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Integrated Natural Resource Management (INRM)

HEARTH Monitoring and Evaluation Toolkit: *Food Security and Nutrition*

APRIL 2022

Integrated Natural Resource Management (INRM)

Sound management of natural resources is central to long-term development and resilience. Faced with an urgent need to reduce environmental degradation while improving human well-being, solutions that effectively integrate investments in natural resource management with economic and social development are increasingly urgent. INRM promotes integrated programming across environment and non-environment sectors and across the Program Cycle. INRM supports USAID to amplify program impacts, strengthen gender equality and social inclusion, and identify best practices for integration.

For more information:

<https://land-links.org/project/integrated-natural-resource-management-inrm-activity/>

Date of Publication:	April 2022
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Front Cover photo:	Local markets provide for wants and needs. Being able to purchase rice, fish, and other goods is a primary driver of the need for cash and desire to be involved in enterprise projects. Puerto Princesa, Palawan, Philippines. Photograph by Jason Houston for USAID.

This document was produced for review by the United States Agency for International Development under the Strengthening Tenure and Resource Rights II (STARR II) IDIQ contract number 7200AA20F00010.

The authors' views expressed in this publication do not necessarily reflect the views of the United States Agency for International Development or the United States Government.

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Acronyms

DHS	Demographic and Health Surveys
FAO	Food and Agriculture Organization
FIES	Food Insecurity Experience Scale
FTF	Feed the Future
HEARTH	Health, Ecosystems, and Agriculture for Resilient Thriving Societies
IP	Implementing Partner
MAD	Minimum Acceptable Diet
MDD-W	Minimum Dietary Diversity – Women’s
MERL	Monitoring, Evaluation, Research, and Learning
STARR II	Strengthening Tenure and Resource Rights II
UNICEF	United Nation’s Children’s Fund
USAID	United States Agency for International Development
USG	United States Government
WHO	World Health Organization
ZOI	Zone of Influence

Overview

Together, Health, Ecosystems, and Agriculture for Resilient Thriving Societies (HEARTH) and INRM have created the HEARTH Monitoring and Evaluation Toolkit, a suite of indicators and guidance that will help United States Agency for International Development (USAID) Missions and implementing partners (IPs) monitor progress and aggregate common metrics to build the evidence base around the effectiveness of integrated strategic approaches. This document is an individual module from the toolkit, presented separately to facilitate use by individual HEARTH activities. Before using this module, we recommend first accessing the full toolkit and reviewing the list of sectors covered by each module, and determining which are most relevant for your activity:

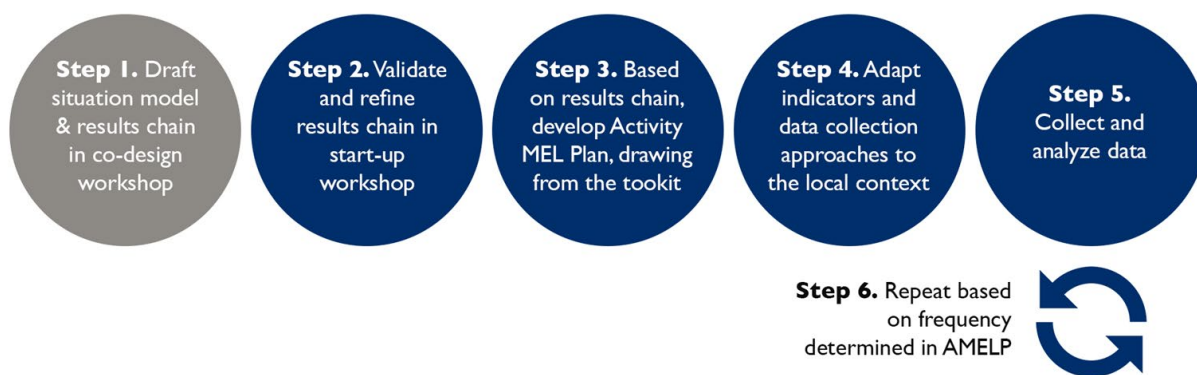
[Access Full Toolkit on Biodiversity Links Here.](#)

How To Use This Toolkit

This toolkit presents a **menu of options** for outcomes and recommended indicators across the HEARTH activities. Before using this toolkit, activities should have developed a robust theory of change – through first drafting their situation model and results chains during the co-design workshops, many of which have been completed already, and then validating and refining those results chains during start-up workshops.

Based on the activity theory of change, HEARTHS should develop their Activity Monitoring, Evaluation, Research, and Learning (MERL) Plan, which should draw directly from the toolkit. It is not expected that all outcomes or indicators will be relevant for all activities, but that activities should select those in line with their results chains and activity theory of change. Additionally, there might be activity-specific outcomes not included in this toolkit because they were not generally applicable across the HEARTH portfolio, and Missions and IPs should therefore include additional indicators in their MERL plans, as relevant.

