

## TERMS OF REFERENCE

### **Purpose of the Assignment: Secondary Analysis of data to assess impacts of the multisectoral program to reduce stunting in children under five in Nampula and Zambézia provinces, Mozambique**

**Section Submitting:** Child Health and Nutrition

#### **1. Background**

Mozambique has made progress with economic growth and the reduction of under-five mortality, however undernutrition rates remain high. Stunting (chronic malnutrition) affects 38% of children under the age of five (IOF 2019/20). Negatively impacting child morbidity and mortality, school performance, and household income (learning and earning potential), stunting perpetuates the inter-generational cycle of deprivation.

In September 2010, the Mozambique Council of Ministers adopted a Multi-sectoral Action Plan for the Reduction of Stunting (PAMRDC). It has seven strategic objectives, three of which relate to the first 1,000 days of life in which stunting largely develops (improve the nutritional status of adolescent girls, improve the nutritional status of pregnant and lactating women and improve the nutritional status of children under the age of two). The fourth objective relates to the qualitative aspects of food security, and the last three objectives focus on systems development and institutional strengthening (human resources, advocacy and social mobilization and monitoring and evaluation). Since 2010, the Technical Secretariat for Food and Nutrition Security (SETSAN) has acted as the coordinator for the implementation of the plan. A national multi-sectoral and multi-stakeholder technical working group (GT-PAMRDC) was established in 2012 with representation from sectors involved in the implementation of the plan, partners and donors. UNICEF supports these coordination mechanisms since establishment and complements and strengthens their work to improve nutritional outcomes in Mozambique.

The European Union's "Communication on Enhancing Maternal and Child Nutrition in External Assistance" (2013) and its related "Nutrition Action Plan" (2014) to reduce the number of children under-five stunted by 7 million by 2025 underlines the same themes at global level for national implementation. Particularly, the EU has three formulated strategic priorities in its policies: (a) to enhance mobilization and political commitment for nutrition; (b) to scale up actions at country level; and (c) to strengthen technical expertise and knowledge base on nutrition for decision-making.

Given the above, a multisectoral programme was designed by UNICEF to contribute towards scaling up the nutrition and WASH services with a focus on the first '1000-day window' – i.e., from conception to two years of age - as this is when most stunting takes place and when interventions can have the greatest impact.

#### **2. Programme Description:**

With funding from the European Union, UNICEF worked with the Government of Mozambique and other partners on a 5-year program (2017 - 2022) to improve the nutritional status of children aged 0-59 months and of women of reproductive age.

Interventions include support to multi-sectoral governance for nutrition actions, scaling up and improving nutrition, health and WASH services and systems, as well as behavior change efforts with a focus on the first 1,000 days of a child (from conception to two years of age), as this is when most stunting takes place and when interventions can have the greatest impact (Horton 2008).

The geographic focus of this specific program was Zambézia and Nampula provinces, two provinces with a high burden of malnutrition, with some interventions being implemented at province level and others specifically targeting rural communities in 4 districts in Zambézia province (Gurúè, Lugela, Mulombo, and Pebane), and 3 districts in Nampula

province (Monapo, Nacala-a-Velha, and Ribáuè). The full set of interventions converged in many, but not all, communities across the seven districts, depending on the respective needs and gaps assessed by each sector (health, WASH, and social behavior change).

Interventions targeted 5 key outputs:

1. Governance for multi-sectorial action in nutrition is improved
2. Delivery systems for nutrition and WASH interventions strengthened
3. Knowledge and awareness related to nutrition and sanitation practices increased
4. Access and delivery of nutrition and WASH services is improved
5. Evidence base and knowledge management to inform policy development and strategies improved

