
National Nutrition and Health

Survey Protocol,

Nigeria, 2015

SMART Methods

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I. Justification

The Federal Government of Nigeria (FGON) has agreed a 500 million USD credit with World Bank (WB) for a Program for Result (PforR) to support the “Saving One Million Lives (SOML)” initiative. The SOML initiative was launched in October 2012 with the main objective to save one million lives by 2015. However, the FGON has extended the SOML initiative for five years as part of the National Strategic Health Development Plan (NSHDP), 2016-2020. The objective of the PforR is to increase the utilization of high impact reproductive health and, child health and nutrition interventions in the country. The PforR will disburse funds to states based on results, not inputs, using set disbursement linked indicators (DLIs). The grant will use six indicators identified as key to strengthen the overall health system in the country. The indicators include; DPT3/Penta3 coverage, Vitamin A coverage, HIV testing during ANC, skilled birth attendant, modern contraceptive prevalence rate and use of mosquito nets.

The National Strategic Plan of Action for Nutrition (NSPAN), 2014-2019 highlighted the need to strengthen the Nutrition Information System (NIS) in the country. Among others, conducting surveys on regular basis is one of the plans to achieve this objective.

These underlines the need to assess the situation of children and women in the areas of health and nutrition and generate data on indicators linked to disbursement to decide on the amount of funds to be allocated to the states within the country.

National Bureau of Statistics (NBS) and National Population Commission (NPopC) have been conducting surveys including Multiple Indicator Cluster Survey (MICS) and Demographic Health Surveys (DHS) every 4 to 5 years at national level. Though these surveys are useful, the frequency of these surveys will not help to monitor programs on regular basis.

Hence, a sound data collection system that can generate reliable information on annual basis has a vital importance. For this reason, a cross-sectional National Nutrition and Health Survey (NNHS) using SMART method was proposed to be conducted on annual basis. Additionally, the data will be used to triangulate other source of data including program data for decision making process in the country. This is the second round survey aimed to provide reliable data for planning and monitoring of key indicators at national level.

The result from this survey can also be used as a data collection tool to generate data for monitoring the progress towards national goals and global commitments aimed at national level.

2. Survey Objectives

The objectives of the survey are:

- Determine the prevalence of acute malnutrition among children 6 to 59 months of age using WHZ, MUAC and bilateral oedema,
- Determine the prevalence of wasting, chronic malnutrition, underweight and overweight among children 0 to 59 months of age,
- Determine the prevalence of acute malnutrition among women 15 to 49 years of age using MUAC,
- To assess the prevalence of diarrhea and use of ORS and zinc among children under-five years two weeks preceding the survey,
- Estimate coverage of vitamin A supplementation and deworming among children 6 to 59 and 12 to 59 months of age respectively within the last six months,
- Determine the coverage of DPT3/Penta3 and measles immunization among children 12-23 months of age,
- Determine the proportion of under five children with Acute Respiratory Infection (ARI) symptoms and proportion of children with fever received treatment,
- Determine the ownership and universal access of mosquito nets, and utilization of mosquito nets by children 0-59 months,
- Assess the practice of skilled birth attendants, contraceptive prevalence rate and antenatal care coverage among women 15 to 49 years,
- Determine the proportion of women 15 – 49 years received HIV testing and intermittent preventive treatment during antenatal care, and
- Determine the proportion of households reached by MNCHW in the last six months and its mode of delivery.

3. Methodology

3.1. Study Design

The survey is designed as a cross-sectional household survey using a two stage cluster sampling representative at the state level.

With the aim to provide data for planning and monitoring health and nutrition programs, the existing administrative structure (states) will be used as a survey domain. Nigeria is administratively divided into 36 states and one federal capital territory (FCT). All the 36 states and one FCT found in country constitute the domains. The domains used by MICS and DHS are similar to the one this survey plan to use. This allows further comparison of results from this survey.

