Leveraging Agriculture for Nutrition in East Africa (LANEA)

Country Report – ETHIOPIA

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ABBREVIATIONS AND ACRONYMS

ASF  Animal Source Foods
ATA  Agricultural Transformation Agency
BMI  Body Mass Index
BCC  Behaviour Change Communication
CAADP Comprehensive Africa Agriculture Development Programme
CIP  International Potato Center
CSA  Central Statistical Agency of Ethiopia
DA   Development Agent (Agriculture extension agent)
EAS  Ethiopia Academy of Sciences
EDHS Ethiopian Demographic and Health Survey
ENGINE Empowering New Generations to Improve Nutrition and Economic Opportunities
EIAF  Ethiopian Institute of Agricultural Research
ERHS Ethiopian Rural Household Survey
FSP  Food Security Program
GTP  Growth and Transformation Plan
HAZ  Height for Age Z-Score (Measurement for Stunting)
HEW  Health Extension Worker
IFPRI International Food Policy Research Institute
KIPPRA Kenya Institute for Public Policy Research and Analysis
LANEA Leveraging Agriculture for Nutrition in East Africa
MoA  Ministry of Agriculture
MoH  Ministry of Health
MoI  Ministry of Industry
NDPF Nutrition Development Partners’ Forum
NNCB National Nutrition Coordination Body
NNP National Nutrition Programme
NNS National Nutrition Strategy
NNTC National Nutrition Technical Committee
NTWG Nutrition Technical Working Group
OFSP Orange-fleshed Sweet Potato
PIF Ethiopia’s Agricultural Sector Policy and Investment Framework
PSNP Productive Safety Net Program
QPM  Quality Protein Maize
REACH Renewed Efforts against Child Hunger and Undernutrition
RUTFs Ready-to-use Therapeutic Foods
SARI Southern Agricultural Research Institute
SUN Scaling Up Nutrition movement
TANDI Tackling the Agriculture-Nutrition Disconnect in India
TARI Tigray Agricultural Research Institute
UNECA United Nations Economic Commission for Africa
USAID United States Agency for International Development
**EXECUTIVE SUMMARY**

LANEA (Leveraging Agriculture for Nutrition in East Africa) is an IFPRI/FAO research initiative carried out in Ethiopia, Uganda and Kenya to investigate opportunities and challenges related to scaling up impact on nutrition through the food and agriculture sector. The study took place from October 2013 to July 2014 and included a structured evidence review, key informant interviews and a stakeholder workshop. Information gained from this study deepens the evidence base on how to create and sustain an enabling environment for nutrition within agricultural policy and programmes. The study initiative was organized around three core domains that are key to generating change: politics and governance, knowledge and evidence, and capacity and financial resources (Gillespie et al. 2013).

Ethiopia, which joined the SUN movement in 2010, is currently putting a strong emphasis on economic growth and meeting its development goals. Yet despite significant reductions in poverty, malnutrition remains a serious issue, with high rates of stunting, wasting, micronutrient deficiencies and maternal malnutrition, and disparities between rural and urban areas. Ethiopia’s strong economic growth is fuelled in part by the food and agriculture sector, and with percent of the population employed in small-scale agriculture, the agriculture sector has strong potential to address nutrition and food security across Ethiopia. The LANEa Ethiopia study highlights stakeholder perspectives regarding how agriculture can be leveraged to achieve improvements in nutrition.

**Key Findings**

**Politics and Governance**

Ethiopia’s policy environment has strong potential to address nutrition multisectionally, with growing recognition of the role of agriculture in improving nutrition. The National Nutrition Strategy was developed in 2008, and the launching of the National Nutrition Plan (NNP) engages agriculture, while the Growth and Transformation Plan II (GTP) is also planning to better address nutrition. Further momentum can be seen in the development of a food and nutrition case team within the Ministry of Agriculture (MoA). However, stakeholders participating in the LANEa study report that “siloed” perspectives on nutrition remain; nutrition is seen as a health and emergency issue while agriculture focuses on market-driven production. Study participants stressed the need for stronger emphasis on nutrition within the Agricultural Sector Policy and Investment Framework (PIF), as well as defining a clear role for agriculture in the NNP.

They also highlight the need for stronger coordination for nutrition both horizontally and vertically - within ministries as well as between federal, state and kebele levels. Study participants also shared their perspectives on what factors are influential for policy-making on agriculture-nutrition integration. The current global focus on nutrition and donor interest is seen as important, along with Ethiopian networks such as the Nutrition Development Partners’ Forum. Furthermore, stakeholders highlighted the role of data and evidence as particularly important for the Ethiopian cultural context, with stakeholders pointing to lessons learned from programmes and research and reports such as the Cost of Hunger in Ethiopia and the Lancet Series, as being influential.
Challenges to integrating nutrition and agriculture include the lack of an institution to oversee implementation of multisectoral nutrition policies and programmes. Another barrier is the lack of quick impact solutions for nutrition; participants said that investments in nutrition may not be visible in the immediate future, making political will challenging to obtain. To make nutrition visible, clear communication of evidence and linkages across sectors is necessary. Study participants stressed that information from national and international research and programme impact evaluations that support linkages between agriculture and nutrition need to be communicated to decision-makers.

Knowledge and Evidence

Study participants voiced their perception that there is a lack of knowledge and evidence on agriculture-nutrition pathways in Ethiopia, with particular emphasis on the lack of nutrition knowledge within the agricultural sector. However, their ideas on these pathways indicate a growing awareness of multisectoral approaches to nutrition. They referenced pathways such as women’s empowerment and control of resources, increasing incomes and productivity of nutritious foods, and using behaviour change communication (BCC) to promote dietary diversity. They also shared a number of ideas on practical ways to make agriculture nutrition-sensitive, including investing in food preservation and storage, improving production of small livestock, and using information communication technology (ICT) to reach the public with nutrition-sensitive agriculture messages.

Confirming stakeholder perspectives on the need for more knowledge, the structured evidence review found a lack of strong research support for agriculture-nutrition pathways in Ethiopia. Most of the 14 studies identified were mapped to Pathway 1 (Agriculture as a direct source of household food consumption), with fewer studies for each of the other pathways. Findings from one study indicated that home production alone was not sufficient for households to achieve nutrition security. Another found that livestock ownership and milk consumption was associated with linear growth in children, but further evidence suggested that agriculture and nutrition training is needed to address factors such as cultural and religious taboos related to feeding animal source foods to children. In one study, the urban poor were found to be more vulnerable to food price increases than rural households. Adolescent girls were more food-insecure than boys in both rural and urban households. Another interesting finding was that land ownership had a protective effect against food insecurity, indicating that policies to strengthen women’s land tenure rights could buffer women from the impacts of food price increases. This was also discussed in interviews, with participants citing women’s lack of land as a constraint to addressing nutrition.

While these research findings indicate strong potential for various policies and programmes, further evidence for what works is needed, as well as an understanding of regional - both cultural and geographical - differences relating to agriculture-nutrition linkages. Study participants also stressed the need for more information on practical and cost-effective solutions for integration, and a particular need for knowledge and consensus on indicators for use in multisectoral nutrition programming.
Agricultural programming also needs to be aware of potential negative consequences on nutrition; for example, land allocation to cash and export crops may overlook the need for local consumption of nutrient-dense crops. Study participants pointed out that regions with the highest crop production also have the highest stunting rates. They suggested that this may be due to men, rather than women, controlling agricultural income in these regions, but further analysis is needed to understand the reasons for these high rates and the potential connections between agriculture and nutrition across regions.

**Capacity and Financial Resources**

The LANEA study looked at capacity at individual, community, organizational and structural levels, as well as the sufficiency of financial resources for agriculture-nutrition integration. Study participants described capacity development needs across each one of these levels, particularly emphasizing the gap between knowledge and implementation. They pointed to the need for nutritionists to understand the agricultural sector and for the agriculture sector to understand nutrition, stressing that the government, NGOs, donors and the private sector all have limited experience with nutrition-sensitive agriculture.

To strengthen the knowledge base, participants stated that capacity is needed within academic and research institutions to include nutrition in agricultural curricula and to conduct action-oriented research investigating agriculture’s impact on nutrition outcomes. Programme staff also need capacity development; participants expressed that agriculture Development Agents (DAs) and Health Extension Workers (HEWs) need training on how to apply a nutrition lens to projects and implement nutrition-sensitive approaches. Also, diverse skill sets and approaches may be needed to address causes of malnutrition across the different livelihood zones; thus, capacity development needs to be shaped around these needs.

Capacity development is also needed at district and kebele levels. Stakeholders suggested that this could begin with better dissemination of the NNP and engagement in dialogues, as well as creating nutrition focal points within each of the 9 ministries. The coverage of current nutrition-sensitive programmes remains limited, with large-scale programmes like the Productive Safety Net Program (PSNP) and Agriculture Growth Program (AGP) only reaching up to 10-15 percent of the population. This is partly a question of funding - study participants reported that there is no funding for nutrition outside the Ministry of Health, and without a government mandate to integrate nutrition and agriculture, commitment to funding and investment in multisectoral approaches to nutrition will remain limited.

**Study Recommendations**

Based on the study interviews and stakeholder workshop discussions, as well as the gaps identified through the evidence review, a number of recommendations for how to move forward on integrating nutrition and agriculture in Ethiopia has been identified.

