FEED THE FUTURE

The U.S. Government's Global Hunger & Food Security Initiative

Feed the Future Malawi
Zone of Influence Baseline Report

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USAID

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Table of Contents

List of Acronyms vi
Executive Summary vii
1. Background 1
1.1 Feed the Future and FTF FEEDBACK Overview 1
1.2 Feed the Future Zone of Influence (ZOI) Profile 2
1.2.1 Feed the Future Intervention Areas Within the ZOI 2
1.2.2 Rationale for ZOI Designation 3
1.2.3 Strategic Objectives for Feed the Future in the ZOI 4
1.2.4 Demographics 5
1.2.5 Agriculture 6
1.3 Purpose of This Report 8
2. Methodologies for Obtaining Baseline Values for the Feed the Future Indicators 9
2.1 Data Sources 9
2.2 Procedures for Estimating Values From Secondary Sources at ZOI Level 10
2.3 Organization of Survey Work 10
2.4 Survey Sample Design 15
2.4.1 Sample Size Calculation 15
2.4.2 Sample Design 16
2.4.3 Sample Weighting 16
2.4.4 Questionnaire Design 16
2.5 Limitations 17
3. Descriptive Findings 18
3.1 Household Characteristics 18
3.1.1 Demographics 18
3.1.2 Dwelling Characteristics 21
3.1.3 Water and Sanitation 24
3.2 Household Consumption and Expenditures 25
3.2.1 Prevalence and Depth of Poverty in the ZOI 25
3.2.2 Per Capita Expenditures 27
3.3 Household Hunger 27
3.4 Nutrition 28
3.4.1 Child Nutritional Status 28
3.4.2 Women's Nutrition 36
3.5 Women's Empowerment 42
3.5.1 WEAI Overview 42
3.5.2 5DE 43
3.5.3 Discussion of the 5DE Indicators by District 46
3.5.4 GPI 49
4. Analysis of Findings 51
4.1 Analysis Requested by USAID/Malawi 51
4.2 Household Hunger and Dwelling Characteristics 53
5. Summary and Conclusions 54

List of Appendixes

A. Values for 13 Feed the Future indicators by districts 57
B. References 59

List of Annexes

A. Survey Protocol – Malawi 61
Protocol for Malawi Baseline Survey Data Collection for Feed the Future FEEDBACK Project 61
A.1 Overview 61
A.2 Sample Size Estimate for Baseline Survey 62
A.3 Survey Design 63
A.3.1 Questionnaire Design 63
A.3.2 Sample Design 64
A.4 Fieldwork 65
A.4.1 Training 65
A.4.2 Field Support/Supervision 66
A.5 Data Management 67
A.6 Analysis and Reporting 68
A.7 Institutional Review Board Approval 68
A.8 Survey Work Plan 68
A.9 Survey Questionnaire 69
B. Survey Questionnaire 70
C. Weight Calculation 94
C.1 Design Weight 94
C.2 Sampling Weight 95
D. Indicators Descriptions and Calculations 96

List of Tables

Table 1. ZOI total population 6
Table 2. Agricultural yields and marketed volumes at national levels 7
Table 3. Feed the Future indicators and data sources 9
Table 4. Sample size calculations 15
Table 5. Feed the Future Malawi baseline survey indicators and questionnaire modules 17
Table 6. Feed the Future ZOI population-based indicators (13 indicators) 19
Table 7. Household demographics 21
Table 8. Highest education level within the household 21
Table 9. Dwelling characteristics 22
Table 10. Housing construction materials Household type 23
Table 11. Main source of cooking fuel 24
Table 12. Households using improved water and sanitation facilities 25
Table 13. Poverty and expenditure indicators for the ZOI 26
Table 14. ZOI sample for anthropometric data 29
Table 15. Nutritional status of children under 5 31

List of Tables (continued)

Table 16. Prevalence of exclusive breastfeeding of children under 6 months 33
Table 17. Prevalence of children 6-23 months receiving a minimum acceptable diet 34
Table 18. Components of MAD among children 6-23 months 35
Table 19. Prevalence of anemia among children 6-59 months 36
Table 20. Prevalence of mild, moderate, and severe anemia among children 6-59 months 36
Table 21. Women's body mass index 37
Table 22. Prevalence of underweight women 37
Table 23. Prevalence of households with underweight women and stunting in children 38
Table 24. Prevalence of overweight and obese women 38
Table 25. Prevalence of households with overweight/obese women and stunting in children 39
Table 26. Women's Dietary Diversity Score: Mean number of food groups consumed by WRA 40
Table 27. Percentage of women consuming each food group 40
Table 28. Women's Dietary Diversity Score, by quartile 41
Table 29. Prevalence of anemia among women of reproductive age 41
Table 30. Prevalence of mild, moderate, and severe anemia among women of reproductive age 42
Table 31. WEAI indicators 43
Table 32. Women's 5DE subindex 44
Table 33. Women's 5DE score and household type 44
Table 34. Percent of women who are not yet empowered and who have inadequate achievement (censored headcount) in the 5DE indicators ... 45
Table 35. Percent of women who are not yet empowered and who have inadequate achievement (censored headcount) in the 5DE indicators by district 48
Table 36. GPI 50
Table 37. Percent of men and women who are not yet empowered and have inadequate achievement (censored headcount) in the 10 5DE indicators 51
Table 38. Severity of household hunger according to women's achievement on WEAI indicators 52
Table 39. Values for selected ZOI indicators according to women's empowerment status 52
Table 40. Selected ZOI indicators by category of decision-making index 53
Table 41. Values for selected dwelling characteristics according to household hunger 54

List of Figures

Figure 1. Map of Feed the Future ZOI for Malawi 2

List of Acronyms

5DE	Five Domains of Empowerment (subindex)
BMI	Body Mass Index
CPC	Carolina Population Center of the University of North Carolina at Chapel Hill
CPI	Consumer Price Index
DHS	Demographic and Health Survey
FTF	Feed the Future
FTFMS	Feed the Future Monitoring System
GDP	Gross Domestic Product
GoM	Government of Malawi
GPI	Gender Parity Index
HHS	Household Hunger Scale
IFPRI	International Food Policy Research Institute
IHS3	Third Integrated Household Survey
LCMS	Living Conditions Monitoring Survey
LSMS	Living Standards Measurement Survey
MAD	Minimum Acceptable Diet
MDG	Millennium Development Goals
NSO	National Statistic's Office
ORS	Oral Rehydration Salts
PBS	Population-Based Survey
PPP	Purchasing Power Parity
SEA	Standard Enumeration Area
TA	Traditional Authority
TOT	Training of Trainers
USAID	United States Agency for International Development
WHO	World Health Organization
WEAI	Women's Empowerment in Agriculture Index

Executive Summary

This document reports the findings of the Malawi Feed the Future population-based survey (PBS) and secondary data sources that serve as the Malawi baseline for the United States Government's Feed the Future initiative led by the United States Agency for International Development (USAID). Feed the Future seeks to reduce hunger and poverty in 19 developing countries by focusing on accelerating growth of the agricultural sector, addressing root causes of undernutrition, and reducing gender inequality. The baseline seeks to capture data on women's empowerment in agriculture, household food security, consumption, nutrition, and well-being of households in the geographic areas targeted by Feed the Future interventions, known as the Feed the Future Zones of Influence (ZOI).

The PBS, including this baseline report, is a product of Feed the Future FEEDBACK (FTF FEEDBACK), which is responsible for supporting performance monitoring and impact evaluation of the Feed the Future initiative. FTF FEEDBACK is implemented by Westat in partnership with TANGO International, the International Food Policy Research Institute (IFPRI), and the Carolina Population Center (CPC) of the University of North Carolina at Chapel Hill. In Malawi, the Malawi National Statistical Office (NSO) conducted the PBS fieldwork with technical assistance from TANGO International. The fieldwork took place November 14–December 22, 2012.

The Feed the Future ZOI baseline values for Malawi draw on data from both primary and secondary sources. Of the 13 Feed the Future indicators reported, three were calculated using data gathered in the PBS: (1) *Women's Empowerment in Agriculture Index (WEAI);* (2) *prevalence of households with moderate or severe hunger (Household Hunger Scale; [HHS]);* and (3) *Women's Dietary Diversity Score.*[1] The remaining ten indicators utilized data from the Malawi Demographic and Health Survey (DHS) 2010 and the Third Integrated Household Survey (IHS3, or the Living Standards Measurement Survey [LSMS]) 2010-2011. All baseline values have been entered into the Feed the Future Monitoring System (FTFMS) database for the global Feed the Future initiative. In this report, only differences across subgroups that are statistically significant at the 0.05 level are discussed in the narrative.

The ZOI in Malawi comprises seven districts in the Central and Southern Regions: Mchinji, Lilongwe, Dedza, Ntcheu, Balaka, Machinga, and Mangochi. A total of 3,397 households in the ZOI were interviewed for the PBS, and these households were spread across 126 rural standard enumeration areas (SEAs) in the seven districts.

Overall, the prevalence of poverty in the ZOI based on the $1.25/person/day threshold is 60.6 percent (2005 PPP). According to the national poverty line (37,002 Kwacha/year or $1.14/day), the prevalence of poverty in the ZOI is 55.8 percent and the prevalence of extreme poverty (22,956 Kwacha/year or $0.71/day) is 28.0 percent. The poverty gap (at $1.25/day) is 24.4 percent and per

[1] Women's Dietary Diversity Score and prevalence of underweight women are measured on women of reproductive age (15-49 years).

capita expenditure in 2010 USD is $1.73 per day. There is a significant difference in the prevalence of poverty for households with both male and female adults (59.6 percent) compared to households with female adults only (72.0 percent), with male and female adult households having lower poverty prevalence.[2]

Forty percent of all interviewed households report moderate to severe hunger (40.2 percent), based on the HHS, with higher prevalence for households with female adults only (45.5 percent) compared to male and female adult households (38.1 percent). Within the ZOI, the proportion of children under 5 with stunting is 47.5 percent. The prevalence of wasting is 5.8 percent, and underweight is 13.9 percent among children under 5. The prevalence of children 6-23 months with a minimum acceptable diet (MAD) is 18.1 percent, and the prevalence of exclusive breastfeeding of children under 6 months is 68.2 percent. Anemia among children 6-59 months is 64.3 percent.

For women's nutritional status, 9.6 percent of women of reproductive age (WRA; 15-49 years) in the ZOI are underweight. The Women's Dietary Diversity Score is low, with WRA reporting an average consumption of only three out of nine total food groups (3.4). The prevalence of anemia among WRA is 28.9 percent.

Overall, the WEAI is 0.84 out of a maximum possible value of 1.0.[3] Approximately 52 percent of women have achieved adequate empowerment in agriculture (a score of 0.8 or greater). The average value for the Five Domains of Empowerment (5DE) subindex, a measure of women's empowerment, is 0.83. The gender parity subindex (GPI), which measures the inequality in 5DE scores between the primary adult male and female in each household (among those households with both an adult male and female), is 0.91. Just more than one-half (53.3 percent) of women in the survey have achieved adequate gender parity (i.e., a 5DE score equal to or higher than the man in their household). The WEAI results presented in this report include data from the primary female decision-maker within each household (excluding the male adult only and child adult only households), including but not limited to women of reproductive age. See Sections 3.5 and Annex D for a detailed description of the WEAI.

Additional analysis requested by USAID/Malawi on PBS data indicators showed that more women in households reporting no hunger (85.6 percent) report achievement on the WEAI indicator of autonomy in production, compared to women in households with moderate to severe hunger

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[2] As explained in USAID. 2012b. "Feed the Future household (HH) level indicators are disaggregated by 'gendered household types' – that is: (1) HH with male and female adults (18+ years), (2) HH with at least one male adult and no female adult, (3) HH with at least one female adult and no male adults, and (4) HH with children and no adults . This categorization is somewhat different than the standard 'male-headed vs. female-headed' households, and the distinction and change is very meaningful. The concept of 'head of household' is highly loaded, presumes certain characteristics that may or may not be present in household gender dynamics, and often reflects the bias of the researcher or respondent. In addition, the head of household concept may perpetuate existing social inequalities and prioritization of household responsibilities that may be detrimental to women." Note: Some of the background data presented in this report were analyzed by household head rather than gendered HH type in the cited reports, and in these cases, the household headship disaggregation is used.

[3] Refer to Annex D for detailed description and calculation of the 13 indicators and refer to Annex C for weight calculations.

(80.6 percent). Similarly, more women in households reporting no hunger (93.0 percent) report achievement on ownership of assets, compared to women in households with moderate to severe hunger (89.3 percent). Households reporting no hunger have a higher prevalence of using pit latrines (93.1 percent) than households with moderate or severe hunger (90.2 percent). In terms of housing construction materials, households reporting no hunger are more likely to use roofing materials of corrugated metal and plastic sheeting, while households with moderate or severe hunger are more likely to have roofs of wood or thatch. Households reporting no hunger have a higher prevalence of cement floors and walls than households with hunger (cement floors: 15.7 and 6.7 percent; cement walls: 4.7 and 1.5 percent, respectively).

The results of the FTF FEEDBACK baseline survey clearly demonstrate that poverty and malnutrition remain challenges for the ZOI households of Malawi, particularly for female adult only households and children under 5 in all household types. The WEAI shows that despite women's high levels of empowerment in the five domains, some domains that are critical to women's economic development indicate that there is room for improvement. This baseline was designed for measurement of changes in the indicators over time in the ZOI and does not allow for conclusions about attribution or causality.

1. Background

1.1 Feed the Future and FTF FEEDBACK Overview

Feed the Future is a United States Government (USG) initiative that seeks to address food insecurity by focusing on accelerating growth of the agricultural sector, addressing root causes of undernutrition, and reducing gender inequality in 19 developing countries. The United States Agency for International Development (USAID) is responsible for leading the government-wide effort to implement the Feed the Future initiative. The core investment areas of the initiative are women's empowerment, diet quality and diversification, post-harvest infrastructure, high-quality inputs, and financial services. The high-level target of the initiative is "to reduce by 20 percent the prevalence of poverty and the prevalence of stunted children under five years of age in the areas where we work."[4]

Feed the Future FEEDBACK (FTF FEEDBACK) is a USAID-funded project to support implementation of the performance-monitoring and impact evaluation agenda for Feed the Future. FTF FEEDBACK is being implemented by Westat in partnership with TANGO International, the International Food Policy Research Institute (IFPRI), and the Carolina Population Center (CPC) of the University of North Carolina at Chapel Hill.

The main objectives of the FTF FEEDBACK project are to: (1) enable USAID Missions to meet performance-monitoring requirements of Feed the Future and maximize the use and benefits of the data collected; (2) provide high-quality empirical evidence to inform program design and investment decisions that will promote sustainable food security; (3) ensure timely availability of high-quality data for use in monitoring performance and evaluating impacts of the Feed the Future initiative; and (4) facilitate accountability and learning about what Feed the Future interventions work best, under what conditions, and at what cost.[5]

To measure progress in addressing food security, USAID is supporting large surveys of households in geographic areas targeted by Feed the Future interventions, known as the Feed the Future Zones of Influence (ZOI), to collect relevant data. These population-based surveys (PBS) are used along with secondary data for the ZOI to determine the baseline values for Feed the Future ZOI Indicators. The baseline values will be used to measure changes in the Feed the Future indicators over time in the Malawi ZOI. All baseline values have been entered into the Feed the Future Monitoring System (FTFMS) database for the global Feed the Future initiative. The midterm and final surveys will be conducted in 2015 and 2017, respectively.

Where possible, existing sources of data are utilized if they meet criteria to provide valid baseline estimates of indicators. These criteria include: (1) the data source must have collected the data within the last two years prior to the start of Feed the Future activities; and (2) the data source must have a

[4] USAID. 2013c.
[5] USAID Agrilinks. 2013.

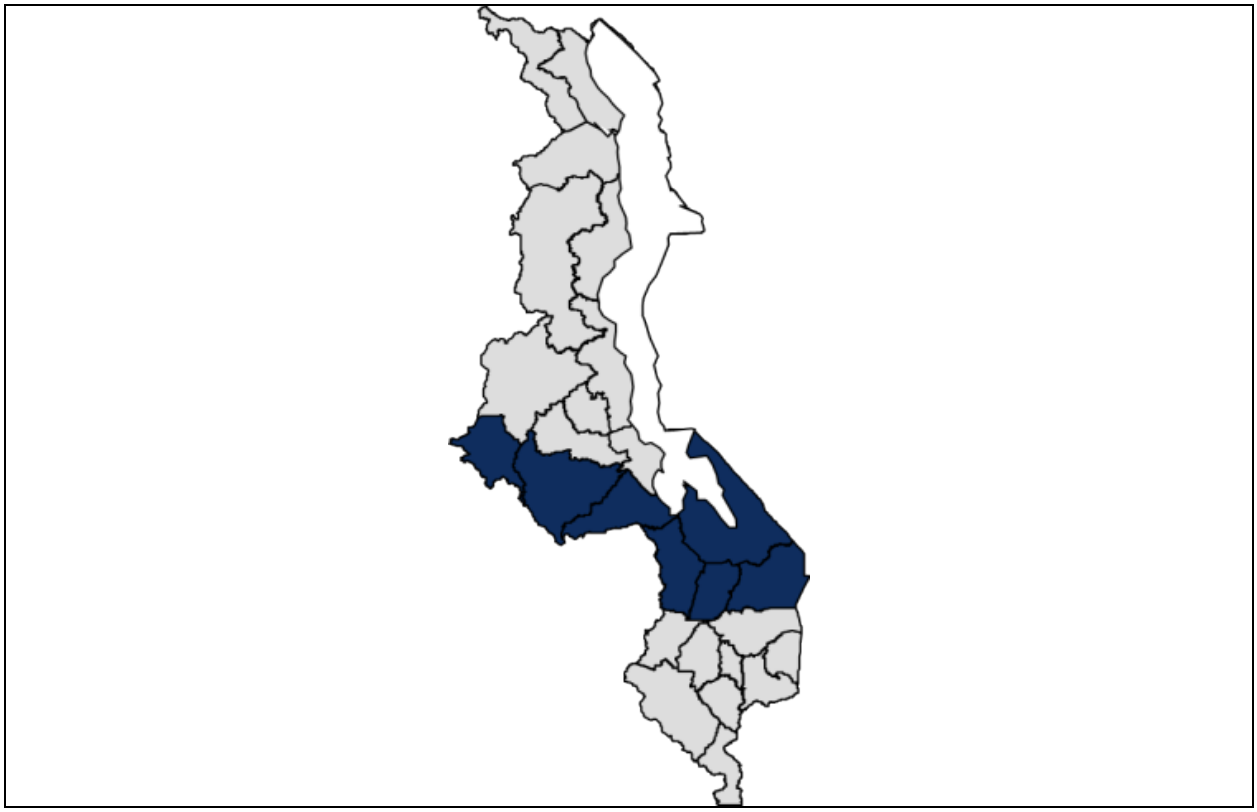
sample in the ZOI large enough to estimate selected indicator values with sufficient precision and power to measure change over time.

1.2 Feed the Future Zone of Influence (ZOI) Profile

1.2.1 Feed the Future Intervention Areas Within the ZOI

Malawi is divided into the Northern, Central, and Southern regions. The regions are further subdivided into a total of 28 districts: six districts in the Northern region, nine in the Central region, and 13 in the Southern region. For administration, the districts are made up of traditional authorities (TAs) presided over by chiefs, and each TA contains villages, which are the smallest administrative unit in the country. The village leadership comprises village headmen.[6] The Feed the Future ZOI includes seven districts situated across the boundary of the Central and Southern regions: Mchinji, Lilongwe, Dedza, Ntcheu, Balaka, Machinga, and Mangochi. See Figure 1 for a country map with darkened areas indicating the seven districts of the ZOI.

Figure 1. Map of Feed the Future ZOI for Malawi



Source: USAID. 2011. Feed the Future Malawi. FY 2011-2015 Multi-Year Strategy.

[6] Government of Malawi. 2011a. p.1.

1.2.2 Rationale for ZOI Designation

Malawi is a landlocked country and overwhelmingly agricultural. With a population of about 15 million, it is the smallest but most densely populated country in the region (139 people/km^2). Malawi is one of the least irrigated countries in southern Africa, and as a result, agriculture relies heavily on rainfall. Rural smallholder farmers comprise 80 percent of Malawi's population, yet only 10-15 percent bring grain to market in a given year.[7]

Many households experience an annual hunger season between November and March, which occurs during the planting and sole rainy season in months prior to the main harvest. Smallholder farmers are typically dependent on markets during this time to meet their food needs, which increases their vulnerability to food insecurity. Economic and food security improvements are hindered by high levels of undernutrition, HIV/AIDS, malaria, and annual outbreaks of cholera during the rainy season, as well as low agricultural productivity and underdeveloped markets.[8] Additionally, Malawi is subject to drought and has experienced three major droughts in the last two decades, including the most recent drought and subsequent humanitarian response of 2004-2005.[9]

Malawi has been described as "a nation of poor farmers," as poverty is highly concentrated in rural areas.[10] Poverty in the Southern and Central regions is extremely prevalent, with 63 percent and 49 percent of the population, respectively, at the national poverty line (37,002 Kwacha or $1.14/day). Fifty-one percent of the total population is characterized as poor at the national poverty line. Additionally, 25 percent of the population is categorized as extremely poor (the extreme national poverty line is 22,956 Kwacha or $0.71/day).[11] The Malawian economy has benefited from decades of peace and high levels of security, with the gross domestic product (GDP) growth rate reaching 9.6 percent in 2008; yet, international trade is hampered by high freight costs, poor infrastructure, regional insecurity, and unpredictable economic policies.[12]

According to the 2010 national report on the Millennium Development Goals (MDGs), Malawi is on track to achieve five out of eight MDGs. The MDGs that are not likely to be met by 2015 are Goal 2 (achieve universal primary education), Goal 3 (promote gender equality and empower women), and Goal 5 (improve maternal mortality).[13]

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[7] Feed the Future. 2013.
[8] USAID. 2013b. p.1.
[9] USAID. 2011b. p.2.
[10] Ibid. p.2.
[11] Government of Malawi. 2011b. p.204.
[12] Feed the Future. 2013.
[13] Government of Malawi. 2010a. p. ix.

The geographic focus of the Feed the Future ZOI straddles the Central and Southern regions, an area characterized by both tremendous need and the potential for improved value chains. This zone was selected because it suffers from some of the highest poverty and undernutrition rates in the country, with higher prevalence of stunting and underweight, and double the prevalence of wasting at the national level. The Central region hosts almost half of all children under 5 years with stunting in Malawi. Another contributing factor to the selection of this area was the regional intersection of legume and dairy production. The selected districts already produce the most groundnuts and soy in the country. In addition, milk producers and processors in this area function at 50 percent capacity, with the foreseen potential of connecting animal feed production to the value chains. In both value chains, legumes and dairy, the greatest potential for expansion and impact exists in seven districts, which are Mchinji, Lilongwe, Dedza, Ntcheu, Balaka, Machinga, and Mangochi. Finally, the USAID/Malawi Mission has experience with farming and livelihoods programming in this region through the completed I-Life Title II development food aid program, which provides a foundation upon which to build and expand.[14]

1.2.3 Strategic Objectives for Feed the Future in the ZOI

The Feed the Future Malawi strategy fits within the USAID/Malawi Strategic Objective Framework that aims to support the democratic and good governance of the state as it responds to the needs of its people. The Malawi Feed the Future Strategy objectives are to sustainably reduce poverty and hunger and to improve the nutrition of women and children. To meet these objectives, Feed the Future Malawi has worked to align and promote coordination between agriculture and nutrition programming.[15]

Agricultural and nutritional outcomes are highly interdependent. Malnutrition in Malawi is a major contributor to economic losses, primarily due to low productivity of agricultural labor. Conversely, poorly functioning input and output markets reduce incentives for farmers to undertake the crop diversification that might lead to better dietary diversity and nutritional outcomes. Value chain investments would involve facilitating private sector provision of higher quality, more reliable input and output markets and services, while also providing farmers with the tools to improve productivity and diversification.[16] By providing support to nonstate actors, the policy-enabling environment will be strengthened. This potentially leads to better and more stable agricultural policies. Better nutritional outcomes will be a result of higher engagement of small farmers, and women in particular, in new crop production leading to better dietary diversity. In addition, the USAID/Malawi flagship activity integrates nutrition-specific interventions with value chain

[14] USAID. 2011c. p.8.
[15] Ibid. p.11.
[16] Ibid. 2011c. p.11.

interventions in up to five of the seven districts, which also contributes to nutrition outcomes. With such considerations, USAID/Malawi has outlined the following Intermediate Results (IRs): (1) improved nutrition-related behaviors; (2) transformational agriculture value chain development; and (3) improving the enabling policy environment.[17]

The value chains identified as having the greatest transformational potential are legumes (groundnuts, pigeon peas, and soybeans) and dairy (fresh milk). Legumes are traditionally cultivated by women and offer a significant opportunity to support women's economic advancement. In addition, legumes and dairy are high protein, nutritious foods that offer opportunities for dietary diversification. Legumes are produced by 16 percent of smallholder farmers and consumed by 18 percent of smallholder farmers in Malawi. Evidence also demonstrates that investments in legumes can support productivity both by increasing household income available for inputs and from the nitrogen-fixing properties of legumes. Soy and groundnuts similarly offer farmers opportunities to diversify from maize into higher value per hectare crops that can be sold on local and export markets. Dairy will play an important role in realizing agricultural transformation, as it offers an opportunity for diversified investment that benefits from the improved productivity of maize and legumes through the feed industry. Moreover, the multiplier effects generated from improving the competitiveness of the dairy value chain will generate substantial non-farm employment opportunities for the rural poor.[18]

In the coming years, Feed the Future Malawi will target an estimated 281,000 Malawian women, children, and family members—mostly smallholder farmers and vulnerable households—with assistance to overcome hunger and poverty. Further, more than 293,000 children will receive services to improve nutrition, prevent stunting, and reduce child mortality, and the enhanced policy environment and institutional investments will benefit the income and nutritional status of many more rural communities.[19]

1.2.4 Demographics

Table 1 reports population estimates for the Malawi ZOI, including the categories that are reported in the FTFMS database. These figures have been compiled from the 2008 population and housing census from the Malawi National Statistical Office (NSO), and adjusted to 2012. The populations of each age category have been estimated based on the age structure in the PBS baseline sample. The total population of Malawi is approximately 15 million (14,844,822), and the population within the ZOI is about five million (4,905,845).