Table I: Estimated population by survey domain

S.N	Survey Domain	Estimated Population (2015)
1	Abia	3,601,917
2	Adamawa	4,097,674
3	Akwa Ibom	5,296,561
4	Anambra	5,361,982
5	Bauchi	6,318,333
6	Bayelsa	2,203,151
7	Benue	5,505,156
8	Borno	5,608,643
9	Cross River	3,736,636
10	Delta	5,441,651
11	Ebonyi	2,786,749
12	Edo	4,090,391
13	Ekiti	3,138,144
14	Enugu	4,250,035
15	FCT	3,128,383
16	Gombe	3,125,370
17	Imo	5,224,574
18	Jigawa	5,624,614
19	Kaduna	7,915,487
20	Kano	12,568,289
21	Katsina	7,558,000
22	Kebbi	4,262,742
23	Kogi	4,277,682
24	Kwara	3,093,733
25	Lagos	11,967,746
26	Nasarawa	2,431,151
27	Niger	5,337,149
28	Ogun	4,993,329
29	Ondo	4,489,756
30	Osun	4,545,609
31	Oyo	7,554,750
32	Plateau	4,040,035
33	Rivers	7,005,951
34	Sokoto	4,823,745
35	Taraba	2,949,614
36	Yobe	3,164,090
37	Zamfara	4,328,270
	Total	185,847,096

Source: Projected Population 2015 based on 2006 census conducted by National Population Commission (NPopC)

3.2. Sample Design

The sample for the 2015 NNHS will be nationally representative and covers the entire population residing in non-institutional dwelling units in the country. The survey will use the list of Enumeration Areas (EAs) prepared for the 2006 Population Census as a sampling frame. Administratively Nigeria is divided into states and each state is subdivided into Local Government Areas (LGAs), and each LGA is divided into localities. In addition to these administrative units, during the 2006 population census, each locality was subdivided into census EAs. The primary sampling unit (PSU), referred to as a cluster in this survey, is defined on the basis of EAs from the 2006 EA census frame. The 2015 NNHS sample will be selected using a two-stage cluster design as described below.

3.2.1. First stage sampling procedure: cluster selection

The PSU (clusters) for each state will be drawn independently from the national master sample frame with the support from National Population Commission. The master sample that includes the complete list of Enumeration Areas (EA) with estimated population size from the 2006 Nigeria Population and Housing Census will be used. The PSU (clusters) will be randomly selected according to the probability proportional to size (PPS) method.

3.2.2. Second stage sampling procedure: household selection

The second stage of sampling consists of selecting households within each cluster by using systematic random selection. The team leader will be responsible to determine the total number of households in the cluster by conducting household listing through detailed enumeration of the selected cluster with a support from the community leader. This will serve as the sampling frame for the selection of households. The team leader will enter the total number of households onto the tablet and sampling interval will be automatically displayed on the tablet. The sampling interval is calculated by dividing the total number of households in the cluster by the number of households to be interviewed. A random number table will be used to randomly select a start number, between 1 and the sampling interval, to identify the first household. The sampling interval will be used to identify all following households to be included in the survey.

3.3. Sample size determination

The formula for calculating the sample size is given by

$$n = \frac{[t^2 (p) (1-p) (deff) (1.05)]}{[(d)^2 (pc) (hz)]}$$

Where;

n = required sample size, expressed as number of households, for the KEY indicator,

t = is a factor to achieve 95% confidence interval

p= is the estimated value of the indicator /expected prevalence

1.05=factor necessary to raise the sample size by 5 % for non-response

deff = design effect

d= relative desired precision

pc= proportion of children under five years, and

hz= average household size (that is, average number of persons per household).

In order to be able to estimate most of the indicators with reasonable precision, the sample size for the survey is calculated using a prevalence of Global Acute Malnutrition (GAM) based on children age 6-59 months. Indicators with narrow age range; 6-23 months will be estimated with reasonable precision for each survey domain. However, indicator with narrower age group and very low prevalence such as treatment of children with ARI and Malaria will be estimated at zonal level by pooling the data from the survey domain within each zone.