When developing activity MERL plans, the indicators in this toolkit are intended to be used both to **standardize reporting for monitoring data, as well as a basis for evaluation data collection**. While monitoring trends in these indicators over time may be important for some activities, USAID anticipates that Missions and IPs will also identify important questions about the causal impact of their activities during the start-up activities, best answered using evaluation approaches. Which indicators will be part of monitoring systems, and which will be used to answer evaluation questions, will affect how the toolkit is operationalized. In addition, it is expected that MERL plans will likely include **qualitative data sources**, important to further explaining monitoring and evaluation results and exploring learning questions in more depth, in addition to the quantitative data collected using the approaches from the toolkit.



Indicator Guidance and Core Household Questionnaire

This document contains guidance for defining and collecting data for each of the recommended indicators for Missions and IPs, including Performance Indicator Reference Sheets throughout. This guidance draws heavily on established best practices, such as the Demographic and Health Surveys (DHS) and Feed the Future programs. In addition to this guidance, INRM developed a core questionnaire to provide a basis for household surveys to facilitate ease of take-up. It should be emphasized that it is important for Missions and IPs to adapt the questionnaire to their local country context – which might include adding/removing answer choice options, updating question text or translations, etc. Areas where edits for local context are typically required are identified in the tool and following guidance. The full toolkit includes additional guidance on respondent identification and inclusion of household rosters, as well as more in-depth discussions on sampling approaches, data collection administration and frequency, data management, privacy, and ethics, which should be considered.

Outcomes and Indicators for Food Security and Nutrition

Table 1: Overview of Outcomes and Recommended Indicators for the Food Security and Nutrition Sector

Outcomes	HEARTH Portfolio Indicators
Increased dietary diversity	<ul style="list-style-type: none"> • Percent of women of reproductive age consuming a diet of minimum diversity (MDD-W)
Improved household food security	<ul style="list-style-type: none"> • Percent of households experiencing moderate and severe food insecurity, based on the Food Insecurity Experience Scale (FIES)
Improved children’s dietary intake	<ul style="list-style-type: none"> • Percent of children 6-23 months receiving a minimum acceptable diet (MAD)
Reduction of potential exposure to zoonotic diseases	<ul style="list-style-type: none"> • Percent of households consuming high-risk wild meat in the past year

Food Security and Nutrition

Pathways to Change

There are several pathways through which HEARTH activities might impact food security, diets, and nutrition. To achieve impact, HEARTH activities must be intentional in designing strategies and interventions and in measuring outcomes to improve diets and nutrition. For example, nutrient adequacy and caloric availability might be increased due to increased incomes used to buy more healthy food varieties, as well as increased agricultural productivity, used to grow a greater variety of healthy foods. Changes in food sources (i.e., cultivated, bought, or wild caught/gathered) may also impact the varieties of food consumed and overall access to food. It is recommended that both food security and changes in diets are measured as both types of information are necessary to understand impact. While collecting dietary data can be expensive and time-consuming, USAID is supportive of methods such as the Diet Quality Questionnaire that reduce the burdens of data collection.¹ Access to food, as well as increases in variety and quality of food consumed are expected to ultimately reduce women and children’s exposure to inadequate diet and poor health/malnutrition in both the short and long term. Ideally, HEARTH activities should measure both food security and diet outcomes.

Recommended Outcomes and Indicators

Outcome	Description	Recommended Indicator & Duration
Increased dietary diversity	The minimum dietary diversity of women (MDD-W) is a validated proxy indicator for the quality of the diet for women of reproductive age (15 - 49 years). Dietary diversity is a key characteristic of a high-quality diet with adequate micronutrient content and is thus important to ensuring the health and nutrition of both women and their children. Research has validated that women of reproductive age that consume foods from five or more of the 10 food groups in the MDD-W indicator are more likely to consume a diet higher in micronutrient adequacy	<p>Indicator: Percent of women of reproductive age consuming a diet of minimum diversity (MDD-W)</p> <p>Source: FTF Indicator EG.3.3-10 [IM-level] Percent of female participants of United States Government (USG) nutrition-sensitive</p>

¹ Herforth, A., Martínez-Steele, E., Calixto, G., Sattamini, I., Olarte, D., Ballard, T., and Monteiro, C. (2019). Development of a diet quality questionnaire for improved measurement of dietary diversity and other diet quality indicators (P13-018-19). Current Developments in Nutrition, 3(Supplement_1). <https://doi.org/10.1093/cdn/nzz036.p13-018-19>

Outcome	Description	Recommended Indicator & Duration
	<p>than women consuming foods from fewer than five of these food groups.²</p> <p>Women’s dietary diversity (based on the response of one woman of reproductive age in the household) is recommended rather than household dietary diversity (1) to maintain consistency with Feed The Future (FTF) data collection, (2) to increase accuracy (by having one woman report on the food she ate, rather than asking a respondent about household members generally, or extrapolating from one individual to the household), and (3) because research indicates that MDD-W is more appropriate than household dietary diversity for measuring nutrient adequacy.³</p>	<p>agriculture activities consuming a diet of minimum diversity; HL 9.1-d [Zone of Influence (ZOI)-level] Percent of women of reproductive age consuming a diet of minimum diversity⁴</p> <p>Duration: 5-10 minutes</p>
Improved household food security	<p>The Food Insecurity Experience Scale (FIES)⁵ was developed by the Food and Agriculture Organization of the United Nations (FAO) and estimates the probability that a household is either moderately or severely food insecure. It captures lack of access due to money and other resources.</p> <p>Most existing food insecurity indicators focus on potential consequences of food insecurity (e.g., nutrition outcomes), adequacy of diet (food consumption scores, dietary diversity), or physical experience and behavior (e.g., household hunger scale). The food insecurity prevalence based on FIES measures the access dimension of food security based on households’ psychological and behavioral</p>	<p>Indicator: Percent of households experiencing moderate and severe food insecurity, based on the FIES</p> <p>Source: FTF Indicator EG-e [ZOI-level] Prevalence of moderate and severe food insecurity in the</p>