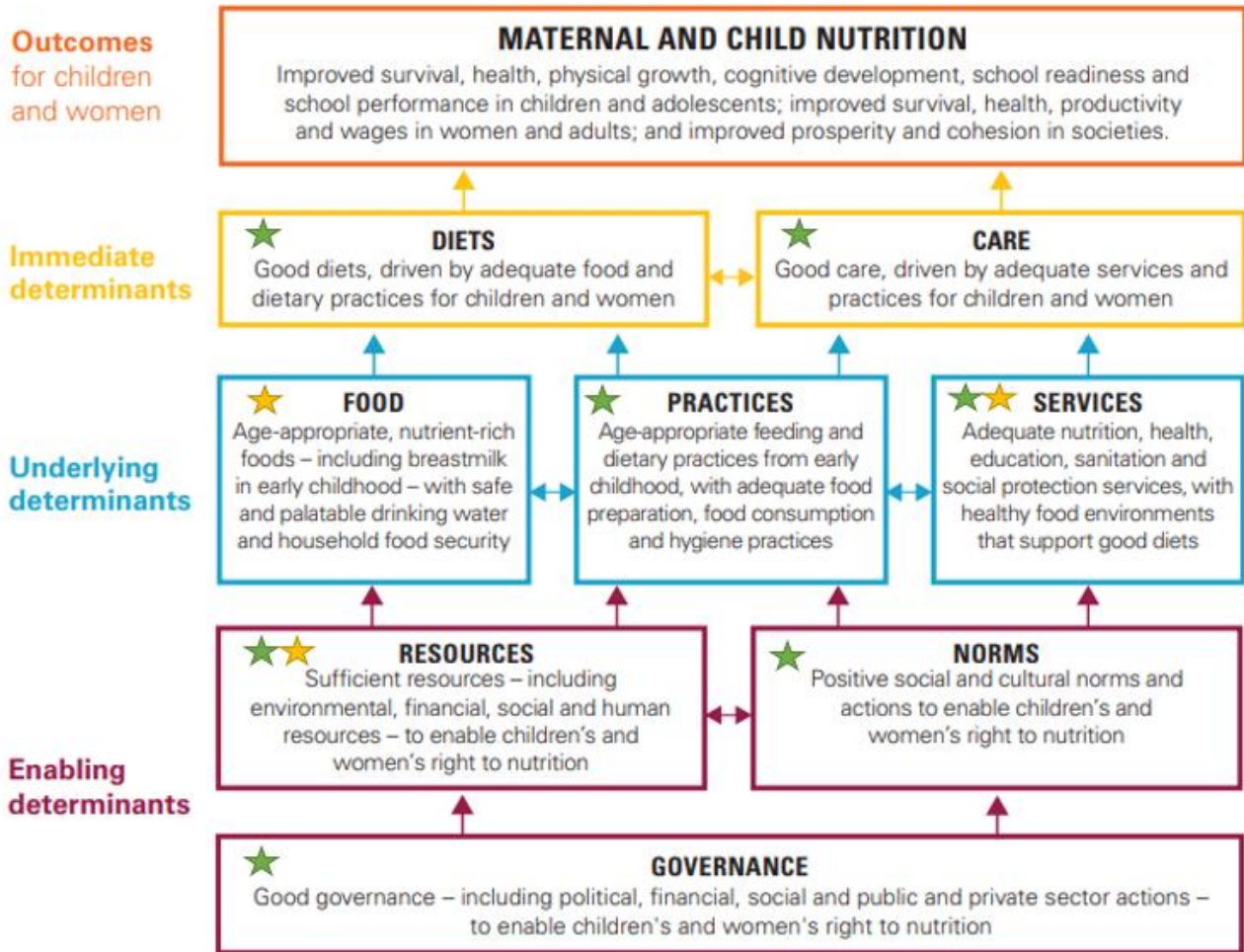
As part of output 5, UNICEF provided capacity and technical support to generate evidence that will allow the Government of Mozambique to track and monitor progress and measure the impact of these interventions to inform responsive program planning and resource allocation.

On one hand, support is being provided to strengthen the routine health and nutrition information system to fully integrate nutrition indicators and improve data quality. On the other hand, this impact evaluation will inform whether, and which specific interventions of the programme, had an impact on child nutrition status. This will help to refine the programme model and guide scale up in accordance with the GoM target to reduce stunting to 30% of under-fives by 2030.

**Theory of Change:**

The programme’s Theory of Change was based on the UNICEF conceptual framework for nutrition (Figure 1 below). Green stars indicate the programme’s areas of intervention, and yellow stars indicate where linkages were made (in some areas) to related programmes.