**Politics and Governance**

1. Make nutrition a priority within guiding policy documents such as the GTP2, NNP2 and PIF.
2. Strengthen existing coordination mechanisms, including identifying/establishing a high-level institution to oversee implementation of multisectoral nutrition policies,
fora for knowledge-sharing, and nutrition focal points and flagship programmes.

3. Support horizontal and vertical coordination between federal, zonal, district and kebele institutions, and within ministries; engage districts and kebeles and ensure messages reach lower levels.

4. Strengthen the capacity of the agricultural sector to integrate nutrition-sensitive interventions into agricultural programmes. This should include strengthening of nutrition case team at the MoA and the establishment of nutrition case teams at the regional level.

5. Identify and gain consensus on use of key indicators for integrated nutrition-sensitive programming; use indicators to increase accountability for nutrition.

6. Incentivize, recognize and value contributions to multisectoral work for nutrition.

7. Harmonize nutrition-related engagements/efforts on agricultural and health sectors including messages given to households.

8. Support efforts to improve land tenure rights, especially for women.

**Knowledge and Evidence**

9. Support agriculture and health research institutes and universities to conduct cross-sector research, including efforts to understand and respond to regional and cultural differences that impact nutrition.

10. Study agriculture-nutrition pathways related to women’s empowerment, time and resource control.

11. Conduct impact evaluations to investigate what works in integrated agriculture-nutrition programmes.

12. Develop communication methods and tools/resources, to reach different audiences, from policy-makers to field staff to smallholder farming households.

13. Learn lessons/best practices from other successful initiatives (e.g. HIV/AIDS, malaria, polio).

**Capacity and Financial Resources**

14. Build government, NGO staff and donor knowledge of nutrition-sensitive agriculture and demonstrate the economic value of a multisectoral approach to nutrition to leverage funding.

15. Include nutrition in training curricula for agriculture professionals and field workers.

16. Support efforts to build capacity of women’s and youth community organizations.

17. Consider geographic and cultural differences in design of programmes.

18. Leverage the private sector to address nutrition through the food and agriculture system.

19. Support capacity-building for data analysis and research dissemination.

20. Scale up funding for integrated, long-term approaches to agriculture-nutrition integration.
1. INTRODUCTION

Background and Rationale

There is a growing acknowledgement that “nutrition-sensitive” multisectoral approaches that complement “nutrition-specific” interventions are needed to achieve progress in reducing undernutrition. The food and agriculture sector is central to achieving this progress, and it has potential to contribute much more to nutritional improvement than it has to date (Ruel and Alderman, 2013). However, not enough is known about how this impact can be achieved. To create an enabling environment for agriculture-nutrition integration, quality evaluations of the nutritional impact of agricultural programmes and interventions are needed (Ruel and Alderman, 2013), as well as more knowledge about the political, institutional and capacity-related challenges that need to be addressed to link agriculture and nutrition at all levels.

Leveraging Agriculture for Nutrition in East Africa (LANEA) is a research study based in Ethiopia, Kenya and Uganda that addresses this need for knowledge regarding the enabling environment necessary to impact nutrition through the food and agriculture sector. The LANEA study documents efforts, describes challenges and identifies opportunities to scale up the food and agriculture sector’s contributions to improving nutrition. These three countries are members of the Scaling Up Nutrition (SUN) movement.

The LANEA study took place between October 2013 and July 2014 and included two main parts: a systematic literature review aligning research studies to six agriculture-nutrition pathways, completed in January 2014 for all three countries; and qualitative research based on one-to-one interviews and workshops with key stakeholders in nutrition and agriculture sectors in each country.

Following a detailed review of the nutrition-relevant policy literature in the fourth paper of the Lancet series (Gillespie et al., 2013), three core domains were identified as key to generating change: politics and governance; knowledge, perceptions and evidence; and capacity and resources (Box 1). Drawing on these domains, this study explores stakeholder perceptions of nutrition-agriculture linkages; political and institutional challenges and opportunities; evidence and knowledge necessary for policy-making; and key issues with regard to capacity development to scale up nutrition in the food and agriculture sector.

**Box 1: Core domains for impact on nutrition through the food and agriculture sector**

1. **Political context and institutional structures** affecting agriculture-nutrition linkages [Policy, politics, governance]
2. **Knowledge, perceptions and evidence** of linkages between agriculture and nutrition [Evidence, data, perceptions]
3. **Capacity and financial resources** needed to impact nutrition through the food and agriculture system [Capacity and finance]

**Source:** Gillespie et al., 2012. Leveraging Agriculture for Nutrition in South Asia and East Africa: Examining the enabling environment through stakeholder perceptions
LANEA Ethiopia Methodology
The LANEA Ethiopia study included a systematic literature review conducted in January 2014, interviews with key informants completed in March and April 2014, and a consultative workshop held on 30 May 2014.

The literature review compiled evidence from Ethiopia relating to the agriculture-nutrition pathways described by Gillespie et al. in their work on the TANDI (Tackling the Agriculture-Nutrition Disconnect in India) initiative (Gillespie et al. 2012). Detailed methodology and discussion is described in Section 3. Findings from the literature review were shared during the consultative workshop.

The interviews and workshop were designed to elicit stakeholder perspectives on agriculture-nutrition linkages. A stakeholder mapping exercise conducted in 2012 by the Transform Nutrition consortium identified influential actors in nutrition and provided information on organizations, institutions and individuals to interview for this study and to participate in the workshop. This stakeholder list was updated prior to the study in consultation with IFPRI and the FAO representation in Ethiopia.

Nineteen interviews were conducted from March to April 2014, covering a wide range of stakeholders (Annex A). The interview guide (Annex B) was adapted from that used by the Leveraging Agriculture for Nutrition in South Asia (LANSA) consortium in order to permit cross-regional comparisons and exchanges. All of the interviews were tape-recorded, with the exception of two. Interview transcripts were analysed using a stakeholder grid that included categories related to the three core domains for impact (Box 1).

The consultation workshop was held on 30 May 2014, with 27 stakeholders participating (Annex A). The workshop was used to disseminate the findings of the literature review and the stakeholder interviews, and generate further insights on agriculture’s role for improved nutrition. Detailed notes were taken at the workshop, and along with the interviews, they provide diverse perspectives from government, donors, NGOs, civil society and the private sector, contributing to the knowledge base on agriculture and nutrition integration in Ethiopia.

This report draws together the results from this research in order to identify constraints and opportunities to scale up the nutritional outcomes of investments in the food and agriculture sectors, and contribute to the understanding of agriculture-nutrition pathways in Ethiopia.
Food Security and Economic Development in Ethiopia

Ethiopia has undertaken a far-reaching programme of economic reform in the last decade. With a GDP growth rate estimated at 9.7 percent for 2013, Ethiopia is performing higher than average for sub-Saharan Africa. Additionally, the population living below the national poverty line has declined from 42 percent in 2000 to 29.6 percent in 2013 (World Bank, 2014). Ethiopia’s five-year Growth and Transformation Plan (GTP), unveiled in October 2010, presents a government-led effort to achieve the country’s ambitious development goals related to economic growth, education, health, democracy, sustainability and meeting the Millennium Development Goals (MDGs).

Despite these positive trends, Ethiopia remains one of the poorest countries in the world, continuing to face the challenges of reducing poverty and ensuring food and nutrition security for all of its citizens. According to the United Nations Development Programme’s multidimensional poverty index, 87.3 percent of the population lived in poverty in 2010. Ethiopia’s Human Development Index value, at 0.435, lies below the average for sub-Saharan Africa (0.502) (UNDP, 2014). The Economist Intelligence Unit’s Global Food Security Index, measuring vulnerability to hunger through affordability, availability, quality and safety, gives Ethiopia a score of 35.8 out of 100 in 2014 (GFSI, 2014). This data indicates the scale of the challenges of meeting Ethiopia’s development goals and impacting food and nutrition security (Table 1).

Table 1 Poverty and Development Indicators, Ethiopia

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Ethiopia Data</th>
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<tbody>
<tr>
<td>GDP growth rate (2013)*</td>
<td>9.7%</td>
</tr>
<tr>
<td>GNI per capita, US$ (2013)*</td>
<td>470</td>
</tr>
<tr>
<td>Population living below the national poverty line (2011)*</td>
<td>29.6%</td>
</tr>
<tr>
<td>Human Development Index score*</td>
<td>0.435</td>
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<tr>
<td>Human Development Index ranking*</td>
<td>173 out of 187 countries</td>
</tr>
<tr>
<td>Global Food Security Index ranking*</td>
<td>89 out of 109 countries</td>
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Source: a) World Bank data; b) UNDP 2014 Human Development Report; c) GFSI 2014 Global Food Security Index

Agriculture in Ethiopia

Agriculture plays a central role in Ethiopia’s economic development and food security. According to IFPRI’s Food Security Portal (IFPRI, 2012), rainfed agriculture employs 80 percent of the population, contributing significantly to the country’s economy. Most of the farmers are smallholders, with 40 percent (about five million households) cultivating less than half an acre each and unable to meet their annual food needs from production alone (CAADP, 2013).
Agro-ecological zones in Ethiopia are varied and diverse, including pastoral and agropastoral regions that support a range of crops and livestock. Cereal production centres around five major crops: teff, wheat, maize, sorghum and barley. Other important crops include coffee, enset (*Enset ventricosum*), oilseeds and pulses (Taffesse, 2011).

Rainfall variation, including droughts and flooding, has devastating effects on crop and livestock productivity in Ethiopia. Soil degradation and lack of irrigation also contribute to low crop yields (Taffesse, 2011), and climate change impacts could have a significant effect on agricultural systems in Ethiopia (Hamza, 2012).

