



Secondary Data Analysis Work Assignment

Project Objectives: The purpose of this study is to use secondary data to inform the targeting and design strategy for multi-year resilience food and nutrition security programming in the Democratic Republic of the Congo (DRC).

The study will use the UNICEF Multiple Indicator Cluster Survey (MICS) 2017-2018, Round 6 (“MICS6”) survey datasets for DRC to identify the characteristics of children and households who are vulnerable to food insecurity. In addition, the study will identify associated factors and predictors of poor performance on key food security indicators (e.g., poverty, stunting, wasting) in sub-national areas, statistically valid at the level of each province for South Kivu, Tanganyika, Kasai, Kasai Central, and Kasai Oriental. Please see Appendix A of the UNICEF MICS6 DRC Final Report for a discussion on the sampling strategy employed to support this degree of statistical validity.

Budget: This work assignment will be funded with Title II non-emergency funding. The anticipated budget ceiling for this assignment is \$89,900.

Background: USAID’s Resilience Focus Countries represent a significant and ongoing caseload of humanitarian need to the United States Agency for International Development. Poverty, droughts, natural disasters, conflict, and economic crises have historically been large drivers of food insecurity. BHA’s activities seek to mitigate this caseload through resilience programming that targets households and communities vulnerable to food insecurity, poverty, malnutrition, and disasters. Food security-- a key objective of BHA programming-- is a complex problem with myriad direct and underlying drivers that span many sectors and contextual factors. To potentially narrow the scope and improve the focus of such programming, there is a need at the design stage to identify populations and sectors to prioritize and interventions to consider. To address this need, this study will utilize the publicly available UNICEF MICS6 datasets for DRC to build regression models consisting of key food security indicators (e.g., stunting, wasting, poverty, dietary diversity) and other variables that have a theoretical, data-driven, or hypothesis-driven rationale for their influence on key food security outcomes. The models will help identify characteristics of the people and households most in need of intervention. Results from these analyses will inform and refine appropriate targeting and household selection criteria and strategies. Further, these results will assist with understanding the factors most strongly associated with key food security variables, which may also inform recommendations for improving the effectiveness of intervention strategies.

BHA will publicly post the report summarizing results from the regression analyses alongside the associated procurement documents (e.g., the Desk Review and Market Study, the Political Economy Analysis, and the Request for Application) so that potential applicants can use the results to better inform their understanding of context, and of key demographic profile and sectoral themes relevant to food

security, poverty, and resilience in target geographies¹ of the targeted countries. More broadly, we expect the results from this study will contribute to the BHA and USAID goals of improving the quality and impact of food security programming in these countries, saving lives, and reducing the need for humanitarian assistance.

Research Questions:

1. What are the characteristics of households and individuals with high levels of poverty, food insecurity, poor diet or access to food, and high levels of acute and chronic malnutrition for each of the targeted provinces? Overarching categories of characteristics for examination should include, but not necessarily be limited to: demographics, livelihood/ assets and other economic characteristics, access to resources and services (e.g., healthcare, WASH), home and school environment, child and adult behaviors; safety and security). The demographics of interest should include, but not be limited to: household size, household composition/type, household dependency ratio, household and individual age distribution; and individual and maternal age for nutrition indicators. See below for a list of the key indicators and specific populations of interest:
 - Poverty - Indicators of interest include wealth score, economic well-being, household possessions and assets, mean depth of poverty and prevalence of poverty. Populations of interest include households, women, or men who rank in the lowest quintile of the measurement.
 - Acute Malnutrition - The indicators of interest include weight for height (i.e., wasting), minimum acceptable diet, dietary diversity, and meal frequency. Populations of interest include children between the ages of 6 and 59 months that are categorized with a weight for height z-score of -2 or less.
 - Chronic Malnutrition - Indicators of interest include height for age (i.e., stunting) and weight for age (i.e., underweight). Populations of interest include children between the ages of 6 and 59 months that are categorized with a z-score of -2 or less for these two indicators.