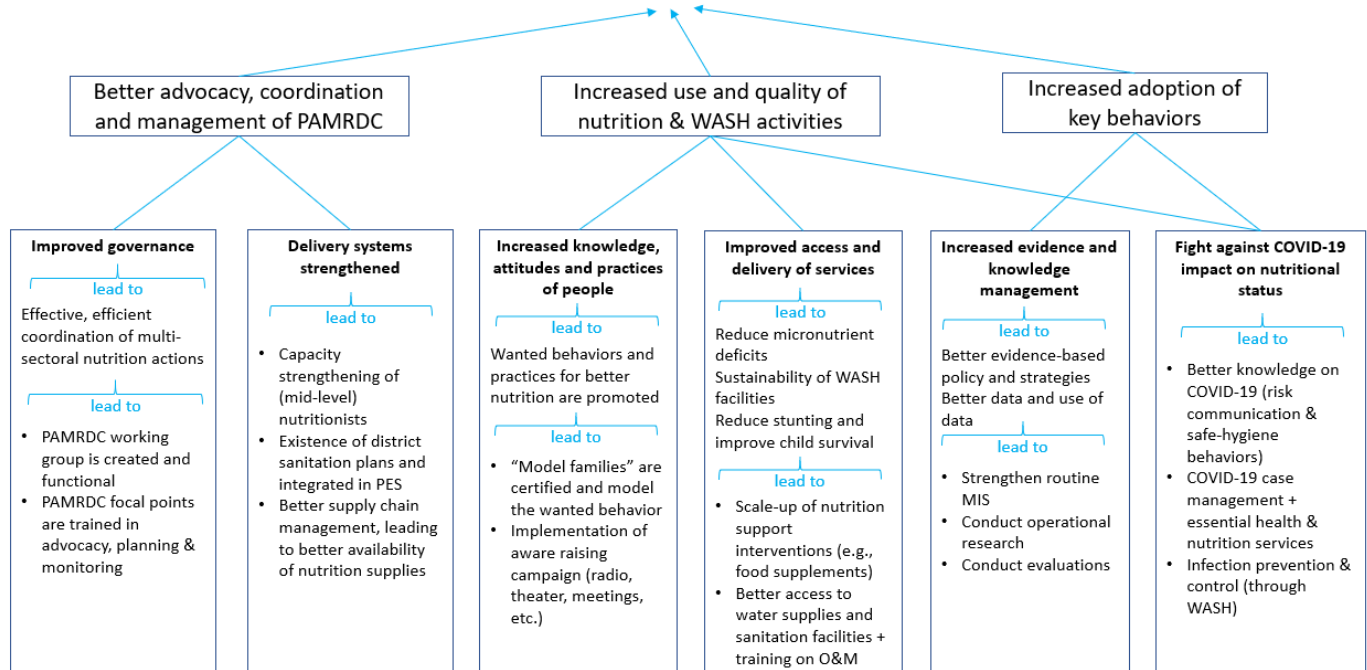
Figure 1: Conceptual Framework for nutrition as the basis of the programme



UNICEF Conceptual Framework on the Determinants of Maternal and Child Nutrition, 2020. A framework for the prevention of malnutrition in all its forms.

Figure 2: the programme’s Theory of Change

Improved nutrition status of children <5, pregnant and lactating women in Zambezia and Nampula



### 3. Evaluation Purpose and Objectives

The evaluation aims to examine how access and utilization of key Reproductive, Maternal, Newborn, Child Health + Nutrition (RMNCH+N) and WASH services, knowledge, and implementation of favourable practices at the individual, household and community level (including early child development practices) and food security can improve child well-being and nutrition-related outcomes, in their first 5 years of life.

The key objectives are:

- Develop the impact evaluation design (building on the baseline and endline data collected during the implementation) including development of power calculations, and study protocol that should allow for assessing the impact in the medium and long term, over the course of 4 years of the programme
- Estimate how and to what extent can the programme, as a whole, have an impact on children’s anthropometric and other relevant well-being outcomes
  - Inform what is the contribution of the different strategies to the overall impact
- To assess how the impact varies across settings and within target groups – e.g., is the impact dependent on factors such as household socio-economic status, household composition, house characteristics, access to health care and other services, as well as the child’s gender and age?
- Communicate impacts to UNICEF Mozambique, government and stakeholders via reports, briefs and dissemination (validation) workshops.

Specific and more detailed research questions will be identified during the inception phase with UNICEF and the Evaluation Reference Group members. The evaluation team is expected to work together with UNICEF colleagues to validate the baseline/endline study sample, and the feasibility of using this data for a rigorous quasi-experimental method.

The evaluation results and recommendations will inform key decision makers such as government representatives and donors. It will also allow UNICEF and program partners to learn from the evaluation results and adjust the program’s approach for the following years.