The Ethiopian Government has developed a number of policies and strategies focused on agricultural development. These include the Agriculture Growth Program (AGP), the Ethiopia Agricultural Sector Policy and Investment Framework (PIF), the Food Security Program (FSP), and involvement with the Comprehensive Africa Agriculture Development Programme (CAADP). Additionally, a number of donors and NGOs are greatly involved in agricultural development programming, including NGO involvement with the AGP, USAID’s Feed the Future initiative, and other programmes.

**Nutrition in Ethiopia**

In recent years, the country has shown some progress in reducing undernutrition; however, it still remains a serious issue, with 57 percent of childhood deaths associated with malnutrition (CAADP, 2013). The 2014 Mini Ethiopia Demographic and Health Survey (DHS) indicated that 40 percent of children under the age of five suffer from chronic undernutrition (stunting) nationally. While this has fallen from 58 percent in 2000, it is still a serious development concern (CSA, 2014). The World Health Organization (WHO) considers a stunting prevalence rate of greater than or equal to 40 percent as constituting a major public health problem.

More progress has been made in the numbers of children who are underweight. The percentage of children underweight declined from 41 percent in 2000 to 25 percent in 2014. There was, however, little change over the ten-year period in the percentage of children suffering from acute malnutrition (wasting), which fell only slightly from 12 percent in 2000 to 9 percent in 2014 (CSA, 2014). Micronutrient deficiencies prevalent in Ethiopia include iron, iodine and vitamin A (CSA, 2012).

Maternal malnutrition is a global problem with important consequences for both maternal and infant survival, as well as acute and chronic disease and economic productivity. According to the Ethiopia DHS, maternal mortality is 676 per 100 000 live births. About 30 percent of women of reproductive age are chronically malnourished with a BMI of less than 18.5, and anaemia prevalence is also high, at 17 percent for women 15-49 years old and 22 percent among pregnant women (CSA, 2014). Pregnancy and lactation are critical times when women need a diverse diet with additional nutrients and calories, not only for themselves, but for the health of their infants as well, otherwise the consequences can be serious.
Nutritional status in Ethiopia is the result of interactions between food security - including availability, accessibility and utilization - child feeding practices, cultural norms and access to health care, among other factors. Disparities in nutritional status between rural and urban areas also persist, with children in rural areas more likely to be stunted than those in major cities (CSA, 2012).

**Multisectoral Nutrition Policies and Networks**

Momentum to address and scale up nutrition has been growing over the past decade. The Ethiopian Government launched a National Nutrition Strategy (NNS) in 2008 to coordinate government sectors and development partners to improve nutrition. The NNS established a National Nutrition Coordination Body (NNCB) in 2008 to ensure effective coordination between sectors, and a National Nutrition Technical Committee (NNTC) in 2009.

The NNCB includes nine state ministers from relevant sectors, including health, agriculture, water and energy, education, industry, labour and social affairs, and women, children and youth affairs. It is co-chaired by the State Minister for Health and the State Minister for Agriculture, and meets quarterly to review policies and make strategic decisions on programme implementation. The NNTC consists of directors and technical officers from the nine ministries and one representative from UNICEF as the chair of the Nutrition Development Partners’ Forum (NDPF). The Nutrition Technical Working Group (NTWG) provides guidance for the implementation of decisions made by the NNCB. National Technical Working Groups are also being established at the regional level.

The National Nutrition Program (NNP), first launched in 2009, is the implementation framework for the NNS and is housed in and managed by the Ministry of Health (MoH). While it had multisectoral components, it lacked incentives for non-health sectors to coordinate for nutrition, did not have a mechanism for accountability, and lacked functional coordination mechanisms at regional, district (woreda) and community (kebele) levels. In order to address these and other issues, the NNP was revised in 2013. The revised NNP clearly outlines targets for each sector and includes plans to develop regional coordinating bodies and technical committees. It includes an emphasis on nutrition-sensitive approaches and mainstreaming of nutrition into other sectors, including agriculture, education, water and industry (Government of Ethiopia, 2013).

**Box 2:** Ethiopia’s policies and networks with potential to influence agriculture-nutrition linkages

<table>
<thead>
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<th>Policies</th>
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<tbody>
<tr>
<td>Growth and Transformation Plan II (GTP II)</td>
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<td>National Nutrition Programme (NNP)</td>
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<tr>
<td>National Nutrition Strategy (NNS)</td>
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<tr>
<td>Agricultural Sector Policy and Investment Framework (PIF)</td>
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<tr>
<th>Networks</th>
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<tr>
<td>Nutrition Development Partners’ Forum (NDPF)</td>
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<td>Nutrition Technical Working Group (NTWG)</td>
</tr>
<tr>
<td>Agriculture Task Force (ATF)</td>
</tr>
<tr>
<td>Comprehensive Africa Agriculture Development Programme (CAADP) network</td>
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<tr>
<td>Agricultural Growth Programme (AGP) National Steering Committee</td>
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</tbody>
</table>

**Source:** Policies and networks cited by stakeholders during LANEA interviews and workshop
3. LANEA ETHIOPIA LITERATURE REVIEW:
Mapping the evidence of agriculture-nutrition pathways

Overview and Methodology

This systematic literature review was undertaken in January 2014 to find evidence of the linkages between agriculture and nutrition in Ethiopia. The search covered fifteen databases, websites and references from bibliographies, combining search terms related to food, nutrition and agriculture, and identifying both published and grey literature.

All references were entered into Mendeley referencing software, and duplicates, irrelevant and inaccessible studies were removed. The search yielded a total of 795 citations, which were reduced to 14 articles through an elimination process. These 14 articles were then rated according to quality criteria and mapped to one or more of six key pathways between agriculture and nutrition (Box 3). The sequence of steps is illustrated in Figure 3.

Studies included were full text articles in published or grey literature that linked nutrition to elements of agriculture in Ethiopia. Studies that were excluded were opinion pieces or conceptual papers, those that did not measure nutrition outcomes or relate elements of agriculture to nutrition outcomes, as well as those that could not be accessed electronically despite searches in a number of search engines. Articles were categorized according to study design, and quality assessment was based on factors such as appropriateness and rigour, internal and external validity, reliability and cogency, with gradings of high, medium and low quality (DFID, 2013).

Agriculture was defined in broad terms to encompass agrifood systems and policies. Measures of nutrition outcomes and status included anthropometry, total calorie intake, diet quality, nutrient consumption, nutrient deficiencies, consumption of specific food commodities, nutrition knowledge and nutrition-related practices.

Box3: Agriculture-nutrition pathways

1. Agriculture as a source of food: Farmers produce for own consumption
2. Agriculture as a source of income for food and non-food expenditures: As a major direct and indirect source of rural income, agriculture influences diets and other nutrition-relevant expenditures
3. Agricultural policy and food prices: Agricultural conditions can change the relative prices and affordability of specific foods, and foods in general
4. Women in agriculture and intra-household decision-making and resource allocation may be influenced by agricultural activities and assets, which in turn influence intra-household allocations of food, health and care
5. Maternal employment in agriculture and child care and feeding: A mother’s ability to manage child care may be influenced by her engagement in agriculture
6. Women in agriculture and maternal nutrition and health status: Maternal nutritional status may be compromised by the often arduous and hazardous conditions of agricultural labour, which may in turn influence child nutrition outcomes

Results by agriculture-nutrition pathway
The majority of the 14 studies included in the evidence review were associated with pathway one: agriculture as a source of food. The other five pathways were supported by few studies each, and studies were of varying quality and design (see Table 2). The findings relating to each pathway are described below.

Table 2: Number of studies included in the evidence review by pathways and study design

<table>
<thead>
<tr>
<th>Pathway</th>
<th>Numbers of studies</th>
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<tbody>
<tr>
<td>1: Agriculture as a source of food</td>
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<tr>
<td>2: Agriculture as a source of income for food and non-food expenditure</td>
<td>3</td>
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<tr>
<td>3: Agriculture policy and food prices affecting food consumption</td>
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<tr>
<td>4: Women in agriculture and intra-household decision-making and</td>
<td>3</td>
</tr>
</tbody>
</table>
5: Female employment in agriculture and child care and feeding
6: Women in agriculture and women’s nutritional and health status

**Study Design**

<table>
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<th>Count</th>
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<tbody>
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<td>Randomized controlled trials</td>
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</tr>
<tr>
<td>Quasi-experimental studies</td>
<td>4</td>
</tr>
<tr>
<td>Observational studies using analytical methods such as multivariate</td>
<td>7</td>
</tr>
<tr>
<td>regressions and econometric modelling</td>
<td></td>
</tr>
<tr>
<td>Observational descriptive studies</td>
<td>2</td>
</tr>
<tr>
<td>Studies that do not clearly identify a design</td>
<td>2</td>
</tr>
</tbody>
</table>

*Some studies are included in more than one pathway; therefore the total exceeds 14.

**Pathway 1: Agriculture as a source of food**

Agriculture----own production----household access to calories/micronutrients----individual intake----nutrition outcome

Twelve out of fourteen papers in this review investigated the association between agricultural production or home food production and household nutrition, measured in either calories or micronutrients (Alemu and Lindtjorn, 1995; Amede et al., 2004; Ayele and Peacock, 2003; Belachew et al., 2012; Demissie et al., 2009; Goshu et al., 2013; Johnson-Welch, 1999; Okike et al., 2005; Pachón et al., 2007; Sadler and Catley, 2009; Sadler et al., 2012; Hoddinott et al., 2013). Of these studies, six were considered to be high-quality with four quasi-experimental papers (including two multi-country studies involving Ethiopia case studies) (Johnson-Welch, 1999; Pachón et al., 2007) and three observational studies which included multivariate modelling analyses (Belachew et al., 2012; Hoddinott et al., 2013; Okike et al., 2005).