[17] Ibid. p.12.
[18] USAID. 2011c p.19-20.
[19] Feed the Future. 2013.

Table 1. ZOI total population

Population	
ZOI	
Total population[1]	4,905,845
Rural	4,905,845
Urban	0
Population in male and female adult(s) HH	3,722,721
Population in female adult(s) only HH	1,037,885
Population in male adult(s) only HH	133,578
Population in child no adult(s) HH	11,662
Total households (HH)[2]	1,095,529
Male and female adults (HH)	746,122
Female adults only (HH)	286,576
Male adults only (HH)	58,800
Child no adults (HH)	4,031
Women of reproductive age (WRA, 15-49 years)	1,030,876
WRA Rural	1,030,876
WRA Urban	0
WRA Non-pregnant	-
WRA Pregnant	-
Children 0-59 months	889,250
Males 0-59 months	448,969
Females 0-59 months	440,281
Children 6-59 months	799,586
Males 6-59 months	403,500
Females 6-59 months	396,086
Children 0-5 months	89,664
Males 0-5 months	45,469
Females 0-5 months	44,195
Children 6-23 months	275,209
Males 6-23 months	134,917
Females 6-23 months	140,292

[1] Source: NSO. 2008. Population and Housing Census, Population Projection Report.

[2] This number is the number of households in the ZOI, including by gendered household type, and not the number of people living in the household.

1.2.5 Agriculture

Malawi is a Sub-Saharan country located below the equator. It has a total land area of approximately 94,276 square kilometers. A significant area of the country contains Lake Malawi, which has a length of 475 kilometers and demarcates Malawi's eastern boundary. The Rift Valley also runs the length of the country. To the west and south of these important geographic features lie fertile plains.[20]

[20] Government of Malawi. 2011a. p.1.

Malawi is primarily an agricultural economy. See Table 2 for national level production and agricultural yields for select crops in recent years. Thirty percent of the GDP of the Malawi economy is based on agriculture, and the main domestic exports are tobacco, sugar, and tea. In 2009, the agricultural sector grew nearly 14 percent, mostly due to favorable weather and tobacco prices during that year.[21] In recent years, the Government of Malawi (GoM) has prioritized agricultural development and research. Through a consultative process, the government formulated the plan called Agriculture Sector-Wide Approach (ASWA) and has made targeted commitments under the Comprehensive Africa Agriculture Development Programme.[22]

Table 2. Agricultural yields and marketed volumes at national levels

Crop	Production (MT)			Yield (kg/ha)		
	2000	2005	2011	2000	2005	2011
Cassava	2,794,620	2,197,640	4,259,300	15,461	14,299	21,541
Maize	2,501,310	1,225,230	3,699,150	1,743	809	2,208
Potatoes	2,037,280	1,485,880	3,123,980	11,456	9,037	17,099
Sugar cane	2,100,000	2,400,000	2,500,000	105,000	109,092	108,696
Banana	310,000	370,000	357,675	19,375	19,474	26,153
Groundnut (shell)	122,281	141,078	304,868	7,232	5,682	10,446
Pigeon peas	99,261	63,883	195,516	7,242	4,095	10,267
Soybeans	-	40,000	69,596	-	5,797	9,808
Milk (whole fresh)	35,000	42,541	50,400	-	-	-

Source: FAO. 2013.

This commitment and progress by the GoM is important for addressing food insecurity and the needs of the predominantly rural population. Sixty percent of the population relies on subsistence agriculture and four out of five Malawians (80 percent) are smallholder farmers.[23] The average landholding is just more than one hectare, and landholders can be differentiated into three groups based on the cultivated land of the 2009-2010 rainy season. Just under a third (30 percent) of the population holds less than one acre of land. Within this group, most land is dedicated to maize and a portion to pulses, with no production of tobacco or export-oriented crops. The combined effects from poor soil fertility, erosion, and continuous cropping result in low crop yields for these farmers. A larger group of farmers (38 percent) holds between one and two acres of land. This group is characterized by slightly more diverse cropping patterns and allocation of some land to export-oriented crops, primarily tobacco. The third group of farmers has two to four acres of land (24 percent) or four to six acres (5 percent). These farms primarily dedicate land to export-oriented crops, and this group of farmers experiences a low incidence of poverty. It is worth noting that

[21] Ibid.
[22] USAID. 2011b. p.4.
[23] Feed the Future. 2013.

male-headed households cultivate more land (four acres) than female-headed households (two acres).[24,25]

The poor are concentrated in the Southern region. Nearly 47 percent of poor Malawians live in the rural areas of the Southern region, and about one in three poor persons reside in the rural areas of the Central region.[26] Members of female-headed households in rural areas are more likely to be poor than those in male-headed rural households (63 and 55 percent, respectively).[27]

Smallholder farmers face multiple productivity challenges arising from the weak market for staple crops and varied weather. Maize output and prices are extremely volatile and swing between periods of high yields and low prices, which are insufficient to cover input costs, and periods of low yields and high prices that constrain household consumption. In general, 60 percent of households are net buyers of maize. The price variations hinder farmers from investing in fertilizer or irrigation schemes that could boost productivity, along with other factors related to policy constraints and inefficient marketing systems. Low productivity is also due to an agricultural system that completely depends on a single five-month-long rainy season. It is estimated that just 5 percent of the average rainfall is utilized. With one rain-fed crop each year, the effects of climate change, recurrent drought, and environmental degradation significantly destabilize food production.[28] Finally, the high population density of the country and the expected population growth (projected to reach 40 million by 2040) are additional factors that highlight the importance of increased agricultural productivity.[29]

1.3 Purpose of This Report

This report presents baseline values calculated from primary and secondary data for the 13 Feed the Future indicators collected in the Feed the Future ZOI in Malawi. This baseline was designed for measurement of changes in the indicators over time in the ZOI and does not allow for conclusions about attribution or causality. This report will begin by presenting the methodology used to obtain and analyze the data (Section 2.0), followed by a description of the findings for each Feed the Future indicator (Section 3.0), and will end with country-specific analysis (Section 4.0).

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[24] As explained in USAID. 2012b. "Feed the Future household (HH) level indicators are disaggregated by 'gendered household types' that is: (1) HH with male and female adults (18+ years), (2) HH with at least one male adult and no female adult, (3) HH with at least one female adult and no male adults, and (4) HH with children and no adults. This categorization is somewhat different than the standard 'male-headed vs. female-headed' households, and the distinction and change is very meaningful. The concept of 'head of household' is highly loaded, presumes certain characteristics that may or may not be present in household gender dynamics, and often reflects the bias of the researcher or respondent. In addition, the head of household concept may perpetuate existing social inequalities and prioritization of household responsibilities that may be detrimental to women." Note: Some of the background data presented in this report were analyzed by household head rather than gendered HH type in the cited reports, and in these cases, the household headship disaggregation is used.

[25] Government of Malawi. 2011b. p.131.

[26] Government of Malawi. 2011b. p.131. p.207.

[27] Ibid. p.131. p.219.

[28] USAID. 2011c. p.6.

[29] Government of Malawi. 2010b. p.7.

2. Methodologies for Obtaining Baseline Values for the Feed the Future Indicators

2.1 Data Sources

The Mission in Malawi will report on 13 of the population-based Feed the Future indicators in the Feed the Future ZOI. The data for 10 indicators are obtained from existing secondary sources and three are from the PBS data. These data sources had to meet criteria to provide valid baseline estimates of indicators. The two criteria were: (1) the data was collected in a recent time window (last two years) prior to the start of Feed the Future activities; and (2) the data source must have used a sample size large enough to estimate selected key indicator values with sufficient precision and power to measure change over time. The Malawi Demographic and Health Survey (DHS) 2010 data and the Integrated Household Survey 3 (IHS3) 2010-2011 met these two criteria. The DHS sample size in the ZOI was 6,270 households and the IHS3 sample size was 3,448 households.

The FTF FEEDBACK PBS was conducted for indicators that could not be calculated with existing data sources. The PBS collected data for the following three indicators: (1) *Women's Empowerment in Agriculture Index (WEAI)*; (2) *prevalence of households with moderate or severe hunger (Household Hunger Scale; HHS)* and; (3) *Women's Dietary Diversity Score*. Table 3 lists the 13 Feed the Future indicators and the data source for each.

Table 3. Feed the Future indicators and data sources

Feed the Future indicators	Source	Data collection (month/year)
Prevalence of poverty	IHS3	March 2010-March 2011
Per capita expenditure	IHS3	March 2010-March 2011
Prevalence of underweight children under 5 years	DHS	June-Sept 2010
Prevalence of stunted children under 5 years	DHS	June-Sept 2010
Prevalence of wasted children under 5 years	DHS	June-Sept 2010
Prevalence of underweight women of reproductive age	DHS	June-Sept 2010
Prevalence of children 6-23 months receiving a minimum acceptable diet	DHS	June-Sept 2010
Prevalence of exclusive breastfeeding of children 0-6 months	DHS	June-Sept 2010
Prevalence of anemia among children 6-59 months	DHS	June-Sept 2010
Prevalence of anemia among women of reproductive age	DHS	June-Sept 2010
WEAI	FTF Feedback PBS	Nov-Dec 2012
Prevalence of households with moderate or severe hunger	FTF Feedback PBS	Nov-Dec 2012
Women's Dietary Diversity Score	FTF Feedback PBS	Nov-Dec 2012

All baseline values have been entered into the FTFMS database for the global Feed the Future initiative.

2.2 Procedures for Estimating Values From Secondary Sources at ZOI Level

The Malawi DHS and IHS3 (the Living Standard Measurement Survey [LSMS]) were collected for the entire country, but indicators were measured using only data collected in the ZOI. The 2010 Malawi DHS provides baseline data for eight of the 13 Feed the Future nutrition and health indicators. Using Stata Version 11 software, these indicators were calculated for the Malawi ZOI. The eight DHS indicators include the following:

- Prevalence of stunted children under 5 years of age,
- Prevalence of wasted children under 5 years of age,
- Prevalence of underweight children under 5 years of age,
- Prevalence of underweight women (aged 15-49),
- Prevalence of anemia among children (6-59 months),
- Prevalence of anemia among women (aged 15-49),
- Prevalence of exclusive breastfeeding of children under 6 months of age, and
- Prevalence of children receiving a minimum acceptable diet (MAD, 6-23 months).

The seven districts in the Malawi Feed the Future ZOI are Mchinji, Lilongwe, Dedza, Ntcheu, Balaka, Machinga, and Mangochi. The publically available DHS data included information on districts (the variable "district"); therefore, it was relatively straightforward to identify the ZOI in the DHS data and limit the Feed the Future indicator secondary analysis to the ZOI only. DHS tabulations were further validated by calculating the indicators for the entire country and comparing these values to the 2010 Malawi DHS Final Report tables. Similarly, the 2010-11 IHS3 data, the source of the expenditures and poverty indicators was obtained from the Malawi NSO. These data also included a district variable, which allowed for identification of the seven districts in the Malawi ZOI in the IHS3 secondary analysis as well.

2.3 Organization of Survey Work

The Malawi NSO conducted the fieldwork for the FTF FEEDBACK PBS with technical assistance from TANGO International. Refer to Annex A for the survey protocol. The training began October 31, 2012 and data collection took place November 14-December 22, 2012. The survey questionnaire was translated, field tested, and modified during the first week of training.

Training

Prior to the fieldwork, the NSO conducted a training workshop for survey enumerators, field supervisors, and editors to prepare survey personnel for conducting the interviews. (A copy of the training manuals can be obtained from the Development Experience Clearinghouse or by contacting the FTF FEEDBACK project.) A one-day pretest of the survey instrument in the field was included in the training. The purpose of the training sessions was to ensure that all members of the survey team understood the objectives of the study, proper use of the survey tools, and the roles and responsibilities of each team member in data collection. According to the survey protocol (Annex A), training was to be a two-week process, including one week of training of NSO trainers followed by enumerator training during the second week. However, field logistics led the TANGO team to modify the organization of the training sessions (see Section 2.5, Limitations, for further explanation).

The NSO provided logistical support for field teams, conducted progress monitoring, and monitored data quality. Data entry was completed on tablet computers in the field. The software used for managing the interviews on the tablets is Open Data Kit (ODK). TANGO and Westat provided technical assistance on data management.

Fieldwork

The NSO provided 14 teams working full time over the course of the fieldwork. Survey teams consisted of eight interviewers (four females, four males), a supervisor, and an editor. Enumerators worked in male/female pairs with the male interviewing the primary male decision-maker in the sampled household and the female interviewing the primary female decision-maker. The male/female enumerator teams were needed because the WEAI module requires interviews of both the primary male and primary female members of the household.

At the end of each field day, the field team supervisors, with the help of the fifth team member, verified and recorded into daily control sheets the identification information of households interviewed by each of the two enumerator teams under the control of the supervisor; whether the information in the tablets was reviewed and accepted by the supervisor; and the total number of complete and incomplete interviews for the day.

Data recorded during the interviews were inputted directly into tablets provided by FTF FEEDBACK. At the end of each day, each field team supervisor backed up the data on each tablet by making a copy of the data files directly onto the tablet. Each supervisor also made backups of all the teams' tablets onto their own tablet using near field communication tapping. The field team supervisors were responsible for uploading the data to the FTF FEEDBACK server whenever they had Internet access. Each day when the teams had network access, the field team supervisors uploaded the data from the tablets of all four field team members onto the FTF FEEDBACK server, where the data were aggregated and updated over the course of the fieldwork.

Data Quality Control

During the fieldwork, data quality was maintained in several ways. The data entry software on the tablet computers had programmed checks for variable ranges, skip patterns, and consistency. In the field, the supervisor checked each questionnaire closely for completeness, consistency, range checks, and skip patterns. The team leader also checked a subset of questionnaires in the same manner. The fieldwork was planned so that all the field teams were within close proximity during the initial days of the fieldwork, and the teams all stayed at the same location in the evening. In this way, problems identified during the first days of fieldwork were shared and resolved with the entire field team.

Westat data management staff also ran data quality programs that incorporated the data quality checks on the tablet computers, the checks done by field staff, and other general checks. These data quality programs included range checks, checks of skip patterns, consistency and completeness checks done by the tablet computer software, and the checks by field editors and supervisors. The programs checked for completeness by listing whether all expected questionnaires per SEA had been received; result of the interview (complete, incomplete, etc.); percent of modules that were completed (by module); and percent of missing data for select variables, such as age and gender of respondents. All of these data were analyzed by Westat data management staff to identify data quality problems to be addressed in the field. In addition to producing detailed reports by enumerator, the programs produced summary reports that were used for general data quality control.

Handling of Missing Values

The approach used in the analysis was to take "don't know" responses and missing data and recode them to null value – to take the value of "no" (if a yes/no question) or "0" (if a numeric response is required) – and to include the recoded data in the numerator and denominator of indicators. This approach was used unless a specific indicator was defined otherwise (e.g., children who were not weighed and measured and children whose values for weight and height were not recorded were excluded from both the denominator and the numerator for anthropometry indicators.) Means are computed for questions whose responses were numerical values.

Data Imputation

Missing or "don't know" values are generally treated as described above and allowed to stay in the data, with the exception of dates for critical events, which are needed to correctly compute indicators for these individuals:

- Date of birth of women 15-49; and
- Date of each birth for living children under 5 years of age of women 15-49.[30]

[30] The publically available DHS data had Z-score values already calculated for the child anthropometric indicators.

The procedure that was followed to impute these dates complied with international DHS standards, as described in the DHS Data Editing and Imputation.[31]

Methods for Data Analysis

Most of the quantitative results in this report are presented as percentages and means, all with two decimal points in tables and one decimal point in the narrative. Representativeness is maintained by weighting any statistics that apply to the survey population (e.g., percentages and means) by the inverse of the probability of selection of any given survey respondent:

- **Percentages.** For values provided in nominal scales (e.g., yes/no responses), percentages are computed using the weighted number of cases that provided a given response as the numerator, and the total weighted number of cases as the denominator. Single response variables add up to a maximum of 100 percent, while multiple response variables may total more than 100 percent.

- **Means.** For variables collected in a continuous scale format (e.g., number of household members), means are computed using the weighted sum of values as the numerator and the total weighted number of cases as the denominator.

The unweighted sample sizes for the results are presented in each table with a column labeled "n." To avoid showing unreliable statistics, results are only shown when the unweighted sample size for an indicator is equal to or greater than 30 cases.

Computed Variables and Indicators[32]

International standards are used whenever available to compute analytic variables and indicators:

1. Housing characteristics and health indicators were computed using DHS standards and definitions, as described in these documents:

   – 2012 DHS Guide to Statistics; and

   – 2012 Tabulation Plan for DHS Final Report.

2. Nutrition and food security indicators were computed using international standards as described in these documents:

   – 2012 Feed the Future Indicator Handbook;

   – 2011 Household Hunger Scale: Indicator Definition and Measurement Guide; and

[31] Croft, T. 2004.

[32] Detailed descriptions provided in handling missing values, data imputation, methods for data analysis, and computed variables and indicators are based in part from P.D. Rosell, B. O'Colmain, and H. Howell. Haiti Baseline Survey. Draft Report. ICF Macro Inc. May 2013. Report submitted to USAID/Haiti, p.12-14.

- 2010 World Health Organization (WHO) Indicators for Assessing Infant and Young Child Feeding Practices (Part 2 Measurement).

3. Anthropometry indicators were calculated using the child growth standards and data processing programs published by the WHO in 2006.[33]

4. Data were obtained from the DHS 2010 data and the IHS3 2010-2011,[34] and computation of per-capita expenditures and poverty rates were calculated on the subset of cases extracted from the national data set that fall within the Feed the Future ZOI. General guidance for computing expenditures from LSMS data include Deaton and Zaidi (2002)[35] and Grosh and Muñoz (1996).[36]

   - In Malawi, secondary data was available through the IHS3 to compute baseline expenditure and poverty indicators. The Malawi NSO calculated the consumption variables directly and provided the total consumption aggregate variable to FTF FEEDBACK. The advantage of this approach is that all the methods and assumptions that went into the calculations done by Malawi's statistical office are incorporated into these aggregates.

   - FTF FEEDBACK constructed the gendered household type variable from the IHS3 Module B, as well as limited the secondary analysis to the seven districts in the Malawi ZOI only. Daily per capita expenditures in Malawian kwacha (MKw) were tabulated and verified with the IHS3 Final Report. Expenditures were tabulated for all, and by gendered household type, per FTF FEEDBACK guidelines. Household expenditures were converted to per capita values and 2010 United States dollars (using 2005 purchasing power parity [PPP] adjusted to 2010 prices using USD and the Malawi consumer price index [CPI]).

   - For the poverty indicator, which is the percentage of people living on less than $1.25/day (at 2005 PPP), FTF FEEDBACK used the 2005 PPP exchange rate and Malawi 2010 CPI[37] available from the World Bank's World DataBank.[38] For the Malawi 2010-11 IHS3, the $1.25/day equivalent poverty line using the 2005 PPP conversion factor (57) and the 2010 CPI (156) divided by the 2005 CPI (100) is MKw 111.15/day, or (57*1.25)*(156/100)=111.15. The percentages of people in the ZOI living below this $1.25/day poverty line were tabulated for all households and by gendered household type.

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[33] WHO. 2006.
[34] National Statistical Office of Malawi. 2010.
[35] Deaton, A. and S. Zaidi. 2002.
[36] Grosh, M., and J. Muñoz. 1996.
[37] Because the World Bank only publishes yearly (and not monthly) CPI values, there is no perfect way to deflate the expenditure data for the IHS3 survey. This survey was collected from March 2010 – March 2011. Because the majority of the survey (10 of the 13 months) took place in 2010, not 2011, the 2010 CPI was used. An alternative method in which data completed in January to March of 2011 were deflated using the 2011 CPI, resulted in very small changes in the poverty rate (a change from 60.63 to 61.42 percent) and expenditure levels (a change from $1.73 to $1.71). Because these changes were so small, FEEDBACK determined that the method of using only the 2010 CPI to deflate expenditure values was the preferred method to calculate poverty and expenditure with the Malawi IHS3.
[38] World Bank, 2013a.

5. WEAI was calculated with guidance and materials provided via the USAID Feed the Future webinar conducted on November 9, 2012 and the Instructional Guide on the Women's Empowerment in Agriculture Index.[39]

The details for calculations of the ZOI indicators are provided in Annex D.

2.4 Survey Sample Design

The sample size for the Malawi PBS baseline was 3,528 households, across the following seven districts that constitute the USAID/Malawi ZOI: Mchinji, Lilongwe, Dedza, Ntcheu, Balaka, Machinga, and Mangochi.

2.4.1 Sample Size Calculation

Sample size was determined based on comparison of the sample sizes required for two of the three indicators to be measured by this survey, the WEAI and the prevalence of households with moderate or severe hunger.[40] For each, measuring change between the baseline to the endline was used rather than from baseline to midpoint, as per Feed the Future guidance. The sample size was determined to detect a 6 percent change in the WEAI and a 10 percent change in the prevalence of households with moderate or severe hunger.

Table 4 shows the sample size requirements for two of the three indicators to be measured by this survey. Calculations were done with Stata software sample size programs with a design effect of 2.0, z-values corresponding to 95 percent significance, and 80 percent power. The columns under "Sample size" show the sample sizes required for the population for which the indicator would be calculated. These sample size calculations do not adjust for nonresponse. The last two columns list the number of households required at baseline and end line, including adjustments for nonresponse. The levels of nonresponse are based on those found in the Malawi DHS 2011 for households and women. The estimated baseline value for the WEAI is based on a study in Uganda. The estimated baseline value for prevalence of households with moderate or severe hunger is based on the average value from studies in six countries.

Table 4. Sample size calculations

Feed the Future indicators	Baseline value	End line target value	Sample size		Number of households	
			Baseline	End line	Baseline	End line
WEAI	0.789	0.836	1,762	1,762	2,090	2,090
Prevalence of households with moderate or severe hunger	49.7	44.7	2,574	2,574	2,832	2,832

The final collected sample for the Malawi Baseline PBS consisted of 3,397 households, across the following seven districts that constitute the USAID/Malawi ZOI: Mchinji, Lilongwe, Dedza, Ntcheu, Balaka, Machinga, and Mangochi. This sample size was more than sufficient to cover the

[39] Alkire, S. et al. 2013.
[40] Data to estimate baseline values were available for only two of the three indicators.

sample size requirements described above. The sample size for the Malawi baseline PBS was increased in anticipation of the Malawi ZOI being reduced if the primary project (Integrating Nutrition with Value Chains) was unable to fully deploy across the seven districts. Since it is not known how the project activities would be distributed over time, it was decided to equally distribute the sample (N=3500, (7*500)) across the seven districts. This strategy would provide for a sufficient sample at baseline if the Malawi ZOI was reduced. This oversampling design also allows for cross-district comparison, although the sample was not specifically powered for this purpose. The final sample for the Malawi PBS was 3,397 because only 97 percent of targeted households were successfully interviewed.

2.4.2 Sample Design

Sampling was based on a two-stage methodology, with 126 rural SEAs.[41] The sample focused on rural areas only and was stratified by district, with SEAs distributed evenly among districts. Within each district, SEAs were selected using probability proportional to size from the 2008 Population and Housing Census master sample list. Following standard Malawi NSO practice, SEAs from game and forest reserves were excluded from the sample list.

From each selected SEA, 28 households were chosen using a systematic sampling procedure based on a comprehensive list of households in each SEA, developed by the survey teams in the field. Households were randomly selected by selecting the first household with a random starting point from one to 28 and selecting subsequent households at a fixed interval from that point on. The interval is calculated by dividing the total number of households in the SEA by 28. Absent households were given three call-back visits before being dropped from the survey without replacement (as with the Malawi 2010 DHS).

2.4.3 Sample Weighting

Data required for statistical weighting of survey data were collected throughout the sampling process. These data included, but were not limited to: (1) population of strata from which SEAs are drawn, and (2) response rates at the household, women's, and men's levels.

Computations based on the survey sample were weighted so that the results accurately reflected the proportions of the sampled elements within the overall sample frame of the population in the ZOI. Details of how weights were computed for the design and sampling are provided in Annex C.

2.4.4 Questionnaire Design

The survey questionnaires were developed based on the Feed the Future baseline survey guidelines provided in Volume 8 of the Feed the Future M&E Guidance Series (see Annex B for the survey questionnaire). In addition, the FTF FEEDBACK surveys are designed to conform to existing

[41] One hundred twenty-six SEAs were chosen because, for design effect purposes, it was desirable to have the largest number of SEAs and smallest number of HH in each SEA possible, given the logistics of time and team numbers.

questionnaires such as the DHS, LSMS, and WEAI. Each questionnaire includes the informed consent statement, the household roster, a dwelling characteristics module, and modules for indicators that cannot be calculated using existing data sources. The baseline survey collected information to enable calculation of the following indicators (Table 5).

Table 5. Feed the Future Malawi baseline survey indicators and questionnaire modules

Survey module	Description of indicator
F	Prevalence of households with moderate or severe hunger
G	WEAI
H	Women's Dietary Diversity Score: Mean number of food groups consumed by women of reproductive age (15-49)

The questionnaires were translated into the local language (Chichewa) and field tested during the training of trainers (TOT). During the pretests and training, any problems found in the translations were corrected. Translations were not programmed onto the tablet computers; instead, enumerators had paper translations of the survey for reference. All enumerators were fluent in both English and Chichewa.

2.5 Limitations

The original Malawi TOT was intended to include a hands-on training component about tablet computer technology. Due to delays in the arrival of the tablet computer shipment, this component of the TOT was not possible. To maintain the training schedule, which had been prearranged for the 140 enumerators, tablet training for the master trainers was removed from the TOT training agenda. This resulted in the country team technical specialist training 140 enumerators and supervisors simultaneously during the training of enumerators, which resulted in further modifications of the training agenda, with more time focused on training on tablet use, requiring the enumerator training to be extended by one day.