Table 2: parameters and source used for sample size calculation

Parameters	Estimation and Source
Estimated prevalence of Global Acute Malnutrition (GAM)	10%* (NNHS 2014)
Precision	3.5%
Design effect for WHZ	1.6 (NNHS 2014)
Number of children to be included	492
Average number of persons per household	4.2 (NNHS 2014)
Percent of under five children in total population	20% (NNHS 2014)
Percent of non-response households	5%
Number of Households to be included	684

*The prevalence of GAM was reported at 8.7% in NNHS 2014. Given the period that this survey will be conducted, hunger period, unlike the survey conducted in post-harvest in 2014 the prevalence of GAM is expected to increase.

3.3. Planning

Taking the time the team needs for household listing, household selection, interview and travel to the EAs into account, it was determined to complete 22 households by a team per cluster per day, which resulted in selection of 32 clusters per survey domain (state). Accordingly, a total of 1,184 clusters will be selected for the survey. This results in selection of 26,048 households across the country.

Table 3: Planned number of clusters and households per state

S.N	Survey Domain	Number of cluster	Household per Cluster	Number of Households
1	Abia	32	22	704
2	Adamawa	32	22	704
3	Akwa Ibom	32	22	704
4	Anambra	32	22	704
5	Bauchi	32	22	704
6	Bayelsa	32	22	704
7	Benue	32	22	704
8	Borno	32	22	704
9	Cross River	32	22	704
10	Delta	32	22	704
11	Ebonyi	32	22	704
12	Edo	32	22	704
13	Ekiti	32	22	704
14	Enugu	32	22	704
15	FCT	32	22	704
16	Gombe	32	22	704
17	Imo	32	22	704
18	Jigawa	32	22	704
19	Kaduna	32	22	704
20	Kano	32	22	704
21	Katsina	32	22	704
22	Kebbi	32	22	704
23	Kogi	32	22	704
24	Kwara	32	22	704
25	Lagos	32	22	704
26	Nasarawa	32	22	704
27	Niger	32	22	704
28	Ogun	32	22	704
29	Ondo	32	22	704
30	Osun	32	22	704
31	Oyo	32	22	704
32	Plateau	32	22	704
33	Rivers	32	22	704
34	Sokoto	32	22	704
35	Taraba	32	22	704
36	Yobe	32	22	704
37	Zamfara	32	22	704
Total		1,184		26,048

4. Survey Indicators

The following indicators are proposed to be included in the survey:

- Nutrition

Acute malnutrition among children age 6-59 months; wasting, underweight, chronic malnutrition and overweight among children age 0-59 months; and acute malnutrition among women age 15-49 years.

- Child health and immunization;

DTP3/Penta3 and measles coverage among children age 12-23 months; proportion of children under five who have fever, Acute Respiratory Infection (ARI), diarrhea and received an ACT, an antibiotics, and ORS and zinc respectively.

- Malaria

Household mosquito net ownership, universal coverage of mosquito net and utilization of mosquito net by under-five children and intermittent preventive treatment

- Reproductive Health

Skilled birth attendance, Antenatal Care (ANC) coverage and contraceptive prevalence rate.

- HIV

HIV testing during Antenatal Care (ANC)

- MNCHW

MNCHW coverage and, Vitamin A and deworming coverage among children 6-59 and 12-59 months respectively

Please refer to Annex I for detailed list of indicators and its definition with numerator and denominators.

5. Survey Personnel

1.1. Recruitment and team organization

The National Bureau of Statistics (NBS) together with National Population Commission (NPopC) and Federal Ministry of Health (FMOH) will identify 121 people to be involved in the survey. Of the 121 individuals, 112 will constitute the survey team and 9 individuals will remain as a standby to replace individuals who may not be able to continue working for the whole period of data collection for different reasons. Of the 112 individuals, 90 of them will constitute 30 survey teams (3 per team: 1 team leader and 2 measurers), 10 supervisors, 1 national coordinator, 1 assistant national coordinator, 3 training coordinators, 2 technical coordinators and 5 regional coordinators. Please refer to figure 1 for details of the structure of the survey team. Please refer to section 8 for detailed role and responsibilities.

The candidates will be selected based on their experience in surveys and language skills in order to interview the respondents in their native language as much as possible. English language ability is required for all team members.