#### 4. Methodology and Technical Approach

The evaluation will build on the quasi-experimental design used for the Baseline and Endline studies, which surveyed a highly concentrated sample of households in 4 intervention districts of Zambézia Province: Gurúè, Lugela, Mulombo, and Pebane; and 3 target districts of Nampula Province: Monapo, Nacala-a-Velha, and Ribáuè. In each province, a second, less concentrated sample of the remaining districts allowed for provincial-wide summary.

Sampling was done using a probability proportional to size (PPS) approach, where intervention districts have district level representation, and the comparison districts allow for a province-level representation. Acknowledging the cost trade-offs involved in selecting a sample size, the following assumptions were made:

- The sample design was probability based, down to the selection of the household, and respondents consisted predominantly of female HoH with at least one child 0-59 months old living in the household.
- Households without children were excluded by the survey team using filter questions.
- The sample was stratified by province and sub-stratified by district.
- Within strata, selected households were clustered to reduce field travel costs. Clusters were small, no larger than 6 per cluster.

Knowing that the survey was designed to be based on enumeration areas (EA), the sample determination was based on local context, where an estimate of the number of children was used to determine the number of households and this determined the number of enumeration areas required

The baseline survey was concluded in the first semester of 2019 and the endline survey in the same period in 2022.

Therefore, the impact evaluation analysis will start with the selection of a method to identify the closest two samples for treatment and comparison, to further calculate the differences in outcomes between them.

The baseline/endline surveys main outcome variable is stunting (height-for-age z-scores) and secondary outcomes are wasting (weight-for-height z-scores) and occurrence of diarrhea in the past two weeks. Explanatory variables include indicators of coverage of nutrition, health and WASH interventions and behavior related with seeking services and adoption of favorable practices.

The surveys include indicators related to knowledge, attitudes, behaviors, and practices in health related with nutrition, including findings on breastfeeding and complementary feeding practices, improved water access, handwashing, hygiene, particularly related to the first 1,000 days, and sanitation practices. Survey questions were adapted from a number of verified and widely used data collection tools as described below.

##### *Demographic and Sociodemographic Module*

The first part of the survey collects demographic information about all household members and includes household features. This module includes two instruments adapted from the Wide Range Achievement Test (WRAT-1) to measure literacy and numeracy of the interviewee (5). Questions on education achievement and aspirations were designed based on previous instruments used in Malawi (6, 7). Income and income generation were adapted from the Core Welfare Indicators Questionnaire (QUIBB/CWIS) survey (8) as well as the DHS. Agricultural practice and production questions were based on surveys previously used by World Vision and other partners in Zambézia. Food security, dietary diversity and food coping strategies questions were adapted from the Household Food Insecurity and Access Scale (HFIAS) of the Food and Nutrition Technical Assistance Project (9), as well as from Food and Agriculture Organization and other resources (10, 11). Questions on material possessions and consumption of goods were adapted from several sources based primarily on the unsatisfied basic needs approach, where the aim is to estimate use or acquisition of assets presumed critical for wellbeing and were included from the Demographic and Health Survey, the Multiple Indicator Cluster Survey as well as from other sources (12-16). The content related to quality of life were based several on WHO quality of life scales (17-19). Questions related to agency and self-determination were partly adapted from the Social Support Appraisal's Scale (20).

### *Wash Module*

The second module collects WASH information, including questions about access to drinking water, hand washing practices and latrines. These questions were adapted from the 2010 and 2013 population-based survey of the Strengthening Communities through Integrated Programming (SCIP) project in rural Mozambique.

### *Child Health and Motor Skills/Development Modules*

The third part collects child health information, including questions about vaccinations, malaria, diarrheal disease, respiratory disease, and measures of weight and height to estimate malnutrition. This set of questions was primarily selected and adapted from the Demographic and Health Survey 5 (DHS5) – Model Women’s Questionnaire (21, 22).

### *Reproductive Health and Women’s Decision Modules*

The module on reproductive health relied heavily on DHS questions, as were the sections on malaria and HIV knowledge, attitudes, and practices. Questions related to HIV/AIDS stigma were primarily adapted from the Brazilian truck driver stigma study (23). The section on social barriers and social participation addresses various factors that shape well-being, from access to social support networks to decision making within the family and gender differences. Questions in this section were selected from the Oxford Poverty and Human Development Initiative, UNICEF and others (24-27).

### *Anthropometric Module*

We assessed nutritional status of Zambézia children under age five using anthropometric indicators – physical body measurements including height and weight along with attributes such as age and sex (28). Anthropometric indices are constructed by comparing relevant measures with those of comparable individuals (in terms of age and sex) in the reference data (WHO child growth charts). We express this comparison as a Z-score (standard deviation score): the difference between the value for an individual and the median value of the reference population for the same age or height, divided by the standard deviation of the reference population (29).