In addition, ideally the survey would have been translated from English to Chichewa onto the tablets to avoid potential differences of interpretation/translation by enumerators in the field. This was not done due to personnel and time constraints. Instead, enumerators received a translated paper copy of the questionnaire.

There were limitations in analysis of indicators derived from three different surveys (PBS, DHS, and IHS3) because data were not from the same households. This limited the correlation analysis that could be conducted across indicators from different data sources.

Finally, another limitation relates to the timing of the survey (November-December 2012) during a period of heightened food insecurity in the central and southern regions, which may impact the household hunger findings. According to the Famine Early Warning Systems Network report in November 2012, an estimated 1.97 million people were facing food insecurity, and humanitarian

assistance was planned through March 2013.[42] Typically, the dry season is from March to November, with harvests from May to August for the main crops of maize, rice, sorghum, and wheat.[43]

Additionally, the representativeness of the data for the WEAI may be compromised by high nonresponse rates. Despite return visits, males were difficult to find at home. Those found were often not willing to be interviewed. The result is a high nonresponse rate for males in the gender parity index of the WEAI (22.9 percent).

3. Descriptive Findings

The baseline values for the ZOI for the Feed the Future indicators are presented in Table 6. These results also are presented by district in Appendix A. A detailed description of individual indicators is presented in the section that follows. Only differences across subgroups that are statistically significant at the 0.05 level are discussed in the narrative.

3.1 Household Characteristics

3.1.1 Demographics

Module C of the PBS captured information about size and composition of the household, number of females within a household, education achieved by household members, and data about children. The data are presented in Table 7 and Table 8.

In the Malawi ZOI, the average number of household members is about five (Table 7). Households with at least one male and one female adult have significantly more individuals than those with female adults only (five and four, respectively). They also have slightly more females and children. On average, there is about one child under 5 per household in male and female adult and female adult only households, and about two children between the ages of 5 and 17. Of school-aged children among all households, there is about one child aged 5 to 17 years in male and female adult and female adult only households attending school.

Regarding education, as shown in Table 8, most households have either junior primary/no schooling (41.8 percent) or senior primary level schooling (35.44 percent). Analysis by household type shows that more male and female adult households achieve senior primary and secondary education levels (39.6 and 25.4 percent, respectively) than female adult only households (27.2 and 11.1 percent, respectively). More male and female adult households achieve senior primary education (39.6 percent) than male adult only households (23.8 percent). Both female adult only (61.0 percent) and male adult only households (58.0 percent) are more likely to have only junior primary or no formal schooling compared to male and female adult households (33.1 percent).

[42] FEWSNET. 2012.
[43] FAO. 2013.

Table 6. Feed the Future ZOI population-based indicators (13 indicators)

Feed the Future indicators	Baseline values						
	n (unweighted)	Baseline value	Std dev[1]	95% CI	DEFF	Nonresponse rate[2]	Source
Prevalence of poverty: Percent of people living on less than $1.25/day (2005 PPP)	**3,448**	**60.63**	**-**	**57.58 – 63.69**	**4.80**	**-**	**IHS3**
M&F (both male and female adults)	2,645	59.63[a]	-	56.27 – 63.00	4.90	-	IHS3
FNM (female adult[s] only)	607	71.97[a]	-	68.36 – 75.58	1.06	-	IHS3
MNF (male adult[s] only)	194	27.22[a]	-	18.35 – 36.10	0.93	-	IHS3
CNA (child no adults)^	2	-	-	-	-	-	IHS3
Per capita expenditures of USG targeted beneficiaries (2010 USD)	**3,448**	1.73	**2.04**	**1.58 – 1.89**	**4.93**	**-**	**IHS3**
M&F (both male and female adults)	2,645	1.73[b]	1.93	1.57 – 1.89	4.81	-	IHS3
FNM (female adult[s] only)	607	1.45[b]	1.84	1.31 – 1.58	0.82	-	IHS3
MNF (male adult[s] only)	194	3.88[b]	6.57	3.18 – 4.58	0.57	-	IHS3
CNA (child no adults)^	2	-	-	-	-	-	IHS3
Prevalence of underweight children under 5 years of age	**1,285**	13.94	**-**	**11.65 – 16.23**	**2.11**	**-**	**DHS**
Male	608	15.30	-	12.18 – 18.43	1.68	-	DHS
Female	677	12.77	-	9.59 – 15.96	2.37	-	DHS
Prevalence of stunted children under 5 years of age	**1,285**	47.53	**-**	**43.92 – 51.15**	**2.54**	**-**	**DHS**
Male	608	50.45	-	45.65 – 55.25	2.05	-	DHS
Female	677	45.04	-	40.42 – 49.66	2.25	-	DHS
Prevalence of wasted children under 5 years of age	**1,285**	5.82	**-**	**4.24 – 7.41**	**2.21**	**-**	**DHS**
Male	608	6.01	-	3.96 – 8.07	1.66	-	DHS
Female	677	5.66	-	3.63 – 7.70	2.02	-	DHS
Prevalence of underweight women of reproductive age	**1,750**	**9.57**	**-**	**7.92 – 11.22**	**2.05**	**-**	**DHS**
WEAI	**2,926**	**0.84**	**-**	**-**	**-**	**-**	**FTF FEEDBACK PBS**
5DE Subindex	2,926	0.83	0.19	0.82 – 0.84	1.70	7.73	FTF FEEDBACK PBS
GPI Subindex	1,728	0.91	0.14	0.90 – 0.92	1.70	22.86	FTF FEEDBACK PBS

Table 6. Feed the Future ZOI population-based indicators (13 indicators) (continued)

Feed the Future indicators	Baseline values						
	n (unweighted)	Baseline value	Std dev[1]	95% CI	DEFF	Nonresponse rate[2]	Source
Prevalence of households with moderate or severe hunger (HHS)	**3,353**	**40.22**	**-**	**36.66 – 43.77**	**4.50**	**1.30**	**FTF FEEDBACK PBS**
M&F (both male and female adults)	2,187	38.12[c]	-	34.02 – 42.22	4.12	2.37	FTF FEEDBACK PBS
FNM (female adult[s] only)	929	45.50[c]	-	40.79 – 50.22	2.02	0.21	FTF FEEDBACK PBS
MNF (male adult[s] only)	216	41.47	-	32.74 – 50.19	1.45	3.24	FTF FEEDBACK PBS
CNA (child no adults)^	21	-	-	-	-	-	FTF FEEDBACK PBS
Prevalence of children 6-23 months receiving a minimum acceptable diet	**1,598**	**18.09**	**-**	**15.76 – 20.42**	**2.16**	**-**	**DHS**
Male	826	19.07	-	15.96 – 22.19	1.90	-	DHS
Female	772	17.05	-	13.42 – 20.68	2.68	-	DHS
Women's Dietary Diversity Score: Mean number of food groups consumed by women of reproductive age	**2,837**	3.37	**1.24**	**3.26 – 3.47**	**5.14**	**9.56**	**PBS**
Prevalence of exclusive breastfeeding of children under 6 months of age	**444**	**68.17**	**-**	**61.64 – 74.70**	**3.36**	**-**	**DHS**
Male	202	68.92	-	61.02 – 76.82	2.32	-	DHS
Female	242	67.52	-	59.04 – 76.00	2.99	-	DHS
Prevalence of anemia among children 6-59 months	**1,203**	64.26	**-**	**60.28 – 68.24**	**3.14**	**-**	**DHS**
Male	578	63.38	-	57.91 – 68.86	2.73	-	DHS
Female	625	65.02	-	60.36 – 69.67	2.33	-	DHS
Prevalence of anemia among women of reproductive age	**1,930**	**28.87**	**-**	**25.92 – 31.81**	**3.02**	**-**	**DHS**
Pregnant	183	35.64	-	28.08 – 43.21	1.57	-	DHS
Nonpregnant	1,747	28.21	-	25.07 – 31.34	3.16	-	DHS

[a-c] Subgroups with the same superscript are significantly different at the 0.05 level. Comparisons are between rows within each indicator.

^ = Results not statistically representative; n<30.

[1] Standard deviation for calculations of means only.

[2] The response rate is not available for secondary data variables.

Table 7. Household demographics

	Household type				
	All households	Male and female adults	Female adult only	Male adult only	Child no adults^
	Mean (std dev)				
Number of HH members	4.47(2.01)	5.01[a](1.87)	3.56[a](1.69)	2.25[a](1.82)	-
Number of females in HH	2.36(1.31)	2.49[b](1.26)	2.36[b](1.23)	0.69[b](1.17)	-
Number of children (0-59 mos.)	0.81(0.83)	0.89[c](0.81)	0.72[c](0.84)	0.24[c](0.55)	-
Number of children (6-23 mos.)[1]	-	-	-	-	-
Number of children (5-17 yrs.)	1.69(1.49)	1.77[d](1.49)	1.65[d](1.45)	0.90[d](1.46)	-
Number of children attending school (5-17 yrs.)	1.37(1.34)	1.45[e](1.34)	1.33[e](1.29)	0.60[e](1.26)	-
n (unweighted)	**3,397**	**2,240**	**931**	**209**	**17**

[a-e] Subgroups with the same superscript are significantly different at the 0.05 level. Comparisons are across columns.

^ = Results not statistically representative; n<30.

[1] No data were collected on child age by months because child anthropometry was not included in the Malawi survey.

Source: FTF FEEDBACK PBS. Nov-Dec 2012.

Table 8. Highest education level within the household

	Household type				
	All households	Male and female adults	Female adult only	Male adult only	Child no adult^
Education level	%				
Junior primary or no formal schooling	41.83	33.09[ab]	61.03[a]	57.95[b]	-
Senior primary	35.44	39.59[cd]	27.24[c]	23.78[d]	-
Secondary	21.22	25.44[e]	11.07[e]	17.25	-
Tertiary	1.51	1.89[f]	0.66[f]	1.02	-
n (unweighted)	**3,397**	**2,240**	**931**	**209**	**17**

[a-f] Subgroups with the same superscript are significantly different at the 0.05 level. Comparisons are across columns.

^ = Results not statistically representative; n<30.

Source: FTF FEEDBACK PBS. Nov-Dec 2012.

3.1.2 Dwelling Characteristics

Data on housing construction materials, whether or not households have electricity, and type of fuels used for cooking were recorded in Module D of the PBS and are presented in the following tables.

According to the data in Table 9, households with electricity are rare (5.9 percent), and on average households have about 2.4 rooms. There is a statistically significant difference in the average number of rooms for households with both male and female adults (2.6 rooms) compared to male adult only (2.0 rooms) or female adult only households (2.2 rooms). Male adult only households are more likely to have electricity (9.5 percent) than female adult only households (4.8 percent).

Table 9. Dwelling characteristics

	Household type				
	All households	Male and female adults	Female adult only	Male adult only	Child no adults^
Mean number of rooms (std dev)	2.44(1.19)	2.55[ab](1.15)	2.23[a](1.24)	2.02[b](1.19)	-
% Households with electricity	5.87	5.99	4.78[a]	9.54[a]	-
n (unweighted)	**3,371**	**2,215**	**928**	**206**	**16**

[a,b] Subgroups with the same superscript are significantly different at the 0.05 level. Comparisons are across columns.

^ = Results not statistically representative; n<30.

Source: FTF FEEDBACK PBS. Nov-Dec 2012.

Table 10 presents information about construction materials for housing. The most common type of roof material for nearly three-quarters of the surveyed households is thatch, vegetable matter, or sticks (74.1 percent), regardless of the type of household. The second-most common roof material is corrugated metal (21.9 percent).

Table 10 also shows dwelling materials used for walls and floors. Nearly two-thirds (60.6 percent) of households use tile or brick material for walls, and more than a third (34.7 percent) of houses use earth or mud. The most common type of floor material is earth or mud (86.9 percent), followed by cement (12.1 percent). Significant differences in construction materials are observed across household type.

Table 10. Housing construction materials by household type

	Household type				
	All households	Male and female adults	Female adult only	Male adult only	Child no adult^
Roof			%		
Roof tile	0.26	0.33	0.13	0.00	-
Wood	0.98	1.16[a]	0.26[ab]	2.34[b]	-
Corrugated metal	21.92	23.33[c]	18.49[c]	20.62	-
Plastic sheeting	1.37	1.38	0.95[d]	2.84[d]	-
Thatched vegetable matter/sticks	74.14	72.45[e]	78.97[e]	72.38	-
Mud/cow dung	1.30	1.31	1.19	1.82	-
Other	0.00	0.00	0.00	0.00	-
Wall					
Earth/mud	34.73	31.49[f]	43.84[fg]	30.77[g]	-
Concrete/stone/cement	3.37	3.34	3.69	2.24	-
Tile/bricks	60.60	63.74[h]	51.30[hi]	66.51[i]	-
Wood	0.82	0.90	0.69	0.48	-
Other	0.48	0.53	0.48	0.00	-
Floor					
Earth/mud	86.93	85.80[j]	90.10[j]	85.31	-
Cement	12.12	13.26[k]	9.21[k]	12.72	-
Tile/bricks	0.91	0.95	0.63	1.67	-
Wood	0.00	0.00[l]	0.00	0.30[l]	-
n (unweighted)	**3,385**	**2,233**	**928**	**207**	**17**

[a-l] Subgroups with the same superscript are significantly different at the 0.05 level. Comparisons are across columns.

^ = Results not statistically representative; n<30.

Source: FTF FEEDBACK PBS. Nov-Dec 2012.

Nearly all households (94.4 percent) rely on firewood as their main source of fuel for cooking, as seen in Table 11, and a small percentage of households (5.0 percent) rely on charcoal. There are no significant differences in cooking fuel type across household types.

Table 11. Main source of cooking fuel

	Household type				
	All households	Male and female adults	Female adult only	Male adult only	Child no adults^
Fuel type			%		
Firewood	94.4	94.5	94.7	91.1	-
Charcoal	5.0	4.9	4.5	8.1	-
Animal dung	0.3	0.3	0.1	0.8	-
Agriculture crop residue	0.4	0.3	0.7	0.0	-
Electricity	0.0	0.0	0.0	0.0	-
Piped or liquid propane gas (biogas)	0.0	0.0	0.0	0.0	-
Kerosene	0.0	0.0	0.0	0.0	-
n (unweighted)	**3,385**	**2,233**	**928**	**207**	**17**

No significant difference across subgroups for any of the indicators in the table at the 0.05 level.

^ = Results not statistically representative; n<30.

Source: FTF FEEDBACK PBS. Nov-Dec 2012.

3.1.3 Water and Sanitation

According to World Health Organization (WHO)[44] standards, sources of improved drinking water include piped water to the house or yard, public taps or standpipes, boreholes, protected dug wells, protected springs, and rainwater collection. Improved sanitation facilities include flush or pour-flush toilets connected to a piped sewer system, septic tanks, covered pit latrines with slab, and composting toilets.

Table 12 shows that the majority of the households surveyed (87.5 percent) use an improved drinking water source, regardless of type of household. Nearly all households (92.0 percent) use a pit latrine, which is undifferentiated in the data as covered/uncovered or slab/no slab, and only about 2 percent of households use another type of improved sanitation facility (excluding pit latrines). Those homes with both male and female adults are more likely to use a pit latrine (93.7 percent) compared to other household types (86.4 percent and 89.1 percent for male adult only or female adult only households, respectively). Male adult only households are significantly more likely to have access to improved sanitation facilities (excluding pit latrines) than female adult only households (3.1 percent and 1.1 percent, respectively).

[44] WHO. 2013.

Table 12. Households using improved water and sanitation facilities

	Household type				
	All households	Male and female adults	Female adult only	Male adult only	Child no adult^
	%				
Households using improved water source	87.54	88.40	85.90	84.94	-
Households using improved sanitation facilities (excluding pit latrines)[1]	1.95	2.20	1.13[a]	3.13[a]	-
Households using pit latrines	92.00	93.67[bc]	89.10[b]	86.42[c]	-
n (unweighted)	**3,385**	**2,233**	**928**	**207**	**17**

[a-c] Subgroups with the same superscript are significantly different at the 0.05 level. Comparisons are across columns.

^ = Results not statistically representative; n<30.

[1] All pit latrines were excluded because the questionnaire did not differentiate between covered pit latrines with slab (improved) and uncovered.

Source: FTF FEEDBACK PBS. Nov-Dec 2012.

3.2 Household Consumption and Expenditures

3.2.1 Prevalence and Depth of Poverty in the ZOI

In Malawi, data from the IHS3 (2010-2011) were used to calculate the prevalence of poverty and per capita expenditure. The prevalence of poverty is defined as the percentage of people living on less than $1.25 per day at 2005 PPP. Well over half, 60.6 percent of the population in the ZOI lives on less than $1.25 per day (Table 13). Households with both male and female adults have a lower prevalence of poverty compared to female adult only households (59.6 and 72.0 percent, respectively). Male adult only households have the lowest prevalence of people living on less than $1.25/day. According to the national poverty line, the prevalence of poverty in the ZOI is 55.8 percent (at the national poverty line of 37,002 Kwacha or $1.14/day) and the extreme poverty rate is 28.0 percent (at the extreme national poverty line of 22,956 Kwacha or $0.71/day). Households with both male and female adults have a lower prevalence of poverty and extreme poverty than households with female adults only. Poverty remains an important problem in Malawi, despite a slight decrease in the overall poverty rate (2 percent) since 2004-2005.[45]

The poverty gap is the mean shortfall from the poverty line (counting the nonpoor as having zero shortfall), expressed as a percentage of the poverty line. This measure reflects the depth of poverty as well as its incidence.[46] The poverty gap of 24.5 percent (Table 13) indicates that the average shortfall of the entire ZOI population from the $1.25 poverty line is approximately $0.31 per person.[47] The poverty gap for the extreme poor (extreme national poverty line is 22,956 Kwacha or $0.71/day) is 7.8 percent.

[45] Government of Malawi. 2011b. p. 204-209, 219.
[46] World Bank. 2013b.
[47] This estimation is calculated as poverty gap/prevalence of poverty*poverty line.

Table 13. Poverty and expenditure indicators for the ZOI

Feed the Future indicators	Baseline values				
	n (unweighted)	Baseline value	Std dev	95% CI	DEFF
Prevalence of poverty: Percent of people living on less than $1.25/day (2005 PPP)	**3,448**	**60.63**	**-**	**57.58-63.69**	**4.80**
M&F (both male and female adults)	2,645	59.63[a]	-	56.27-63.00	4.90
FNM (female adult[s] only)	607	71.97[a]	-	68.36-75.58	1.06
MNF (male adult[s] only)	194	27.22[a]	-	18.35-36.10	0.93
CNA (child only HHs)^	2	-	-	-	-
Prevalence of poverty: National poverty line of 37,002 Kwacha per year ($1.14/day)	**3,448**	**55.76**	**-**	**52.65-58.86**	**4.82**
M&F (both male and female adults)	2,645	54.92[b]	-	51.49-58.35	4.94
FNM (female adult[s] only)	607	66.30[b]	-	60.94-71.66	2.10
MNF (male adult[s] only)	194	20.32[b]	-	12.10-28.55	0.97
CNA (child only HHs)^	2	-	-	-	-
Prevalence of extreme poverty: National poverty line of 22,956 Kwacha per year ($0.71/day)	**3,448**	**28.04**	**-**	**25.00-31.07**	**5.61**
M&F (both male and female adults)	2,645	27.46[c]	-	24.26-30.65	5.34
FNM (female adult[s] only)	607	34.71[c]	-	29.30-40.13	2.11
MNF (male adult[s] only)	194	7.91[c]	-	2.13-13.70	1.07
CNA (child only HHs)^	2	-	-	-	-
Poverty gap at $1.25 a day 2005 PPP	**3,448**	**24.46**	**21.63**	**22.69-26.24**	**6.00**
M&F (both male and female adults)	2,645	24.12[d]	20.70	22.19-26.05	5.90
FNM (female adult[s] only)	607	29.27[d]	23.82	26.65-31.88	1.88
MNF (male adult[s] only)	194	6.77[d]	21.32	3.78-9.77	0.98
CNA (child only HHs)^	2	-	-	-	-
Poverty gap at $1.14 a day 2005 PPP	**3,448**	**21.22**	**20.57**	**19.53-22.91**	**6.01**
M&F (both male and female adults)	2,645	20.93[e]	19.69	19.11-22.76	5.84
FNM (female adult[s] only)	607	25.39[e]	22.84	22.80-27.97	2.00
MNF (male adult[s] only)	194	5.20[e]	18.66	2.56-7.84	1.00
CNA (child only HHs)^	2	-	-	-	-
Poverty gap at $0.71 a day 2005 PPP	**3,448**	**7.76**	**13.17**	**6.69-8.83**	**5.86**
M&F (both male and female adults)	2,645	7.84[f]	12.72	6.68-9.01	5.70
FNM (female adult[s] only)	607	8.23[g]	14.42	6.65-9.82	1.88
MNF (male adult[s] only)	194	0.83f[g]	4.81	0.23-1.43	0.77
CNA (child only HHs)^	2	-	-	-	-
Daily per capita expenditures of USG targeted beneficiaries (2010 USD)	**3,448**	**1.73**	**2.04**	**1.58-1.89**	**4.93**
M&F (both male and female adults)	2,645	1.73[h]	1.93	1.57-1.89	4.81
FNM (female adult[s] only)	607	1.45[h]	1.84	1.31-1.58	0.82
MNF (male adult[s] only)	194	3.88[h]	6.57	3.18-4.58	0.57
CNA (child only HHs)^	2	-	-	-	-

[a-h] Subgroups with the same superscript are significant at the 0.05 level. Comparisons are between rows.

^ = Results not statistically representative; n<30.

Source: IHS3. March 2010-March 2011.

3.2.2 Per Capita Expenditures

Per capita expenditure is an indicator that measures the expenditures of rural households as a proxy for income, based on the assumption that increased expenditures is strongly related to increased income and because of the difficulty in accurately measuring income. Expenditure data are less prone to error, easier to recall, and more stable over time than income data. Data from the IHS3 2010-2011 survey were used to tabulate the per capita expenditure indicator.

Table 13 provides ZOI-level secondary data on daily per capita household expenditures (2010 USD). The per capita expenditure in the ZOI is $1.73 (2010 USD) per day. Households with both male and female adults and male adult only households ($1.73 and $3.88/day, respectively) have higher per capita expenditures than female adult only households ($1.45/day). Male adult only households have the highest per capita expenditure with $3.88/day.

3.3 Household Hunger

The Household Hunger Scale (HHS) (Module F) is used to calculate prevalence of households with moderate or severe hunger. The HHS was developed by the USAID-funded Food and Nutrition Technical Assistance II Project (FANTA-2/FHI 360) in collaboration with FAO and has been cross-culturally validated to allow comparison across different food-insecure contexts. The approach is based on the idea that the experience of food insecurity causes predictable reactions that can be captured through a survey and summarized in a scale. The HHS is used to assess, geographically target, monitor, and evaluate settings affected by substantial food insecurity. When administered in a population-based household survey, the HHS is used to estimate the percent of households affected by three different severities of household hunger: little to no household hunger (HHS score 0-1); moderate household hunger (HHS score 2-3); and severe household hunger (HHS score 4-6).

Respondents are asked about the frequency with which three events were experienced by household members in the last four weeks: (1) No food at all in the house; (2) Went to bed hungry; and (3) Went all day and night without eating. For each question, four responses are possible, which are collapsed into three categories and assigned numerical values: never (value=0), rarely or sometimes (value=1), or often (value=2). The HHS score is computed by summing the values for the three questions for each household, producing a HHS score ranging from 0 to 6. A decrease in the HHS score is a reflection of improved food security. This indicator should always be measured at the same time each year, ideally at the most vulnerable time of year (right before the harvest, during the dry season, etc.).[48] In Malawi, the PBS was conducted between November 14 and December 22, 2012, which is during the dry season and after the main harvests (May to August). Many households were facing acute food insecurity during the time of the survey (see Limitations).

The Malawi PBS data indicate that 38.1 percent of male and female adult households are in the moderate or severe hunger category, as reported in Table 6, which is significantly less than the

[48] Deitchler et al. 2011.

prevalence of hunger for female adult only households (45.5 percent). On average for the population in the ZOI, 40.2 percent of households report moderate to severe hunger.

3.4 Nutrition

Data on women's and children's anthropometry and anemia, women's dietary diversity, exclusive breastfeeding, and MAD presents information on diet, height, weight, age, and hemoglobin for children under 5 and women of reproductive age (15-49 years). Data from the 2010 Malawi DHS was used to calculate these indicators, except the Women's Dietary Diversity Score, which was collected in Module H of the baseline PBS. The DHS was used to calculate the prevalence of stunting, wasting, and underweight children, the prevalence of exclusive breastfeeding among children 0-5 months, the prevalence of children 6-23 months receiving a MAD, the prevalence of anemia among children 6-59 months, the prevalence of underweight women, and the prevalence of anemia among women of reproductive age.

The 2012 PBS Module H gathered information on Women's Dietary Diversity Score. This module was used to calculate the mean number of food groups consumed by women of reproductive age, of a total of nine food groups.

3.4.1 Child Nutritional Status

Measures of Nutritional Status (Stunting, Wasting, Underweight)

This section reports three important anthropometric measurements of undernutrition among children under age 5 in the ZOI: stunting (height-for-age), wasting (weight-for-height), and underweight (weight-for-age). Each indicator is calculated by taking anthropometric measurements of children under 5 in the sample divided by the total number of children under 5 in the sample for which there is measurement data available. For example, stunting prevalence is calculated by the number of children who are stunted divided by the number of children whose height and age data are collected. Data presented are disaggregated by the gender of the child and by household type.

In Malawi, the 2010 DHS conducted anthropometric measurement (height, weight, age) in a random subsample of sampled households. Thus, anthropometric data were available for only 26.9 percent of children under 5 in the sample within the ZOI. Table 14 shows the available anthropometric data disaggregated by gendered household type. The underrepresented anthropometric data were disproportionately represented among female adult only households.[49] Extreme cases, or outliers, were excluded from the analysis, so sample size presented in the following tables (anthropometric, feeding) may be lower than values presented in Table 14. It should also be noted that DHS measured the youngest child, not all children, or a randomly selected child; thus, results are not representative of all children under 5 (as well as for children under 6 months and 6-23 months, with less bias).