A minimum of 2 enumerators per team should be a female and should wear culturally appropriate clothes. In some parts of the country, it is recommended to have all the 3 survey team members to be female in order not to be refused to undertake the work by the household as men are not allowed to enter household to measure children and women.

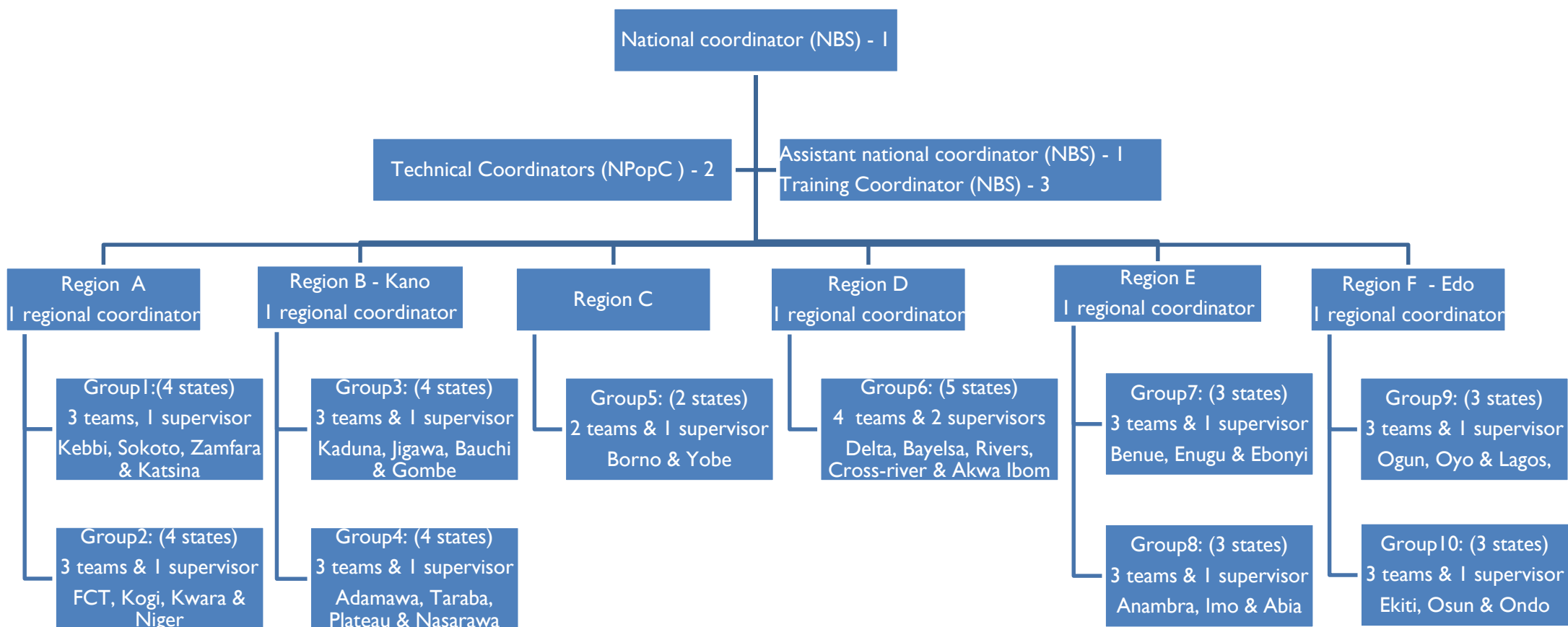


Figure 1: Structure of the survey team

6. Training

The interviewer's training will start on 22nd of June and will be conducted in 3 rounds, 5 days each in different parts of the country. The training will include the following:

- An overview of the survey and its objectives, as well as a brief introduction to SMART methods
- Interviewing and general communication skills
- Systematic random selection of households and segmentation
- Identification of individuals to measure or interview
- How to complete the questionnaires using tablets
- Correct age estimation in months or validation using the calendar of local events
- How to make correct anthropometric measurements.
- The standardization of anthropometric measures: Each measurer will have to measure 10 children less than five years of age twice (height, weight and MUAC). The results of the standardization test by interviewer will be produced immediately to determine if further training and standardization is needed.
- The identification of bilateral oedema and how to refer children with Severe Acute Malnutrition to the nearest health facility with treatment of Severe Acute Malnutrition (SAM)
- A pilot test will be conducted before the commencement of data collection. This will be used as an opportunity to assess the tools and evaluate the actual data collection process before deployment of the teams. Feedbacks from the pilot test will be discussed and addressed before actual data collection.