² “Introducing the Minimum Dietary Diversity – Women (MDD-W) Global Dietary Diversity Indicator for Women.” fao.org. Food and Agriculture Organization of the United Nations, July 2014. <http://www.fao.org/nutrition/assessment/tools/minimum-dietary-diversity-women/zh/>.

³ Tufts University, Boston, MA. “Household Dietary Diversity Score (HDDS).” Data4Diets: Building Blocks for Diet-related Food Security Analysis | INDDEx Project. International Dietary Data Expansion Project, 2018. <https://index.nutrition.tufts.edu/data4diets/indicator/household-dietary-diversity-score-hdds>.

⁴ MacCartee, Julie, and Katie West. “Feed the Future Indicator Handbook.” Agrilinks. Feed the Future, March 23, 2018. <https://agrilinks.org/post/feed-future-indicator-handbook>.

⁵ Food and Agriculture Organization of the United Nations (FAO). “Food Insecurity Experience Scale (FIES)”. Policy Support and Governance Gateway. 2018. <https://www.fao.org/policy-support/tools-and-publications/resources-details/en/c/1236494/>.

Outcome	Description	Recommended Indicator & Duration
	<p>experience with accessing food in the desired quantity, quality, and continuity. The FIES was developed to complement existing food and nutrition indicators; hence, when used in combination with other existing indicators, it will offer a more comprehensive understanding of causes and consequences of food insecurity. The analytic treatment of the data through the Rasch model based on sound statistical methods allows for testing the quality of the data with respect to their validity and reliability and ensures that the indicator estimates are comparable across cultural and socio-economic contexts.</p> <p>Although this guidance provides detailed instructions and additional resources to simplify calculation of FIES, because of the statistical methods used, it does require a slightly higher level of experience or training to calculate relative to other food security indicators.</p>	<p>household based on the FIES⁶</p> <p>Duration: 3 minutes</p>
Improved children’s dietary intake	<p>World Health Organization (WHO) guiding principles on feeding the breastfed child and the non-breastfed child recommend that children aged 6–23 months be fed meals at an appropriate frequency and in a sufficient variety to ensure, respectively, that energy and nutrient needs are met.⁷ This indicator combines information on minimum dietary diversity and minimum meal frequency, with the extra requirement that non-breastfed children should have received milk at least twice on the previous day. Thus, it provides a useful way to track progress at simultaneously improving the key quality and quantity dimensions of children’s diets.</p>	<p>Indicator: Percent of children 6 - 23 months receiving a minimum acceptable diet (MAD)</p> <p>Source: FTF Indicator HL.91-a [Zone of Influence (ZO)I-level] Percent of children 6-23 months receiving a minimum acceptable diet⁸</p>

⁶ MacCartee, Julie, and Katie West. “Feed the Future Indicator Handbook.” Agrilinks. Feed the Future, March 23, 2018. <https://agrilinks.org/post/feed-future-indicator-handbook>.

⁷ World Health Organization and the United Nations Children’s Fund (UNICEF). “Indicators for assessing infant and young child feeding practices: definitions and measurement methods.” 2021. <https://data.unicef.org/resources/indicators-for-assessing-infant-and-young-child-feeding-practices/>.

⁸ MacCartee, Julie, and Katie West. “Feed the Future Indicator Handbook.” Agrilinks. Feed the Future, March 23, 2018. <https://agrilinks.org/post/feed-future-indicator-handbook>.

Outcome	Description	Recommended Indicator & Duration
		Duration: 5 minutes per child under two years
Reduction of potential exposure to zoonotic diseases	Given the COVID-19 global zoonotic pandemic, USAID is interested in measuring whether HEARTH programs reduce pressure on, and consumption of, endangered or high-risk wildlife, especially wildlife that could harbor zoonotic diseases. Respondents will be asked if anyone in their household has eaten wild meat from a select list of species over the past year, with follow-up questions on the frequency of consumption and source. The list of animals would be adapted for each country's context, and a subset of wild animals would be identified as high-risk by the HEARTH activity.	Indicator: Percent of households consuming high-risk wild meat in the past year week Source: N/A Duration: 1 minute