[49] DHS documentation does not provide any explanation for this discrepancy, and a direct review of the data base was unable to detect any reason for the underrepresentation.

Table 14. ZOI sample for anthropometric data

Household type	Children under 5 with anthropometric data (n)	Children under 5 in the ZOI (n)
All households	**1,461**	**5,423**
Male and female adults	1,412	4,421
Female adult only	42	966
Male adult only	7	32
Child no adult	0	4

Source: DHS. June-Sept 2010.

Stunting is an indicator of linear growth retardation, most often due to a prolonged inadequate diet and poor health. Reducing the prevalence of stunting among children, particularly 0-23 months, is important because linear growth deficits accrued early in life are associated with cognitive impairments, poor educational performance, and decreased work productivity among adults.

Stunting is a height-for-age measurement that is a reflection of chronic undernutrition. This indicator measures the percentage of children 0-59 months with stunting, as defined by a height-for-age Z-score less than two standard deviations (below -2SD) from the median of the 2006 WHO Child Growth Standard.[50] This indicator measures the combined prevalence of moderate (below -2SD and above or equal to -3SD) and severe (below -3SD) stunting. While stunting may be difficult to measure in children 0-6 months, and most stunting occurs in the 9-23 month range, data for this indicator will still be reported for all children under 5 years of age to capture the impact of interventions over time and align with DHS data.

The prevalence of stunting (below -2SD) among children under 5 in the ZOI is 47.5 percent and the prevalence of severe stunting (below -3SD) is 20.5 percent (Table 15). Among all children under 5, boys have significantly higher prevalence of severe stunting than girls (24.5 and 17.1 percent, respectively). Similarly, boys have significantly higher prevalence of severe stunting in male and female adult households compared to girls in male and female adult households (23.4 and 17.2 percent, respectively). Analysis by household type shows that children in female adult only households (36.2 percent) are more likely to have severe stunting than children in male and female adult households (20.0 percent).

According to DHS data, Malawi's national prevalence of stunting has decreased since 2004, from 53 percent to 47 percent.[51] In addition, compared to the 2010 DHS regional data, the ZOI stunting prevalence is similar to the reported Central and Southern regional prevalence rates: 47.2 percent in the Central region and 46.7 percent in the Southern region.[52] Finally, the average stunting prevalance reported in the ZOI lies within the range of other East African[53] national averages reported in the

[50] WHO. 2006.
[51] Government of Malawi. 2011a.
[52] Ibid.
[53] USAID/MEASURE DHS East African countries include: Kenya, Madagascar, Malawi, Mozambique, Rwanda, Sudan, Tanzania, Uganda, Zambia, and Zimbabwe.

DHS between 2007 and 2011. The stunting prevalence range in East Africa was between 32 percent in Zimbabwe (DHS 2010-11) to 58 percent in Burundi (2010 DHS).[54]

Wasting is an indicator of acute malnutrition. Children who are wasted are too thin for their height and have a much greater risk of dying than children who are not wasted. This indicator measures the percentage of children 0-59 months who are acutely malnourished, as defined by a weight-for-height Z-score below -2SD from the median of the 2006 WHO Child Growth Standard.[55] This indicator also measures the combined prevalence of moderate (below -2SD and above or equal to -3SD) and severe (below -3SD) wasting.

The prevalence of wasting among children under 5 in the ZOI is 5.8 percent (Table 15) and the prevalence of severe wasting is 2.7 percent. Among all children under 5 and among male and female adult households, no significant differences were found in wasting prevalence between boys and girls (Table 15).

Nationally, wasting prevalence among children under 5 has decreased from 6 percent in 2004 to 4 percent in 2010.[56] The prevalence of wasting in the ZOI was marginally higher than the 2010 reported regional wasting prevalence rates (below -2SD) of 4.3 percent in the Central region and 4.0 percent in the Southern region.[57] Compared to other national data, the ZOI results fall within East African[58] regional values reported in the DHS from 2007-2011. The East African combined wasting prevalence ranges from 3 percent (Rwanda DHS 2010) to 10 percent (Zimbabwe DHS 2010 and Ethiopia DHS 2011).[59]

[54] Data abstracted from USAID/MEASURE STATCompiler; limited to DHS conducted from 2007-2012.
[55] WHO. 2006.
[56] Government of Malawi. 2011a.
[57] Ibid.
[58] USAID/MEASURE DHS East African countries include: Kenya, Madagascar, Malawi, Mozambique, Rwanda, Sudan, Tanzania, Uganda, Zambia, and Zimbabwe.
[59] Data abstracted from USAID/MEASURE STATCompiler; limited to DHS conducted from 2007-2012.

Table 15. Nutritional status of children under 5

	Stunting (height-for-age)			Wasting (weight-for-height)			Underweight (weight-for-age)			
	% below –3SD	% below –2SD	Mean Z-score (SD)	% below –3SD	% below –2SD	Mean Z-score (SD)	% below –3SD	% below –2SD	Mean Z-score (SD)	Number of children
All children under 5 years	**20.53**	**47.53**	**-1.75 (1.44)**	**2.70**	**5.82**	**0.26 (1.16)**	**4.29**	**13.94**	**-0.82 (0.99)**	**1,285**
Male children	24.53[a]	50.45	-1.90[d] (1.44)	2.89	6.01	0.30 (1.21)	4.52	15.30	-0.87 (1.03)	608
Female children	17.11[a]	45.04	-1.63[d] (1.43)	2.54	5.66	0.23 (1.11)	4.10	12.77	-0.78 (0.95)	677
Household type										
Male and female adults										
All children	20.04[c]	47.15	-1.75 (1.41)	2.79	5.82	0.28[f] (1.16)	4.23	13.40[g]	-0.81 (0.98)	1,239
Male children	23.40[b]	49.97	-1.87[e] (1.43)	2.99	6.07	0.32 (1.22)	4.42	14.23	-0.84 (1.03)	587
Female children	17.16[b]	44.74	-1.65[e] (1.38)	2.62	5.61	0.24 (1.11)	4.08	12.70	-0.79 (0.94)	652
Female adult only^										
All children	36.15[c]	56.09	-1.58 (2.33)	0.00	6.77	-0.17[f] (0.88)	6.97	30.02[g]	-1.03 (1.36)	40
Male children	-	-	-	-	-	-	-	-	-	18
Female children	-	-	-	-	-	-	-	-	-	22
Male adult only^										
All children										6
Male children	-	-	-	-	-	-	-	-	-	3
Female children	-	-	-	-	-	-	-	-	-	3
Child no adult^										
All children										0
Male children	-	-	-	-	-	-	-	-	-	0
Female children	-	-	-	-	-	-	-	-	-	0

[a-g] Subgroups with the same superscript are significantly different at the 0.05 level. Comparisons are between rows.

^ = Results not statistically representative, n<30.

Source: DHS. June-Sept 2010.

Underweight is a weight-for-age measurement and is a reflection of acute and/or chronic undernutrition. This indicator measures the percent of children 0-59 months who are underweight, as defined by a weight-for-age Z-score below -2SD from the median of the 2006 WHO Child Growth Standard.[60] This indicator measures the combined prevalence of moderate (below -2SD and above or equal to -3SD) and severe (below -3SD) underweight.

Among children under 5, 13.9 percent are underweight and 4.3 percent are severely underweight (Table 15). There are no significant differences in underweight prevalence by the sex of the child. Analysis by household type shows that children in female adult only households (30.0 percent) are more likely to be underweight than children in male and female adult households (13.4 percent).

According to the 2010 DHS report, Malawi's national combined underweight prevalence has decreased 5 percent from 2004 to 2010 (17 percent in 2004 to 13 percent 2010).[61] The combined underweight prevalence reported for the ZOI was marginally higher than the regional estimates reported in the 2010 DHS: 13.5 percent underweight in the Central region and 12.8 percent in the Southern region (2010 MDHS). Furthermore, this lies within the underweight prevalence range among countries in the East African[62] region: 10 percent in Zimbabwe (2010 DHS) to 29 percent in Burundi (2010 DHS).[63]

Infant and Young Child Feeding

Exclusive breastfeeding for the first 6 months of life provides children with significant health and nutrition benefits, including protection from gastrointestinal infections and reduced risk of mortality due to infectious disease. Exclusive breastfeeding means the infant receives breast milk (including milk expressed or from a wet nurse) and may receive oral rehydration salts (ORS), vitamins, minerals, and/or medicines, but does not receive any other food or liquid. This indicator measures the percent of children 0-5 months of age who were exclusively breastfed during the day preceding the survey.

In the ZOI, 68.2 percent reported exclusively breastfeeding their child under 6 months of age (Table 16). There were no significant differences exclusive breastfeeding prevalence by gendered household types. Exclusive breastfeeding prevalence in the ZOI is slightly lower than the 2010 national prevalence of 71.4 percent.[64]

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[60] WHO. 2006.
[61] Government of Malawi. 2011a.
[62] USAID/MEASURE DHS East African countries include: Kenya, Madagascar, Malawi, Mozambique, Rwanda, Sudan, Tanzania, Uganda, Zambia, and Zimbabwe.
[63] Data abstracted from USAID/MEASURE STATCompiler; limited to DHS conducted from 2007-2012.
[64] Government of Malawi. 2011a.

Table 16. Prevalence of exclusive breastfeeding of children under 6 months

	Baseline value	n (unweighted)
All households	**68.17**	**444**
Household type		
Male and female adults	66.27	373
Female adult only	79.15	64[1]
Male adult only^	-	6
Child no adult^	-	1

No differences across subgroups for any of the indicators in the table are statistically significant at the 0.05 level.

^ = Results not statistically representative, n<30.

[1] See DHS Protocol on data collection for IYCF and child anthropometry for explanation of subsample sizes.

Source: DHS. June-Sept 2010.

The prevalence of children receiving a MAD is an indicator that measures the proportion of children 6-23 months of age who receive a MAD apart from breastfeeding. This composite indicator measures both the minimum feeding frequency and minimum dietary diversity given to the child in the past 24 hours. Tabulation of the indicator requires data from the following components:

- Consumption of milk, or milk products;
- Dietary diversity (consumption of four or more food groups); and
- Frequency of feeding semisolid/solid feeds and number of milk feeds (minimum times or more).

Consumption of milk is important in development and promotion of strong bones. Children who are breastfed meet the milk consumption requirement. The diet of nonbreastfed children should include at least two feedings of commercial infant, fresh, tinned, or powdered animal milk.

Dietary diversity for breastfed children 6-23 months is defined as four or more food groups out of the following seven groups: (1) dairy products (infant formula, milk other than breast milk, cheese, yogurt); (2) grains, roots, and tubers; (3) vitamin A-rich fruits and vegetables; (4) other fruits and vegetables; (5) eggs; (6) meat, fish, poultry, and organ meats; and (7) legumes and nuts.

The minimum necessary feeding frequency varies for breastfed and nonbreastfed children. The minimum times for feeding breastfed children (not including breastfeeds) is at least twice a day for infants 6-8 months and three times a day for children aged 9-23 months. For nonbreastfed children 6-23 months, the child should be fed four times or more.

Among breastfed children, the MAD is met if the child consumes four or more food groups and is fed the minimum number of times or more. For nonbreastfed children, the MAD is met if a child

receives at least two milk feeds, four or more feedings of solid, semisolid, soft foods, and at least four food groups (not including dairy). Data in this report are presented across the ZOI, disaggregated by sex (Table 6), by gendered household type (Table 17), and by breastfeeding status (Table 18).

Baseline survey results indicate that 18.1 percent of children 6-23 months have received a MAD (Table 17). There are no significant differences between children in male and female adult households and children in female adult only households.

Table 17. Prevalence of children 6-23 months receiving a minimum acceptable diet

	Baseline value	n (unweighted)
All households	**18.09**	**1,598**
Household type		
Male and female adults	18.55	1,326
Female adult only	15.76	260
Male adult only^	-	11
Child no adult^	-	1

No differences across subgroups for any of the indicators in the table are statistically significant at the 0.05 level.

^ = Results not statistically representative, n<30.

Source: DHS. June-Sept 2010.

The MAD indicator was also disaggregated by component and breastfeeding status (Table 18). Among all children, about half (50.5 percent) receive the minimum feeding frequency, and just more than one-quarter (28.8 percent) receive minimum dietary diversity (four or more food groups).

Significant differences are found between breastfed and nonbreastfed children 6-23 months by component (Table 18). Nonbreastfed children 6-23 months receive a significantly higher prevalence of adequate diet diversity, compared to households with breastfed children. Conversely, breastfed children receive a significantly higher prevalence of minimum feeding frequency than nonbreastfed children. Less than 6 percent of nonbreastfed children (5.7 percent) are fed the minimum number of times. Overall, breastfed children are more likely to meet the MAD than nonbreastfed children.

Table 18. Components of MAD among children 6-23 months

	Baseline value %	n (unweighted)
Breastfed children 6-23 months		
Four or more food groups	27.28[a]	1,458
Minimum times or more	54.70[b]	1,458
MAD	19.64[c]	1,458
Nonbreastfed children 6-23 months		
Milk or milk products	24.16	140
Four or more food groups	45.11[a]	140
Minimum times or more	5.66[b]	140
MAD	1.61[c]	140
All children 6-23 months		
Breast milk, milk or milk products	93.46	1,598
Four or more food groups	28.82	1,598
Minimum times or more	50.47	1,598
MAD	18.09	1,598

[a-c] Subgroups with the same superscript are significantly different at the 0.05 level. Comparisons are across rows.

^ = Results not statistically representative, n<30.

Source: DHS. June-Sept 2010.

Child Anemia

The child anemia indicator stresses the importance of micronutrient nutrition, iron in particular, for children's health and development. Child anemia is associated with adverse consequences for child development, including increased morbidity and impaired cognitive development. Anemia is measured by hemoglobin concentration in the blood. Data for this indicator are collected from children 6-59 months. Children with a hemoglobin concentration less than 11g/dL are classified as anemic. This indicator measures the prevalence of mild, moderate, and severe anemia. The data are also disaggregated by the sex of the child.

The overall prevalence of anemia in children under 5 is 64.3 percent (Table 19). There are no significant differences in anemia prevalence by gendered household type. The ZOI anemia prevalence (<11.0g/dL) is marginally higher than the 2010 reported regional anemia prevalence in children: 63.6 percent Central region, 62.3 percent Southern region.[65]

[65] Government of Malawi. 2011a.

Table 19. Prevalence of anemia among children 6-59 months

	Baseline value	n (unweighted)
All households	**64.26**	**1,203**
Household type		
Male and female adults	64.81	1,164
Female adult only	45.69	34
Male adult only^	-	5
Child no adult^	-	0

No differences across subgroups for any of the indicators in the table are statistically significant at the 0.05 level.

^ = Results not statistically representative, n<30.

Source: DHS. June-Sept 2010.

Of children with hemoglobin levels less than 11.0 g/dL, most of the cases are classified as moderately anemic or mildly anemic (Table 20). Approximately 3.6 percent of children in the ZOI are classified as severely anemic. This is similar to the 2010 regional child anemia prevalence rates. In the Central region, 21.3 percent are mildly anemic, 38.6 percent moderately anemic and 3.7 severely anemic, and in the Southern region 24.8 percent are mildly anemic, 24.8 percent moderately anemic and 2.7 severely anemic.[66]

Table 20. Prevalence of mild, moderate, and severe anemia among children 6-59 months

	Baseline value	n (unweighted)
Any anemia (<11.0 g/dL)	**64.26**	**1,203**
Mild anemia (10.0-10.9 g/dL)	22.00	1,203
Moderate anemia (7.0-9.9 g/dL)	38.65	1,203
Severe anemia (<7.0 g/dL)	3.61	1,203

Source: DHS. June-Sept 2010.

3.4.2 Women's Nutrition

Measures of Nutritional Status

The prevalence of underweight (and overweight) women is an indicator that provides information about the extent to which women's diet meets or exceeds their caloric requirements. Undernutrition among women of reproductive age, as one of the 13 Feed the Future indicators, is associated with increased morbidity and poor food security, and can result in adverse birth outcomes. This indicator measures the percent of nonpregnant women of reproductive age (15-49 years) who are underweight, as defined by a body mass index (BMI) <18.5. To calculate an individual's BMI, weight and height data are needed: BMI = weight (kg)/height (in meters) squared. Data are presented across all respondents, and by gendered household type.

Table 21 shows the distribution of women's BMI prevalence among respondents. Across all women surveyed, the mean BMI is 22.4, or normal weight. Approximately 73.5 percent of women are

[66] Government of Malawi. 2011a.

considered normal weight. In the ZOI, there is a higher percentage of overweight/obese women than underweight women. The mean BMI reported in the ZOI is similar to the 2010 mean BMI regional mean values from the DHS: Central region 22.5 percent, Southern region 22.3 percent.[67]

Table 21. Women's body mass index

	Baseline value	Std dev	n (unweighted)
Mean body mass index (BMI)	**22.37**	**3.21**	**1,750**
BMI categories		%	
< 17.0 (Moderate/severely underweight)	2.09	-	1,750
17.0-18.49 (Mildly underweight)	7.48	-	1,750
18.5 – 24.9 (Normal)	73.52	-	1,750
25.0-29.9 (Overweight)	12.60	-	1,750
≥ 30.0 (Obese)	4.32	-	1,750
<18.5 (Underweight)	9.57	-	1,750
18.5-24.9 (Normal)	73.52	-	1,750
≥ 25.0 (Overweight/obese)	16.91	-	1,750

Source: DHS. June-Sept 2010.

The prevalence of underweight women is 9.6 percent (Table 22). Approximately 7.5 percent are mildly underweight and 2.1 percent are moderate/severely underweight (Table 21). The prevalence of underweight women in the ZOI is the same as the 2010 Southern region underweight prevalence (9.6 percent), but slightly higher than the prevalence in the Central region (8.5 percent).[68] There are no significant differences between women in male and female adult households and women in female adult only households (Table 22).

Table 22. Prevalence of underweight women

	Baseline value	n (unweighted)
All households	**9.57**	**1,750**
Household type		
Male and female adults	9.10	1,344
Female adult only	11.47	389
Male adult only^^	-	8
Child no adult^	-	9

No differences across subgroups for any of the indicators in the table are statistically significant at the 0.05 level.

^ = Results not statistically representative, n<30.

^^ = Represents households in the sample with women 15-17 years.

Source: DHS. June-Sept 2010.

Table 23 presents the prevalence of households with both underweight women and stunting in children under 5 (4.8 percent).

[67] Ibid.

[68] Government of Malawi. 2011a.

Table 23. Prevalence of households with underweight women and stunting in children

	Baseline value	n (unweighted)
All households	**4.83**	**785[1]**
Household type		
Male and female adults	4.98	758
Female adult only^	-	25
Male adult only^	-	2
Child no adult^	-	-

No differences across subgroups for any of the indicators in the table are statistically significant at the 0.05 level.

^ = Results not statistically representative; n<30.

[1] This n represents households in the sample with both WRA and children under 5.

Source: DHS. June-Sept 2010.

The combined prevalence of overweight and obese (BMI > 25) women in households is 16.9 percent in the ZOI (Table 24). Approximately 12.6 percent of women surveyed are overweight; 4.3 percent are obese (Table 21). There are no significant differences in the prevalence of overweight/obese women by household type (Table 24). The combined overweight/obese prevalence (BMI > 25.0) is similar to the Southern regional prevalence reported in the 2010 DHS (16.0 percent), and marginally lower than the Central region (18.2 percent).

Table 24. Prevalence of overweight and obese women

	Baseline value	n (unweighted)
All households	**16.91**	**1,750**
Household type		
Male and female adults	17.93	1,344
Female adult only	13.04	389
Male adult only^^	-	8
Child no adult^	-	9

No differences across subgroups for any of the indicators in the table are statistically significant at the 0.05 level.

^ = Results not statistically representative; n<30.

^^ = Represents households in sample with women 15-17 years.

Source: DHS. June-Sept 2010.

Further analysis compared the prevalence of households with overweight women and the prevalence of households with stunting in children. It is important to note that height and weight measurements were taken from every nonpregnant woman of reproductive age in the household, and not necessarily the mother or caregiver of the child. The ZOI baseline prevalence of households with women who are overweight/obese and stunted children is 8.1 percent (Table 25): Prevalence of households with overweight/obese women and stunting in children.

Table 25. Prevalence of households with overweight/obese women and stunting in children

	Baseline value	n (unweighted)
All households	**8.10**	**785**[1]
Household type		
Male and female adults	8.30	758
Female adult only^	-	25
Male adult only^	-	2
Child no adult^	-	-

No differences across subgroups for any of the indicators in the table are statistically significant at the 0.05 level.

^ = Results not statistically representative; n<30.

[1] This n represents households in the sample with both WRA and children under 5.

Source: DHS. June-Sept 2010.

Women's Intrahousehold Dietary Diversity Score

Women of reproductive age are at risk of multiple micronutrient deficiencies, which can jeopardize their health and ability to care for their children and participate in income-generating activities. This indicator is a validated proxy measure of the micronutrient adequacy of the diet, and reports the mean number of food groups consumed in the previous day by women of reproductive age (15-49 years). To calculate this indicator, nine food groups are used: (1) grains, roots, and tubers; (2) legumes and nuts; (3) dairy products; (4) organ meat; (5) eggs; (6) flesh food and small animal protein; (7) vitamin A-rich dark green leafy vegetables; (8) other vitamin A-rich vegetables and fruits; and (9) other fruits and vegetables. The mean number of food groups consumed by women of reproductive age is tabulated by averaging the number of food groups consumed (out of the nine food groups mentioned above) across all women of reproductive age in the sample. Refer to Annex D for further description of this indicator.

Table 26 shows that women of reproductive age consumed on average 3.4 out of nine food groups during the previous day. Women of reproductive age in male and female adult households consume a significantly higher average number of food groups (3.4) than women in female adult only households (3.3).

Table 26. Women's Dietary Diversity Score: Mean number of food groups consumed by WRA

	Baseline value	Std dev	n (unweighted)
All households	**3.37**	**1.24**	**2,837**
Household type			
Male and female adults	3.40[a]	1.23	2,053
Female adult only	3.26[a]	1.25	743
Male adult only	3.37	1.16	33
Child no adult^	-	-	8

[a] Subgroups with the same superscript are significant at the 0.05 level. The comparisons are across rows.

^ = Results not statistically representative; n<30.

Source: DHS. June-Sept 2010.

Further analysis was done to identify which food groups are most frequently consumed (Table 27). Nearly all women eat grain, roots, and tubers (97.2 percent), and a majority have diets rich in Vitamin A (73.7 percent report eating dark green leafy vegetables, and 65.2 percent report eating other vitamin A-rich fruits and vegetables). Less than half of respondents consume proteins: 39.3 percent consume flesh food and animal proteins, 29.8 percent consume legumes and nuts. Only 20.7 percent consume other fruits and vegetables. Less than 10 percent of respondents report consuming eggs (6.8 percent), dairy (2.3 percent), and organ meat (1.7 percent).

Table 27. Percentage of women consuming each food group

	Baseline value %	n (unweighted)
Food group		
Grains, roots, and tubers	97.21	2,837
Legumes and nuts	29.77	2,837
Dairy products	2.26	2,837
Organ meat	1.70	2,837
Eggs	6.81	2,837
Flesh foods and other misc. small animal protein	39.29	2,837
Vitamin A dark green leafy vegetables	73.72	2,837
Other Vitamin A-rich vegetables and fruits	65.24	2,837
Other fruits and vegetables	20.70	2,837

Source: DHS. June-Sept 2010.

In Table 28 the sample was divided into quartiles and the average dietary diversity score for each quartile is reported. In the lowest quartile, the women report eating about two food groups (2.0) per day. The women in the second quartile consume an average of three food groups each day (3.0), and the Women's Dietary Diversity Score is 3.7 for the third quartile. The top quartile reports eating five or more food groups a day (5.0).

Table 28. Women's Dietary Diversity Score, by quartile

	Women's Dietary Diversity Score			
	Quartile 1	Quartile 2	Quartile 3	Quartile 4
Mean number of food groups consumed by WRA	1.95 (0.54)	3.00 (0.00)	3.70 (0.45)	5.01 (0.90)
n (total = 2,837)	**709**	**709**	**709**	**710**

Source: DHS. June-Sept 2010.

Anemia Among Women of Reproductive Age

This indicator stresses the importance of women's micronutrient nutrition both pre-pregnancy and during pregnancy for the growth and development of the child in utero and for a safe delivery and positive birth outcome. Maternal anemia during pregnancy is associated with increased risk of hemorrhage, sepsis, maternal mortality, perinatal mortality, and low birth weight.

Anemia is measured by hemoglobin concentration in the blood and is collected among women of reproductive age (15-49 years). Nonpregnant (NP) women with a hemoglobin concentration less than 12g/dL and pregnant (P) women with a hemoglobin concentration less than 11g/dL are classified as anemic. This indicator measures the prevalence of mild, moderate, and severe anemia. The data are disaggregated by physiological status: pregnant and nonpregnant.

The prevalence of anemia among women of reproductive age is 28.9 percent (Table 29). There are no significant differences in anemia prevalence between pregnant women (35.6 percent) and nonpregnant women (28.2 percent) (Table 6) or across household type (Table 29).

Table 29. Prevalence of anemia among women of reproductive age

	Baseline value	n (unweighted)
All households	**28.87**	**1,930**
Household type		
Male and female adults	28.87	1,485
Female adult Only	29.84	421
Male adult only^	-	14
Child no adult^	-	10

No differences across subgroups for any of the indicators in the table are statistically significant at the 0.05 level.

^ = Results not statistically representative; n<30.

Source: DHS. June-Sept 2010.

Among all women who were sampled in the ZOI, 21.6 percent are categorized as mildly anemic, 6.8 percent as moderately anemic, and less than one percent as severely anemic (Table 30).

Table 30. Prevalence of mild, moderate, and severe anemia among women of reproductive age

	Baseline value	n (unweighted)
Any anemia (NP<12.0 g/dL) (P<11.0 g/dL)	28.87	1,930
Mild anemia (NP 10.0-11.9g/dL, P 10.0-10.9 g/dL)	21.58	1,930
Moderate anemia (NP 7.0-9.9 g/dL, P 7.0-9.9 g/dL)	6.76	1,930
Severe anemia (NP and P <7.0 g/dL)	0.52	1,930

Source: DHS. June-Sept 2010.