The research team will at their discretion select the specific variables within each of the overarching categories listed above representing characteristics to include in regression models. The team may also at their discretion select variables from some of the other MICS6 datasets beyond the childrens' and household datasets (e.g., women; men) as appropriate to test stated hypotheses. The overarching categories of characteristics listed above are provided as a general guide with the expectation that decisions about the variables to include in analyses will be made based on relevant theory and background literature, when available. Because some of these populations and variables may be understudied and thus literature may be lacking, characteristics may also be selected based on hypothesized relations between variables.

2. How do the characteristics of households and individuals with high levels of poverty and high levels of acute and chronic malnutrition vary geographically across each of the targeted provinces? The populations, indicators, and characteristics of interest are the same as described in question 1.
3. How do the characteristics of households and individuals (as described in question 1) with high levels of poverty, food insecurity, poor diet or access to food, and high levels of acute and chronic malnutrition for each of the targeted provinces compare to household and individuals for those indicators that are not target populations (by quintile or that are above -2 z score for acute

¹ For illustrative purposes, these are referred to as 'provinces' in the subsequent research questions.

malnutrition and chronic malnutrition)? The populations and indicators of interest are the same as described in question 1.

4. Based on results of statistical inference modeling (e.g., OLS, logistic, multivariate, etc.), what characteristics are significantly associated with high levels of poverty, poor diet or food insecurity, and high levels of acute and chronic malnutrition in each of the targeted provinces? What additional insights can these results provide, beyond the current state of the literature and beyond the specific research questions provided above, to better understand the associations between potential predictors (characteristics) and the outcomes (key indicators)? The populations and indicators of interest are the same as described in question 1.

Data Source: The UNICEF MICS 6 (2017-18) datasets for DRC are publicly available via request through UNICEF at <https://mics.unicef.org/surveys>.

Research Methods:

- A review of the literature will be conducted.
- Data extraction and cleaning of the relevant UNICEF MICS6 datasets containing the key variables (listed above), variables selected from the overarching categories (also listed above), and additional variables deemed appropriate for inclusion based on hypothesized relations between variables. In addition, based on results from the initial regression models, additional regression models may be created for further exploration, which may necessitate the inclusion of additional variables above and beyond those listed above.
- Data analysis using appropriate methods. BHA is open to input from the data analyst(s) on appropriate methods, but the following general methods are anticipated:
 - Regression modeling in R, Stata or another software that is generally available and would lend itself to repeating this process and code in the future. The data analyst will be expected to work with BHA technical representatives to specify these models.
- A narrative description of the results of data analyses.
- Data visualization in a Tableau dashboard (with end product being cleared for public release with RFA)
- Collaborative spatial mapping of the data, indicators, etc.
- An executive summary will provide a high-level written narrative description of the entire report.
- The report will include a list of references consulted and relevant annexes/appendices describing the research methodology as appropriate. Separate annexes will contain results for each of the 5 provinces.

Deliverables:

Deliverable	Submission/Delivery Date
Background Literature Review	Two weeks from the approval of the work assignment proposal
Data Cleaning and Analysis Plan	Three weeks from the approval of the work assignment proposal
Draft Data Analysis Report	Three weeks from the approval of the Data Cleaning and Analysis Plan.

Draft Data Analysis Report Presentation	Two weeks from the approval of the Data Cleaning and Analysis Plan.
Tableau database/data visualization product	Three weeks from the approval of the Data Cleaning and Analysis Plan.
Final, cleaned data file(s), in English, and coding language	One week from the receipt of USAID feedback on the draft Data Analysis Report.
Revised Draft Data Analysis Report	One week from the receipt of USAID feedback on the draft Data Analysis Report.