Performance Indicator Reference Sheets

INDICATOR TITLE:	Percent of women of reproductive age consuming a diet of MDD W
<p>APPLICABILITY:</p> <p>This indicator is applicable for HEARTH activities that have explicit consumption, diet quality, or other nutrition-related objectives and/or outcomes. Use of this indicator is encouraged for activities that are inherently nutrition-sensitive (e.g., resulting in improved women's empowerment, control over income, etc.) but that do not necessarily have explicit objectives related to consumption.</p> <p>The MDD-W is a prevalence indicator, which reflects the percent of a population of interest that is above or below a defined threshold (in this case, women who are consuming a diet of minimum diversity). Prevalence indicators are intuitive and understandable to a broad audience of stakeholders, and MDD-W will be useful for reporting and describing progress toward improved nutrition for women.</p>	
<p>DEFINITION:</p> <p>A woman of reproductive age is defined as a woman 15 - 49 years of age, consistent with FTF and FAO guidance. However, the age range of responding women can be broadened if a HEARTH intervention targets a different age group.</p> <p>This indicator captures the percent of women of reproductive age who are consuming a diet of minimum diversity. A woman of reproductive age is considered to consume a diet of minimum diversity if she consumed at least five of 10 specific food groups during the previous day and night.⁹ The 10 food groups included in the MDD-W indicator are:</p> <ol style="list-style-type: none"> 1. Grains, white roots and tubers, and plantains 2. Pulses (beans, peas, and lentils) 3. Nuts and seeds¹⁰ (including groundnuts) 4. Dairy 	

⁹ For additional detail on collecting and analyzing the minimum dietary diversity indicator, please see the 2021 update to FAO's Minimum Dietary Diversity for Women guide. (FAO. "Minimum Dietary Diversity for Women: An Updated Guide to Measurement from Collection to Action." 2021. Rome. <https://doi.org/10.4060/cb3434en>.)

¹⁰ "Seeds" in the botanical sense includes a very broad range of items, including grains and pulses. However, seeds are used here in a culinary sense to refer to a limited number of seeds, excluding grains or pulses, which are typically high in fat content and are consumed as a substantial ingredient in local dishes or eaten as a substantial snack or side dish. Examples include squash/melon/gourd seeds used as a main ingredient in West African stews and sesame seed paste (tahini) in some dishes in Middle Eastern cuisines.

INDICATOR TITLE:	Percent of women of reproductive age consuming a diet of MDD W
<ol style="list-style-type: none"> 5. Meat, poultry, and fish 6. Eggs 7. Dark leafy green vegetables 8. Other vitamin A-rich fruits and vegetables 9. Other vegetables 10. Other fruits <p>It is a food group diversity indicator that reflects one key dimension of diet quality – micronutrient adequacy – summarized across 11 micronutrients: vitamin A, thiamine, riboflavin, niacin, vitamin B-6, folate, vitamin B-12, vitamin C, calcium, iron and zinc.</p> <p>Assuming that data for this indicator are collected through a participant-based sample survey, the numerator is the sample-weighted number of women 15 - 49 years of age who consumed 5 out of 10 food groups during the previous day and night. The denominator is the sample-weighted number of women 15 - 49 years of age with food group data.</p> <p>Note: Using the data collected for this indicator, activities may wish to create an additional indicator measuring the average number of food groups consumed by women of reproductive age. This will allow managers to better understand progress made under this indicator and would be especially useful in situations where dietary diversity is very low at baseline.</p>	
<p>DATA COLLECTION:</p> <p>Data on women’s dietary diversity should be collected by asking the respondent to recall all foods and drinks that she consumed yesterday (during the day and/or night), whether she consumed these items at home or anywhere else. All foods and drinks, snacks, or small meals, should be included as well as main meals. HEARTH recommends an open-recall method, whereby the respondent should be prompted to think about what she ate/drank when she first woke up, later in the morning, mid-day, during the afternoon, in the evening, and before going to bed or during the night.</p> <p>As the respondent recalls foods, the enumerator should select the food groups, as relevant. A list of 23 food groups is provided in the core questionnaire, along with space to write any other foods eaten (to be classified later). If the respondent mentions mixed dishes like a porridge, sauce, or stew, she should be probed for the ingredients. If foods are used in small amounts for seasoning or as a condiment, they should be included under the condiment food group. For any food groups not mentioned, the enumerator should probe and confirm that no food from that food group was consumed yesterday.</p> <p>Data should be collected annually at the same time of year since the indicator will likely display considerable seasonal variability. If possible, data should be collected at the time of year when</p>	