3.5 Women's Empowerment

Women play a prominent role in agriculture, and because of the persistent economic constraints they face, women's empowerment is a main focus of Feed the Future. Empowering women is particularly important to achieving the Feed the Future objective of inclusive agriculture sector growth. The WEAI was developed to track the change in women's empowerment levels that occurs as a direct or indirect result of interventions under Feed the Future. For more information, the WEAI questionnaires and manual can be found online.[69]

3.5.1 WEAI Overview

The WEAI measures the empowerment, agency, and inclusion of women in the agriculture sector in an effort to identify and address the constraints that limit women's full engagement in the agriculture sector.[70]

For Malawi, the WEAI score is 0.84. The WEAI is composed of two subindices: the five domains of empowerment subindex (5DE) measures the empowerment of women in five areas, and the Gender Parity Index (GPI) measures the relative empowerment of men and women within the household. The WEAI score is computed as a weighted sum of the ZOI-level 5DE and the GPI (both discussed in the following section). Thus, improvements in either the 5DE or GPI will increase the WEAI score. The total formula for the Index is: WEAI = 0.9 x 5DE + 0.1 x GPI.

The WEAI is an aggregate index reported at the ZOI level and is based on *individual*-level data on men and women in the same household, as well as data from women living in households with no adult male. The respondents are primary male/female decision-makers in the household. Refer to Annex D for further description of this indicator and explanation of the calculation. See Table 31 for the list and definition of WEAI indicators.

[69] IFPRI. 2013.
[70] Alkire, S., Malapit, H., et al. 2013.

3.5.2 5DE

The 5DE subindex assesses whether women are empowered across the five domains examined in the WEAI. Each domain is weighted equally, as are each of the indicators within a domain. The five domains, their definitions under the WEAI, the corresponding 10 indicators, and their weights for the 5DE are shown below in Table 31.

Table 31. WEAI indicators

Domain (each weighted 1/5 of the 5DE subindex)	Definition of domain	Indicators	Weight of indicator in 5DE subindex
Production	Sole or joint decision-making over food and cash-crop farming, livestock, and fisheries, and autonomy in agricultural production	Input in productive decisions	1/10
		Autonomy in production	1/10
Resources	Ownership, access to, and decision-making power over productive resources such as land, livestock, agricultural equipment, consumer durables, and credit	Ownership of assets	1/15
		Purchase, sale, or transfer of assets	1/15
		Access to and decisions on credit	1/15
Income	Sole or joint control over income and expenditures	Control over use of income	1/5
Leadership	Membership in economic or social groups and comfort in speaking in public	Group member	1/10
		Speaking in public	1/10
Time	Allocation of time to productive and domestic tasks and satisfaction with the available time for leisure activities	Workload	1/10
		Leisure	1/10

The 5DE is a measure of empowerment rather than disempowerment. As such, the subindex describes women as "empowered" or "not yet empowered," rather than empowered and disempowered. A woman is defined as empowered in the five domains if she has adequate achievements[71] in 80 percent or more of the weighted indicators. Within the 5DE, the 80 percent threshold is also called the empowerment threshold. For women who are not yet empowered, the 5DE captures the percentage of indicators in which those women have adequate achievement. The 5DE contributes 90 percent of the weight to the WEAI. The 5DE score ranges from zero to one, where higher values indicate greater empowerment.

[71] Having "adequate achievement" means an individual score above an adequacy cutoff established for each indicator.

The 5DE is calculated by first constructing the disempowerment index (M_0), and then converting M_0 to empowerment. The formula is: 5DE = 1- M_0. The disempowerment index is constructed using a multidimensional methodology known as the Alkire Foster Method.[72] M_0 is calculated by multiplying the disempowered headcount (H) and the average inadequacy score (A). The disempowered headcount reflects the proportion of women who are not yet empowered. The average inadequacy score reflects the average percentage of indicators in which women who are not yet empowered did not yet achieve adequacy.[73] In sum, the 5DE is expressed as: 5DE = 1 – H x A. Of note, Table 32 reports H and A as percentages, but in the 5DE formula, the equivalent proportions are used.

Table 32 shows that the 5DE in Malawi is 0.83. As reflected in the formula above, this score is calculated with the percent of women in the survey who are not yet empowered (disempowered headcount - H), which is 48.2, and the average inadequacy score (A), which is 34.6 percent.[74]

The results presented in this section do not represent the levels of empowerment of all adult women in the population. These results only represent the status of primary decision-makers within the household.

Table 32. Women's 5DE subindex

	Baseline value
5DE Index	0.83
Percent of women achieving empowerment (score of 0.80 or greater) (1-H_n)	51.79
Percent of women not achieving empowerment (score below 0.80) (H_n)	48.21
Average adequacy score for women not yet empowered (1-A)	65.37
Average inadequacy score for women not yet empowered (A)	34.63
n	**2,926**

Source: FTF FEEDBACK PBS. Nov-Dec 2012.

In addition to examining the 5DE for the sample as a whole, 5DE scores were analyzed and compared by household type. As shown in Table 33, in the Malawi ZOI, women who reside in female adult-only households have a significantly higher 5DE score than women in male and female adult households.

Table 33. Women's 5DE score and household type

	Baseline value	SD	n (unweighted)
Household type			
Male and female adults	0.82[a]	0.21	2,033
Female adult only	0.87[a]	0.19	871

[a] Significantly different, p<0.05. Comparisons are across rows.

NOTE: Twenty-two households did not have data for Module C, gendered household type, resulting in n=2,904 for the household type rows.

Source: FTF FEEDBACK PBS. Nov-Dec 2012.

[72] University of Oxford. 2013.
[73] Alkire, S., Meinzein-Dick, R., et al. 2013.
[74] These are the results based on the calculations of this indicator, recognizing that most women in agriculture are subsistence farmers. For more information on the WEAI utilization by Feed the Future, visit the following site: http://feedthefuture.gov/article/release-womens-empowerment-agriculture-index. Retrieved May 20, 2013.

Table 34 reports the percentages of primary decision-making females who are not yet empowered and have inadequacy for the 10 indicators within each of the five domains of empowerment (i.e., the censored headcount). Refer to Annex D for descriptions of each of the 10 indicators including adequacy cutoffs. In Table 34, results are shown for all women from both household types who responded to the WEAI module in the survey. Women who score above the 80 percent empowerment threshold are not counted against the censored headcounts. To compute a censored headcount for each indicator, the number of not-yet-empowered women who did not achieve adequacy on that indicator is divided by the total number of women who responded. The censored headcounts illustrate the profile of inadequate achievements of the not yet empowered. Focusing on women who are not yet empowered is important because it emphasizes specific ways empowerment can be improved. By construction, improvements in the achievements of women who are already empowered do not increase the 5DE score, an important property of the subindex. Discussion of each indicator and domain follows Table 34.

Table 34. Percent of women who are not yet empowered and who have inadequate achievement (censored headcount) in the 5DE indicators

Domain	Indicator	Censored headcount[1] (n=2,926)
Production	Input in productive decisions	7.76
	Autonomy in production	12.22
Resources	Ownership of assets	7.85
	Purchase, sale, or transfer of assets	17.35
	Access to and decisions on credit	41.42
Income	Control over use of income	7.12
Leadership	Group member	21.09
	Speaking in public	24.02
Time	Workload	33.40
	Leisure	9.81

[1] The censored headcount for a particular indicator is the number of not-yet-empowered women who did not achieve adequacy on that indicator divided by the total number of women who responded.

Source: FTF FEEDBACK PBS. Nov-Dec 2012.

Production Domain

Input in Productive Decisions. Results shown in Table 34 indicate that among women in the ZOI, 7.8 percent are not yet empowered and have inadequate input into productive decisions.

Autonomy in Production. With respect to autonomy in production, 12.2 percent of women are not yet empowered and have inadequacy on the indicator.

Resources Domain

Ownership of Assets. Among women in the Malawi ZOI, 7.9 percent are not yet empowered and experience inadequacy in ownership of assets.

Purchase, Sale, or Transfer of Assets. The percentage of women who are not yet empowered and have inadequate achievement in terms of controlling the purchase, sale, or transfer of assets is 17.4 percent.

Access to and Decisions on Credit. The indicator tracking access to and decisions on credit shows the highest percentage of inadequacy among women, with 41.4 percent not yet empowered and not having adequate achievement.

Income

Control Over Use of Income. The percentage of women who are not yet empowered and lack adequacy in the control over the use of income is lowest (7.1 percent) compared to the other 5DE indicators.

Leadership Domain

Participation in Formal and Informal Groups. In the ZOI, the percentage of women who are both not yet empowered and experience inadequacy in the group membership indicator is 21.1 percent.

Speaking in Public. A slightly higher percentage of women (24.0 percent) are both not empowered and lack adequacy in the speaking in public indicator compared to the group membership indicator.

Time Allocation Domain

Workload. Compared to all other 5DE indicators, workload exhibits the second highest percentage of women who are both not yet empowered and experience inadequacy, at 33.4 percent.

Leisure Time. The percentage of women in the Malawi ZOI who are both not yet empowered and have inadequacy in leisure time is 9.8 percent.

3.5.3 Discussion of the 5DE Indicators by District

Table 35 reports the censored headcounts for the 10 indicators of 5DE, disaggregated by district. Censored headcounts are the percentages of primary decision-making women who are not yet empowered and are inadequate on a particular indicator. Results are shown for all women who responded to the WEAI module in the survey, in both male and female adult households and female adult only households. Discussion of each indicator and domain follows.

Production Domain

Input in Productive Decisions. Across the seven districts in the ZOI, the censored headcount for input in productive decisions, or the percentage of women who are not yet empowered and are inadequate in the indicator, is lowest in Balaka. In that district, the censored headcount is

1.6 percent, significantly lower than five other districts (all but Ntcheu). Censored headcounts for input in productive decisions are highest in Lilongwe, with a value of 10.9 percent.

Autonomy in Production. With respect to the autonomy in production indicator, the censored headcounts are again lowest in Balaka (3.6 percent), significantly lower than all other districts. Censored headcounts for this indicator are highest in Mchinji (19.5 percent) and Mangochi (18.5 percent).

Resources Domain

Ownership of Assets. Table 35 shows that, regarding ownership of assets, the lowest censored headcount value is in Ntcheu (4.6 percent), whereas the highest censored headcount value is in Mchinji (15.1 percent), significantly higher than all other districts. In Mchinji, significantly more women are not yet empowered and are inadequate with respect to ownership of assets.

Purchase, Sale, or Transfer of Assets. The censored headcount for the purchase, sale, or transfer of assets indicator is lowest in Ntcheu (8.5 percent) and highest in Mchinji (25.0 percent). Similar to the Ownership of Assets indicator, for the Purchase, Sale or Transfer of Assets indicator, significantly more women are not yet empowered and are inadequate in Mchinji than most other districts (with the exception of Lilongwe and Mangochi).

Access to and Decisions on Credit. Table 35 shows that censored headcounts are high across the districts for the Access to and Decisions on Credit indicator, ranging from 34.1 percent of women in Machinga to 47.0 percent in Lilongwe. In Lilongwe, 47.0 percent of women are not yet empowered and are inadequate on the Access to and Decisions on Credit indicator, significantly higher than Dedza, Balaka, and Machinga.

Table 35. Percent of women who are not yet empowered and who have inadequate achievement (censored headcount) in the 5DE indicators by district

Domain	Indicator	Mchinji	Lilongwe	Dedza	Ntcheu	Balaka	Machinga	Mangochi	All districts
		Censored headcount	Censored headcount	Censored headcount	Censored headcount	Censored headcount	Censored headcount	Censored headcount	Censored headcount
Production	Input in productive decisions	8.65[ab]	10.91[cdef]	6.17[cg]	4.18[adh]	1.55[begij]	5.65[fi]	9.00[hj]	7.76
	Autonomy in production	19.49[abc]	11.47[de]	7.68[afgh]	17.02[fij]	3.61[bdgikl]	9.48[cjkm]	18.52[ehlm]	12.22
	Ownership of assets	15.10[abcdef]	9.69[aghi]	5.18[bg]	4.55[chk]	5.42[di]	6.69[e]	8.20[fk]	7.85
Resources	Purchase, sale, or transfer of assets	24.99[abcd]	22.1[efgh]	10.08[aeij]	8.52[bfkl]	13.37[cg]	15.05[dhikm]	20.79[jlm]	17.35
	Access to and decisions on credit	46.90[abc]	46.95[def]	36.20[ad]	40.49	36.68[be]	34.10[cfg]	41.00[g]	41.42
Income	Control over use of income	6.59[abc]	7.35[def]	9.11[ghi]	2.62[adgj]	4.20[ehk]	3.36[bfil]	10.51[cdjkl]	7.12
Leadership	Group member	22.25[a]	27.51[bcde]	12.91[abf]	28.05[fghi]	17.66[cg]	16.43[dh]	17.22[ei]	21.09
	Speaking in public	23.21	25.69[a]	25.07	19.58	18.27[ab]	20.46	26.98[b]	24.02
Time	Workload	35.57[ab]	36.80[cd]	29.39[acef]	32.71[g]	32.27[h]	22.38[bdeghi]	36.92[fi]	33.40
	Leisure	9.32[a]	10.80[b]	12.07[c]	14.83[def]	9.29[dg]	4.81[abceg]	6.18[f]	9.81
n		**383**	**423**	**447**	**423**	**410**	**405**	**435**	**2,926**

[a-m] Districts with the same superscript are significantly different at the 0.05 level. The comparisons are across columns (within the same row). Censored headcounts are the percentage of women who are not yet empowered and have inadequate achievement in the indicator.

Source: FTF FEEDBACK PBS. Nov-Dec 2012.

Income Domain

Control Over Use of Income. With respect to the Control Over the Use of Income indicator, the censored headcounts are lowest in Ntcheu (2.6 percent) and highest in Mangochi (10.5 percent). Significantly more women in the Mangochi district are not yet empowered and are inadequate on this indicator than five other districts in the Malawi ZOI (all but Dedza).

Leadership Domain

Participation in Formal and Informal Groups. The censored headcount for the Group Membership indicator is lowest in Dedza (12.9 percent) and highest in Ntcheu (28.1 percent). As shown in Table 35, women in Ntcheu are significantly more likely to be not yet empowered and inadequate on this indicator than women in the four other districts.

Speaking in Public. Across the seven districts in the Malawi ZOI, the censored headcount for speaking in public, or the percentage of women who are not yet empowered and are inadequate in the indicator, is lowest in Balaka (18.3 percent) and highest in Mangochi (27.0 percent). There are few significant differences across districts on this indicator.

Time Allocation Domain

Workload. The censored headcount for the workload indicator is lowest Machinga (22.4 percent) and highest in Mangochi (36.9 percent). Women in Machinga are significantly less likely to be not yet empowered and inadequate with respect to workload than all other districts in the ZOI.

Leisure Time. With respect to the satisfaction with leisure time indicator, Table 35 shows that women's censored headcounts are lowest in Machinga (4.8 percent) and highest in Ntcheu (14.8 percent). Similar to the finding for workload, women in Machinga are significantly less likely to be not yet empowered and inadequate in the Leisure Time indicator than most other districts (all but Mangochi).

3.5.4 GPI

The second subindex in the WEAI—the Gender Parity Index (GPI)—measures women's empowerment relative to that of men by comparing the 5DE profiles of women and men in the same households. A woman is assumed to achieve gender parity if her achievements in the five domains are at least as high as the man in her household. The GPI reflects the percentage of women who have achieved parity and, in cases of gender disparity, the average empowerment gap that women experience relative to their male counterparts. While the 5DE score is calculated using all women in the sample, the GPI score is calculated using only women living in a household with at least one adult man (often her partner).

The GPI is calculated by multiplying two factors. The first is the percent of women without gender parity (H_{GPI}), defined as women with lower achievements in the five domains than that of their male

counterparts. Empowered women, meaning those who score above the empowerment threshold of the 5DE, are automatically counted as having parity with their male counterpart. The second factor is the average empowerment gap (I_{GPI}), which measures the average percentage shortfall in empowerment between women and men living in households without gender parity across all indicators. The GPI is calculated with the formula: GPI = 1 – (H_{GPI} x I_{GPI}). The GPI ranges from zero to one, with higher values indicating greater gender parity. [75]

In Malawi, the GPI is 0.91, which is calculated with the formula above that is based on the percent of women without gender parity (46.7) and the average empowerment gap (19.4). Table 36 shows the breakdown of baseline values by the GPI variables.

Table 36. GPI

	Baseline value
GPI	0.91
Percent of women achieving gender parity (1-H_{GPI})	53.26
Percent of women without gender parity (H_{GPI})	46.74
Average Empowerment Gap (I_{GPI})	19.35
n	**1,557** [1]

[1] The sample size for the GPI subindex (1,557) is lower than that reported in Table 33 (2,033) because the GPI requires both a male and a female Module G (WEAI) record from the Male and Female Adult (e.g., dual adult) households.

Source: FTF FEEDBACK PBS. Nov-Dec 2012.

Table 37 presents men's and women's censored headcounts, or the percentage not yet empowered and inadequate in the 10 indicators of 5DE. Note that, unlike Table 34, which showed percentages for all primary decision-making women in the survey, in Table 37, the percentages reported are based only on primary decision-making males and females in dual households, those households with both a male and a female adult.

Table 37 shows that, in the Malawi ZOI, men and women in dual households report significant differences in nine of the 10 5DE indicators. Significantly more women than men are not yet empowered and have inadequacy in all indicators except satisfaction with leisure time.

[75] Alkire, S., Meinzein-Dick, R., et al. 2013.

Table 37. Percent of men and women who are not yet empowered and have inadequate achievement (censored headcount) in the 10 5DE indicators

Domain	Indicator	Baseline values	
		Male censored headcount[1] (n=1,557)	Female censored headcount[2] (n=1,557)
Production	Input in productive decisions	1.63[a]	11.08[a]
	Autonomy in production	7.84[b]	12.48[b]
Resources	Ownership of assets	3.64[c]	11.27[c]
	Purchase, sale, or transfer of assets	5.92[d]	23.37[d]
	Access to and decisions on credit	21.45[e]	45.32[e]
Income	Control over use of income	0.79[f]	9.25[f]
Leadership	Group member	11.89[g]	19.87[g]
	Speaking in public	8.78[h]	25.77[h]
Time	Workload	18.53[i]	36.97[i]
	Leisure	11.82	11.14

[a-i] Subgroups with the same superscript are significantly different at the 0.05 level. The comparisons are across columns. Comparison and estimates for men and women living in male and female adult households.

[1] Male censored headcounts are the percentage of men who are not yet empowered and have inadequate achievement in the indicator.

[2] Female censored headcounts are the percentage of women who are not yet empowered and have inadequate achievement in the indicator.

Source: FTF FEEDBACK PBS. Nov-Dec 2012.

4. Analysis of Findings

4.1 Analysis Requested by USAID/Malawi

Detailed analysis requested by USAID/Malawi was also conducted to examine the relationships between the severity of household hunger and women's achievement on the 10 5DE indicators of WEAI (Table 38).[76] Households were categorized according to whether they reported "moderate to severe hunger" or "no hunger."

The percentage of women who have adequate achievements for each of the 5DE indicators of WEAI is generally similar across categories of household hunger, except for autonomy in production and asset ownership (Table 38). Women in households reporting no hunger (85.6 percent) were more likely to report achievement on autonomy in production than women in households with moderate to severe hunger (80.6 percent). Similarly, more women in households reporting no hunger (93.0 percent) reported achievement on ownership of assets than women in households with moderate to severe hunger (89.3 percent).

[76] Thresholds for each indicator as defined by WEAI standards.

Table 38. Severity of household hunger according to women's achievement on WEAI indicators

	Household hunger scale categories	
	Moderate to severe hunger (n=1207)	No hunger (n=1665)
WEAI indicator	%	
Input into productive decisions	92.04	91.81
Autonomy in production	80.63[a]	85.64[a]
Ownership of assets	89.26[b]	92.98[b]
Purchase, sale, or transfer of assets	79.40	79.43
Access to and decisions on credit	32.15	32.24
Control over use of income	91.92	93.53
Group member	70.35	72.82
Speaking in public	71.10	66.67
Workload	43.20	42.92
Leisure	87.13	86.51

[a,b] Subgroups with the same superscript are significantly different at the 0.05 level. Comparisons are across columns.

Source: FTF FEEDBACK PBS. Nov-Dec 2012.

Analysis was also conducted to determine the extent to which households with empowered women have better outcomes on Feed the Future ZOI indicators compared to those with women not yet empowered (Table 39). There is no significant difference between households with empowered women and households with not yet empowered women for either of the indicators.

Table 39. Values for selected ZOI indicators according to women's empowerment status

Feed the Future indicators	Empowered	n	Not yet empowered	n
Prevalence (%) of households with moderate or severe hunger	39.39	1,519	41.25	1,353
Women's Dietary Diversity Score: Mean number of food groups consumed by women of reproductive age (Std dev)	3.40 (1.25)	1,422	3.32 (1.20)	1,212

No differences across subgroups for any of the indicators in the table are statistically significant at the 0.05 level.

Source: FTF FEEDBACK PBS. Nov-Dec 2012.

Analysis was also conducted to determine the extent to which the achievement of adequacy in five decision-making indicators is associated with selected Feed the Future indicators to see whether households with women empowered in decision-making have better outcomes compared to those with not yet empowered women.[77] The results are presented in Table 40.

The decision-making index was calculated as follows: each of the five decision-making indicators in the WEAI is scored such that a one indicates the respondent achieved adequacy in the indicators (has adequate freedom to make decisions) and zero means they do not. The five items were summed

[77] Only those indicators for which data were collected in the PBS survey could be broken out by decision-making categories. Those indicators for which secondary data were used (e.g., the DHS) could not be compared with the decision-making index because the decision-making variables were not collected in the secondary surveys.

and broken down into three categories: (1) low (respondent achieved adequacy in zero to three decision-making activities); (2) medium (respondent achieved adequacy in four decision-making activities); and (3) high (respondent achieved adequacy in all five decision-making activities). In Malawi, there are no significant differences across decision-making categories for either of the indicators.

Table 40. Selected ZOI indicators by category of decision-making index

Feed the Future indicator	Decision-making index[a]					
	Low (0-3 decisions)		Medium (4 decisions)		High (5 decisions)	
	Value	n	Value	n	Value	n
Prevalence (%) of households with moderate or severe hunger	42.59	855	39.75	1,379	38.18	638
Women's Dietary Diversity Score: Mean number of food groups consumed by women of reproductive age (Std dev)	3.3 (1.23)	783	3.39 (1.25)	1,238	3.38 (1.17)	613

No differences across subgroups for any of the indicators in the table are statistically significant at the 0.05 level.

[a] Number of decision-making indicators in which women report joint or full control out of the following five categories: (1) input in production decisions, (2) access to and decisions on credit, (3) purchase, sale, or transfer of assets, (4) control over use of income, and (5) autonomy in production.

Source: FTF FEEDBACK PBS. Nov-Dec 2012.

4.2 Household Hunger and Dwelling Characteristics

Finally, Table 41 provides values for select dwelling characteristics for households with no hunger and households with moderate to severe hunger. Households reporting no hunger have a higher prevalence of using pit latrines (93.1 percent) than households with moderate or severe hunger (90.2 percent). In terms of housing construction materials, households reporting no hunger are more likely to use roofing materials of corrugated metal and plastic sheeting, while households with moderate or severe hunger are more likely to have roofs of wood or thatch. Households reporting no hunger have a higher prevalence of cement floors and walls than households with hunger (cement floors: 15.7 and 6.7 percent; cement walls: 4.7 and 1.5 percent, respectively).

Table 41. Values for selected dwelling characteristics according to household hunger

PBS dwelling characteristic	No hunger (%)	n	Moderate or severe hunger (%)	n
Households using improved water source	88.48	1952	85.79	1,394
Households using improved sanitation facility (excluding pit latrines)	2.32	1948	1.47	1,389
Households using pit latrine	93.09[a]	1948	90.18[a]	1,389
Roof				
Wood	0.69[b]	1952	1.42[b]	1,394
Corrugated metal	27.32[c]	1952	13.51[c]	1,394
Plastic sheeting	1.69[d]	1952	0.85[d]	1,394
Thatched/vegetable matter/sticks	68.69[e]	1952	82.68[d]	1,394
Mud/cow dung	1.26	1952	1.32	1,394
Floor				
Earth/mud	83.41[f]	1952	92.27[f]	1,394
Cement	15.66[g]	1952	6.74[g]	1,394
Wall				
Earth/mud	33.41	1952	36.68	1,394
Concrete/stone/cement	4.67[h]	1952	1.51[h]	1,394
Tile/bricks	60.54	1952	60.58	1,394

[a-h] Subgroups with the same superscript are significant at the 0.05 level. Comparisons are across columns.

Source: FTF FEEDBACK PBS. Nov-Dec 2012.

5. Summary and Conclusions

This document reports the findings of the Malawi PBS that serves as the ZOI baseline for the United States Government's Feed the Future initiative led by USAID in Malawi.

The overall conclusion of this report is that poverty remains an important problem in Malawi, despite a 2 percent decrease since 2004-2005. The prevalence of poverty in the ZOI based on the $1.25/person/day threshold is 60.6 percent (2005 PPP). According to the national poverty line (37,002 Kwacha/year or $1.14/day), the prevalence of poverty in the ZOI is 55.8 percent and the prevalence of extreme poverty (22,956 Kwacha/year or $0.71/day) is 28.0 percent. The poverty gap (at $1.25/day) is 24.5 percent and per capita expenditures are $1.73 per day (2010 USD). Male adult only households have the lowest prevalence (27.2 percent) of people living on less than $1.25/day while female adult only households have the highest prevalence (72.0 percent). Households with a male adult only also have higher per capita expenditures ($3.88/day) than male and female adult households and female adult only households ($1.73 and $1.45/day, respectively).