1. Data Cleaning and Analysis Plan - This plan will describe the planned strategies, principles, steps, resources and timelines associated with cleaning and analyzing the dataset. USAID/BHA will provide any feedback within two weeks of submission.
2. Draft Data Analysis Report - One stand-alone report not to exceed 60 pages with the following structure:
 - Executive Summary - A two-page summary of significant findings and considerations relevant to the activity design.
 - Background Literature Review - A narrative background section containing citations of the peer-reviewed scientific and relevant literature will describe the nature and context of the key variables, target populations, and their known and unknown relations to the characteristics being examined.
 - Methodology - A description and presentation of the evaluation questions, objectives, statistical analysis strategy, limitations, etc.
 - Results Annexes - A separate Annex for each province containing a compilation of figures, tables, maps, etc., with an accompanying narrative addressing the aforementioned research questions, organized by research question or unit of analysis (i.e., indicator). USAID/BHA will provide any feedback within three weeks of submission.
3. Draft Data Analysis Report Presentation - A virtual (e.g., Google Meet; Adobe Connect) presentation of the findings from the Data Analysis Report. The purpose is to allow USAID/BHA to ask clarifying questions related to providing feedback for the report and inform design strategy and activities.
4. Tableau database/data visualization product - The product must include a JPEG or PDF version of the dashboard and the accompanying Tableau database/data visualization product
5. Final, cleaned data file(s) and a codebook or data dictionary that describes each variable in the dataset, including descriptions, methodology used for calculations, ranges, type of variable (e.g., binary, string, categorical), and any other relevant information needed to use the dataset for subsequent analyses.
6. Revised Data Analysis Reports - Revised version of the previously described data analysis report, which incorporates feedback provided by USAID/BHA. USAID/BHA will provide any feedback

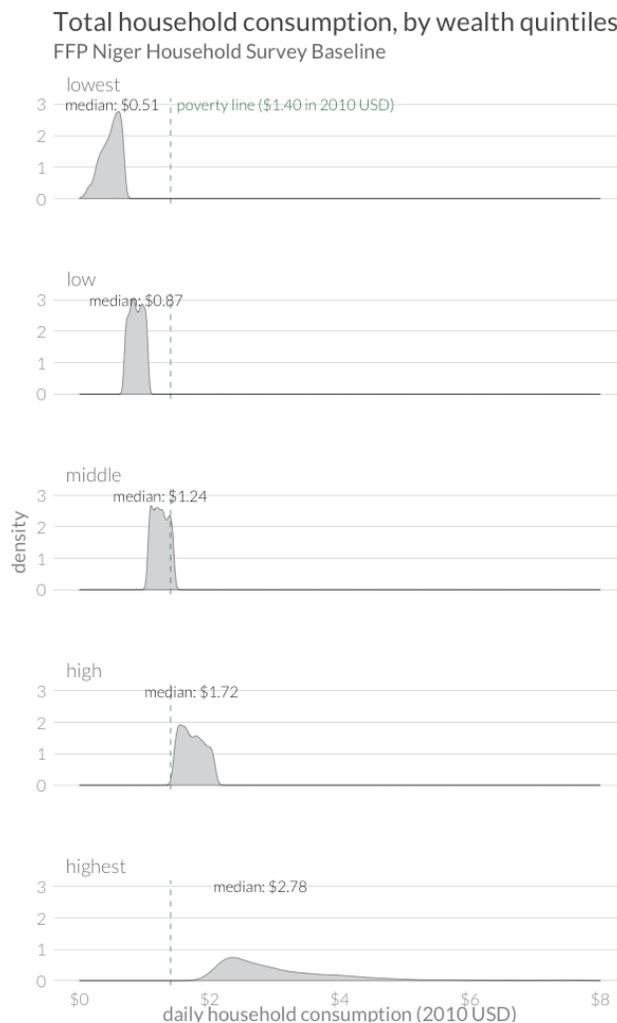
on the Draft Data Analysis Report (deliverable number 3, above) within two weeks of submission.

Example Report from a Prior Data Analysis Project for Zimbabwe:

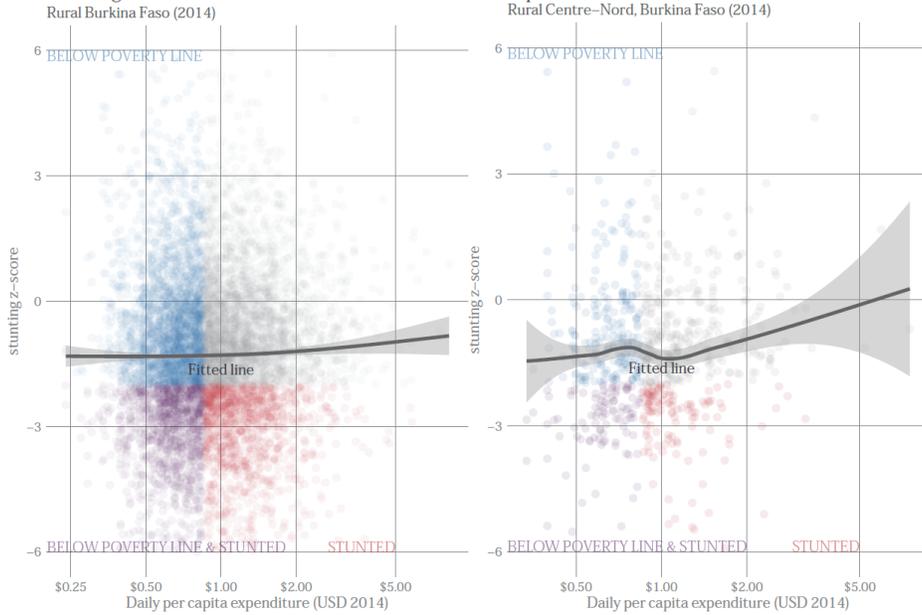
BHA will provide an example report for a similar data analysis project for the Zimbabwe portfolio in 2020 (the Food Security Analyses based on the 2015 Demographic Health Survey for Masvingo is accessible here: <https://www.rtachesn.org/resources/zimbabwe-market-and-food-security-analysis/>). Note that the particular goal for the analysis was different in this context, but many elements of the report structure are similar. In addition, note that the DRC SOW requires repetitions of the same analyses for each of the provinces.

Illustrative Examples from a Prior Data Analysis Project for Niger:

Example figures are from a regression analysis that was performed for the BHA Niger portfolio in 2020. Note that the particular goal of the analysis was different in this context, but the overall goal and modeling methods are relevant to the current data project. These figures are provided as examples of the types of data visualizations that should accompany the Data Analysis Report.



Stunting values show little variation with household expenditures



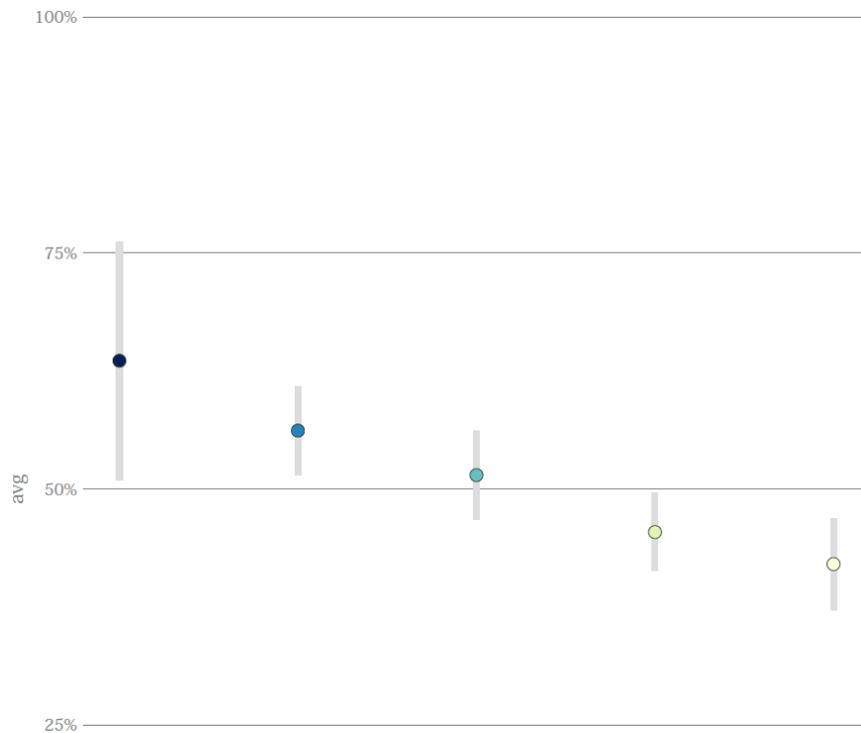
GEOCENTER

SOURCE: Burkina Enquête Multisectorielle Continue 2014

geocenter@usaid.gov

Improved water access within 30 minutes by asset quintile

Rural Burkina Faso, 2014



Households with access to improved water sources within 30 minutes increases with consumption
Rural Zinder, Niger (2012)

