F., Tadesse, F., Taffesse, A.S., Worku, I., Yohannes, Y. 2011. Agricultural Growth Program (AGP) of Ethiopia: Baseline Report 2011. Ethiopia Strategy Support Program II. Addis Ababa: IFPRI.
- Berti, P., Krasevec, J., Fitzgerald, S. 2004. A review of the effectiveness of agriculture interventions in improving nutrition outcomes. *Public Health Nutrition*. 7 (5): 599-609.
- BMGF. 2012. *Optimizing Nutrition Outcomes from Investments in Agriculture*. Seattle, Washington: The Bill and Melinda Gates Foundation. Available as of 20 September 2013 at: <http://www.gatesfoundation.org/agriculturaldevelopment/Pages/optimizing-nutrition-outcomes-from-investment-agriculture.aspx>
- Du, L. 2013. *A Landscape Analysis of Linkages between Agriculture and Nutrition in Nineteen Feed the Future Country Programs* [PowerPointslides]. AgN-GLEE Workshop, Washington DC, June 18, 2013. Available as of 20 September 2013 at: <http://www.spring-nutrition.org/sites/default/files/1.6%20%20Findings%20of%20the%20AgN-GLEE%20Landscape%20Analysis.pdf>
- du Vachat, E. 2013. Sowing the Seeds of Good Nutrition: Making Agricultural Policies Deliver Better Nutrition. Paris: ACF.
- Espejo, F., Burbano, C., Galliano, E. Undated. Homegrown School Feeding: A Framework to Link School Feeding with Local Agricultural Production. Rome: WFP.
- FAO. 2013a. The State of Food and Agriculture 2013: Food Systems for Better Nutrition. Rome: FAO.
- FAO. 2013b. Alimentación Escolar Directa de la Agricultura Familiar y las Posibilidades de compra Estudio de Caso de Ocho Países. Rome: FAO.

FAO. 2014. Proceedings of the Preparatory Technical Meeting for the Joint FAO/WHO Second International Conference on Nutrition (ICN2). Rome: FAO.

Fan, S., Pandya-Lorch, R. (eds.). 2012. *Reshaping agriculture for nutrition and health*. Washington, DC: IFPRI.

Fanzo, J., Marshall, Q., Wong, J., Merchan, R.I., Jaber, M., Souza, A., Verjee, N. 2013. The Integration of Nutrition into Extension and Advospry Services: A Synthesis of Experiences, Lessons and Recommendations. Lindau, Switzerland: Global Forum for Rural Advisory Services.

Feed the Future. 2013. 2013 Progress Report: Growing Innovation, Harvesting Results. Washington DC: USAID.

Frankenberger, D., Swallo, K., Mueller, M., Spangler, T., Downen, J., Alexander, S. 2013. Feed the Future Learning Agenda Literature Review: Improving Resilience of Vulnerable Populations. Washington D.C.: USAID.

Gillespie, S., Haddad, L., Mannar, V., Menon, P., Nesbitt, N., and the Maternal and Child Study Group. 2013. The politics of reducing malnutrition: building commitment and accelerating progress. *Lancet*, 10.1016/S0140-6736(13)60842-9.

HKI. 2010. Trend Analysis of the Jibon O Jibika Project, 2004-2009. *HKI Bulletin Bangladesh (1): January 2010*. Dhaka: HKI.

Harris, J. 2013. Author's communication with IFPRI.

Hawkes, C., Turner, R., Waage, J. 2012. Current and Planned Research on Agriculture for Improved Nutrition: A Mapping and a Gap Analysis. A report for DFID. London: LCIRAH.

Hawkes, C. 2014. Identifying Effective Policy to Address the Multiple Burdens of Malnutrition: A value chain approach [PowerPoint slides]. Preparatory Technical Meeting for the Joint FAO/WHO Second International Conference on Nutrition (ICN2). Rome: FAO, November 21-23, 2013.

Haver, K., Harmer, A., Taylor, G., Latimore, T.K. 2013. Evaluation of European Commission integrated approach of food security and nutrition in humanitarian context. Oxford: Valid International.

Henson, S., Humphrey, J., McClafferty, B. 2013. Nutritious Agriculture by Design: A Tool for Program Planning. GAIN-IDS Discussion Paper. Geneva: GAIN.