The Malawi PBS data indicate that 40.2 percent of households report moderate to severe hunger in the ZOI. The prevalence of hunger is higher for female adult only households (45.5 percent) compared to male and female adult households (38.1 percent). Women's Dietary Diversity Score is low, with women of reproductive age reporting an average consumption of only 3.4 out of nine total food groups. Moreover, women in male and female adult households consume a significantly higher

average number of food groups than those in female adult only households (3.4 food groups vs. 3.3).

Regarding children's nutrition, which was tabulated from secondary data sources, within the Malawi ZOI, the prevalence of stunting (both moderate and severe combined) among children under 5 is 47.5 percent. Male children are more likely to be severely stunted (24.5 percent) than female children (17.1 percent). Analysis by household type shows that children in female adult only households are more likely to be severely stunted (36.2 percent) than children in male and female adult households (20.0 percent). The combined (moderate and severe) prevalence of wasting among children under 5 in the ZOI is 5.8 percent; the prevalence of severe wasting is 2.7 percent. Among children under 5, 13.9 percent are underweight (combined moderate and severe), and 4.3 percent are severely underweight. There are no significant differences in underweight prevalence by child's sex, however (and similar to the finding for stunting), children in female adult only households are significantly more likely to be underweight (30.0 percent) than children in male and female adult households (13.4 percent). In the ZOI, 68.2 percent of infants under 6 months are exclusively breastfed. Yet, only 18.1 percent of children 6-23 months receive a minimum acceptable diet (MAD). Moreover, breastfed children are significantly more likely to meet MAD than nonbreastfed children. The overall prevalence of anemia in children 6-59 months is 64.3 percent.

Analysis of secondary data on women's health and nutrition indicate that across all women of reproductive age surveyed, the mean body mass index is 22.4, or normal weight. Approximately 73.5 percent of women are considered normal weight. In the ZOI, there is a higher percentage of overweight/obese women (16.9 percent) than underweight women (9.6 percent). The prevalence of anemia (both moderate and severe) among women of reproductive age is 28.9 percent. There are no significant differences in anemia prevalence between pregnant women and nonpregnant women at the 5 percent level or across household type.

PBS data results on women's empowerment in agriculture show that the 5DE in Malawi is 0.84, and approximately half (51.8 percent) of women in the survey are empowered. Analysis of men and women's censored headcounts, or the percentages not yet empowered and inadequate on the 10 indicators of 5DE (Table 37), reveals that significantly more women than men are disempowered and inadequate on nine of the 10 indicators of 5DE. Only with respect to satisfaction with leisure time are there no significant differences between men and women. It should be noted, however, that these results do not represent the levels of empowerment of all adult women in the population. Rather, these results represent the status of primary decision-makers within the household who are likely to be the most empowered relative to other adults in the household.

Results from the survey indicate that across the seven districts in the ZOI, the small majority of women (51.8 percent) have achieved adequacy in the five domains of empowerment, however, the data show significant differences in achievement among the seven districts (Table 35). The 5DE indicators with the highest achievement by not-yet empowered women are Control Over Use of Income, Input in Productive Decisions, and Ownership of Assets. The 5DE indicators with the lowest achievement by not-yet empowered women are Access to and Decisions on Credit,

Workload, and Speaking in Public. The district of Mchinji exhibits the lowest percentage of not-yet empowered women achieving adequacy for four out of the 10 indicators, while the districts of Ntcheu and Machinga exhibit the highest percentage of not-yet empowered women achieving adequacy for three out of 10 indicators.

Finally, country-specific analysis indicates that significantly more women in households reporting no hunger achieve adequacy in the WEAI indicator of autonomy of production compared to women in households reporting moderate to severe hunger (85.6 percent versus 80.6 percent, respectively). Similarly, more women in households reporting no hunger (93.0 percent) achieve adequacy on ownership of assets, compared to women in households with moderate to severe hunger (89.3 percent). However, across the remaining eight WEAI indicators, there are no significant differences between women in households with no hunger and women in households with moderate to severe hunger.

Households reporting no hunger have a higher prevalence of using pit latrines (93.1 percent) than households with moderate or severe hunger (90.2 percent). In terms of housing construction materials, households reporting no hunger are more likely to use roofing materials of corrugated metal and plastic sheeting, while households with moderate or severe hunger are more likely to have roofs of wood or thatch. Households reporting no hunger have a higher prevalence of cement floors and walls than households with hunger (cement floors: 15.7 and 6.7 percent; cement walls: 4.7 and 1.5 percent, respectively).

The results of the Feed the Future baseline report clearly demonstrate that poverty and malnutrition remain challenges within the ZOI in Malawi, particularly for members of female adult only households and children. The Women's Empowerment in Agriculture Index shows that despite women's high levels of empowerment in the five domains, some indicators that are critical to women's economic development, such as access to credit, workload, and speaking in public, still lag behind.

Appendix A. Values for 13 Feed the Future indicators by districts

Feed the Future indicators	Mchinji	n	Lilongwe	n	Dedza	n	Ntcheu	n	Balaka	n	Machinga	n	Mangochi	n
Prevalence of Poverty: Percent of people living on less than $1.25/day (2005 PPP)	61.62	384	47.64	1146	62.93	383	52.43	384	73.08	384	77.49	384	79.13	383
Per capita expenditures of USG targeted beneficiaries (2010 USD)	1.51	384	2.25	1146	1.42	383	1.64	384	1.21	384	1.07	384	1.06	383
Prevalence of underweight children under 5 years of age	13.07	207	13.30	226	16.38	142	17.77	183	7.40	169	9.29	164	15.89	194
Prevalence of stunted children under 5 years of age	53.67	207	45.51	226	51.07	142	42.38	183	44.82	169	48.41	164	48.26	194
Prevalence of wasted children under 5 years of age	3.32	207	6.08	226	3.74	142	42.38	183	5.68	169	6.44	164	5.92	194
Prevalence of underweight women	10.60	251	7.88	336	6.40	232	11.73	273	13.07	238	16.23	205	9.35	215
Women's Empowerment in Agriculture Index	0.82	383	0.82	423	0.86	447	0.85	423	0.88	410	0.88	405	0.82	435
Prevalence of households with moderate or severe hunger	44.21	481	42.02	475	20.39	487	43.91	481	57.18	466	44.82	466	41.02	497
Prevalence of children 6-23 months receiving a minimum acceptable diet	21.29	244	20.41	261	17.88	210	19.24	191	16.77	224	22.45	238	10.06	230
Women's Dietary Diversity Score: Mean number of food groups consumed by women of reproductive age	3.91	381	3.19	409	3.12	428	3.36	413	3.33	386	3.43	370	3.72	450

Appendix A. Values for 13 Feed the Future indicators by districts (continued)

Feed the Future indicators	Mchinji	n	Lilongwe	n	Dedza	n	Ntcheu	n	Balaka	n	Machinga	n	Mangochi	n
Prevalence of exclusive breastfeeding of children under 6 months of age	77.66	61	58.18	77	67.00	63	67.80	58	78.54	63	82.47	53	71.72	69
Prevalence of anemia among children 6-59 months	61.97	186	58.73	223	63.28	142	60.46	168	70.40	157	72.33	149	73.44	178
Prevalence of anemia among women of reproductive age	24.00	278	23.90	349	24.50	269	24.16	306	27.59	261	30.88	230	50.16	137

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Annex A. Survey Protocol – Malawi

Protocol for Malawi Baseline Survey Data Collection for Feed the Future FEEDBACK Project

A.1 Overview

Part of the monitoring and evaluation system for United States Government-supported food security activities is reporting on population-based indicators. These indicators are based on analysis of survey data. The United States Agency for International Development (USAID) Mission in Malawi will report on 13 of the 13 population-based Feed the Future indicators in the ZOI. Ten will be derived from secondary sources and three will be derived from the population-based survey (PBS). There are seven districts in the Feed the Future ZOI.

Where possible, indicators will be estimated based on existing sources of data. Use of existing data sources will save time and reduce the cost of generating estimates for the indicators. These data sources must meet criteria to provide valid baseline estimates of indicators. The two criteria are: (1) the data sources must have collected the data in a recent time window (no more than 2 years) prior to the start of Feed the Future activities; and (2) the data source must have used a sample size large enough to estimate selected key indicator values with sufficient precision and power to measure change over time.[78] The Malawi Demographic and Health Survey (DHS) 2011 data and the World Bank's Integrated Household Survey 3[79] (IHS3) 2010 – 2011 are expected to meet these criteria for 10 of 13 indicators for the Feed the Future ZOI (see Table A-1).

Baseline surveys will be conducted for indicators that cannot be calculated with existing data sources. The Feed the Future ZOI baseline survey will collect data for three indicators: (1) Women's Empowerment in Agriculture Index (WEAI); (2) Prevalence of households with moderate or severe hunger (Household Hunger Scale); and (3) Women's Dietary Diversity Score.

[78] Feed the Future M&E Guidance Series Volume 9 identifies reduction in poverty rate, underweight, and stunting in children indicators as key variables to guide sample size determination for PBS.

[79] The IHS is the Living Standards Measurement Survey (LSMS) in Malawi.

Table A-1. List of indicators

Indicator	Type of analysis – Data source
Prevalence of underweight children	Secondary – DHS
Prevalence of poverty	Secondary – IHS
Prevalence of stunted children	Secondary – DHS
Prevalence of wasted children	Secondary – DHS
Prevalence of underweight women	Secondary – DHS
Per capita expenditures (as a proxy for incomes)	Secondary – IHS
Women's Empowerment in Agriculture Index	Primary – ZOI PBS
Prevalence of households with moderate or severe hunger	Primary – ZOI PBS
Prevalence of children 6-23 months receiving a minimum acceptable diet	Secondary – DHS
Women's Dietary Diversity Score	Primary – ZOI PBS
Prevalence of exclusive breastfeeding	Secondary – DHS
Prevalence of anemia among children 6-59 months	Secondary – DHS
Prevalence of anemia among women of reproductive age	Secondary – DHS

A.2 Sample Size Estimate for Baseline Survey

Sample size is determined based on comparison of the sample sizes required for indicators to be measured by this survey. For each, measuring change between the baseline (time 1) to end line (time 2) was used rather than from baseline to midpoint, as per Feed the Future guidance. This represents an expected change during an elapsed time of 4-5 years. Table A-2 shows the sample size requirements for two of the three indicators to be measured by this survey. Calculations were done with Stata software sample size programs with a design effect of 2.0, Z-values corresponding to a 95 percent significance and 80 percent power. The columns under "Sample Size" are the sample sizes required for the population for which the indicator will be calculated. The population for the Women's Empowerment in Agriculture Index (WEAI) is women age 18 years of age and older or men 18 and older. The WEAI requires data on both women and men. The sample size calculations in these columns do not adjust for nonresponse. The last two columns list the number of households required at baseline and end line, including adjustments for nonresponse. The levels of nonresponse are based on those found in the Malawi DHS 2011 for households and women. The household response rate is 90.9 percent,[80] which corresponds to a nonresponse of 9.1 percent. The household nonresponse adjustment is found by dividing the sample size by the response rate.[81] Nonresponse for WEAI is found by dividing the unadjusted sample size by a factor that adjusts for the household response rate, proportion of households with primary decision-maker as male adult (71.9%),[82] and the women or men response rate (92.2%).[83,84] The baseline value for the WEAI is

[80] This is an overall response rate that divides the households selected by the households interviewed. The DHS report presents the response rate as the households occupied by households interviewed. The response rate used in the calculation here is relevant because it includes losses due to dwellings not having respondents available at the time of the interview.

[81] This inflates the estimate by a factor sufficient to account for nonresponse of 9.1 percent. That is to say, if a sample of 2,832 households selected has a response of only 90.9 percent there will be 2,574 households interviewed.

[82] The assumption is that the proportion of households with a primary male decision-maker will be a reasonable estimate of the proportion of households with at least one male and one female age 18 or older.

based on a study in Uganda. The baseline value for prevalence of households with moderate or severe hunger is based on the average value from studies in six countries.

Table A-2. Sample size calculations

Feed the Future indicators	Baseline value	End line target value	Sample size		Number of households	
			Baseline	End line	Baseline	End line
Women's Empowerment In Agriculture Index	0.789	0.836	1,762	1,762	2,924	2,924
Prevalence of households with moderate or severe hunger	49.7	44.7	2,574	2,574	2,832	2,832

A.3 Survey Design

The Feed the Future baseline PBS in Malawi will be managed by the Malawi National Statistical Office (NSO), which will provide central supervision and support for field data collection, as well as field teams comprising field supervisors, editors, and enumerators. FTF FEEDBACK's partner, TANGO, will contract the NSO and a subcontractor that provides transportation, trains NSO trainers, develops the questionnaire, and oversees the NSO's work. FTF FEEDBACK's prime contractor, Westat, will program the survey, provide the tablets used for data collection, manage the data centrally (including providing central data quality assurance), and lead development of indicator values.

The design of the Feed the Future ZOI survey consists of two basic components: questionnaire design and sample design. TANGO will provide technical assistance on questionnaire design. TANGO and Westat will provide technical assistance on sample design. These two components are described below.

A.3.1 Questionnaire Design

The survey questionnaires for Malawi have been developed based on the Feed the Future baseline survey guidelines provided in Volume 8 of the Feed the Future M&E Guidance series. The surveys are designed to conform to existing questionnaires such as the DHS, LSMS, and WEAI. The complete set of questionnaires will include an informed consent statement, the household roster, dwelling characteristics module, and modules for indicators that cannot be calculated with existing data sources.

[83] The women or men response rate is the lower of the women's response rate (96.9%) and men's response rate (92.2%) in the DHS report. It is set at the lower of the two to make sure there are enough households in the sample to account for either response rate.

[84] The total factor is 0.909*0.719*0.922=0.603.

The questionnaire includes modules for indicators not covered by existing data sources. The baseline survey will collect data to provide information to calculate the following indicators:

PBS module	Description of indicator
F	Prevalence of households with moderate or severe hunger
G	Women's Empowerment in Agriculture Index
H	Women's Dietary Diversity Score: Mean number of food groups consumed by women of reproductive age

The survey questionnaire will be forward and back-translated into Chechewe prior to the training-of-trainers training and field tested during the training-of-trainers training. Chechewe is the primary local language in Malawi. All enumerators are required to be fluent in Chechewe and English. During the pretests and training, any problems found in the translations will be corrected.

A.3.2 Sample Design

The sample for the Malawi ZOI baseline will consist of 3,528 households, across the following seven districts that constitute the USAID/Malawi ZOI: Mchinji, Lilongwe, Dedza, Ntcheu, Balaka, Machinga, and Mangochi. This sample size is more than sufficient to cover the sample size requirements described in Section A.2.

The sample size is greater than that shown in Table A-2. The reason for boosting the sample size was in anticipation of the ZOI being reduced if the primary project (INVC) is unable to fully deploy across the 7 districts. Since it is not known how the project activities would be distributed over time it was decided to equally distribute the sample across the 7 districts. That would give the best chance for a sufficient sample at baseline if the ZOI is reduced. Having this design also allows for cross-district comparison, but the sample was not powered for this purpose.

Sampling will be based on a two-stage methodology, with 126 rural Enumeration Areas (EAs). The sample will focus on rural areas only and will be stratified by district, with EAs distributed evenly among districts, as stated above. Within each district, EAs will be selected by probability proportional to size from the 2008 Population and Housing Census master sample list. Following standard Malawi NSO practice, EAs from game and forest reserves will be excluded from the sample list.

From each selected EA, 28 households will be selected using a systematic sampling procedure based on a comprehensive list of households in each EA, developed by the survey teams in the field. A comprehensive list of households will be obtained through brief interviews done for each household in the enumeration area. If a household is not available for interview, other respondents (such as neighbors) will be asked about the household. The systematic sampling will randomly select households. This will be done by selecting the first household with a random starting point from 1 to 28 and selecting subsequent households at a fixed interval from that point on. The interval is calculated by dividing the total number of households in the EA by 28. The census of households (household listing) and systematic household selection processes are described in detail in the FTF

FEEDBACK PBS Supervisor's manual. Absent households will be given three call-back visits before being dropped from the survey without replacement (as with the Malawi 2011 DHS).

A.4 Fieldwork

The Malawi NSO will provide 14 teams working full time over the course of the fieldwork. Survey teams will consist of 8 interviewers (4 female, 4 male), plus a supervisor and an editor. The editor is an assistant supervisor, with more focus on reviewing data on the tablet computers for quality control. TANGO will contract with a different vendor to provide 28 vehicles and drivers for the exercise to be supervised by NSO during implementation. TANGO will be responsible for all contractual issues related to provision of transportation. NSO will procure plug adaptors for each of the vehicles to enable tablet computers to be recharged.

Enumerators will work in male/female pairs with the male interviewing the primary male in the household and the female interviewing the primary female, according to FTF FEEDBACK standards for each module. Field teams will be responsible to conduct the following activities:

- A comprehensive survey listing and random sampling procedure in every selected EA, according to agreed specifications.
- Individual household interviews consistent with sampling requirements and procedures presented in FTF FEEDBACK guidance documents, the training workshop, and enumerator and supervisor field manuals.
- Daily field-based quality control measures in accordance with agreed specifications.
- Weekly field reports on progress (EAs/HHs completed, problems, questions, etc.) collected by central supervisors and summarized by the survey coordinator and reported to TANGO.
- Regular electronic data transfer to FTF FEEDBACK servers.

A.4.1 Training

NSO will conduct a training workshop for survey enumerators, field supervisors, and editors. The purpose of the training sessions is to ensure that all members of the survey team understand the objectives of the study, the proper use of the survey tools, as well as the roles and responsibilities of each team member in data collection.

Training will involve a two-week process, including one week of training of NSO trainers and preparation for the larger enumerator training, which would take place in the second week.

Week 1:

- TANGO staff will review with the trainers and supervisors the modules' structure and purpose, technical requirements, and content of the survey manuals.
- On the basis of a clearer understanding of modules' intent and requirements, TANGO staff, trainers, and supervisors will review, field test, and revise module translations.
- TANGO staff, trainers, and supervisors will finalize training materials for the following week's enumerator training.

Week 2:

NSO staff will lead the Week 2 training for enumerators, editors, and supervisors over a seven-day period. The training will allocate time to each individual module, the EA sample listing procedure, human subjects protections, and the use of tablet computers. Individual training sessions will include a combination of presentations by the NSO trainers, mock interviews, quizzes, and recaps from previous days' activities. After completion of classroom training, the trainees will participate in a field test to practice what was learned in the training with actual respondents and field conditions. TANGO staff will serve as technical resources during the second week as needed.

A.4.2 Field Support/Supervision

NSO will provide central logistical support and supervision for field teams, including:

- Plan and schedule fieldwork according to the agreed timeline.
- Procure accommodations for enumerators, supervisors, editors, and international consultants in the field. Note: to the maximum extent possible, accommodations should have reliable electricity, be covered by mobile networks, and have access to the Internet.
- Monitor weekly progress reports and resolve problems, slowdowns, and quality issues as necessary to maintain data quality and timely implementation.
- Review and analyze weekly data transfers, again, to ensure quality.
- Provide financial oversight and accounting in accordance with agreed upon specifications.

Day-to-day field support and supervision will be provided by the field supervisor, as detailed in the field supervisor's manual.

A.5 Data Management

Data collected in interviews will be recorded directly into tablets provided by FEEDBACK. The software used for managing the interviews on the tablets is Open Data Kit (ODK). The questionnaire for Malawi (see Section A.9) will be loaded onto all the tablets to be used by the enumerators. Data will be entered directly into the tablets during the interviews. At the end of each day in the field, each supervisor will make a backup of the data on each tablet by making a copy of the data files directly onto the tablet. Each supervisor will also make backups of all tablets in the team onto their tablet using "NFC tapping" procedure. Details of this procedure are provided in the enumerator and supervisor training manuals.

The supervisors will be responsible for uploading the data to the FEEDBACK server whenever they have access to the Internet. Each field team will have a Wi-Fi hotspot that can be used to connect the tablets to the Internet via mobile phone connections. These Wi-Fi hotspots are battery operated and rechargeable, and can provide connectivity to up to five devices simultaneously. Each day when the teams have network access, the supervisors will upload the data from the tablets of all the (4) field team members onto the FEEDBACK server, where the data from all the field teams will be aggregated and updated over the course of the fieldwork.

Each field team will be provided with multi-socket splitters to fit into vehicle cigarette lighters, along with USB adapters. This equipment will be used to charge the tablets and the Wi-Fi hotspots from the team vehicles, as the teams travel or in the evenings. Each vehicle will have a total of five tablets and one Wi-Fi hotspot to recharge. The teams will be able to charge the equipment in the evening when they are staying in locations where electricity is available.

During the fieldwork, data quality will be maintained in several ways. The data entry software on the tablet computers has programmed checks for variable ranges, skip patterns, and consistency. In the field, the editor will check each questionnaire closely for completeness, consistency, range checks, and skip patterns. The supervisor will also check a subset of questionnaires in the same manner. The fieldwork will be planned so that all the field teams are within close proximity during the initial days of the fieldwork, and the teams will all stay at the same location in the evening. In this way, problems that arise during the first days of fieldwork can be shared and resolved with the entire field team.

As the data are being uploaded onto the FEEDBACK server, Westat data management staff will run data quality programs that incorporate the data quality checks on the tablet computers, the checks done by field staff, and other general checks. These data quality programs will include range checks, checks of skip patterns, consistency checks, and completeness checks done by the tablet computer software and the field editors and supervisors. The programs check for completeness by listing whether all expected questionnaires per SEA have been received, result of the interview (complete, incomplete, etc.), percent of modules that have been completed (by module) and percent of missing data for select variables, such as age and gender of respondents. Distributions will be generated for the gender type of the household and age distribution (for women, men, and children). All of these

data will be analyzed by Westat data management staff to identify data quality problems that must be addressed by the field. In addition to producing detailed reports by enumerator, the programs will produce general summary reports that can be used for general data quality control.

Reports based on these data quality programs will be uploaded to a secure Westat secure file transfer protocol (SFTP) site that can be accessed by TANGO and in Malawi by survey management staff at NSO, quality control monitoring teams, and field team supervisors. TANGO and NSO staff will review data quality issues identified by Westat and will independently review the reports for any other data quality issues. Any issues identified independently by TANGO or NSO will be reported back to Westat to inform future data quality analysis. Issues identified independently by TANGO will be reported to NSO management staff. NSO will inform field supervisors of key general issues found and issues directly related to the teams. NSO will determine if the deficiencies require field visits to teams for discussion and retraining. NSO will inform TANGO and Westat of any key issues that arise from these field visits.

A.6 Analysis and Reporting

The analysis and reporting process for each survey will be completed one month after the completion of data entry and cleaning for the survey.

A.7 Institutional Review Board Approval

FTF FEEDBACK has submitted the general plan for Feed the Future population-based surveys to the Westat institutional review board (IRB). The Westat IRB provided approval on the condition that the local IRB requirements are met. NSO has confirmed that no local IRB review is required for research in Malawi, unless it involves the drawing of blood samples from human subjects. The Westat IRB requires a formal notification of this fact from NSO. NSO will provide this notification as part of the Memorandum of Understanding between NSO and TANGO.

A.8 Survey Work Plan

Activity	Date
Training of trainers workshop	Oct 31–Nov 3
Training of enumerators	Nov 5–Nov 12
Data collection	Nov 14–Dec 22
Final data transfer	Dec 28
Data cleaning and entry of indicators values in the FTFMS	Dec 29–Jan 20

A.9 Survey Questionnaire

Indicator	PBS module
3.1.9.1-3 and 4.7-4 Prevalence of households with moderate or severe hunger	Module F: Household Hunger Scale
4.5 TBD Women's Empowerment in Agriculture Index (Indicator number to be assigned shortly)	Module G: WEAI Individual Application
3.1.9.1-2 Women's Dietary Diversity: Mean number of food groups consumed by women of reproductive age	Module H: Women's Anthropometry and Anemia and Diet Diversity

The questionnaire to be used in Malawi includes the modules from Volume 8: A, B, C, D, F, G, and H (partial).

Annex B. Malawi Survey Questionnaire

MODULE A. Household identification cover sheet

Household Identification	Code
A01. . Household ID Number (cluster and household number from control sheet)	
A02. Cluster number	
A03. Village	
A04. County	
A05. District	
A06. Region	
A09. Type of household:	
A10. Primary Respondent Name and ID (from Module C) _____	
A11. Secondary Respondent Name and ID (from Module C) _____	

A09 HOUSEHOLD TYPE

Male and female adult - household contains at least one male and one female adult ≥ 18 years old 1
Female adult only - household contains at least one female adult and no male adults ≥ 18 years old 2
Male adult only - household contains at least one male adult and no female adults ≥ 18 years old 3
Child only - household contains no adults ≥ 18 years old 4

The **primary and secondary respondents** are those who self-identify as the primary male and female (or female only) members responsible for the decision-making, both social and economic, within the household. In Male and Female Adult Households, they are usually the husband and wife; however they can also be other household members as long as they are aged 18 and over. In Female Adult Only households, there will only be a primary respondent -- the principal female decision-maker aged 18 or older. Primary and secondary respondents do not need to be noted for Male Adult Only and Child Only Households, and Module G WEAI should not be applied in Male Adult Only and Child Only Households.

Interview details	Code
A17. Name/code of enumerator: _____	
A18. Date of first visit (dd/mm/yyyy):	/ /
A19. Date of second visit (dd/mm/yyyy):	/ /
A20. Reason for second visit: _____	
A21. Final outcome of interview (enter code)	
A24. Date of data entry(dd/mm/yyyy)::	/ /
A03 Create codes if needed	**A21** **OUTCOME OF INTERVIEW** Complete..... 1 Incomplete..... 2 Absent..... 3 Refused..... 4 Could not locate..... 5

MODULE B. Informed consent

< It is necessary to introduce the household to the survey and obtain the consent of all prospective respondents to participate. Prospective respondents are:

- **the main male adult (18 years or older) decision-maker in the household,**
- **the main female adult decision-maker in the household, and**
- **other females 15 to 49 years old in the household.**

Ask to speak with a responsible adult in the household. Make sure you obtain the informed consent of all prospective respondents. If a prospective respondent (e.g., a woman 15 to 49 years of age) is not present at the beginning of the interview, be sure to return to this page and obtain consent before interviewing him .