Weight-for-height (W/H): W/H measures body weight relative to height. This indicator is normally used as an indicator of current or acute nutritional status and can be useful for screening children at risk. Extreme cases of low W/H are commonly referred to as “wasting”. Children with Z-scores below minus two standard deviations (-2 SD) are considered thin (wasted) and are acutely malnourished. Children whose weight-for-height index is below minus three standard deviations (-3 SD) are considered severely wasted.

Height-for-age (H/A): H/A reflects cumulative linear growth. H/A deficits indicate past or chronic inadequacies in nutrition and/or chronic or frequent illness. Extreme cases of low H/A, where shortness is interpreted as pathological is referred to as “stunting”. Children whose height-for-age Z-score is below minus two standard deviations (-2 SD) from the median of the WHO reference population are considered short for their age (stunted) and are chronically malnourished. Children who are below minus three standard deviations (-3 SD) are considered severely stunted.

Weight-for-age (W/A): W/A reflects body mass relative to age. W/A is a composite measure of height-for-age and weight-for-height, making interpretation difficult. The term “underweight” is commonly used to refer to severe or pathological deficits in W/A. This indicator is commonly used for monitoring growth and to assess changes in the magnitude of malnutrition over time.

### *Observations Module*

Survey observations conducted by the field surveyor teams were designed based on observations included in previous DHIS and SCIP surveys, tailored to include pertinent observations related to the UNICEF nutrition project’s PAMRDC interventions

The protocol, questionnaires, reports and complete datasets of the baseline and endline surveys will be provided as well as all the associated files and documentation. Throughout the analyses, consultations with the researchers who conducted the surveys will be coordinated by UNICEF.

When analysing and interpreting the results of the impact analysis, all known factors that may affect the results in either direction need to be taken into account in order to contextualize the findings. Firstly, the timing, intensity and actual geographic coverage of implementation of interventions should be; secondly, any external factors such as cyclone Gombe which affected some districts of Nampula province just before the endline survey, migration or displacement of communities due to climate shocks and insecurity; and finally, any concurrent implementation of other nutrition and WASH programs in our comparison districts in Nampula province, such as the Transform Nutrition program funded by USAID.

Additional evidence related to this program, both qualitative and quantitative, will be important to use as complementary to the baseline and endline surveys:

- the routine monitoring of program implementation by the Government (PAMRDC)
- the routine monitoring of program implementation by UNICEF CHN, WASH and CAP sections (EU progress reports provide good summaries)
- a Knowledge Attitudes and Practices (KAP) study led by UNICEF WASH section, “Assessment to understand the current knowledge, attitudes, practices, drivers, bottlenecks and communication channels on water, sanitation, hygiene and nutrition behaviours in selected rural areas of Zambézia and Nampula provinces”
- an operational research of the Model Family certification program (FCDO)

## 5. Activities and Tasks:

1. Complete literature/data review and key informant interviews following the induction meeting. Published and unpublished documents and relevant statistical data shall be provided by the UNICEF CHN Section. Other data may need to be gathered in the field or through key informant interviews.
2. Produce an inception report including the impact evaluation design, power calculations, validation of control group, with the methodological plan detailing analysis methods, use of baseline/endline surveys, complementary data collection tools and procedures.
3. Establish the baseline balance or equivalence between sampled populations in the treatment and comparison groups based on the selected background characteristics, and if there are imbalances between these groups at the baseline (inherited biases), these should be controlled for in the regression model (if this is the chosen method for analysis).
4. Conduct analysis of impacts across a set of selected domains and outcomes (5-10 indicators in each) for a pooled sample and sub-samples based on chosen characteristics (e.g., age, poverty status etc). Propose and run any necessary sensitivity analyses and robustness checks that help validate the methods’ assumptions
5. Apply the appropriate quasi-experimental approach (e.g., PSM, RDD) in combination with difference in difference analysis (DID) controlling for any confounders.
6. Produce a comprehensive report presenting all the results as tables and graphs by domains and including a narrative on key findings and policy/programme related actionable recommendations. The evaluation report should meet UNICEF's evaluation quality criteria (as defined by the quality assurance system of GEROS).
7. Produce an evaluation brief (including data visualisation charts) based on the UNICEF MCO templates.