Herforth A. 2010. Synthesis of Guiding Principles on Agriculture Programming for Nutrition. Rome: FAO.

Herforth, A., Jones, A., Pinstup-Andersen, P. 2012. Prioritizing Nutrition in Agriculture and Rural Development: Guiding Principles for Operational Investments. Washington DC: World Bank.

Herforth, A. 2013. *Primary Principles and Pathways for Reaching Nutrition through Agriculture* [PowerPointslides]. AgN-GLEE Workshop, Washington DC, June 18, 2013. Available as of 20 September 2013 at: <http://www.spring-nutrition.org/sites/default/files/1.4%20Primary%20Principles%20and%20Pathways%20for%20Reaching%20Nutrition%20through%20Agriculture%20.pdf>

Herforth, A., Ballard, T. (forthcoming).

IFAD. 2011. Realizing the potential of agricultural development for impact on food security and nutrition. Rome: IFAD.

- IFPRI. 2006. Biofortified Sweet Potatoes. Washington, DC: International Food Policy Research Institute.
- IFPRI. 2012. *Global Food Policy Report 2011*. Washington, DC: IFPRI.
- IFPRI (undated). Strengthening and Evaluating Helen Keller International's Homestead Food Production Programs. In *Project Portfolio: Diet Quality and Health of the Poor*. IFPRI website. Available as of 20 September 2013 at: <http://www.ifpri.org/book-741/node/8351>
- IYCN. 2011. Nutrition and Food Security Impacts of Agriculture Projects. Washington, DC: United States Agency for International Development.
- LANSA, 2013. Leveraging Agriculture for Nutrition in South Asia (LANSA): Revised Inception Report. Chennai: M.S. Swaminathan Research Foundation.
- Le Cuziat, G., Mattinen, H. 2011. Maximizing the Nutritional Impact of Food Security and Livelihoods Interventions: A Manual for Field Workers. Paris: ACF.
- Levinson, F.J., Balarajan, Y. 2013. Addressing Malnutrition Multisectorally: What have we learned from recent international experience? New York: United Nations Children's Fund.
- Levinson, F.J., Herforth, A. 2013. Monitoring and Evaluating the Food Security and Nutrition Effects of Agricultural Projects. Rome: Food and Agriculture Organization of the United Nations.
- McNulty J. 2013. Challenges and issues in nutrition education. Background Paper for the International Conference on Nutrition (ICN2). Rome: Food and Agriculture Organization of the United Nations.
- Meeker, J., Haddad, L. 2013. A State of the Art Review of Agriculture-Nutrition Linkages: An AgriDiet Position Paper. Brighton: Institute of Development Studies.
- Meerman. 2012. Proceedings for the International Scientific Symposium on Food and Nutrition Security Information: From Valid Measurement to Effective Decision Making. Rome: Food and Agriculture Organization of the United Nations.
- Pell, A., Walter, M., Mehta, S., Dhatt, A.S. 2011 Leveraging Agriculture to Reduce Poverty and Undernutrition in Central India: Ongoing projects and a call for research and education proposals in Vidarbha, India. *Tata-Cornell Agriculture Nutrition Initiative Seminar Series*, September 15, 2011. Cornell University, Ithaca, NY.
- Pinstrup Anderson, P. 2013a. Nutrition-sensitive food systems: from rhetoric to action. *The Lancet* – 3 August 2013 DOI:10.1016/S0140-6736(13)61053-3
- Pinstrup Anderson, P. 2013b. Nutrition Sensitive Food Systems. *Background Paper prepared for ICN2*. Rome: Food and Agriculture Organization of the United Nations..
- Ruel, M.T., Alderman, H. and the Maternal and Child Nutrition Study Group. 2013. Nutrition-sensitive interventions and programmes: how can they help to accelerate progress in improving maternal and child nutrition? *The Lancet* - 6 June 2013. DOI: 10.1016/S0140-6736(13)60843-0.
- Ruel, M., 2001. Can Food-Based Strategies Help Reduce Vitamin A and Iron Deficiencies? A Review of Recent Evidence. Washington, DC: IFPRI.
- Robinson, E. 2013. Author's communication with IDS.

Saltzman, A. 2013a. Biofortification: Progress toward a more nourishing future. *Global Food Security*. Available as of 20 September 2013 at: <http://dx.doi.org/10.1016/j.gfs.2012.12.003>

Saltzman, A. 2013b. Author's communication with HarvestPlus.