7. Fieldwork Plan

The data collection exercise will take 8 weeks, from July to August 2015. The enumerators for the survey will be assessed during the training and continually throughout the data collection period. Only those teams who are consistently producing high quality data will be retained. If the data quality of a team is found to be unacceptable, their employment will end immediately.

Fieldwork will be undertaken with a minimum of 3 teams, except in Borno and Yobe, where only 2 teams will be deployed. The small number of team per group will allow the supervision teams to provide effective support by reviewing the skills and implementation of all data collection process during entire period.

Detailed state level fieldwork plan will be created to visit the most remote selected enumeration areas within the state first. This will avoid the missing of selected clusters in the state due to inaccessibility from rain or impassable roads.

The team constitutes of experienced and senior staffs from National Bureau of Statistics, National Population Commission and Federal Ministry of Health. UNICEF will provide technical support and supportive supervision to the team.

8. Data Collection and Supervision

Galaxy tab 4 7.0” will be used to collect data in the field. The data will automatically be sent to central server using 3G internet connection. Once, the data is received it will be automatically analysed for key quality checks and results will be displayed on the dashboard created for this purpose. This will serve as the basis for communication between the coordinator and the rest of the survey teams during entire data collection period.

Prior to the start of the data collection phase of the survey, the selected LGA authorities will be informed about the survey in order to communicate with the community that the data collection will take place in the area. This will help to gain support from the officials and the community during the data collection. As indicated above, teams generally consist of 3 persons, one team leader and two measurers, and each team has its own vehicle and is accompanied by a driver.

The supervisor is in overall charge of a group. A group consists of 2 to 4 teams that cover on average 4 states by travelling from one state to the other (figure 1). He/she is responsible for the daily organization and supervision of the team’s work. He/she assigns work to the team members, responsible for logistic arrangements and where possible also helps the team in locating accommodation. Additionally, he/she is also responsible for checking the quality of the interview by observing the interview and anthropometric measurements.

The regional coordinators are responsible to support supervisors to ensure that all necessary arrangements are made before the arrival of the team to states and provide other support based on need. They also support the daily activities of the team based on feedback received from survey coordinators using data that will be sent to the central server on daily basis. The regional coordinator in collaboration with the survey coordinators should identify and support the team that needs more support thereby to improve the overall quality of the survey.

The survey teams will start fieldwork in the same location following training in order to make supervision of all teams by senior survey staff possible during the time that supervision is most needed. The survey teams will be assigned to areas taking into account their local languages skills and other requirements. To ensure that the travel times from one cluster to the other are minimized as much as possible, the team are also advised to stay in the nearest local government area (LGA).

9. Data Quality Control and Data Entry

9.1. Data quality control

To ensure the quality of data, supportive supervision will be provided for the team at different level. The first level of supervision is provided by the team supervisors who are responsible for closely monitoring the work of the teams to ensure that all sampled households are visited and eligible children and women are included. An important element of this supervisor is to periodically return to few selected households and conduct a short re-interview of listing of household members and comparing the list with what was reported originally by the team. The main aim of such re-interviews is to uncover any deliberate distortion of age or omission of household members by interviewers so as to reduce their workload. They also observe the interview to ensure that the survey team are conducting the interviews as per the interview manual.

The second level of supervision consists of regional coordinators and state level government officers visit to the field. It is expected that the national level coordinators and other qualified staffs from national offices will visit teams on regular basis to check on their work. Strengths and weaknesses will be discussed in review session with the teams.