As with other evidence-mapping of agriculture-nutrition linkages for this pathway (Kadiyala et al., 2014), livestock ownership was found to be an important factor in access to animal source foods (ASF) in five papers (Okike et al., 2005; Sadler et al., 2012; Sadler and Catley, 2009; Hoddinott et al., 2013; Pachón et al., 2007). Okike et al.’s econometric analysis (Okike et al., 2005) found HAZ (height for age z-score measurement for stunting) in preschool children increased significantly with the number of cows owned by the household. This effect may have been due to enabling relatively higher consumption of milk and milk products, although this was not established as causal. In another study, the Milk Matters’ project, (Sadler and Catley, 2009) research confirmed the importance of milk in the diets of pastoralist children. The project’s Phase II cohort study (Sadler et al., 2012) showed that an intervention providing support to farmers for milking animals that remain near women and children during the dry season improved milk production and consumption among children. In another recent study, Hoddinott et al. (2013) confirmed that cow ownership in underdeveloped rural settings was an important driver of milk consumption and linear growth of young children. Families’ limited livestock holdings at the household level were identified as a constraint to the delivery of ASF to children in case studies in five countries, including Ethiopia (Pachón et al., 2007).
However, access to increased livestock assets may not be sufficient to improve nutritional status, as evidenced by Johnson-Welch’s multi-centre study (1999), which was derived from the findings of FARM-Africa’s Dairy Goat Project study. Data from the Dairy Goat Project showed that nutritional status was not affected by participation in the project, and there was a need to increase women’s goat owners’ knowledge and skills in producing, processing, preparing and serving vitamin A-rich foods. Based on these findings, FARM-Africa built skill training for women participants into their subsequent intervention (Johnson-Welch, 1999), promoting new vitamin A-rich foods such as carrots and underutilized local foods such as pumpkins in home gardens. A later study on the Dairy Goat Project (Ayele and Peacock, 2003) showed that, despite improved access to milk, meat was still not given to any children in participant households. A national cross-sectional study (Demissie et al., 2009) based on survey data of Vitamin A deficiency concluded that extremely low levels of fruit and vegetable cultivation and consumption throughout the country may be due to a lack of knowledge about their importance. Homestead production was described as ‘negligible’ in all regions.

Amede et al.’s study compared two different cropping systems in the Ethiopian highlands (Amede et al., 2004), highlighting the link between crop diversification and nutrition outcomes. The authors’ analysis recommended a shift from a cereal-dominated system to an enset/legume-dominated structure to improve nutrient intake among rural communities, although neither system fully provided for nutrient requirements (Amede et al., 2004). Another study comparing household-level food security and dietary diversity among different farming systems (Goshu et al., 2013) confirmed the expectation that households with better dietary diversity also had better diet quantity. However, there were significant differences between determinant factors, which need to be considered when formulating policy. For example, daily calorie intake was affected by agricultural production factors such as total cultivated land, irrigation water use, and quantity of fertilizer used, whereas dietary diversity was determined by livestock holding and the farming system (Goshu et al., 2013).

A common theme throughout a number of studies was the inability of agricultural households to achieve nutrition security through home production alone (Demissie et al., 2009; Goshu et al., 2013; Johnson-Welch, 1999; Okike et al., 2005), although rural adolescents were found to be nearly twice as food-secure as adolescents in low-income urban households due to direct access to agricultural products (Belachew et al., 2012).

**Pathway 2: Agriculture as a source of income for food and non-food expenditure**

Agriculture----income (poverty)----food and non-food expenditures----household nutrient availability----individual nutrient intake----other nutrition-relevant goods and services----nutrition outcome

Three papers examined agriculture’s contribution to household incomes and the spending of additional cash on food and non-food items as well as the subsequent nutritional outcomes, with one high-quality (Okike et al., 2005) one medium- (Ayele and Peacock, 2003) and one low-quality study (Yigezu and Sanders, 2008) adding evidence to this pathway.
From two studies, there was evidence that livestock ownership led to both increased household consumption of animal-source foods (ASF) and income growth from animal product sales, which enabled rural households to increase dietary diversity (Okike et al., 2005; Ayele and Peacock, 2003). For example, the addition of other foods—such as eggs, fresh vegetables and milk—to household diets was attributed to income generated as a result of complementary activities established with funds from FARM-Africa’s Dairy Goat project (Ayele and Peacock, 2003). Steady income from goat sales enabled households to acquire diversified assets (up to 20 percent of the households had acquired ownership of cattle) or invest in improved agricultural technologies to increase crop and animal production and to send their children to school.

Evaluation of a national strategy to introduce new agricultural technologies such as water harvesting, fertilization and improved crop varieties, showed an increase in income and higher caloric intake (from cereals) among rural highland communities (Yigezu and Sanders, 2008), although only caloric intake was evaluated. The authors suggested that farmers’ incomes could be further increased by improving credit programmes, enabling them to sell crops later in the year when prices were higher rather than post-harvest when prices were low. Pressure to meet expenses such as school and medical costs, as well as paying back money borrowed through the credit programme, forced farmers to sell post-harvest when prices were at their lowest.

Pathway 3: Agriculture policy and food prices affecting food consumption

Supply & demand factors (policies, taste, prices) ----relative prices of various food items---- household calories/micronutrients----individual intake-----nutrition outcome

Two high-value studies investigated the effect of food price rises on household food security, with a focus on poor and vulnerable groups including female-headed households (Kumar and Quisumbing, 2013) and adolescents (Belachew et al., 2012) in both rural and urban areas. Recent research on the differential effects of the 2007-2008 food price crisis on women and men used data from the Ethiopian Rural Household Survey (ERHS) (Kumar and Quisumbing, 2013). This study adds to a growing body of literature on the gendered impact of food price volatility. Women are described as ‘shock absorbers’ of household food security, reducing their own consumption to leave more food for other household members, particularly children. Rising prices can also put pressure on women’s time by forcing them to travel further to obtain lower prices and to prepare cheaper but more time-intensive foods, such as millet and cassava rather than wheat or maize. If women have fewer years of schooling than men, they may be less sectorally mobile than men and unable to respond to new opportunities arising from changes in relative prices (Kumar and Quisumbing, 2013).

Kumar and Quisumbing (2013) concluded that female-headed households were more likely than other households to experience a food price “shock,” defined as a significant reduction in asset holdings, household income or consumption due to high food prices. These households are usually net purchasers of food and have a larger food gap (defined as the number of months they cannot fulfill their food needs), report more frequent food shortages, and can provide fewer meals to children when compared with male-headed households. Policies to strengthen women’s land tenure security in rural Ethiopia could
serve to buffer women from the impacts of future food price crises, since land ownership was found to have a protective effect against food insecurity (Kumar and Quisumbing, 2013).

The impacts of increasing food prices will also differ according to a household’s production, consumption and marketing patterns. In general, net purchasers of food are the most vulnerable to food price increases; thus the urban poor are usually more vulnerable than households in rural areas who can grow some of their own food (Belachew et al., 2012). Adolescents are in a period of rapid growth and development with high nutritional requirements. Belachew et al.’s (2012) study involving a survey before and after the 2007-8 food price crisis found that adolescents from low-income, urban households were at a greater risk of chronic food insecurity than semi-urban or rural adolescents. As income declined, only adolescents in urban areas had an increase in the proportion of chronic food insecurity, suggesting that their resilience is eroded as their purchasing power diminishes (Belachew et al., 2012). The study also found that a larger proportion of girls were chronically food-insecure than boys in both rural and urban areas, supporting findings from other studies showing that boys are often favoured in the allocation of household resources.

**Pathway 4: Women in agriculture and intra-household decision-making and resource allocation**

Three studies were associated with this pathway; two of them evaluated agricultural interventions aimed at increasing women’s access to productive resources that might, in turn, impact nutritional status within the household (Johnson-Welch, 1999; Ayele and Peacock, 2003). FARM-Africa’s intervention trial focused on improving women’s skills and knowledge of agricultural production and preparation of vitamin-A rich foods through vegetable seed distribution and education sessions in both agriculture and nutrition (Johnson-Welch, 1999). Nine months of community-based activities resulted in significant differences (p<0.01) between food-intake scores of participants (2.6) and non-participants (1.6). Additionally, children in participant households consumed milk twice as often as non-participants (p<0.01). A household was 25 percent more likely to own and maintain a vegetable garden if they were exposed to the trial intervention. Although the intervention focused on women, qualitative research and observations of field teams indicated that Ethiopian women would have had difficulty participating in the trial intervention activities and implementing what they learned without the support of male household members (Johnson-Welch, 1999).

Participants in the Dairy Goat Project (Ayele and Peacock, 2003) formed women’s groups to manage goat credit disbursement and repayment and to establish joint saving schemes, enabling them to gain access to sources of finance such as the project’s matched funding scheme. Pre- and post-intervention surveys provided some evidence that this participation enabled women to increase direct control over their resources and to strengthen their influence in household decision-making. Ninety-one women were engaged in small businesses and profits were used to buy milk and cereal grain among half of these households, resulting in a 26 percent increase over the previous year’s energy intake.
A third study (Pachón et al., 2007) identified a series of intra-household factors that affected children’s intake of ASF. These included economic, social, knowledge and cultural factors. For example, factors constraining individual consumption of ASF in the study included caregivers’ perceptions related to feeding any animal-source food and specific animal-source foods to children, as well as cultural and religious taboos.