INDICATOR TITLE:	Percent of women of reproductive age consuming a diet of MDD W
<p>diversity is likely to be the lowest to best capture improvements in year-round consumption of a diverse diet. However, HEARTH recognizes that data for this indicator may be collected in the postharvest/sale period when data for other indicators, such as crop yields, are collected. In this case, the indicator value may reflect a best-case scenario in terms of access to a quality and diverse diet by female participants.</p> <p>In addition to the standard MDD-W indicator questions, follow-up questions have been added regarding the food source for food groups likely to be wild caught or gathered; fish, leafy greens, fruit, roots/tubers, or grubs/insects. Note that wild animal meat/organs are already measured separately from domestic animal meat/organs, so no follow-up questions related to food source are required. These questions will help determine the extent to which wild caught or gathered foods contribute to MDD-W.</p> <p>Although the standard MDD-W module is recommended, HEARTHs may consider using the Diet Quality Questionnaire (DQ-Q)¹¹ as an alternative data collection approach when dietary diversity is a less central outcome or there is not enough survey time to complete the full MDD-W module. The DQ-Q is a list-based survey module that can be used to rapidly collect dietary data. The tool includes binary yes/no questions about consumption of 29 unique food groups, including both healthy foods and less healthy foods. The DQ-Q takes about five minutes to administer and does not require implementers to have nutrition expertise or specialized training. Population-level data obtained from the DQ-Q tool can be used to calculate numerous diet quality indicators, including MDD-W.¹²</p>	
<p>ADAPTATION:</p> <p>Ensure country-specific food items are added to the existing food groups. The food groups themselves should not be edited, but the specific items within each food group should be adapted to the local conditions. The FAO MDD-W Guide to Measurement¹³ has details for adapting the food groups, and HEARTH activities may seek input from a nutrition specialist as needed to properly allocate country-specific food items to their respective food groups. If activities would like to collect data about target foods, these items may be disaggregated and asked about in a new question that is independent from, but adjacent to, the food group it would otherwise belong to.</p>	

¹¹ Herforth et al., 2019. "Development of a Diet Quality Questionnaire for Improved Measurement of Dietary Diversity and Other Diet Quality Indicators." *Current Developments in Nutrition*, Volume 3, Issue Supplement_1.

¹² Vogliano, Chris. "Measuring Healthy Diets to Advance Nutrition Globally Using the Diet Quality Questionnaire." *AgriLinks. Feed the Future*, Nov 02, 2021. <https://agrilinks.org/post/measuring-healthy-diets-advance-nutrition-globally-using-diet-quality-questionnaire>.

¹³ FAO. "Minimum Dietary Diversity for Women: An Updated Guide to Measurement from Collection to Action." 2021. Rome. <https://doi.org/10.4060/cb3434en>.

INDICATOR TITLE:		Percent of women of reproductive age consuming a diet of MDD W
<p>For example: QEx1: Foods made from soy or soy products; QEx2: Foods made from other kinds of beans, peas, or lentils [add any local names]?</p> <p>Additional food groups that might be of specific interest to HEARTH activities include insects and small protein foods, and wild foods and neglected and underutilized species (for a full list, please see the FAO MDD-W Guide to Measurement).</p>		
UNIT: Percent	DISAGGREGATE BY: Age Category: <19; 19+ years Type of food sources	
TYPE: Outcome	DIRECTION OF CHANGE: Higher is better	
MEASUREMENT NOTES		
INTENDED RESPONDENT:	<p>Women of reproductive age from sample households. This should ideally be the primary adult female decision-maker in the household (to streamline data collection), but if this person is not of reproductive age, another adult female in the household of reproductive age may be used for reporting. In that case, ideally the respondent would be randomly selected among eligible women in the household.</p>	
REPORTING NOTES		
<p>In addition to reporting the percent value, the number of participant households of the nutrition-sensitive activity must be reported, to allow a weighted average percent to be calculated across HEARTH activities for reporting. Additionally, activities should report on the total sample size (including any disaggregation for participant households vs. comparison/control households if an evaluation is being conducted).</p>		

INDICATOR TITLE: Percent of households experiencing moderate and severe food insecurity, based on the Food Insecurity Experience Scale (FIES)

DEFINITION:

The indicator measures the percentage of households that experienced food insecurity at moderate and severe levels during the 12 months prior to data collection. The severity of the experience of food insecurity is defined as a measurable latent trait (a characteristic that is not directly observable, but can be measured indirectly, for example by taking into account behavioral and psychological experiences, in this case around food insecurity). It is measured through the FIES, a measurement scale established by FAO. The indicator is based on an estimation of the probability that each household belongs to a specific category of food insecurity severity (moderate and severe), as determined by the household's position on the scale.¹⁴

The inability to access food results in a series of experiences and conditions that are common across cultures and socio-economic contexts. These experiences range from being concerned about the possibility of obtaining enough food, to the need to compromise on the quality or the diversity of food consumed, to being forced to reduce the intake of food by reducing portion sizes or skipping meals, to the extreme condition of feeling hungry and not having the means (money or other resources) to access food. The new FIES global indicator for measuring food insecurity (access) is calculated from answers to a set of eight questions that covers a range of severity of food insecurity.¹⁵ The questions refer to difficulty in accessing food due to lack of money or other resources and reflect the food-related behavior and experiences of the household. The questions are as follows:

1. During the past 12 months, was there a time when you or others in your household were worried you would not have enough food to eat because of a lack of money or other resources?
2. During the past 12 months, was there a time when you or others in your household were unable to eat healthy and nutritious food because of a lack of money or other resources?
3. During the past 12 months, was there a time when you or others in your household ate only a few kinds of foods because of lack of money or other resources?
4. During the past 12 months, was there a time when you or others in your household had to skip a meal because there was not enough money or other resources to get food?
5. During the past 12 months, was there a time when you or others in your household ate less than you thought you should because of a lack of money or other resources?