A dashboard will be created to summarize the quality report on daily basis during fieldwork to check the data that will be sent using smart phone (tablets). The results in the dashboard will look at issues such as response rates, the age distribution of children, women and household members, the level of missing values for key indicators, time of data collection and quality of anthropometry measurements. Any problems that appear from review of the dashboard will be discussed with the appropriate teams and attempts will be made to ensure that they do not persist.

9.2. Data entry

The data will be collected using tablets. Therefore, data collection and data entry will be completed at the same time in the field. This will help to facilitate quick review with the objective to improve the quality of data and real time reporting of the results. In addition to saving the time of data entry it will also help to save money that would have otherwise been spent on second round data entry and validation process.

10. Analysis and Report Writing

Stata version 14.0 will be used for analysis of survey data. The analysis will be completed within 2 weeks following completion of data collection. A brief summary report of the survey will be made available by the end of 2 weeks following completion of data collection. The nutrition results will be presented in the standard format following the report template from the ENA (Emergency Nutrition Assessment) application. This format includes acute malnutrition, chronic malnutrition (Stunting), Underweight and MUAC with 95% confidence intervals.

SMART flags will be used in the analysis of child anthropometric data to exclude extreme values that results likely from incorrect measurements at state level. SMART flags exclude anthropometric indices with -3 to 3 for WHZ, -3 to 3 for HAZ, -3 to 3 for WAZ, from observed mean.

This is different from WHO flags which uses reference population and excludes -5 to 5 for WHZ, -6 to 6 for HAZ, -6 to 5 for WAZ. The WHO 2006 growth reference standard will be used. However, the regional and national level estimates will be calculated using WHO exclusion criteria. This is to enable the audience to easily compare the result from this survey to MICS & DHS survey results as these surveys uses WHO exclusion criteria.

The report will have estimates of malnutrition calculated with the WHO 2006 growth references and other standards for additional indicators. The data quality report and a list of all teams and their work assignments also will be included in the annexes. The summary and detailed draft report will be made available by the end of September and October 2015 respectively.

I 1. Dissemination

Dissemination of the survey results to all relevant audience is one of the key objective of the national health and nutrition survey using SMART methods. This is to ensure that survey results are used to enhance policies and programs and to encourage demands for future surveys. The results will be circulated as widely as possible and will also be available for downloading on the National Bureau of Statistics (NBS) website.

I 2. Anticipated limitations and potential biases

I 2.1. Reliability of the sampling frame

The Master sampling frame used for the random selection of Primary Sampling Units (Enumeration Areas) was built in 2005. As the projections at EA levels are technically difficult to obtain, the choice is made to use the original population estimates for the cluster selection when applying the PPS method.

I 2.2. Reliability of the EA maps

The mapping of the enumeration areas dated from 2006 census, which means that the boundaries might have changed since then.

I 2.3. Accessibility

Albeit the road accesses and travel conditions are still acceptable, it is anticipated that, this situation may change due to different reasons.

I 2.4. Sample size

The sample size for the survey is calculated using a prevalence of Global Acute Malnutrition (GAM) based on children age 6-59 months. This decision was made in order to be able to estimate most of the indicators with reasonable precision. Additionally, indicators with narrow age range will be estimated with reasonable precision for each survey domain. However, indicator with very narrow age group and very low prevalence will be estimated at zonal level by pooling the data from the survey domain within the particular zone. Hence, it is not possible to provide estimates for some indicators at state level.