Smith, L.C., Haddad, L. 2000. Explaining child malnutrition in developing countries: A Cross-Country Analysis, International Food Policy Research Institute, Washington D.C.

Spielman, D.J., Pandya-Lorch, R. (eds.) 2009. *Millions Fed: Proven Successes in Agricultural Development*. Washington DC: International Food Policy Research Institute.

Tanimichi-Hoberg, Y. 2013. *The World Bank's Approach to Mainstreaming Nutrition in Agriculture* [Power Point slides]. ICN2 Preparatory Technical Meeting, Rome, November 14, 2013.

Titus, S. 2013. Author's communication with SPRING.

Thompson, B., Amoroso, L. (eds). 2010. Combating Micronutrient Deficiencies: Food Based Approaches. FAO: Rome

Transform Nutrition. 2013a. Study Matrix. Unpublished document.

Transform Nutrition. 2013b. Indirect Nutrition Interventions: Agriculture and food security. Transform Nutrition website. Available as of 20 September 2013 at:

<http://www.transformnutrition.org/research/indirect-interventions/agriculture-and-food-security/>

UNICEF / UN System Network for SUN (2013). Workshop on costing and tracking investments in support of scaling up nutrition. Nairobi, Kenya, 12-14 November 2013. http://www.unscn.org/en/sun_un_network/nairobi-costing-workshop/sun_un_network_costing_workshop.php

UNSCN, FAO, Ag2Nutrition Community of Practice. 2013. Key Recommendations for Improving Nutrition through Agriculture. UNSCN, FAO, and the Ag2Nutrition Community of Practice. Available as of 20 September 2013 at: http://unUNSCN.org/files/Agriculture-Nutrition-CoP/Agriculture-Nutrition_Key_recommendations.pdf

USAID. 2012. Building Resilience to Recurrent Crisis: USAID Policy and Program Guidance. Washington DC: USAID.

USAID. 2013. *Agriculture-to-Nutrition Pathways*. Background document for the Agriculture and Nutrition Global Learning and Exchange Event, Bangkok, March 19-23, 2013.

van Haften, R., Anderson, M.A., Caudill, H., Kilmartin, E. 2013. *Second food aid and food security assessment (FAFSA-2) summary* [PowerPoint slides]. Available as of 20 September 2013 at: <http://www.fantaproject.org/downloads/pdfs/FAFSA-2-Summary-Feb2013.pdf>

Vargas Hill, R, Vigneri, M. 2014. Mainstreaming Gender Sensitivity in Cash Crop Market Supply Chains. In FAO. 2014. *Gender in Agriculture: Closing the Knowledge Gap*. Rome: FAO.

Webb, P., Kennedy, E. 2012. Impact of Agriculture on Nutrition: Nature of the Evidence and Research Gaps. Nutrition CRSP Research Brief: 4. Boston: Tufts University.

Webb, P. 2013. Impact Pathways from Agricultural Research to Improved Nutrition and Health: Literature Analysis and Research Priorities. *Background Paper prepared for the ICN2*. Rome: FAO.

WFP. 2013. Update on the Nutrition Policy. *Excerpt from Annual Session of the Executive Board*. Rome: FAO.

WFP and ALINE. 2011. Agricultural Learning and Impacts Network (ALINE): P4P Global Gender Strategy. Rome: WFP.

World Bank. 2007. *From Agriculture to Nutrition: Pathways, Synergies and Outcomes*. Washington DC: World Bank.

World Bank. 2013. *Improving Nutrition through Multisectoral Approaches*. Washington DC: World Bank.

UNITED NATIONS SYSTEM

STANDING COMMITTEE

ON NUTRITION

The United Nations System Standing Committee on Nutrition (UNSCN) is the food and nutrition policy harmonization forum of the United Nations. Its vision is a world free from hunger and malnutrition, where there are no longer impediments to human development.

UNSCN

CHAIR: RAMIRO LOPES DA SILVA
C/O WORLD HEALTH ORGANIZATION
20 AVENUE APPIA, CH 1211 GENEVA 27

SWITZERLAND

TELEPHONE: +41-22 791 04 56

SCN@WHO.INT

WWW.UNSCN.ORG

Funding support is gratefully acknowledged from:

Government of CANADA,

Department of Foreign Affairs Trade and Development (DFATD)