**Pathway 5: Female employment in agriculture and child care and feeding**

Agriculture----(female) employment----caring capacity/practice----nutrition outcome

Only one paper (Sadler et al., 2012) discussed a link between women’s agricultural employment, maternal caring capacity and nutritional health status in young children. One of the positive livelihood outcomes reported by female participants in Phase II of the Milk Matters Project was a reduced workload and more free time due to the intervention. During a typical dry season, women often spent extensive amounts of time searching for adequate pastures for the small number of milking animals in their care and/or gathering food for their children to fill the gap left by the lack of animals’ milk. The authors considered the increase in women’s free time to be an important factor for child nutrition, linking maternal health and well-being and optimal infant and young child feeding practices (such as perceived ability to exclusively breastfeed), although this study did not investigate how the additional time was spent by mothers.

**Pathway 6: Women in agriculture and women’s nutritional and health status**

Women in agriculture----energy expenditure----female adult BMI

Two studies related women’s employment in agriculture and their energy expenditure (Okike et al., 2005; Alemu and Lindtjorn, 1995), although only one (Okike et al., 2005) was high-quality. Okike et al.’s research (2005) found household size to have a significant positive effect on maternal BMI. The authors explained that in larger households, agricultural and household labour - including animal care, water and fuelwood collection and child care - may be more equally shared, lessening the burden on the mother.

Another study (Alemu and Lindtjorn, 1995) compared physical activity, illness and nutritional status among adults in a rural Ethiopian community. About one-third of the study population had a BMI <18.5, defined as malnourished. Women showed less seasonal variation in estimated energy expenditure than men, whose energy expenditure was highest during the pre-harvest season. This may reflect different demands for labour during the agricultural cycle.
Conclusion
This literature review exposes an overall lack of strong study outcomes linking agriculture and nutrition across all six pathways, with most studies (12/14 papers) focusing on pathway 1 (agriculture as a source of food).

The studies reviewed nevertheless reveal interesting findings pertaining to factors affecting pathways between agriculture and nutrition, such as the following:

- Livestock ownership and milk consumption have been associated with linear growth and dietary diversity in children, both through access to animal source foods (ASF) and other foods (fresh vegetables) purchased with profits from sales of livestock products. Nonetheless, access to increased livestock assets may not be sufficient to improve children’s nutritional status, as other factors affect their intake of ASF, such as caregivers’ perceptions related to feeding ASF to children and cultural and religious taboos.
- It is difficult for households which depend entirely on agriculture to achieve nutrition security through home production alone.
- The impact of food price volatility tends to differ according to gender, with female-headed households more likely to experience a reduction in asset holdings, household income or consumption due to high food prices. This volatility also increases the pressure on women’s time. Finally, adolescent girls tend to be more chronically food-insecure than boys in both rural and urban areas, as boys are often favoured when allocating household resources.
- Net purchasers of food are the most vulnerable to food price increases, and the urban poor are more vulnerable to these shocks than households in rural areas who can grow some of their food.
- Land ownership was found to have a protective effect against food insecurity, suggesting that policies to strengthen women’s land tenure security in rural Ethiopia could buffer women from the impacts of future food price crises.

However, this information remains insufficient and there is a need to develop a stronger evidence base in Ethiopia to better inform policy-makers and those involved in the health, nutrition and agriculture sectors and to provide guidance for the design and implementation of nutrition-sensitive agriculture programmes and policies.
LANEA ETHIOPIA INTERVIEW AND WORKSHOP FINDINGS - POLITICS, EVIDENCE AND CAPACITY

4. LANEA ETHIOPIA INTERVIEW AND WORKSHOP FINDINGS - POLITICS, EVIDENCE AND CAPACITY

As previously described, interviews and a consultative workshop were carried out with key stakeholders from the Government, donor and UN agencies, NGOs and the private sector to gain perspectives on challenges and opportunities for agriculture-nutrition integration in Ethiopia. The findings from these interviews and the workshop have been classified into the three major areas of impact: 1) the political context of agriculture-nutrition linkages; 2) knowledge and evidence for agriculture-nutrition linkages; and 3) capacity to carry out agriculture-nutrition linkages (Box 1). These key areas form the basis of the following discussion.

Political Context of Agriculture-Nutrition Linkages
In this section, stakeholder perspectives are shared on the current momentum to scale up nutrition through agriculture and the extent to which there is an enabling environment to maximize agriculture’s contribution to nutrition. Also described are perceptions of what factors are key to influencing policy.

The main governmental players identified as being responsible for or involved in leveraging agriculture for nutrition outcomes are the Ministry of Agriculture (MoA) and the Ministry of Health (MoH), with less mention of the other seven ministries that co-signed the NNP. Other actors who are reported to have potential to impact agriculture-nutrition policies include major donors, NGOs and research institutions. Little mention is made of agribusiness or the private sector, though they also have a role to play according to some stakeholders.

Challenges and constraints to considering nutrition in the food and agriculture sector
There are a number of policies and frameworks currently being prioritized by the Government, donors and civil society to integrate nutrition multisectorally (Box 2); yet these processes are new or even still in a development phase, and stakeholders described a number of challenges to both policy creation and implementation and working across sectors.

One of these constraints is the general lack of knowledge in the agriculture sector of what nutrition integration entails and what specifically agriculture can do for nutrition other than increase productivity. Several stakeholders reflected that the MoA’s primary objective has been to increase production, improving cash crop productivity and contributing to poverty reduction and economic growth. This focus on market-driven production assumes that the food and agriculture sector simply needs to increase incomes, and the nutrition situation in Ethiopia will subsequently improve.

Another challenge is that nutrition is typically seen as falling under the realm of health and emergencies. Study participants from across sectors expressed the view that nutrition is
seen as a medical issue (with micronutrient supplements and fortified foods “considered as medicines”) falling under the responsibility of the MoH, although many participants state that this has begun to change. With this perspective, it can be difficult for the agricultural sector to understand its connection to nutrition.

Another NGO participant reflected that achieving nutrition outcomes requires a long-term impact and is not visible in the immediate future: “you don’t see it visibly now and it slips from people’s minds”. This is a particular challenge for policy-makers, who are often looking for quick impact and inexpensive solutions. A related constraint mentioned by numerous stakeholders is the lack of evidence and knowledge regarding what these solutions may be. Officials can create policies that call for integration broadly, but they don’t yet know what to do to implement them practically. One MoA participant states: “the MoA has signed the NNP, but what it should do in practical terms has not been clearly spelled out”.

A further challenge identified is that despite the numerous policies and networks, there is a lack of horizontal and vertical coordination - between sectors as well as between federal, woreda and kebele levels. MoA stakeholders and others, including workshop participants, discussed the challenge of coordinating nutrition within the different MoA departments and from federal to kebele levels. Coordination mechanisms, while improving, are still lacking.

A further constraint cited by an NGO participant as the biggest challenge to nutrition in Ethiopia is women’s lack of rights to own land, which makes it difficult for women to look after their household needs.

**Current momentum and enabling environment for scaling up nutrition through agriculture**

Despite the challenges, there is significant momentum to scale up nutrition multisectorally in Ethiopia from federal to programme levels. Stakeholders expressed increasing levels of awareness towards integrating nutrition and shared ideas on the role of the food and agriculture sector.

At the policy level, stakeholders described the launching of the revised NNP in June 2013 as key to considering nutrition within the agriculture sector. The revised NNP engages all relevant sectors, including agriculture, identifying their roles and responsibilities and setting indicators for each sector’s contributions to nutrition with clear accountability matrices. While the NNP provides overall guidance relating to each sector’s roles and responsibilities, it does not include how to operationalize this - a gap that is now being filled by the multisectoral guideline currently under preparation.

An interviewee from the MoA reported that as a result of the new attention given to nutrition, the MoA has developed a food and nutrition case team including a nutrition professional located in the extension division of the training and advisory directorate. This is awaiting approval from the Ministry of Civil Service, but has the potential to improve linkages and coordination between agriculture and nutrition.
More broadly, the new GTP is planning to better address nutrition issues, and the appointment of the First Lady, Ms Roman Tesfaye, as a nutrition champion indicates a commitment to push the nutrition agenda forward. Activities regarding Ethiopia’s involvement with CAADP have also provided an opportunity to discuss the agriculture sector PIF and ensure that nutrition is incorporated. An MoH participant said that platforms have been created at the political level where ministers are “sitting down and discussing nutrition”. For example, participants referred to an orientation on nutrition that was given to 60 parliamentarians to make them aware of their roles related to nutrition policies in the country.

At the programme level, stakeholders described how the food and agriculture sector is already involved in activities supporting nutrition outcomes. For example, the Agricultural Transformation Agency (ATA), a quasi-governmental institution supporting the Government on agricultural policy, strategy and systemic issues, reported that they are working to increase production and use of quality protein maize (QPM). A participant from the Clinton Foundation described their multisectoral work with the MoA, MoH, Ministry of Industry (MoI) and others for the local production of complementary and supplementary foods that will source ingredients from smallholder farmers, connect to private companies for production, and use health extension workers (HEWs) and export channels through the World Food Programme (WFP) for distribution.