¹⁴ Technical resources, including the datasets and the FIES statistical program, are available at the FAO's Voices of the Hungry website (<http://www.fao.org/in-action/voices-of-the-hungry/fies/en/>). An e-learning course that provides guidance on the collection and analysis of data, and on how the information provided by the FIES can be used to inform and guide policy, is also available: "SDG Indicator 2.1.2 - Using the Food Insecurity Experience Scale (FIES)." FAO Elearning Academy. Food and Agriculture Organization of The United States, 2020. <https://elearning.fao.org/course/view.php?id=360>.

¹⁵ For detailed definition and background, refer to FAO's Voices of the Hungry paper, Methods for Estimating Comparable Prevalence Rates of Food Insecurity Experienced by Adults throughout the World: Rep. Voices of the Hungry Technical Report. Food and Agriculture Organization of The United States, August 2016. <https://www.fao.org/3/i4830e/i4830e.pdf>.

INDICATOR TITLE: Percent of households experiencing moderate and severe food insecurity, based on the Food Insecurity Experience Scale (FIES)

6. During the past 12 months, was there a time when your household did not have food because of a lack of money or other resources?
7. During the past 12 months, was there a time when you or others in your household were hungry but did not eat because there was not enough money or other resources for food?
8. During the past 12 months, was there a time when you or others in your household went without eating for a whole day because of a lack of money or other resources?

The response categories for each of the questions include 'Yes (1),' 'No (0),' and 'Refused.' Cases with 'Refused' are excluded from the analysis.

The prevalence of food insecurity is calculated using the one-parameter logistic model, also known as the Rasch model, which is the simplest formulation for an Item Response Theory-based model.¹⁶ The Rasch model assumes that households' responses to each of the eight binary questions (0/1) are conditionally independent (meaning that the only statistical link between them is the fact that all of them contribute to measure only one and the same food insecurity latent trait), and that each question has the same discrimination power with respect to food insecurity severity. Based on these assumptions, the model uses conditional maximum likelihood procedures to generate estimates of both the questions' and households' severity parameters.¹⁷ Provided the data are consistent with the Rasch model assumption, the estimated household severity parameters are defined on a continuous, interval-level scale of the severity of food insecurity (latent trait). An interval scale is one where the difference between points on the scale is measurable and consistent.

Households are assigned to categories of severity after statistically determining appropriate thresholds that define the categories. Based on the application of the FIES in more than 140 countries in 2014 - 2016, FAO has suggested cross-nationally comparable thresholds that correspond to the severity level of the 5th question "Ate less than should" (to separate "mild" from "moderate" levels of severity) and of the 8th question "Did not eat for a whole day" (to separate "moderate" from "severe" levels) for global monitoring purposes. Adopting these thresholds (after adjusting the country's metric to make the country-specific scale's severity parameters comparable to the global standard scale and thus to other Feed the Future target countries), households with a sample-weighted sum of the probabilities of being between the severity level of the 5th item on the FIES global reference scale (adjusted on the country's metric) and the 7th item, are assigned to the "moderate" category of food insecurity. Households with a

¹⁶ For details about item response theory in the context of food security measurement, refer to Introduction to Item Response Theory Applied to Food Security Measurement: "Introduction to Item Response Theory Applied to Food Security Measurement - Basic Concepts, Parameters and Statistics." Voices of the Hungry. Food and Agriculture Organization of The United States, 2014. <https://www.fao.org/3/i3946e/i3946e.pdf>.

¹⁷ *ibid*

INDICATOR TITLE: Percent of households experiencing moderate and severe food insecurity, based on the Food Insecurity Experience Scale (FIES)

sample-weighted sum of the probabilities of being greater than or equal to the severity level of the 8th item on the FIES global reference scale (adjusted on the country’s metric) are assigned to the “severe” food insecurity category.¹⁸

Note: The documentation referenced here provides detailed instructions and templates for calculation of the FIES. However, the calculation does require at least a moderate degree of familiarity with statistical data analysis and at least a basic familiarity with the R statistical programming language (or more advanced understanding of other software, although the guidance and templates are provided in R).

ADAPTATION: N/A

UNIT: Percent	DISAGGREGATE BY: Level of Severity: Moderate, Severe
TYPE: Impact	DIRECTION OF CHANGE: Lower is better

MEASUREMENT NOTES

INTENDED RESPONDENT:	Primary adult decision-maker responsible for meal planning and/or food preparation from sample households.
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REPORTING NOTES

In addition to reporting the percent value, the number of participant households of the nutrition-sensitive activity must be reported, to allow a weighted average percent to be calculated across HEARTH activities for reporting. Additionally, activities should report on the total sample size (including any disaggregation for participant households vs. comparison/control households if an evaluation is being conducted).

¹⁸ The 5th item refers to the question, “In the past 12 months, did you eat less than you thought you should?”, and the 8th item refers to the question “In the past 12 months, did you go a whole day without eating?” on the global reference scale developed by FAO’s Voices of the Hungry project. Note: The severity threshold for moderate to severe food insecurity has been recently updated from the 4th to the 5th item by FAO. The key resource document from the FAO, titled “The Food Insecurity Experience Scale-Development of a Global Standard for Monitoring Hunger Worldwide”, has not been revised yet.