Thank you for the opportunity to speak with you. We are a research team from <The National Statistics Office>. We are conducting a survey to learn about agriculture, food security, food consumption, nutrition and wellbeing of households in this area. Your household has been selected to participate in an interview that includes questions on topics such as your family background, dwelling characteristics, agriculture, credit and assets, and food consumption of women. The survey includes questions about the household generally, and questions about individuals within your household, if applicable. These questions in total will take approximately 1-2 hours to complete and your participation is entirely voluntary. If you agree to participate, you can choose to stop at any time or to skip any questions you do not want to answer. Your answers will be completely confidential; we will not share information that identifies you with anyone. After entering the questionnaire into a data base, we will destroy all information such as your name which will link these responses to you.

Do you have any questions about the survey or what I have said? If in the future you have any questions regarding survey and the interview, or concerns or complaints we welcome you to contact <The National Statistics Office>, by calling [########].We will leave one copy of this form for you so that you will have record of this contact information and about the study.

< Ask the following consent questions of <u>all</u> prospective respondents. Have the person check "yes" or "no" and sign (or, if illiterate, mark) the consent box on the paper informed consent form. If there is an adolescent female under 18 years old, consent of her caregiver also is required. >

1. Who is the main male adult (18 years or older) decision-maker in the household? [Name], do you agree to participate in the survey?
2. Who is the main female adult (18 years or older) decision-maker in the household? [Name], do you agree to participate in the survey? Are you under 50 years old? If so, do you agree to be weighed and measured?
3. Are there other females 15 to 49 years old in the household? [

MODULE B. Informed consent signature page

Thank you for the opportunity to speak with you. We are a research team from <The National Statistics Office>. We are conducting a survey to learn about agriculture, food security, food consumption, nutrition and wellbeing of households in this area. Your household has been selected to participate in an interview that includes questions on topics such as your family background, dwelling characteristics, agriculture, credit, and assets, and food consumption of women. The survey includes questions about the household generally, and questions about individuals within your household, if applicable. These questions in total will take approximately 2-3 hours to complete and your participation is entirely voluntary. If you agree to participate, you can choose to stop at any time or to skip any questions you do not want to answer. Your answers will be completely confidential; we will not share information that identifies you with anyone. After entering the questionnaire into a data base, we will destroy all information such as your name which will link these responses to you.

If in the future you have any questions regarding survey and the interview, or concerns or complaints we welcome you to contact <The National Statistics Office>, by calling [########].

1. Who is the main male adult (18 years or older) decision-maker in the household? [Name], do you agree to participate in the survey?

2. Who is the main female adult (18 years or older) decision-maker in the household? [Name], do you agree to participate in the survey? Are you under 50 years old?

< After asking for informed consent, make sure you have duplicate forms or carbon paper to create the duplicate of this signature page. Write each person's name then have each person check and sign the consent box below. Make sure the signatures, marks and check boxes are readable and then give a copy to the household head. As you complete Module C, Household Roster and Demographics, add the person's identification (ID) number, age, and sex to this form.

Name	Consent to participate in survey (Check one box)		Signature or mark
	YES	NO	

MODULE B. Informed consent duplicate signature page

Duplicate to leave with the household

Thank you for the opportunity to speak with you. We are a research team from <The National Statistics Office>. We are conducting a survey to learn about agriculture, food security, food consumption, nutrition and wellbeing of households in this area. Your household has been selected to participate in an interview that includes questions on topics such as your family background, dwelling characteristics, household expenditures and assets, food consumption and nutrition of women and children. The survey includes questions about the household generally, and questions about individuals within your household, if applicable. These questions in total will take approximately 2-3 hours to complete and your participation is entirely voluntary. If you agree to participate, you can choose to stop at any time or to skip any questions you do not want to answer. Your answers will be completely confidential; we will not share information that identifies you with anyone. After entering the questionnaire into a data base, we will destroy all information such as your name which will link these responses to you.

If in the future you have any questions regarding survey and the interview, or concerns or complaints we welcome you to contact <The National Statistics Office>, by calling [########]. This is your copy of the consent signature page so that you will have record of this contact information and about the study.

Name	Consent to participate in survey (Check one box)		Signature or mark
	YES	NO	

MODULE C. Household roster and demographics

< Ask these questions about all household members. Ask the primary or secondary respondent, whoever is most knowledgeable about the age, completed education, and other characteristics of household members. >

First, we would like to ask you about each member of your household. Let me tell you a little bit about what we mean by household. For our purposes today, members of a household are adults or children that live together and eat from the 'same pot', including servants, lodgers, and agricultural laborers. Household members include anyone who has lived in your house for at least 6 of the last 12 months, but does not include anyone who lives here but eats separately. Newborn children less than 6 months old and anyone who has joined the household less than 6 months ago but has the intention of staying for a longer period of time are also considered members of the household. Please do *not* include anyone who died recently, even if he or she lived here more than 6 months in last 12 months, nor anyone who left the household less than 6 months ago with the intention of being away from the household for a longer period of time or permanently (this includes either leaving through marriage, or servants, lodgers, and agricultural laborers who have left.

MODULE C. Household roster and demographics (continued)

Household identification (*in data file, each module must be matched with the HH ID*) | | | | | | |

ID CODE	Name of household member? Please provide the names of everyone considered to be a member of this household, starting with the main male **<or female, if no adult male>** decision-maker: **< List the first name then collect the remaining columns of information for each member, one person at a time. >**	What is [Name's] sex? M F	What is [Name's] relationship to the primary respondent? **< See response options below >**	What is [Name's] age? (in years) **< If <3, skip C05-08 >**	Can [Name] read and write?	Is [Name] currently attending school?	Has [Name] ever attended school?	What is the highest grade of education completed by [Name]?	Type of household
	C01	**C02**	**C03**	**C04**	**C05**	**C06**	**C07**	**C08**	**A09**
01									
02									
03									
04									
05									
06									
07									
08									
09									
10									
11									
12									
13									
14									

C03: Relationship to primary respondent

Primary respondent
Spouse/partner
Son/daughter
Son/daughter-in-law
Grandson/granddaughter
Mother/Father
Brother/sister
Nephew/niece
Nephew/niece of spouse
Cousin of primary respondent
Brother/sister-in-law
Mother/father-in-law
Cousin of primary respondent's spouse
Other relative
Servant/Maid
Laborer
Other relationship

C05: Literacy

Cannot read and write
Can sign (write) only
Can read only
Can read and write

C08: Education Level

Less than P1 (or no school)
Primary level 1-3
Primary level 4-6
Secondary 1-4
Tertiary after O-level
Secondary 5-6
University or above
Technical or vocational
Adult literacy only (no formal education
Koranic/religious only (no formal education)
Don't know (DK)/Nonresponse (NR)/Not applicable

A09:

Male and female adult
Female adult only
Male adult only
Child only

MODULE D. Dwelling characteristics

Household identification (*in data file, each module must be matched with the HH ID*) | | | | |

< Enter responses to Questions D01 – D03 based on your own observations. Ask Questions D05 – D08 to the person primarily responsible for food preparation. >

	Response	Response codes
D01. <Observe - do not ask > Roof top material (outer covering):		**D01:Type of roof** Tile Wood Corrugated metal Plastic sheeting Thatched/vegetable matter/ sticks Mud/cow dung Other
D02. <Observe - do not ask > Floor material:		**D02:Type of floor** Earth/mud Concrete/flag stone/cement Tile/bricks Wood Other
D03. <Observe - do not ask > Exterior Walls:		**D03: Type of walls** Earth/mud Concrete/flag stone/cement Tile/bricks Wood Other
D04. How many rooms are there in this dwelling? (Do not count bathrooms, hallways, garage, toilet, cellar, kitchen)		
D05. What is the main type of toilets your household uses?		**Code 05: Type of toilet** Flush, shared Flush, private Ventilated improved pit latrine (VIP) Pit latrine Community toilet Pan / bucket No toilet Other
D06. What is the main source of drinking water for your household?		**D06:Drinking water source** Piped into dwelling Piped into plot/yard Public tap (someone else's private tap) Tube well/borehole Protected dug well Protected spring Rain water collection Unprotected dug well/springs River/ponds/streams Tankers-truck/vendor Bottled water Other (specify)
D07. Does this household have electricity?		Yes No
D08. What is the main source of cooking fuel for your household?		**D07: Cooking fuel** Electricity Piped or liquid propane gas (biogas) Kerosene Charcoal Firewood Animal dung Agricultural crop residue Other

MODULE F. Household hunger scale

Household identification (*in data file, each module must be matched with the HH ID*) | | | | |

Enumerator: Ask of the person responsible for Household Food Preparation.

No.	Question	Response	Response code
F01	In the past month was there ever no food to eat of any kind in your house because of lack of resources to get food?		Yes No >> F03
F02	How often was there ever no food to eat of any kind in your house because of lack of resources to get food in the past month?		Rarely (1-2 times) Sometimes (3-10 times) Often (more than 10 times)
F03	In the past month did you or any household member go to sleep at night hungry because there was not enough food?		Yes No >> F05
F04	How often did this happen in the past month?		Rarely (1-2 times) Sometimes (3-10 times) Often (more than 10 times)
F05	In the past month did you or any household member go a whole day and night without eating anything at all because there was not enough food?		Yes No >> end of module
F06	How often did this happen in the past month?		Rarely (1-2 times) Sometimes (3-10 times) Often (more than 10 times)

MODULE G. Women's Empowerment in Agriculture Index

NOTE: The information in Module G1 can be captured in different ways; however there must be a way to a) identify the proper individual within the household to be asked the survey, b) link this individual from the module to the household roster, c) code the outcome of the interview, especially if the individual is not available, to distinguish this from missing data, d) record who else in the household was present during the interview. This instrument must be adapted for country context including translations into local languages when appropriate.

Enumerator: This questionnaire should be administered separately to the primary and secondary respondents identified in the household roster (Section C) of the household level questionnaire. You should complete this coversheet for each individual identified in the "selection section" even if the individual is not available to be interviewed for reporting purposes.

Please double check to ensure:

- *You have completed the roster section of the household questionnaire to identify the correct primary and/or secondary respondent(s);*
- *You have noted the household ID and individual ID correctly for the person you are about to interview;*
- *You have gained informed consent for the individual in the household questionnaire;*
- *You have sought to interview the individual in private or where other members of the household cannot overhear or contribute answers.*
- *Do not attempt to make responses between the primary and secondary respondent the same—it is ok for them to be different.*

Do not attempt to make responses between the primary and secondary respondent the same—it is ok for them to be different. >

MODULE G1. Individual identification

	Code
G1.01. Household Identification:.....	
G1.02. Name of respondent currently being interviewed (ID Code from roster in Section C Household Roster): **Surname, First name: .....**	
G1.03. Sex of respondent: Male..... 1 Female..... 2	
G1.04. Type of household Male and female adult ……..1 Female adult only……2	

	Code
G1.05. Outcome of interview	
G1.06. Ability to be interviewed alone:	

G05
Completed..... 1
Incomplete..... 2
Absent..... 3
Refused..... 4
Could not locate 5

G06
Alone 1
With adult females present 2
With adult males present 3
With adults mixed sex present..... 4
With children present 5
With adults mixed sex and children present 6

MODULE G2. Role in household decision-making around production and income generation

Household identification (in data file, each submodule (G2-G6) must be linked with HH and respondent ID) | | | | | | |
Respondent ID Code | | |

Activity		Did you (singular) participate in [ACTIVITY] in the past 12 months (that is during the last [one/two] cropping seasons)? Yes ..... 1 No..... 2 >> next activity	How much input did you have in making decisions about [ACTIVITY]?	How much input did you have in decisions on the use of income generated from [ACTIVITY]
Activity code	**Activity description**	**G2.01**	**G2.02**	**G2.03**
A	Food crop farming: crops that are grown primarily for household food consumption			
B	Cash crop farming: crops that are grown primary for sale in the market			
C	Livestock raising			
D	Non-farm economic activities: Small business, self-employment, buy-and-sell			
E	Wage and salary employment: in-kind or monetary work both agriculture and other wage work			
F	Fishing or fishpond culture			
			G2.02/G2.03: Input into decision-making No input ..... 1 Input into very few decisions ..... 2 Input into some decisions ..... 3 Input into most decisions ..... 4 Input into all decisions ..... 5 No decision made 6	

MODULE G3. Access to productive capital

	Productive Capital	Does anyone in your household currently have any [ITEM]? Yes .....1 No.....2 >> next item	How many of [ITEM] does your household currently have?	Who would you say owns most of the [ITEM]?	Who would you say can decide whether to sell [ITEM] most of the time?	Who would you say can decide whether to give away [ITEM] most of the time?	Who would you say can decide to mortgage or rent out [ITEM] most of the time?	Who contributes most to decisions regarding a new purchase of [ITEM]?
	Productive Capital	**G3.01a**	**G3.01b**	**G3.02**	**G3.03**	**G3.04**	**G3.05**	**G3.06**
A	Agricultural land (pieces/plots)							
B	Large livestock (oxen, cattle)							
C	Small livestock (goats, pigs, sheep)							
D	Chickens, Ducks, Turkeys, Pigeons							
E	Fish pond or fishing equipment							
F	Farm equipment (non-mechanized)							
G	Farm equipment (mechanized)							
H	Nonfarm business equipment							
I	House (and other structures)							
J	Large consumer durables (fridge, TV, sofa)							
K	Small consumer durables (radio, cookware)							
L	Cell phone							
M	Other land not used for agricultural purposes (pieces, residential or commercial land)							
N	Means of transportation (bicycle, motorcycle, car)							

G3.02-G3.06: Decision-making and control over productive capital

Self 1
Partner/Spouse 2
Self and partner/spouse jointly 3
Other household member 4
Self and other household member(s).....5
Partner/Spouse and other household member(s).....6
Someone (or group of people) outside the household 7
Self and other outside people……..8
Partner/Spouse and other outside people…..9
Self, partner/spouse and other outside people.....10

MODULE G3. Access to productive capital (continued)

Lending sources		Has anyone in your household taken any loans or borrowed cash/in-kind from [SOURCE] in the past 12 months?	Who made the decision to borrow from [SOURCE]?	Who makes the decision about what to do with the money/ item borrow from [SOURCE]?
Lending source names		**G3.07**	**G3.08**	**G3.09**
A	Non-governmental organization (NGO)			
B	Informal lender			
C	Formal lender (bank/financial institution)			
D	Friends or relatives			
E	Group based micro-finance or lending including VSLAs / SACCOs/ merry-go-rounds			
		G3.07 Taken loans Yes, cash .....1 Yes, in-kind .....2 Yes, cash and in-kind.....3 No.....4 >> G3.11A Don't know……5 >> G3.11A	**G3.08/G3.09: Decision-making and control over credit** Self ..... 1 Partner/Spouse ..... 2 Self and partner/spouse jointly..... 3 Other household member ..... 4 Self and other household member(s)..... 5 Partner/Spouse and other household member(s)..... 6 Someone (or group of people) outside the household.... 7 Self and other outside people ..... 8 Partner/Spouse and other outside people ..... 9 Self, partner/spouse and other outside people 10	

MODULE G4. Individual leadership and influence in the community

No.	Question	Response	Response codes
G4.01	Do you feel comfortable speaking up in public to help decide on infrastructure (like small wells, roads, water supplies) to be built in your community?		No, not at all comfortable ..... 1 Yes, but with a great deal of difficulty..... 2 Yes, but with a little difficulty ..... 3 Yes, fairly comfortable..... 4 Yes, very comfortable..... 5
G4.02	Do you feel comfortable speaking up in public to ensure proper payment of wages for public works or other similar programs?		
G4.03	Do you feel comfortable speaking up in public to protest the misbehavior of authorities or elected officials?		

MODULE G4. Group membership and influence in the group (continued)

Group membership		Is there a [GROUP] in your community? Yes ..... 1 No ..... 2 >> next group	Are you an active member of this [GROUP]? Yes.....1 No .....2 >> **G4.07**
	Group Categories	**G4.04**	**G4.05**
A	Agricultural / livestock/ fisheries producer's group (including marketing groups)		
B	Water users' group		
C	Forest users' group		
D	Credit or microfinance group (including SACCOs/merry-go-rounds/ VSLAs)		
E	Mutual help or insurance group (including burial societies)		
F	Trade and business association		
G	Civic groups (improving community) or charitable group (helping others)		
H	Local government		
I	Religious group		
J	Other women's group (only if it does not fit into one of the other categories)		
K	Other (specify)		

MODULE G5. Decision-making

ENUMERATOR: Ask G5.01 for all categories of activities before asking G5.02. Do not ask G5.02 if G5.01 response is 1 and respondent is male OR G5.01 response is 2 and respondent is female. *If household does not engage in that particular activity, enter 98 and proceed to next activity.*		When decisions are made regarding the following aspects of household life, who is it that normally takes the decision?	To what extent do you feel you can make your own personal decisions regarding these aspects of household life if you want(ed) to? Ask only if G5.01 is 1 and respondent is female, G5.01 is 2 and respondent is male, or G5.01 is 3-7.
		G5.01	**G5.02**
A	Getting inputs for agricultural production		
B	The types of crops to grow for agricultural production		
C	Taking crops to the market (or not)		
D	Livestock raising		
E	Your own (singular) wage or salary employment		
F	Major household expenditures (such as a large appliance for the house like refrigerator)		
G	Minor household expenditures (such as food for daily consumption or other household needs)		
		G5.01: Who makes decision Main male or husband…… ..... 1 Main female or wife ..... 2 Husband and wife jointly ..... 3 Someone else in the household..... 4 Jointly with someone else inside the household ..... 5 Jointly with someone else outside the household..... 6 Someone outside the household/other ..... 7 Household does not engage in activity/Decision not made 98	**G5.02: Extent of participation in decision-making** Not at all ……1 Small extent……..2 Medium extent……..3 To a high extent……4

MODULE G5. Decision-making (continued)

ENUMERATOR: This set of questions is very important. I am going to give you some reasons why you act as you do in the aspects of household life I just mentioned. You might have several reasons for doing what you do and there is no right or wrong answer. Please tell me how true it would be to say: *[If household does not engage in that particular activity, enter 98 and proceed to next activity.]*		My actions in [ASPECT] are partly because I will get in trouble with someone if I act differently. [READ OPTIONS: **Always True, Somewhat True, Not Very True, or Never True**]	Regarding [ASPECT] I do what I do so others don't think poorly of me. [READ OPTIONS: **Always True, Somewhat True, Not Very True, or Never True**]	Regarding [ASPECT] I do what I do because I personally think it is the right thing to do. [READ OPTIONS: **Always True, Somewhat True, Not Very True, or Never True**]
		G5.03	**G5.04**	**G5.05**
A	Getting inputs for agricultural production			
B	The types of crops to grow for agricultural production			
C	Taking crops to the market (or not)			
D	Livestock raising			
		G5.03/G5.04/G5.05: Motivation for activity Never true.....1 Not very true.....2 Somewhat true.....3 Always true.....4 Household does not engage in activity/Decision not made 98		

MODULE G6. Time allocation

Enumerator: ***G6.01:*** *Please record a log of the activities for the individual in the last complete 24 hours (starting yesterday morning at 4 am, finishing 3:59 am of the current day). The time intervals are marked in 15 min intervals and one to two activities can be marked for each time period by drawing a line through that activity. If two activities are marked, they should be distinguished with a P for the primary activity and S for the secondary activity written next to the lines. Please administer using the protocol in the enumeration manual.*

| | | Night | | | | | | | | Morning | | | | | | | |

MODULE G6. Time allocation (continued)

		Evening												Night																																							
	Activity	16				17				18				19				20				21				22				23				24				1				2				3			
A	Sleeping and resting																																																				
B	Eating and drinking																																																				
C	Personal care																																																				
D	School (also homework)																																																				
E	Work as employed																																																				
F	Own business work																																																				
G	Farming/livestock/fishing																																																				
J	Shopping/getting service (incl health services)																																																				
K	Weaving, sewing, textile care																																																				
L	Cooking																																																				
M	Domestic work (incl fetching wood and water)																																																				
N	Care for children/adults/elderly																																																				
P	Travelling and commuting																																																				
Q	Watching TV/listening to radio/reading																																																				
T	Exercising																																																				
U	Social activities and hobbies																																																				
W	Religious activities																																																				
X	Other, specify																																																				

No.	Question	Response	Response options/Instructions
G6.02	How satisfied are you with your available time for leisure activities like visiting neighbors, watching TV, listening to the radio, seeing movies or doing sports?		READ: Please give your opinion on a scale of 1 to 10. 1 means you are not satisfied and 10 means you are very satisfied. If you are neither satisfied or dissatisfied this would be in the middle or 5 on the scale.

MODULE H. Women's anthropometry and dietary diversity

Household identification (*in data file, each respondent must be matched with the HH ID*) [ ][ ][ ][ ][ ][ ]

Enumerator Instructions: Ask these questions of each woman of reproductive age (15-49 years) in the household. Check to see if EACH women has given consent to be interviewed in Module B. If a woman has not yet given consent, return to Module B and gain her consent before proceeding. You should carry duplicate copies of this module in case there are more than 5 women of reproductive age in the household.

No.	Question	Response codes	Woman 1	Woman 2	Woman 3	Woman 4	Woman 5
H01	WOMAN'S ID CODE FROM THE HOUSEHOLD ROSTER		[ ][ ]	[ ][ ]	[ ][ ]	[ ][ ]	[ ][ ]
H02	In what month and year were you born?	IF MONTH IS NOT KNOWN, ENTER '98' IF YEAR IS NOT KNOWN, ENTER '9998'	[ ][ ] Month [ ][ ][ ][ ] Year	[ ][ ] Month [ ][ ][ ][ ] Year	[ ][ ] Month [ ][ ][ ][ ] Year	[ ][ ] Month [ ][ ][ ][ ] Year	[ ][ ] Month [ ][ ][ ][ ] Year
H03	Please tell me how old you are. What was your age at your last birthday? RECORD AGE IN COMPLETED YEARS	IF RESPONDENT CANNOT REMEMBER HOW OLD SHE IS, ENTER '98' AND ASK QUESTION H04. IF RESPONDENT KNOWS HER AGE >> H05	[ ][ ] Years	[ ][ ] Years	[ ][ ] Years	[ ][ ] Years	[ ][ ] Years

MODULE H. Women's anthropometry and dietary diversity (continued)

No.	Question	Response codes	Woman 1	Woman 2	Woman 3	Woman 4	Woman 5
H04	Are you between the ages of 15 and 49 years old?	1 = Yes 2 = No >> end module 9 = Don't know >> end module					
H05	CHECK H02, H03 AND H04 (IF APPLICABLE): IS THE RESPONDENT BETWEEN THE AGES OF 15 AND 49 YEARS? IF THE INFORMATION IN H02, H03, AND H04 CONFLICTS, DETERMINE WHICH IS MOST ACCURATE.	1 = Yes 2 = No >> end module					
	WOMEN'S DIETARY DIVERSITY						
	Please describe everything that you ate yesterday during the day or night, whether at home or outside the home. **(A)** Think about when you first woke up yesterday. Did you eat anything at that time? IF YES: Please tell me everything you ate at that time. PROBE: Anything else? UNTIL RESPONDENT SAYS NOTHING ELSE, THEN CONTINUE TO PART B. IF NO, CONTINUE TO PART B. **(B)** What did you do after that? Did you eat anything at that time? IF YES: Please tell me everything you ate at that time. PROBE: Anything else? UNTIL RESPONDENT SAYS NOTHING ELSE. REPEAT QUESTION B ABOVE UNTIL RESPONDENT SAYS SHE WENT TO SLEEP UNTIL THE NEXT DAY. IF RESPONDENT MENTIONS MIXED DISHES LIKE A PORRIDGE, SAUCE, OR STEW, PROBE: **(C)** What ingredients were in that [mixed dish]? PROBE: Anything else? UNTIL RESPONDENT SAYS NOTHING ELSE. AS THE RESPONDENT RECALLS FOODS, UNDERLINE THE CORRESPONDING FOOD AND ENTER '1' IN THE COLUMN NEXT TO THE FOOD GROUP. IF THE FOOD IS NOT LISTED IN ANY OF THE FOOD GROUPS BELOW, WRITE THE FOOD IN THE BOX LABELED 'OTHER FOODS.' IF FOODS ARE USED IN SMALL AMOUNTS FOR SEASONING OR AS A CONDIMENT, INCLUDE THEM UNDER THE CONDIMENTS FOOD GROUP. ONCE THE RESPONDENT FINISHES RECALLING FOODS EATEN, READ EACH FOOD GROUP WHERE '1' WAS NOT ENTERED, ASK THE FOLLOWING QUESTION AND ENTER '1' IF RESPONDENT SAYS YES, '0' IF NO, AND '9' IF DON'T KNOW. Yesterday during the day or night, did you drink/eat any [food group items]?						