The Productive Safety Net Program (PSNP), a key component of the FSP, was cited by numerous stakeholders - donors and UN agencies in particular - as an example of current momentum to integrate nutrition in an agriculture and food security programme. The PSNP provides food and cash transfers to households in exchange for labour on public work projects. In 2014, the Government and its partners started to include nutrition-sensitive activities in the PSNP. These include using nutrition indicators in performance monitoring; using behavioural change communication (BCC) to promote dietary diversity; exempting pregnant women from public work and including households with acutely malnourished children and children under two in the programme; and making public work itself more nutrition-sensitive: for example, planting nutritious fruit trees rather than other species.

The new Agricultural Growth Programme (AGP II) was cited as another example where nutrition is becoming more integrated. A donor participant described how the AGP II is including nutrition capacity building activities and BCC messages on dietary diversity, as well as training agriculture Development Agents (DAs) (extension agents) on nutrition messages and promoting the production of diversified foods together with the value chain programmes. However, a participant from the ENGINE (Empowering New Generations to Improve Nutrition and Economic Opportunities) project described that the enabling environment needs to be supported for the DAs, especially when asking them to carry out sensitizations that are outside their scope of work.

These are just a few of the examples of the momentum and the enabling environment being created to address nutrition through the food and agriculture sector. Others that were described by interview participants are listed in Table 3 below.
**Table 3** Programmes cited by stakeholders as examples of the current momentum and enabling environment for nutrition-sensitive agriculture

<table>
<thead>
<tr>
<th>Agency/Organization</th>
<th>Programme Activities</th>
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<tbody>
<tr>
<td>MoA</td>
<td><strong>Productive Safety Net Program (PSNP).</strong> Described in text.</td>
</tr>
<tr>
<td>MoA and multiple partners</td>
<td><strong>Agricultural Growth Programme II (AGP II).</strong> Described in text.</td>
</tr>
<tr>
<td>USAID, MoA, MoH, Save the Children, and other partners</td>
<td><strong>ENGINE Program.</strong> Supports implementation of National Nutrition Programme and strengthens multisectoral coordination.</td>
</tr>
<tr>
<td>WFP</td>
<td><strong>Homegrown School Feeding programme.</strong> Smallholder farmers and farming groups providing produce for diverse school meals.</td>
</tr>
<tr>
<td>WFP and government partners</td>
<td><strong>MERET</strong> (Managing Environmental Resources to Enable Transitions to More Sustainable Livelihoods). Support, including food, for food-insecure communities to rehabilitate degraded land and build income-generating activities and resiliency.</td>
</tr>
<tr>
<td>Guts Agro-Industry</td>
<td>Private sector signatories to SUN Movement. Sourcing products from smallholder farmers, developing supplementary foods with local ingredients to treat malnutrition.</td>
</tr>
<tr>
<td>Tigray Agricultural Research Institute (TARI), Southern Agricultural Research Institute (SARI), CIP (International Potato Center) and others</td>
<td>Described by Irish Aid, who supports their work on orange-fleshed sweet potato (OFSP) and its important role in addressing vitamin A deficiency.</td>
</tr>
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*Source: Programmes cited by stakeholders during LANEA interviews and workshop*
Knowledge and perceptions of agriculture-nutrition pathways

Considering the current momentum to scale up nutrition through agriculture, stakeholders were asked what factors they think are key to influencing policy in this direction and what opportunities exist to do so.

Their responses indicated that the GTP and NNP are central to formulating policies, strategies and programmes; any policies must be in line with the guiding principles of these frameworks. Additionally, participants mentioned that lessons learned and evidence gained from evaluations of nationwide programmes like the PSNP and AGP II provide important inputs into policy formulation.

Stakeholders also referenced *The Cost of Hunger in Ethiopia* (2014) study as being influential for policy formulation. This study describes the social and economic effects of child malnutrition in terms of education and productivity, emphasizing that nutrition is not simply a health issue. Global documents and scientific papers such as the *Lancet* series and IFPRI reports were also mentioned as reference materials for policy-makers to understand agriculture-nutrition linkages. An NGO participant said that data collected by the Central Statistical Agency of Ethiopia (CSA), World Bank, FAO and UNICEF are also useful in informing policy.

Several participants from the donor community and UN agencies pointed to the opportunity to work multisectorally to address nutrition through the Nutrition Development Partners’ Forum (NDPF), a group chaired by UNICEF that meets to discuss progress on SUN and REACH and provide input on the implementation of the NNP. Other networks that were cited as influential in terms of policy-making are the NNCB, NTWG and the AGP steering committee.

Further opportunity lies in the global community’s prioritization of agriculture-nutrition linkages and the growing donor interest to support such initiatives. An NGO participant said that the global pressure from the African Union (AU) and CAADP provides an opportunity to impact policy-makers. He also said that existing Government documents that include specific goals, such as the GTP’s goal to reduce stunting to 36 percent by 2015, could provide a point of discussion on how to achieve the goals, motivating and holding officials across sectors accountable to work to meet these commitments.

Knowledge and Evidence

This section focuses on stakeholder perceptions of the current knowledge and evidence base for agriculture-nutrition pathways in Ethiopia. Perceptions are described on how agriculture can become more nutrition-sensitive and on the potential negative consequences that agriculture can or has had on nutrition outcomes. Participants’ thoughts are given on the gaps and evidence needed to scale up nutrition through agriculture, and how to translate knowledge and evidence into useful action.
Knowledge and perceptions of agriculture-nutrition pathways

The study asked participants about their knowledge of pathways and linkages from agriculture to nutrition. Many stakeholders felt that knowledge of how to impact nutrition outcomes through agriculture is low in Ethiopia, particularly at the federal level, but a participant from a donor agency described the link directly saying: “agriculture is the mother of nutrition...nutrition is food”.

Some participants described ideas that related to the six pathways described in Section 3. Donor agency and NGO participants pointed to the importance of empowering women as key to influencing children’s nutritional status. They perceive that when women control the resources, they are more likely to use them for household consumption, which will improve nutritional outcomes. However, others pointed to the lack of knowledge related to these pathways; several NGO participants expressed that it was unknown whether income, dietary diversity, women’s empowerment, value chains or other factors affected nutritional outcomes.

Stakeholders described perceptions that an increase in agricultural productivity of nutritious foods will ensure consumption of diversified diets and affect nutritional outcomes: if farmers produce nutritious food, households will consume a nutritious diet. It was mentioned that agriculture as a livelihood can contribute to income and consequently affect the types of food consumed in the household. However, participants also noted the simplicity of this view and the need for behaviour change communication (BCC) to encourage consumption of diverse diets.

Making agriculture nutrition-sensitive

When asked for their ideas on how to make agriculture more nutrition-sensitive, participants responded from both a policy perspective as well as with ideas related to practical programmes and approaches.

Interviewees suggested that multisectoral discussion must continue to take place- to translate the NNP into achievable activities. A need for both intersectoral and intrasectoral coordination mechanisms was mentioned. Workshop participants discussed the need for coordination mechanisms at all levels to bring stakeholders together to talk about how to implement nutrition-sensitive agriculture activities at the ground level. They suggested organizing for to share best practices and disseminate the NNP to woreda and kebele levels, and emphasized the need for an institution to oversee implementation of nutrition-sensitive activities across the board.

Participants from the MoA mentioned the positive nutritional impact of small livestock and ASF like poultry, fish, dairy products and eggs. One interviewee from the MoA said that improving production and productivity of small animals, such as poultry, and lifting taxes related to animal feeds, would bring down prices and make ASF more affordable for households. Lowering prices would increase consumption and lead to stronger nutrition security. Other participants indicated that the MoA and ATA are promoting high-value crops, improved seeds and nutritious varieties like QPM, but further knowledge and understanding of these products is necessary. A donor agency stakeholder described how food preservation and storage are also nutrition-related issues in which agriculture can play a role.
Participants discussed the central role of female empowerment in making agriculture nutrition-sensitive. Participants from the ATA and a foundation gave the example that if men control increases in household income, they use the money to take another wife or purchase alcohol; however, women are more likely to invest in household diet when they have control over resources. Thus, ensuring that agricultural investments target and empower women is key. The ATA participant also stressed that investing in education is vital so that households understand how to utilize their resources to ensure good health and nutrition. A participant from the MoA suggested using information technology to communicate messages to the public.

While education and behaviour changes messages were seen as important by numerous participants, an NGO participant emphasized the need for the agriculture and health sectors to harmonize messages that are being given to households. He said: “two extension workers go to the community and tell conflicting messages: the DAs to sell and the HEWs to feed the child”. The DAs advise families to sell their produce to increase their income, while the HEWs are counselling families to consume what they produce; this has been confusing for smallholders.

One stakeholder from the private sector described how agribusiness can also work to improve nutrition outcomes. Guts Agro-industry has joined the Scaling Up Nutrition business network and has developed both a nutrition policy and a social responsibility policy to guide their business. They work with farmer cooperatives to source raw materials such as chickpeas for their ready-to-use therapeutic foods (RUTFs). The interviewee states: “It is not only a question of business alone, it is also a question of citizenship. When you know how malnutrition is serious, you will try what you can.”

**Perspectives on potential negative consequences of food and agriculture policies and programmes**

Study participants were asked whether they knew of agricultural interventions, programmes or policies that negatively affected nutrition outcomes. Several participants responded that agriculture has not affected nutrition negatively, while others shared thoughts related to the environment and land use, market orientation and women’s time. One NGO participant said that rather than negatively affect nutrition, many programmes have just missed opportunities to make an impact.