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

DEFINITION:

This indicator measures the percent of children 6-23 months of age who receive a minimum acceptable diet (MAD). The “minimum acceptable diet” indicator measures both the minimum feeding frequency and minimum dietary diversity, as appropriate for various age groups. If children meet the minimum feeding frequency and minimum dietary diversity for their respective age group and breastfeeding status (i.e., there is an extra requirement that non-breastfed children should have received milk at least twice on the previous day) then they are considered to receive a minimum acceptable diet.

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 and night preceding the survey. The indicator is calculated as follows:

Numerator: children 6–23 months of age who consumed a minimum acceptable diet during the previous day. The minimum acceptable diet is defined as:

- Breastfed children: receiving at least the minimum dietary diversity and minimum meal frequency for their age during the previous day;
- Non-breastfed children: receiving at least the minimum dietary diversity and minimum meal frequency for their age during the previous day as well as at least two milk feeds.

Denominator: children 6–23 months of age.

Minimum dietary diversity for children 6-23 months is defined as five or more food groups out of the following 8 food groups (refer to the WHO IYCF operational guidance document cited below):

- 1) Breast milk
- 2) Grains, roots, tubers, and plantains
- 3) Pulses (beans, peas, lentils), nuts, and seeds
- 4) Dairy products (milk, infant formula, yogurt, cheese)
- 5) Flesh foods (meat, fish, poultry, and liver/organ meats)
- 6) Eggs
- 7) Vitamin-A rich fruits and vegetables
- 8) 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.

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

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 minimum adequate diet, at least one of the four feeds must be a solid, semi-solid, or soft feed.

For more detailed guidance on how to collect and tabulate this indicator, refer to the WHO document: Indicators for assessing infant and young child feeding practices.¹⁹

DATA COLLECTION:

For all children under two, a question is first asked whether the child was breastfed yesterday during the day or at night (including a follow-up question if at first the answer is no, to clarify other ways that babies might be fed breast milk, including by spoon or bottle, or by another woman). Babies are counted as being breastfed if the answer to either question is yes.

Additional questions include asking about consuming infant formula, other milk (e.g., tinned, powdered, or fresh animal milk), yogurt, or thin porridge yesterday during the day or at night.

Finally, caregivers are asked to recall all other foods and drinks that each child consumed yesterday during the day or night. This should include all foods and drinks, any snacks, or small meals, as well as any main meals. The following table from the WHO guidance²⁰ has the categorization of each type of food into the main food groups used to construct the dietary diversity component of the indicator:

Food Group	Variables
Breast milk	Q4: Was [NAME] breastfed yesterday during the day or at night? (Asked separately, not as part of open recall or list-based recall)
Grains, roots, and tubers	Q7B: Porridge, bread, rice, noodles, pasta or [insert other commonly consumed grains, including foods made from grains like rice dishes, noodle dishes, etc.]

¹⁹ World Health Organization and the United Nations Children’s Fund (UNICEF). “Indicators for assessing infant and young child feeding practices: definitions and measurement methods.” 2021. <https://data.unicef.org/resources/indicators-for-assessing-infant-and-young-child-feeding-practices/>.

²⁰ ibid

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

	Q7D: Plantains, white potatoes, white yams, manioc, cassava, or [insert other commonly consumed starchy tubers or starchy tuberous roots that are white or pale inside]
Legumes and nuts	Q7N: Beans, peas, lentils, nuts or [insert commonly consumed foods made from beans, peas, lentils, nuts, or seeds]
Dairy products	Q6B: Infant formula such as [insert local names of common formula] Q6C: Milk from animals such as fresh, tinned or powdered milk Q6D: Yogurt drinks such as [insert local names of common types of yogurt drinks] Q7A: Yogurt, other than yogurt drinks Q7O: Hard or soft cheese such as [insert commonly consumed types of cheese]
Flesh foods	Q7I: Liver, kidney, heart or [insert other commonly consumed organ meats] Q7J: Sausages, hot dogs, ham, bacon, salami, canned meat or [insert other commonly consumed processed meats] Q7K: Any other meat such as beef, pork, lamb, goat, chicken, duck or [insert other commonly consumed meat] Q7M: Fresh or dried fish or shellfish
Eggs	Q7L: Eggs
Vitamin A-rich fruits and vegetables	Q7C: Pumpkin, carrots, sweet red peppers, squash or sweet potatoes that are yellow or orange inside? [any additions to this list should meet "Criteria for defining foods and liquids as 'sources' of vitamin A"] Q7E: Dark green leafy vegetables such as [insert commonly consumed vitamin A-rich dark green leafy vegetables] Q7G: Ripe mangoes, ripe papayas or [insert other commonly consumed vitamin A-rich fruits]

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

Other fruits and vegetables	<p>Q7H: Any other fruits such as [insert commonly consumed fruits]</p> <p>Q7F: Any other vegetables such as [insert commonly consumed vegetables]</p>
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To calculate meal frequency, first the number of total milk feeds must be calculated (which is the sum of the number of times yesterday that the child consumed any formula, milk, or yogurt). Then, to calculate the total number of feeds (milk + food), the number of soft, solid, or semi-solid food feeds yesterday should be added.