MODULE H. Women's anthropometry and dietary diversity (continued)

No.	Question	Response codes	Woman 1	Woman 2	Woman 3	Woman 4	Woman 5
	OTHER FOODS: PLEASE WRITE DOWN OTHER FOODS TO THE RIGHT OF THIS BOX THAT RESPONDENT MENTIONED BUT ARE NOT IN THE LIST BELOW. THIS WILL ALLOW THE SURVEY SUPERVISOR OR OTHER KNOWLEDGEABLE INDIVIDUAL TO CLASSIFY THE FOOD LATER.		WRITE FOODS EATEN HERE:	WRITE FOODS EATEN HERE:	WRITE FOODS EATEN HERE:	WRITE FOODS EATEN HERE:	WRITE FOODS EATEN HERE:
H14	Food made from grains, such as bread, rice, noodles, porridge, [Bread, scone, maize meal (ngaiwa), maize flour (ufawoyera), millet, rice, sorghum, or any other food made from grains?]	1 = Yes 2 = No 9 = Don't Know					
H15	Pumpkin, carrots, squash, or sweet potatoes that are yellow or orange inside	1 = Yes 2 = No 9 = Don't Know					
H16	White potatoes, white yams, manioc, cassava or any other foods made from roots [Cocoyams, irish potatoes, white sweet potatoes, white yams, cassava, or other local roots or tubers?]	1 = Yes 2 = No 9 = Don't Know					
H17	Any dark green leafy vegetables such as [amaranth, bonongwe, pumpkin leaves, chinese cabbage, greens, kale, cassava leaves, or sweet potato leaves that are fresh?]	1 = Yes 2 = No 9 = Don't Know					
H18	Ripe mangoes, ripe papayas or **[guava]**	1 = Yes 2 = No 9 = Don't Know					

MODULE H. Women's anthropometry and dietary diversity (continued)

No.	Question	Response codes	Woman 1	Woman 2	Woman 3	Woman 4	Woman 5
H19	Any other fruits or vegetables	1 = Yes 2 = No 9 = Don't Know					
H20	Liver, kidney, heart, or other organ meats	1 = Yes 2 = No 9 = Don't Know					
H21	Any meat, such as beef, pork, lamb, goat, chicken, or duck	1 = Yes 2 = No 9 = Don't Know					
H22	Eggs	1 = Yes 2 = No 9 = Don't Know					
H23	Fresh or dried fish, shellfish, or seafood [nkhanu, crabs]	1 = Yes 2 = No 9 = Don't Know					
H24	Any foods made from beans, peas, lentils, nuts, or seeds [pigeon peas, cow peas or ground nut powder (nsinjiro)?]	1 = Yes 2 = No 9 = Don't Know					
H25	Cheese, yogurt, or other milk products	1 = Yes 2 = No 9 = Don't Know					
H26	Any oil, fats, or butter, or foods made with any of these	1 = Yes 2 = No 9 = Don't Know					
H27	Any sugary foods such as chocolates, sweets, candies, pastries, cakes, or biscuits	1 = Yes 2 = No 9 = Don't Know					

MODULE H. Women's anthropometry and dietary diversity (continued)

No.	Question	Response codes	Woman 1	Woman 2	Woman 3	Woman 4	Woman 5
H28	Condiments for flavor, such as chilies, spices, herbs, or fish powder	1 = Yes 2 = No 9 = Don't Know					
H29	Grubs, snails, or insects	1 = Yes 2 = No 9 = Don't Know					
H30	Foods made with red palm oil, red palm nut, or red palm nut pulp sauce	1 = Yes 2 = No 9 = Don't Know					

Annex C. Weight Calculation

C.1 Design Weight

The Malawi survey sample was drawn with two-stage, stratified cluster sampling following the Demographic and Health Survey sample design.[85] Clusters were equally allocated among districts. At the first stage, a sample cluster was selected independently with probability proportional to the cluster's population in each stratum. The strata were the rural areas of the seven districts in the ZOI. The unequal probabilities of selection across strata caused by the equal number of clusters in each stratum were adjusted relative to the population of each stratum. Design weights were calculated based on the separate sampling probabilities for each sampling stage and for each cluster. We have:

P_{1hi} = first-stage sampling probability of the i-th cluster in district *h* (all rural districts).

P_{2hi} = second-stage sampling probability within the i-th cluster (household selection).

The probability of selecting cluster *i* in the sample is:

$$P_{1hi} = \frac{m_h \times N_{hi}}{N_h}$$

The second-stage probability of selecting household in cluster *i* is:

$$P_{2hi} = \frac{n_{hi}}{L_{hi}}$$

where:

m_h = number of sample clusters selected in district *h*.

N_{hi} = total population in the frame for the i-th sample cluster in district *h*.

N_h = total population in the frame in district *h*.

n_{hi} = number of sample households selected for the i-th sample cluster in district *h*.

L_{hi} = number of households listed in the household listing for the i-th sample cluster in district *h*.

The overall selection probability of each household in cluster *i* of district *h* is the product of the selection probabilities of the two stages:

$$P_{hi} = P_{1hi} \times P_{2hi} = \frac{m_h \times N_{hi}}{N_h} \times \frac{n_{hi}}{L_{hi}}$$

[85] ICF International. 2012.

The design weight for each household in cluster *i* of district *h* is the inverse of its overall selection probability:

$$W_{hi} = \frac{1}{p_{hi}} = \frac{N_h \times L_{hi}}{m_h \times N_{hi} \times n_{hi}}$$

During weight calculation, there were eight clusters from two districts whose identification cards could not be linked between sampling frame and survey data files. For these clusters, design weight was further adjusted as the inverse of average selection probability among the unlinked clusters within each of the two districts.

C.2 Sampling Weight

The sampling weight was calculated with the design weight corrected for nonresponse for each of the selected clusters. Response rates were calculated at cluster level as ratios of the number of interviewed units over the number of eligible units, where units could be household or individual (woman, child, male decision-maker, or female decision-maker).

The household sampling weight was calculated by dividing the household design weight by the household response rate. The individual sampling weight was calculated by dividing the household sampling weight by the individual response rate.

Annex D. Indicators Descriptions and Calculations

INDICATOR TITLE: Prevalence of Poverty: Percent of people living on less than $1.25/day* (R)

**The MDGs define this level as those living in —extreme poverty. Although we do not use the word —extreme in this title, we are referring to the same measure used by the UN for the MDGs.*

DEFINITION:

This indicator measures Millennium Development Goal Target 1a. Halving extreme poverty refers to the period 1990 to 2015. The applicable poverty line has been updated to $1.25 dollars per person per day, converted into local currency at 2005 Purchasing Power Parity (PPP) exchange rates. The use of PPP exchange rates ensures that the poverty line applied in each country has the same real value. Measurement is based on the value of average daily consumption expenditure per person, where food and other items that a household consumes out of its own production are counted as if the household purchased those items at market prices. For example, all members of a household of four people are counted as poor if its average daily consumption expenditures are less than $5 per day at 2005 PPP after adjusting for local inflation since 2005. The poverty rate is estimated by dividing the measured number of poor people in a sample of households by the total population in the households in the sample.

Data for this indicator must be collected using the Consumption Expenditure methodology of the Living Standards Measurement Survey (LSMS). Missions are encouraged to use the LSMS Integrated Survey in Agriculture Consumption Expenditure module, which has been incorporated in the FTF M&E Guidance Series Volume 8: Population-Based Survey Instrument for Feed the Future Zone of Influence Indicators. FTF will collect consumption-expenditure data in order to calculate prevalence of poverty for this indicator, as well as per capita expenditures to be used as a proxy for income. Expenditures are used instead of income because of the difficulty in accurately measuring income and because expenditure data are less prone to error, easier to recall and are more stable over time than income data.

RATIONALE:

This measures the first goal of the Feed the Future Initiative as well as a Millennium Development Goal. It is the purpose of the FTF Initiative. All objectives, program elements, and projects are designed to reduce poverty.

UNIT:

Percent

1. Percentage of people from sample living on <$1.25/day

2. Total population of people in zone of influence

DISAGGREGATE BY:

Gendered Household Type: Adult Female no Adult Male (FNM), Adult Male no Adult Female (MNF), Male and Female Adults (M&F), Child no Adults (CNA)

TYPE:

Impact

DIRECTION OF CHANGE:

Lower is better

DATA SOURCE:

MDG database for national level; population-based surveys conducted by the M&E contractor in the FTF zone of influence.

INDICATOR TITLE: Per capita expenditures (as a proxy for income) of USG targeted beneficiaries (2010 USD) (R)

DEFINITION:

This indicator will measure the expenditures of rural households as a proxy for income, based on the assumption that increased expenditures is strongly correlated to increased income. Data for this indicator must be collected using the Consumption Expenditure methodology of the Living Standards Measurement Survey (LSMS). Missions are encouraged to use the LSMS Integrated Survey in Agriculture Consumption Expenditure module, which has been incorporated in the FTF M&E Guidance Series Volume 8: Population-Based Survey Instrument for Feed the Future Zone of Influence Indicators. FTF will collect consumption-expenditure data in order to calculate prevalence of poverty as well as per capita expenditures to be used as a proxy for income.

This indicator is a proxy instead of measuring income directly because of the difficulty in accurately measuring income. Expenditures are used instead of income because of the difficulty in accurately measuring income and because expenditure data are less prone to error, easier to recall and are more stable over time than income data.

RATIONALE:

There is a relationship between increased incomes and improved food security, reduced poverty, and improved nutrition. The usefulness of an income proxy methodology derives from the importance of a change in household income and its impact on the overarching FTF goal of reducing poverty and hunger. Thus, measurement of household income (through this proxy) is one logical choice for monitoring the effects of policies and programs oriented towards accomplishing this goal.

UNIT:

United States Dollar

Please enter these two data points:

1. Average per capita expenditures (in USD) of sample

2. Total population in zone of influence

DISAGGREGATE BY:

Gendered Household type: Adult Female no Adult Male (FNM), Adult Male no Adult Female (MNF), Male and Female Adults (M&F), Child No Adults (CNA)

TYPE:

Outcome

DIRECTION OF CHANGE:

Higher is better

DATA SOURCE:

Population-based surveys conducted by M&E contractor in the FTF zone of influence or UN for national level.

INDICATOR TITLE: Prevalence of underweight children under five years of age (R)

DEFINITION:

Underweight is a weight-for-age measurement. Underweight is a reflection of acute and/or chronic undernutrition. This indicator measures the percent of children 0-59 months who are underweight, as defined by a weight for age Z score < -2. Although different levels of severity of underweight can be measured, this indicator measures the prevalence of all underweight, i.e., both moderate and severe underweight combined.

The numerator for this indicator is the total number of children 0-59 months in the sample with a weight for age Z score < -2. The denominator is the total number of children 0-59 months in the sample with weight for age Z score data.

RATIONALE:

Reducing the prevalence of underweight children under five is the goal of the Feed the Future Initiative. The prevalence of underweight children is also an indicator to monitor the Millennium Development Goal 1.8 —Halving the number of people who are hungry. Monitoring the prevalence of underweight children 0-59 months therefore allows USAID and its partners to show the contribution of FTF programs to the Millennium Development Goal.

UNIT:	*DISAGGREGATE BY:*
1. Percent of children 0-59 months of age in the sample who are underweight	Sex: Male, Female
2. Total population of children 0-59 months of age in zone of influence	
TYPE:	*DIRECTION OF CHANGE:*
Impact	Lower is better

DATA SOURCE:

Population-based survey and official DHS data (see notes below).

INDICATOR TITLE: Prevalence of stunted children under five years of age (R

DEFINITION:

Stunting is a height-for-age measurement that is a reflection of chronic undernutrition. This indicator measures the percent of children 0-59 months who are stunted, as defined by a height for age Z score < -2. Although different levels of severity of stunting can be measured, this indicator measures the prevalence of all stunting, i.e., both moderate and severe stunting combined While stunting is difficult to measure in children 0-6 months and most stunting occurs in the -9-23 month range (1,000 days), this indicator data will still be reported for all children under 5 to capture the impact of interventions over time and to align with DHS data.

The numerator for this indicator is the total number of children 0-59 months in the sample with a height for age Z score < -2. The denominator is the total number of children 0-59 months in the sample with height for age Z score data

RATIONALE:

Stunted, wasted, and underweight children under five years of age are the three major nutritional indicators. Stunting is an indicator of linear growth retardation, most often due to prolonged exposure to an inadequate diet and poor health. Reducing the prevalence of stunting among children, particularly 0-23 months, is important because linear growth deficits accrued early in life are associated with cognitive impairments, poor educational performance, and decreased work productivity among adults. Better nutrition leads to increased cognitive and physical abilities, thus improving individual productivity in general, including improved agricultural productivity.

UNIT:	*DISAGGREGATE BY:*
1. Percent of children 0-59 month of age in the sample who are stunted	Sex: Male, Female
2. Total population of children 0-59 month of age in zone of influence	
TYPE:	*DIRECTION OF CHANGE:*
Impact	Lower is better

DATA SOURCE:

Population-based survey and official DHS data (see notes below).

INDICATOR TITLE: Prevalence of wasted children under five years of age (R)

DEFINITION:

This indicator measures the percent of children 0-59 months who are acutely malnourished, as defined by a weight for height Z score < -2. Although different levels of severity of wasting can be measured, this indicator measures the prevalence of all wasting, i.e., both moderate and severe wasting combined.

The numerator for the indicator is the total number of children 0-59 months in the sample with a weight for height Z score < -2. The denominator is the total number of children 0-59 months in the sample with weight for height Z score data.

RATIONALE:

Stunted, wasted, and underweight children under five years of age are the three major nutritional indicators. Wasting is an indicator of acute malnutrition. Children who are wasted are too thin for their height, and have a much greater risk of dying than children who are not wasted.

UNIT:	*DISAGGREGATE BY:*
1. Percent of children 0-59 months of age in the sample who are wasted	Sex: Male, Female
2. Total population of children 0-59 months of age in zone of influence	
TYPE:	*DIRECTION OF CHANGE:*
Impact	Lower is better

DATA SOURCE

Population-based survey and official DHS data (see notes below).

INDICATOR TITLE: Prevalence of underweight women (R)

DEFINITION:

This indicator measures the percent of non-pregnant women of reproductive age (15-49 years) who are underweight, as defined by a body mass index (BMI) < 18.5. To calculate an individual's BMI, weight and height data are needed: BMI = weight (in kg) height (in meters) squared.

The numerator for this indicator is the number of nonpregnant women 15-49 years in the sample with a BMI < 18.5. The denominator for this indicator is the number of nonpregnant women 15-49 years in the sample with BMI data.

RATIONALE:

This indicator provides information about the extent to which women's diets meet their caloric requirements. Adequate energy in the diet is necessary to support the continuing growth of adolescent girls and women's ability to provide optimal care for their children and participate fully in income generation activities. Undernutrition among women of reproductive age is associated with increased morbidity, poor food security, and can result in adverse birth outcomes in future pregnancies. Improvements in women's nutritional status are expected to improve women's work productivity, which may also have benefits for agricultural production, linking the two strategic objectives of FTF.

UNIT:	*DISAGGREGATE BY:*
1. Percent of women of reproductive age in the sample who are underweight	None
2. Total population of women of reproductive age in zone of influence	
TYPE:	*DIRECTION OF CHANGE:*
Impact	Lower is better

DATA SOURCE:

Population-based survey and official DHS data (see notes below).

INDICATOR TITLE: Women's Empowerment in Agriculture Index Score (R)

DEFINITION: The Women's Empowerment in Agriculture Index (WEAI) measures the empowerment, agency, and inclusion of women in the agriculture sector in an effort to identify and address the constraints that hinder women's full engagement in the agriculture sector. The WEAI is composed of two subindexes; the Five Domains of Empowerment subindex (5DE) measures the empowerment of women in five areas; and the Gender Parity subindex (GPI) measures the average level of equality in empowerment of men and women within the household. The WEAI is an aggregate index reported at the Zone of Influence level and is based on individual-level data on men and women within the same households and data on women living in households with no adult male.

The 5DE subindex assesses whether women are empowered across the five domains examined in the WEAI. Each domain is weighted equally, as are each of the indicators within a domain. The five domains, their definitions under the WEAI, the corresponding indicators, and their weights for the 5DE are:

Domain (each weighted 1/5 of 5DE subindex)	Definition of domain	Indicators	Weight of indicator in 5DE subindex
Production	Sole or joint decision-making over food and cash-crop farming, livestock, fisheries, and autonomy in agricultural production	Input in productive decisions	1/10
		Autonomy in production	1/10
Resources	Ownership, access to, and decision-making power over productive resources such as land, livestock, agricultural equipment, consumer durables, and credit	Ownership of assets	1/15
		Purchase, sale or transfer of assets	1/15
		Access to and decisions on credit	1/15
Income	Sole or joint control over income and expenditures	Control over use of income	1/5
Leadership	Membership in economic or social groups and comfort in speaking in public	Group member	1/10
		Speaking in public	1/10
Time	Allocation of time to productive and domestic tasks and satisfaction with the available time for leisure activities	Workload	1/10
		Leisure	1/10

The 5DE is a measure of empowerment rather than disempowerment. A woman is defined as empowered in the 5DE if she reaches the threshold of empowerment in 80 percent or more of the weighted indicators. For disempowered women, the 5DE also shows the percentage of indicators in which those women meet the threshold of empowerment. The 5DE contributes 90 percent of the weight to the WEAI.

The GPI reflects the percentage of women who are as empowered as the men in their households. It is a relative equality measure that demonstrates the equality in 5DE profiles between the primary adult male and female in each household. In most cases, these are husband and wife, but they can be the primary male and female decision-maker regardless of their relationship to each other. For households that have not achieved gender parity, the GPI shows the gap that needs to be closed for women to reach the same level of empowerment as men. By definition, households without a primary adult male are excluded from this measure, and thus the aggregate WEAI uses the mean GPI value of dual-adult households. The GPI contributes 10 percent of the weight to the WEAI.

The 5DE score ranges from zero to one, where higher values indicate greater empowerment. It is constructed using a robust multidimensional methodology known as the Alkire Foster Method (see http://www.ophi.org.uk/research/multidimensional-poverty/alkire-foster-method/ for information on the method). The score has two components. First, it reflects the percentage of women who are empowered (He). Second, it reflects the percentage of domains in which those women who are not yet empowered (Hn) still have adequate achievements (Aa).The 5DE formula is: 5DE = {He + (Hn x Aa)), where He + Hn= 100% and 0 <Aa< 100%.

The GPI also ranges from zero to one, with higher values indicating greater gender parity, and is constructed with two factors. First, it shows the percentage of women whose empowerment scores are lower than the men's in the household (HwgP). Second, the GPI shows the percentage shortfall in empowerment scores (IGPI) for those women who do not have gender parity. The overall formula is the product of these two numbers, following the Foster Greer Thorbecke —poverty gap measure: GPI = {1 − (Hwgp x IGPI)}.

The WEAI score is computed as a weighted sum of the Zone of Influence-level 5DE and the GPI. Thus, improvements in either the 5DE or GPI will increase the WEAI. The total WEAI score = 0.9{ He+ (Hn x Aa)} + 0.1{1 − (HGPI x IGPI)}.

RATIONALE:

Feed the Future supports the inclusion of poorer and more economically vulnerable populations in economic growth strategies in the agriculture sector in order to have a transformational effect on regional economies and restructure local production, distribution, and consumption patterns for long-term, sustainable development. Because women play a prominent role in agriculture and due to the persistent economic constraints they face, women's empowerment is a main focus of Feed the Future. Empowering women is particularly important to achieving the Feed the Future objective of inclusive agriculture sector growth. The WEAI was developed to track the change in women's empowerment levels that occurs as a direct or indirect result of interventions under Feed the Future.

UNIT:	*DISAGGREGATE BY:*
1. Score for 5DE subindex 2. Score for GPI subindex 3. Total population in Zone of Influence	Gendered Household type: Adult Female no Adult Male (FNM), Adult Male no Adult Female (MNF), Male and Female Adults (M&F), Child No Adults (CNA)
TYPE:	*DIRECTION OF CHANGE:*
Impact	Higher is better

DATA SOURCE:

Population-based surveys conducted by an M&E contractor in the FTF Zone of Influence.

INDICATOR TITLE: 3.1.9.1-3 and 4.7-4 Prevalence of households with moderate or severe hunger (RiA)

DEFINITION:

This indicator measures the percent of households experiencing moderate or severe hunger, as indicated by a score of 2 or more on the household hunger scale (HHS). To collect data for this indicator, respondents are asked about the frequency with which three events were experienced by household members in the last four weeks: 1. no food at all in the house; 2. went to bed hungry, 3. went all day and night without eating. For each question, four responses are possible (never, rarely, sometimes or often), which are collapsed into the follow three responses: never (value=0), rarely or sometimes (value=1), often (value=2). Values for the three questions are summed for each household, producing a HHS score ranging from 0 to 6.

The numerator for this indicator is the total number of households in the sample with a score of 2 or more on the HHS. The denominator is the total number of households in the sample with HHS data.

RATIONALE:

Measurement of household hunger provides a tool to monitor global progress of USG supported food security initiatives. A decrease in household hunger is also a reflection of improved household resilience. The indicator has been validated to be meaningful for cross-cultural use using data sets from seven diverse sites.

UNIT:	*DISAGGREGATE BY:*
1. Percent of households in sample with moderate to severe hunger	Gendered Household type: Adult Female no Adult Male (FNM), Adult Male no Adult Female (MNF), Male and Female Adults (M&F), Child No Adults (CNA)
2. Total population of households in zone of influence	
TYPE:	*DIRECTION OF CHANGE:*
Impact	Lower is better

DATA SOURCE:

Population-based survey and official DHS data (see notes below). USAID/W will work to get these HHS questions incorporated into the DHS in applicable countries. Then, the DHS will also be able to show this data at the national level.

INDICATOR TITLE: Prevalence of children 6-23 months receiving a minimum acceptable diet (RiA)

DEFINITION:

This indicator measures the proportion of children 6-23 months of age who receive a minimum acceptable diet (MAD), apart from breast milk. The MAD indicator measures both the minimum feeding frequency and minimum dietary diversity, as appropriate for various age groups. If a child meets the minimum feeding frequency and minimum dietary diversity for their age group and breastfeeding status, then they are considered to receive a MAD.

Tabulation of the indicator requires that data on breastfeeding, dietary diversity, number of semi-solid/solid feeds and number of milk feeds be collected for children 6-23 months the day preceding the survey. The indicator is calculated from the following two fractions:

Breastfed children 6-23 months of age in the sample who had at least the minimum dietary diversity and the minimum meal frequency during the previous day/Breastfed children 6-23 months of age in the sample with MAD component data and 2. Non-breastfed children 6-23 months of age who received at least 2 milk feedings and had at least the minimum dietary diversity not including milk feeds and the minimum meal frequency during the previous day/ Non-breastfed children 6-23 months of age in the sample with MAD component data.

Minimum dietary diversity for breastfed children 6-23 months is defined as four or more food groups out of the following 7 food groups (refer to the WHO IYCF operational guidance document cited below):

1. Grains, roots and tubers
2. Legumes and nuts
3. Dairy products (milk, yogurt, cheese)
4. Flesh foods (meat, fish, poultry and liver/organ meats)
5. Eggs
6. Vitamin-A rich fruits and vegetables
7. Other fruits and vegetables

Minimum meal frequency for breastfed children is defined as two or more feedings of solid, semi-solid, or soft food for children 6-8 months and three or more feedings of solid, semi-solid or soft food for children 9-23 months.

For the MAD indicator, minimum dietary diversity for non-breastfed children is defined as four or more food groups out of the following six food groups:

1. Grains, roots and tubers
2. Legumes and nuts
3. Flesh foods (meat, fish, poultry and liver/organ meats)
4. Eggs
5. Vitamin-A rich fruits and vegetables
6. Other fruits and vegetable

Minimum meal frequency for non-breastfed children is defined as four or more feedings of solid, semi-solid, soft food, or milk feeds for children 6-23 months. For non-breastfed children to receive a MAD, at least two of these feedings must be milk feed

RATIONALE: Appropriate feeding of children 6-23 months is multidimensional. The MAD indicator combines standards of dietary diversity (a proxy for nutrient density) and feeding frequency (a proxy for energy density) by breastfeeding status; and thus provides a useful way to track progress at simultaneously improving the key quality and quantity dimensions of children's diets

UNIT:	*DISAGGREGATE BY*
1. Percent of children 6-23 months in sample receiving a minimum acceptable diet	Sex: Male, Female
2. Total population of children 6-23 months in ZOI	

INDICATOR TITLE: 3.1.9.1-2 Women's Dietary Diversity: Mean number of food groups consumed by women of reproductive age (S)

DEFINITION:

This validated indicator aims to measure the micronutrient adequacy of the diet and reports the mean number of food groups consumed in the previous day by women of reproductive age (15-49 years). To calculate this indicator, nine food groups are used:

1. Grains, roots and tubers; 2. Legumes and nuts; 3. Dairy products (milk, yogurt, cheese); 4. Organ meat; 5. Eggs;

6. Flesh foods and other misc. small animal protein; 7. Vitamin A dark green leafy vegetables; 8. Other Vitamin A rich vegetables and fruits; 9. Other fruits and vegetables

The *Mean number of food groups consumed by women of reproductive age* indicator is tabulated by averaging the number of food groups consumed (out of the nine food groups above) across all women of reproductive age in the sample with data on dietary diversity.

RATIONALE:

Women of reproductive age are at risk for multiple micronutrient deficiencies, which can jeopardize their health and ability to care for their children and participate in income generating activities. Maternal micronutrient deficiencies during lactation can directly impact child growth and development but the potential consequences of maternal micronutrient deficiencies are especially severe during pregnancy, when there is the greatest opportunity for nutrient deficiencies to cause long term, irreversible development consequences for the child in-utero. Dietary diversity (assessed here as the number of food groups consumed) is a key dimension of a high quality diet with adequate micronutrient content; and thus, important to ensuring the health and nutrition of both women and their children.

UNIT:

Number

1. Mean number of food groups consumed by women 15-49 years in the sample

2. Total population of women of reproductive age (15-49 years) in zone of influence

DISAGGREGATE BY:

Location: Urban, Rural

TYPE:

Outcome

DIRECTION OF CHANGE:

Higher is better

DATA SOURCE:

Population-based survey and official DHS data (see notes below).

INDICATOR TITLE: 3.1.9-4 and 3.1.9.1-4 Prevalence of exclusive breastfeeding of children under six months of age (RiA)

DEFINITION:

This indicator measures the percent of children 0-5 months of age who were exclusively breastfed during the day preceding the survey. Exclusive breastfeeding means that the infant received breast milk (including milk expressed or from a wet nurse) and may have received ORS, vitamins, minerals and/or medicines, but did not receive any other food or liquid.

The numerator for this indicator is the total number of children 0-5 months in the sample exclusively breastfed on the day and night preceding the survey. The denominator is the total number of children 0-5 months in the sample with exclusive breastfeeding data.

RATIONALE:

Exclusive breastfeeding for 6 months provides children with significant health and nutrition benefits, including protection from gastrointestinal infections and reduced risk of mortality, due to infectious disease.

UNIT:

Please enter these two data points:

1. Percent of children 0-5 months of age in sample who are exclusively breastfed

2. Total population of children 0-5 months of age in zone of influence

DISAGGREGATE BY:

Sex: Male, Female

TYPE: OUTPUT/OUTCOME

Outcome

DIRECTION OF CHANGE:

Higher is better

DATA SOURCE:

Population-based survey and official DHS data (see notes below).