Annex I: List of Indicators

S.N	Indicators	Numerator	Denominator
I. Child Nutrition			
1.1	Underweight		
1.1.1	Underweight prevalence	Number of children under age 5 who fall below minus two standard deviations from the median weight for age of the WHO standard	Total number of children age 0-59 months
1.1.2	Moderate underweight prevalence	Number of children under age 5 who fall between below minus two to greater than or equal to minus three standard deviations from the median weight for age of the WHO standard	Total number of children age 0-59 months
1.1.3	Severe underweight prevalence	Number of children under age 5 who fall below minus three standard deviations from the median weight for age of the WHO standard	Total number of children age 0-59 months
1.2	Stunting		
1.2.1	Stunting prevalence	Number of children under age 5 who fall below minus two standard deviations from the median height for age of the WHO standard	Total number of children age 0-59 months
1.2.2	Moderate Stunting prevalence	Number of children under age 5 who fall between below minus two to greater than or equal to minus three standard deviations from the median height for age of the WHO standard	Total number of children age 0-59 months
1.2.3	Severe Stunting prevalence	Number of children under age 5 who fall below minus three standard deviations from the median height for age of the WHO standard	Total number of children age 0-59 months
1.3	Wasting (Z-Score)		
1.3.1	Wasting prevalence	Number of children age 0-59 months who fall below minus two standard deviations from the median weight for height of the WHO standard	Total number of children age 0-59 months
1.3.2	Moderate Wasting prevalence	Number of children age 0-59 months who fall between below minus two to greater than or equal to minus three standard deviations from the median weight for height of the WHO standard	Total number of children age 0-59 months
1.3.3	Severe Wasting prevalence	Number of children age 0-59 months who fall below minus three standard deviations from the median weight for height of the WHO standard	Total number of children age 0-59 months
1.4	Acute malnutrition (MUAC &/or bilateral edema)		
1.4.1	Wasting prevalence	Number of children age 6-59 months who fall below MUAC 125 mm	Total number of children age 6-59 months
1.4.2	Moderate Wasting prevalence	Number of children age 6-59 months fall between below MUAC 125 mm and greater or equal to 115 mm	Total number of children age 6-59 months
1.4.3	Severe Wasting prevalence	Number of children age 6-59 months who fall below MUAC 115 mm	Total number of children age 6-59 months

S.N	Indicators	Numerator	Denominator
1.5	Acute Malnutrition (WHZ &/ or bilateral edema)		
1.5.1	Acute malnutrition prevalence	Number of children age 6-59 months who fall below minus two standard deviations from the median weight for height of the WHO standard	Total number of children age 6-59 months
1.5.2	Moderate acute malnutrition prevalence	Number of children age 6-59 months who fall between below minus two to greater than or equal to minus three standard deviations from the median weight for height of the WHO standard	Total number of children age 6-59 months
1.5.3	Severe acute malnutrition prevalence	Number of children age 6-59 months who fall below minus three standard deviations from the median weight for height of the WHO standard	Total number of children age 6-59 months
1.6	Overweight		
1.6.1	Overweight prevalence	Number of children under age 5 who are above two standard deviations of the median weight for height of the WHO standard	Total number of children age 0-59 months
2. Women Nutrition			
2.1	Acute Malnutrition prevalence	Number of women age 15 - 49 years who fall below MUAC 230 mm	Total number of women age 15 to 49
2.2	Moderate Acute Malnutrition prevalence	Number of women age 15 - 49 years who fall between below MUAC 230 mm and greater than or equal to 180 mm	Total number of women age 15 to 49
2.3	Severe Acute Malnutrition prevalence	Number of women age 15 - 49 years who fall below MUAC 180 mm	Total number of women age 15 to 49
3. Child Health			
3.1	Diphtheria, tetanus- pertussis (DTP) or DTP, Hepatitis b and Haemophilus influenza type b (Penta) immunization coverage	Number of children age 12-23 months who received the third dose of DTP/Penta vaccine (DTP3/Penta3) before the survey	Total number of children age 12 to 23 months
3.2	Measles immunization coverage	Number of children age 12 to 23 months who received measles vaccine before the survey	Total number of children age 12 to 23 months
3.3	Prevalence of diarrhea among children under age 5 years	Number of children under age 5 years who had diarrhea in the last two weeks	Total number of children under age 5 years
3.4	Diarrhoea treatment with oral rehydration salts (ORS) and zinc	Number of children under age 5 years with diarrhea in the previous 2 weeks who received ORS and Zinc	Total number of children under age 5 years with diarrhea in the previous 2 weeks
3.5	Antibiotic treatment for children with Acute Respiratory Infection (ARI) or suspected pneumonia	Number of children under age 5 years with ARI symptoms/ suspected pneumonia in the last 2 weeks who received antibiotics	Total number of children under age 5 years with ARI symptoms/ suspected pneumonia in the last 2 weeks
4. Malaria			
4.1	Household availability of mosquito nets	Number of households with; (a) at least one mosquito nets (b) at least one mosquito nets for every two people	Total number of households surveyed