One interviewee from the MoA pointed out that the agriculture sector in Ethiopia produces the “lion’s share” of greenhouse gas emissions, mainly from natural resource degradation and methane gas from livestock production. He indicated that the damage to the environment could negatively affect nutrition. In another interview, a donor participant described how small-scale irrigation schemes could increase water- and vector-borne diseases, contributing to malnutrition.

Other potential negative impacts mentioned by stakeholders related to the allocation of available land for cash and export crops and the focus on the market versus consumption. A donor agency and an NGO participant said that promoting production of monocrops and not promoting dietary diversity can have a negative impact on nutrition. Similar examples included the promotion of oilseeds, eucalyptus, coffee and khat as negatively shifting
farmers away from crops for local consumption. The impact of land allocation on prices was also cited as important: if coffee or khat is produced at the expense of cereals, the price of cereals in the market will increase, which would have a negative impact on food and nutrition security. Another participant reported that a region known for its orange production has now shifted to producing khat, which could negatively affect nutrition outcomes.

An NGO participant said that the DAs were being trained too heavily on promoting market-oriented production with insufficient emphasis on consumption. In this respect, a workshop participant informed that the DA curriculum mainly focuses on staple crops and needs stronger emphasis on the adoption, promotion and production of diversified crops. The impression among stakeholders was that agriculture programmes upset the balance between production for export and for local consumption, an example being given in the production of oilseeds mainly for export leading to their neglect as a locally consumed foodstuff.

Several participants pointed out that the regions with the highest cash crop production also had the highest levels of stunting. An NGO interviewee wondered why this is, saying that although incomes are being raised, the question is: “how is that cash being utilized?” Another stakeholder reflected that he suspects this is because men are controlling income from cash crops. One participant told the story of seeing a mother give khat to her toddler to keep him from feeling hungry and crying. Another said that engaging and targeting women with agricultural projects can have a positive impact, but at the same time, programmes need to be aware of and compensate women for the time spent on the project that decreases their time available for child care.

**Gaps and evidence needed on scaling up nutrition through agriculture**

Participants were asked about whether the current data on nutrition-agriculture integration is sufficient and what type of data and evidence are needed to influence policy and strengthen programmes. Many study participants agreed that there is insufficient data to indicate which are the most appropriate policies, interventions and approaches to improve nutrition through agriculture. They shared a number of ideas related to evidence needed to link agriculture and nutrition.

Some study participants believe that while a significant amount of data is collected by the Ethiopia DHS, CSA, agriculture sector and various interventions, there is a lack of data to show evidence of successful integrated programmes, and a lack of concrete, practical information on how to integrate agriculture and nutrition. They also pointed to the need for knowledge on what indicators to use within integrated programming, and the need to triangulate data from the DAs and HEWs with nutrition indicators.

A donor agency participant said that there are enough data on the problem, but not enough data on the solution. The DHS, for example, found that the regions producing a crop surplus also have the highest levels of stunting in the country, yet the survey does not explain which factors are responsible. Participants expressed that further evidence is needed to explain linkages between production and malnutrition across regions. They also mentioned the lack of concrete evidence regarding the food and agriculture sector’s ability to reduce stunting globally, not just in Ethiopia.
Study participants expressed that many of the documents discussing agriculture-nutrition linkages lack practical evidence of what works. An NGO participant said that most research in Ethiopia is “behavioural” rather than “biochemical” and a UN agency participant expressed that evaluations come from interventions that are not specifically designed to address nutrition. Additionally, several interviewees reflected that evidence may already exist, but improvement in data analysis and interpretation might be needed to capture what works.

Stakeholders indicated that the government is fond of practical evidence - in the words of a workshop participant: “evidence is crucial in Ethiopian culture”. Evidence needs to be practical, innovative and include economic impact in order to be useful to policy-makers. An NGO participant stressed that policy-makers need evidence that shows both economic and productivity impacts of different investments. Solutions need to be easily adoptable by farmers and connect not only to nutrition objectives, but also to the food and agriculture sector’s objectives related to increasing productivity for smallholder farmers.

Overall, stakeholders indicated a lack of clarity regarding how various agricultural interventions, such as farmers’ training, demonstrations of value-added transformation of agricultural products, and promotion of such inputs as biofortified seeds, can improve nutrition.

During the workshop, participants discussed the need for more evidence regarding nutrition indicators in agriculture, saying that including nutrition indicators in agriculture programmes would help to hold accountable those responsible for the integration. So far, no consensus has been reached regarding which indicators to include, and how and by whom the information should be collected. Developing consensus on this could help to strengthen the evidence base and lead to stronger action. An NGO participant stated: “what gets measured gets done”, underlining the need for good indicators.

Study participants, including workshop attendees, also discussed the need to generate data specific to different regions within Ethiopia. Agriculture-nutrition linkages in one livelihood zone might not be applicable to another. This creates challenges in that small-scale project-based research is difficult to replicate and sometimes not conclusive due to research design issues. Stakeholders thought that research institutes and programmes both have a role to play in generating high-quality unbiased evidence.

Incentives for translating knowledge and evidence into action

When asked about policy-makers’ incentives to use research and evidence, participants had a number of thoughts, from how agriculture-nutrition policies fit into broader policy goals to the importance of communication, value and the relevance of research.

A donor agency participant pointed out that policies must fit into the overall strategic framework of the GTP. Additionally, flagship programmes like PSNP and AGP can help inform policy-making processes because of their large geographical coverage in the country and the perception that evaluation findings from these programmes are credible.
Two participants mentioned the importance of communication methods. Communicating evidence for linking agriculture and nutrition in a way that policy-makers can easily understand is crucial. Policy-makers need clear policy briefs that provide key messages and sufficient technical information to help them make appropriate decisions. A donor agency participant said that communicating evidence in a palatable, practical way is important, suggesting that the simple statement that: “Ethiopians are not performing well in soccer due to stunting and malnutrition” may convince politicians to act. He pointed to the need to strengthen communication between the scientific community and the policy-makers. A UN agency stakeholder described how IFPRI has different communication strategies for different audiences: academics, development professionals and the general public. She said that engaging communication experts is critical when advocating and providing evidence to policy-makers.

Policy-makers also need to see value. An NGO participant said: “I have been able to influence policy if I say ‘this is what we did and how we did it and this is the cost - very cheap’...Bring the evidence, show the policy component of it and tell them how to do it within the existing government system and try to change it...bit by bit”.

A participant from ATA said that the GTP II clearly stated that studies, research and international experiences should be used as much as possible to ensure that policies have strong foundations. He suggested that leveraging research done by both local and international researchers is important, while another participant suggested that evidence generated from international data is less likely to be accepted by Ethiopian policy-makers than national evidence.

**Capacity to Carry out Agriculture-Nutrition Linkages**

In this section, stakeholder perceptions about the types of capacities required in Ethiopia in order for the food and agriculture sector to become more nutrition-sensitive are described. These capacities fall into four categories: individual, community, organizational and structural. While participants indicated an overall perception that capacity to link agriculture and nutrition and work across sectors was weak within the Government, as well as among donors and NGOs, they also suggested areas in which capacity could be developed or currently existed.

**Individual**

In terms of individual capacities, participants said that nutritionists typically come from the health sector, but for integration to happen, they also need to understand agriculture. Workshop participants highlighted the same for agriculture extension agents, saying that DAs need the knowledge and skills to implement region-specific nutrition-sensitive agriculture extension.

Workshop participants also stated that individuals representing the different ministries in the intersectoral meetings need to have an incentive to their multisectoral work - their work needs to be recognized and measured in their performance monitoring.
A UN agency participant said that there was a great deal of in-country capacity at the individual level, but that unity between sectors was not visible. She reported that Cornell University is helping to conduct a capacity assessment to identify the gaps in all sectors, including health, to implement nutrition-sensitive interventions.

**Community**
Community capacities received mixed reviews, with different perspectives between participants. Some thought that capacity at the lower levels was weaker than at the higher levels. A participant at the workshop said that the NNP has not been well disseminated to the woreda and kebele levels, hindering the capacity to mobilize communities and local officials. Others at the workshop said that some regions and districts have actually gone further than the federal level in terms of assigning a nutrition focal person. They report that this is very encouraging and the experience needs to be shared with others.

A UN agency participant at the workshop pointed to Ethiopia’s diverse cultures and more than 250 livelihood zones, indicating that the nutrition problems are also diverse and may require different types of capacities: the guidelines being developed need to consider geographical and cultural diversity. An MoA participant pointed to youth and women’s associations as being key stakeholders at community and regional levels, whose capacity could also be further developed.

**Organizational**
Overall organizational capacities to work multisectorally were also described as weak, as government ministries, NGOs and donors all have limited experience with nutrition-sensitive agriculture. With insufficient evidence of agriculture-nutrition linkages, study participants suggested that projects should have flexibility to conduct operational research relating to the impact of agriculture on nutrition outcomes.

Another area mentioned by several stakeholders and workshop participants was building the capacity of academic and research institutions. A representative from an academic institution reported that some universities are revising the agriculture curriculum to include nutrition, and there is a need to expand these efforts to other agricultural universities and colleges. Workshop participants discussed the need to build capacity to conduct action-oriented, operational research to answer key questions and document cause-and-effect relationships of multisectoral interventions. They also stated that five universities are currently engaged in community-based programmes and are collecting much information in a cost-effective manner. This could perhaps be scaled up to include nutrition and agriculture integration. Data collection formats need to be developed to collect relevant information that will answer the key questions.