For more details on this indicator construction and data collection, please see the WHO guidelines.²¹

ADAPTATION:

Country-specific adaptation may be relevant for the food groups as part of the minimum dietary diversity component.

<p>UNIT:</p> <p>Percent</p>	<p>DISAGGREGATE BY:</p> <p>Sex: Male, Female</p> <p>Age: 6-8 months; 9-23 months</p>
<p>TYPE:</p> <p>Outcome</p>	<p>DIRECTION OF CHANGE:</p> <p>Higher is better</p>

MEASUREMENT NOTES

<p>INTENDED RESPONDENT:</p>	<p>Dietary information should be collected from the primary caregiver of each child under two from sample households.</p>
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²¹ ibid

INDICATOR TITLE: Percent of children 6 23 months receiving a minimum acceptable diet (MAD)

REPORTING NOTES

In addition to reporting the percent value, the total number of children under two from participant households and the total number of participant households of the nutrition-sensitive activity must be reported, to allow a weighted average percent to be calculated across HEARTH activities for reporting. Additionally, activities should report on the total sample size (including any disaggregation for participant households vs. comparison/control households if an evaluation is being conducted).

INDICATOR TITLE:	Percent of households consuming high risk wild meat in the past year
<p>APPLICABILITY:</p> <p>Consumption of wild meat has been an increasing focus in development programming because of its important role in food security and nutrition, but also because of its intersection with both conservation and zoonosis. For these reasons, we recommend this indicator be tracked by all HEARTHs, not just those that specifically target wild meat consumption.</p>	
<p>DEFINITION:</p> <p>Wild meat is defined by the FAO as <i>terrestrial animal wildlife used for food</i>. This excludes both marine and freshwater animals (although these can be included by HEARTHs if specific marine or freshwater species are identified as important) and livestock. It includes wild meat that is purchased, received as a gift, or directly collected (hunted, trapped, etc.).</p>	
<p>DATA COLLECTION:</p> <p>Respondents will be asked if anyone in their household has eaten wild meat from a list of species over the past year (Q1). Species included should be those at high-risk for transmission of zoonotic disease, which may include bats, primates, rodents, and/or ungulates as appropriate for the local context. In addition, HEARTH activities may choose to include species that are of particular interest for conservation and/or illegal poaching. Households will be counted in this indicator if they report consuming any of the targeted high-risk wild meats over the last year (consumption of species of conservation importance can be reported separately).</p> <p>For each species that respondents select, follow-up questions will be asked regarding how frequently they consume wild meat from that species (Q2), and from which sources (Q3). Frequency of consumption should include the following answer choices: daily; weekly; every other week; monthly; every other month; every 3-4 months; every 5-6 months; yearly. Sources should be adapted to the local context but should include the following: purchased – cooked/cured; purchased – raw; wild caught; traded goods/services/barter; borrowed; gift. Differentiating between meat purchased already cooked/cured compared to raw will help determine additional exposure related to handling (rather than just consumption).</p> <p>In some contexts, wild meat consumption may be illegal or considered taboo, so respondents may be likely to under-report. If this is a particular concern for a HEARTH activity, and especially if that activity has a focus on wild meat, we recommend considering one of a handful of approaches that seek to generate more accurate estimates of illicit behavior through anonymization techniques. These include randomized response and unmatched count/lists. In these approaches, the response of the individual is masked/hidden, but the prevalence of the population can be</p>	

INDICATOR TITLE:		Percent of households consuming high risk wild meat in the past year
<p>estimated. There is a growing literature on these approaches, including on when they are most useful. A good starting point is Harriet Ibbett, Julia P.G. Jones, and Freya A.V. St John “Asking sensitive questions in conservation using Randomized Response Techniques” (2021).²²</p>		
<p><i>ADAPTATION:</i> HEARTHs should identify the list of important species to ask about. While this should include species of importance from either a conservation or a zoonosis perspective, only species with zoonotic importance should be counted in this indicator as high-risk (consumption of species of conservation importance can be reported in a separate indicator).</p> <p>In addition, HEARTHs should adapt the list of wild food sources as appropriate for their local context. Finally, HEARTHs should determine if more detailed questions on wild meat consumption are required.</p>		
<p>UNIT:</p> <p>Percent</p>	<p>DISAGGREGATE BY:</p> <p>N/A</p>	
<p>TYPE:</p> <p>Impact</p>	<p>DIRECTION OF CHANGE:</p> <p>Lower is better</p>	
MEASUREMENT NOTES		
<p>INTENDED RESPONDENT:</p>	<p>Primary adult decision-maker responsible for meal planning and/or food preparation from sample households.</p>	
REPORTING NOTES		
<p>In addition to reporting the percent value, the number of participant households of the HEARTH activity must be reported, to allow a weighted average percent to be calculated across HEARTH activities for reporting. Additionally, activities should report on the total sample size (including any disaggregation for participant households vs. comparison/control households if an evaluation is being conducted).</p>		

²² Ibbett, H., Jones, J. P. G., and St John, F. A. V. (2021). Asking sensitive questions in conservation using randomized response techniques. *Biological Conservation*, 260, 109191. <https://doi.org/10.1016/j.biocon.2021.109191>