S.N	Indicators	Numerator	Denominator
4.2	Children under age 5 who slept under a mosquito net	Number of children under age 5 years who slept under a mosquito net the previous night	Total number of children under age 5 who spent the previous night in the interviewed households
4.3	Anti-malarial treatment of children under age 5	Number of children under age 5 years with fever in the last 2 weeks who received any antimalarial treatment	Total number of children under age 5 years with fever in the last 2 weeks
4.4	Treatment with Artemisinin-based Combination Therapy (ACT) among children who received anti-malarial treatment	Number of children under age 5 years with fever in the last 2 weeks who received ACT (or other first-line treatment according to national policy)	Total number of children under age 5 years with fever in the last 2 weeks who received any anti-malarial drugs
4.5	Intermittent preventive treatment for malaria during pregnancy	Number of women age 15-49 years who received three or more doses of SP/Fansidar, at least one of which was received during an ANC visit, to prevent malaria during their last pregnancy that led to a live birth in the last 2 years	Total number of women age 15-49 years with a live birth in the last 2 years
5. Reproductive Health			
5.1	Skilled attendant at delivery	Number of women age 15-49 years with a live birth in the last 2 years who were attended by skilled health personnel during their most recent live birth	Total number of women age 15-49 years with a live birth in the last 2 years
5.2	Contraceptive prevalence rate	Number of women age 15-49 years currently married or in union who are using (or whose partner is using) a (modern or traditional) contraceptive method	Total number of women age 15-49 years who are currently married or in union
5.3	Antenatal care coverage	Number of women age 15-49 years with a live birth in the last 2 years who were attended during their last pregnancy that led to a live birth a. at least once by skilled health personnel b. at least four times by any provider	Total number of women age 15-49 years with a live birth in the last 2 years
6. HIV			
6.1	HIV testing during antenatal care	Number of women age 15-49 years who had a live birth in the last 2 years and received antenatal care during the pregnancy of their most recent birth, reporting that they were offered and accepted an HIV test during antenatal care and received their results	Total number of women age 15-49 years who had a live birth in the last 2 years
7. MNCHW			
7.1	MNCHW coverage	Number of households reached with MNCHW in the last six months	Total number of households
7.2	Vitamin A supplementation among children	Number of children age 6-59 months who received at least one high-dose vitamin A supplement in the 6 months preceding the survey	Total number of children age 6-59 months
7.3	Deworming among children	Number of children age 12-59 months who given an anthelmintic drug in the 6 months preceding the survey	Total number of children age 12-59 months

Annex 2: Survey implementation timeline

Activities	May 2015				June 2015				July 2015				Aug 2015				Sept 2015				Oct 2015			
	W1	W2	W3	W4	W1	W2	W3	W4	W1	W2	W3	W4	W1	W2	W3	W4	W1	W2	W3	W4	W1	W2	W3	W4
Planning the survey																								
Selecting indicators with partners																								
Engage partners for support																								
Write survey protocol																								
Planning and budgeting activities																								
Organizing logistics																								
Sampling and printing of EA maps																								
Presentation to survey steering committee																								
Developing survey tools																								
Design paper and electronic data collection tools																								
Programing of tablets																								
Pretest the application of tablets																								
Pretest the functionality of dashboard																								
Preparing training manual																								
Training of Data Collectors																								
Recruiting field staffs																								
Finalizing training document																								
Field test of tablets and dashboard																								
Provide training for enumerators																								
Implementation																								
Establishing filed teams																								
Assigning supervisor and coordinators																								
Conducting field work																								
Data Cleaning, Analysis & Reporting																								
Data cleaning and analysis																								
Prepare draft summary report																								
Share final summary report																								
Prepare final report																								
Dissemination																								