**Structural**
Participants described that one of the main issues for building structural capacities is the need for a government mandate to integrate nutrition and agriculture. Stakeholders indicated that donors and partners came up with good ideas, but without such a mandate, tangible outcomes and decisions are not realized and institutional capacity remains underdeveloped. It was also mentioned that the NNTC needs further capacity development to support their ability to bring forth high-level strategic and policy issues for decisions
to be made by the NNCB. Workshop participants discussed the MoA’s capacity to include nutrition in their annual work plans, from the federal to the kebele level, as necessary and currently limited. They also discussed the need to make nutrition a high priority in the new Agricultural Sector PIF that is due to start in 2015.

Stakeholders suggested that Ethiopia could learn from the experience of other countries that have already been integrating nutrition. An NGO interviewee shared experience from Rwanda, where stunting reduction has been made an overall objective of every ministry, including agriculture, and nutrition is included in the performance contract of the district mayor who reports to the president. Another NGO interviewee highlighted the role of the global community in building capacity. There is also potential to learn about coordination mechanisms, governance structures and funding from other successful programmes such as interventions for HIV, malaria and polio. Lessons learned from those programmes may apply to agriculture-nutrition integration.

Another area mentioned by workshop participants and interviewees was the capacity of the private sector to impact nutrition, with participants mentioning private industry such as Guts Agro-industry and Fafa Foods and their experience developing complementary foods. Workshop participants said that, considering the country’s diversity, the capacity of these private sector actors to develop region-specific products could be enhanced.

Financial resources to improve nutrition-sensitivity of the food and agriculture system were also described as limited, with no funding mechanism for nutrition outside the MoH. However, donors have committed to providing technical expertise and capacity-building for agriculture-nutrition integration at all levels, from government policy and strategy, to the agricultural extension workers in the community. Participants stressed the need for increased investment in research to develop evidence of what works.
5. CONCLUSION

The Ethiopian Government has made significant commitments to addressing nutrition, as evidenced by joining the SUN Movement and developing a number of relevant policies and programmes. The food and agriculture sector has a particularly important role to play in addressing the country’s nutritional needs, not only in terms of increasing production and availability of nutritious foods, but also through a variety of other pathways, of which evidence is seen in the literature review and stakeholder perspectives. By developing an insight into factors related to politics and governance, knowledge and evidence, and capacity and resources to address nutrition, the context needed to create an enabling environment for scaling up nutrition through agriculture will be better understood. This study has added to this knowledge base.

The study found a strong emphasis on the fact that while policies do exist to address nutrition through agriculture, and momentum is growing, coordination mechanisms need to be strengthened and there is a need for vertical and horizontal collaboration and work across sectors. One challenge faced by the agriculture sector is the need to incorporate the new goal of addressing nutrition in the face of a traditional focus on productivity and incomes. Further efforts to educate agriculturalists on the ways that agriculture can impact nutrition could be useful, particularly when these are presented in a clear and understandable way.

Knowledge is also needed at household and programme levels. Stakeholders pointed to the potential for programmes that address women’s empowerment, involve livestock and promotion of ASF, as well as those that link with the private sector. The study also found that participants perceive that more evidence is needed. This was also apparent from the limited amount of high-quality studies found in the LANEA Ethiopia literature review. Efforts and resources are needed to continue to strengthen capacity to carry out relevant research and evaluations, with a particular emphasis on the pathways described in the literature review on linking agriculture and nutrition. Additionally, the study also identified the key importance of communicating knowledge in a relevant, understandable format, in order for it to be useful to policy-makers and programme planners.

The LANEA Ethiopia study found that capacity gaps exist at all levels, particularly with regard to research and training and the ability to work multisectorally at the political level. This emphasizes the above-mentioned need for coordination and collaboration, which emerged as a theme among all three of the LANEA countries studied. Further efforts to strengthen the enabling environment to address nutrition would do well to include mechanisms to strengthen these multisectoral platforms for coordination, while building capacity from the federal to household levels.

The following recommendations for leveraging agriculture for nutrition emerge from the stakeholder interviews, workshop discussions, as well as the gaps identified through the evidence review:
Politics and Governance
1. Make nutrition a priority within guiding policy documents such as the GTP2, NNP2 and PIF.
2. Strengthen existing coordination mechanisms, including identifying/establishing a high-level institution to oversee implementation of multisectoral nutrition policies, fora for knowledge sharing, and nutrition focal points and flagship programmes.
3. Support horizontal and vertical coordination between federal, zonal, district and kebele institutions, and within ministries; engage districts and kebeles and ensure messages reach lower levels.
4. Strengthen the capacity of the agricultural sector to integrate nutrition-sensitive interventions into agricultural programmes. This should include strengthening of nutrition case team at the MoA and the establishment of nutrition case teams at the regional level.
5. Identify and gain consensus on use of key indicators for integrated nutrition-sensitive programming; use indicators to increase accountability for nutrition.
6. Incentivize, recognize and value contributions to multisectoral work for nutrition.
7. Harmonize nutrition-related engagements/efforts on agricultural and health sectors including messages given to households.
8. Support efforts to improve land tenure rights, especially for women.

Knowledge and Evidence
9. Support agriculture and health research institutes and universities to conduct cross-sector research, including efforts to understand and respond to regional and cultural differences that impact nutrition.
10. Study agriculture-nutrition pathways related to women’s empowerment, time and resource control.
11. Conduct impact evaluations to investigate what works in integrated agriculture-nutrition programmes.
12. Develop communication methods and tools/resources, to reach different audiences, from policy-makers to field staff to smallholder farming households.
13. Learn lessons/best practices from other successful initiatives (e.g. HIV/AIDS, malaria, polio).

Capacity and Financial Resources
14. Build government, NGO staff and donor knowledge of nutrition-sensitive agriculture and demonstrate the economic value of a multisectoral approach to nutrition to leverage funding.
15. Include nutrition in training curricula for agriculture professionals and field workers.
16. Support efforts to build capacity of women’s and youth community organizations.
17. Consider geographic and cultural differences in design of programmes and their roles, and increase the numbers of these front-line workers.
18. Leverage the private sector to address nutrition through the food and agriculture system.
19. Support capacity-building for data analysis and research dissemination.
20. Scale up funding for integrated, long-term approaches to agriculture-nutrition integration.
## Annex A - Study participants

### Stakeholder Interview Participants

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| Private sector             | GUTS Agro-Industry |

### Stakeholder Consultation Workshop Participants

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Annex B - Programme for Consultation Workshop

Stakeholder Consultation
30 May 2014

Objectives
The main objective of the meeting is to disseminate the findings of research on the role of agriculture for improved nutrition in Ethiopia and generate national-level stakeholder’s comments that will be incorporated in the revised draft.

Expected Output/Outcomes
Comments and inputs from the validation workshop will contribute to the revision of the report to be harmonized into the regional report.

Enhanced stakeholders’ understanding on the role of agriculture for improved nutrition for policy actions, capacity building and research.

Preliminaries
8.00-8.30 Registration and Introduction of Participants

Session I: Background and Climate Setting: 8.30-11.00 am Chair - FAO
8.30-8.45 Opening Brief: ILRI Representative in Ethiopia
Question & Answer session
9.00-9.15 Overview of leveraging agriculture for nutrition, some global perspectives:
Stuart Gillespie (IFPRI)
Question & Answer session
9.30-9.45 National evidence review of links between agriculture and nutrition:
Judith Hodge (IFPRI Consultant)
Question & Answer session
10.00-10.15 FAO perspectives on leveraging agriculture to improve nutrition
Eleni Asmare (FAO, Ethiopia)
10.30 Refreshment break

Session II: Role of Agriculture for Improved Nutrition in Ethiopia: 11.15-12.45 pm
Chair - MAAIF
11.00-11.10 A brief on the stakeholder interviews – Stuart Gillespie
11.10-11.30 Presentation of findings from stakeholder interviews
Mesfin Beyero (IFPRI Consultant)
• Plenary discussions & comments
12.00-1.00 Lunch break
Session III: **Further Insights into Agriculture–Nutrition Linkages: 1.15-3.30 pm** Chair - MoH

1.15-1.30 Plenary discussions on global and key research priorities for Ethiopia on agriculture & nutrition—*led by Stuart Gillespie*

1.30-2.30 **Break out Group Sessions** to respond to the following questions:
   - Policy - making agriculture policy more nutrition sensitive: recommendations for action and research
   - Agriculture/nutrition programmes: recommendations for action and research
   - Capacity: recommendations for action and research

2.30-3.30 **Report back from Group activities**

Concluding **session/vote of thanks**: Chair - ILRI
REFERENCES


27. Yigezu YA, Sanders JH, et al. Introducing new technologies and marketing strategies for households with malnutrition: an Ethiopian case study. [Internet]. Purdue University, College of Agriculture, Department of Agricultural Economics; 2008 [cited 2014 Jan 13].
LANEA (Leveraging Agriculture for Nutrition in East Africa) is an IFPRI/FAO research initiative carried out in Ethiopia, Uganda and Kenya to investigate opportunities and challenges related to scaling up impact on nutrition through the food and agriculture sector. The study took place from October 2013 to July 2014 and included a structured evidence review, key informant interviews and a stakeholder workshop. Information gained from this study deepens the evidence base on how to create and sustain an enabling environment for nutrition within agricultural policy and programmes. This report presents the study findings for Ethiopia and proposes recommendations for enhancing agriculture’s contribution to nutrition in the country.