

SEN-04: Support for the Assessment of Nutritional Biomarkers in Senegal Terms of Reference (TOR)

Nutrition International is committed to the fundamental principles of equal employment opportunity. Female candidates are strongly encouraged to apply.

Context

The Technical Assistance for Nutrition Project (TAN) is a project within Nutrition International's Nutrition Technical Assistance Mechanism (NTEAM) and is funded with UK aid from the UK Government. The TAN project is aimed at improving the capacity of SUN member countries to design, implement and monitor nutrition programmes, generate knowledge about what works, learn from it and adopt it. Nutrition International contributes to TAN by coordinating the provision of technical assistance to help SUN Focal Points (SUN FPs) in selected countries to bridge capacity gaps in the design and implementation of national multi-sectoral nutrition plans, through its global platform for identifying and providing the necessary expertise.

On 6 June 2011, the Republic of Senegal joined the SUN Movement with a letter of commitment from the Prime Minister. Senegal had already created the National Nutrition Unit (CLM) overseen by the office of the President.

Although its results are relatively good compared to other developing countries, Senegal still has a malnutrition problem in its under-five population. In 2017, the national rate of stunting in the under-five age group was 16.5%, which is lower than the 25% average for developing countries. On the other hand, at 9%, Senegal's under-five wasting is higher than the developing country average of 8.9%. Notably, 42.1% of infants under 6 months are exclusively breastfed, well above the West African average of 32.5%. In 2015, the low birthweight rate of 18.5% had declined from 22% recorded in 2000. However, 49.9% of women of reproductive age suffer from anemia. In addition, 12.9% of women and 4% of men are obese; the national rate of under-five overweight children was 0.9%.¹ (World Nutrition Report, 2019).

¹ <https://globalnutritionreport.org/media/profiles/3.0.3/pdfs/senegal.pdf>



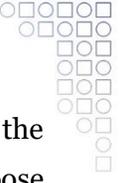
A study of the baseline status of iron/folate, plasma retinol and anemia in children aged 12-59 months and women of childbearing age (15-49 years) conducted in 2010 showed that iron and folate deficiency affects 48.8% (Ndiaye, 2019) and 54.8% (Ndiaye et al, 2018) of children and women of childbearing age, respectively, and that 47.6% (Ndiaye et al, 2018) of them have anemia. It also revealed an iron deficiency of 55.7% and an anemia rate of 66.1% in children aged 12-59 months (UCAD Nutrition Laboratory/COSFAM/Nutrition International report, 2011). The results of this study had also shown that 24.8% of children aged 12-59 months and 2.4% of women of childbearing age suffered from a vitamin A deficiency (UCAD Nutrition Laboratory Report / COSFAM / Nutrition International, 2011). This study provided baseline data on levels of micronutrient deficiencies and anemia, and their causal factors.

In 2018, COSFAM conducted a nationwide study to assess the impact of food fortification interventions through the ITA. For this study, 2856 samples were collected for analysis of biomarkers indicating nutritional status. At the end of this study, the hemoglobin concentration of all participants (children aged 12-59 months and women of childbearing age) was determined using the HemoCue test system. After the determination of hemoglobin, the residual volume of each sample was immediately centrifuged at 3,000 rpm for 12 minutes. The plasma was then collected and distributed into appropriate tubes. The tubes were stored in a freezer at -80°C at the ITA until the parameters (iron, folates and vitamin A) were determined.

The results of this impact study will serve as a database for an improved monitoring of the nutritional status of women of reproductive age and children aged 12-59 months in Senegal.

These results will be used to design appropriate nutrition programmes that can respond to the challenges faced by the population. These results will also be used to monitor and evaluate progress on strategies developed and implemented for better nutrition, which is also a SUN mandate. In this regard, Nutrition International's technical assistance is well aligned with the SUN programme by helping to improve the capacity to design and implement quality nutrition programmes. In Senegal, TAN supported the multisectoral nutrition plan and the development of the strategic communication plan in support of the multisectoral nutrition plan. This technical assistance will add value and complement TAN's previous support to nutrition in Senegal.

1. Data on nutritional biomarkers in Senegal



As part of the battle against deficiencies in essential vitamins and minerals, Senegal established the National Food Fortification Alliance (COSFAM) with Order No. 001717 of March 10, 2006. The purpose of this committee is to assist the National Nutrition Unit (CLM) in planning and supporting implementation, and monitoring and evaluating the national strategy for the fortification of food with micronutrients.

2. Study

In the baseline study, the determination of iron, C-reactive protein, alpha-glycoproteic acid, and plasma retinol had been carried out by the UCAD Nutrition Laboratory, and that of plasma folate by the Swiss Vitamin Laboratory. The purpose of this study was to assess the new status eight years later and explore the impact of various nutrition programmes. The results that will emerge from this study will also provide a baseline for Senegal's Multisectoral Strategic Plan for Nutrition in Phase 2 and in particular for its Strategic Objectives 5 and 6. The results of this study will also be essential for the design and development of new nutrition proposals aimed at meeting the challenges of improving the population's nutritional status.

This central database will serve private/government/non-governmental nutrition participants in Senegal. In order for the results of the impact study to be comparable to those of the baseline study, it would be preferable to use the same parameters as above.

In order to achieve this, the CLM intends, with the technical assistance of Nutrition International through the SEN-03 project, to secure the services of a laboratory to determine nutritional biomarkers, and a consultant for the analysis and interpretation of the data as well as the preparation of a final report.

General objective

The general objective of this technical assistance is to assess the impact of food fortification interventions on the iron, folate, and vitamin A status of children (12-59 months) and women of childbearing age (15-49 years) in Senegal.

Specific objectives

- 1) Identify the socio-economic factors of iron, folate and vitamin A deficiency in women of childbearing age and children under five, including gender discrimination
- 2) Measure iron status, C-reactive protein (CRP), alpha-glycoprotein (AGP), folate and vitamin A in women (15-49 years)
- 3) Measure iron, CRP, AGP and vitamin A status in children (12-59 months) by gender



- 4) Analyze and interpret the results obtained
- 5) Make recommendations for improving or formulating policies for nutrition interventions related to the battle against micronutrient deficiencies
- 6) Prepare a final report
- 7) Organize a workshop to share and disseminate the results.

Expected results

- The socio-economic factors of iron, folate, and vitamin A deficiencies and anemia in women (15-49 years) and children (12-59 months), including factors related to gender inequalities, will be known.
- Iron, folate, vitamin A status of women (15-49 years)
- Infectious status (CRP, AGP) of women (15-49 years) will be known
- Assessment of iron, vitamin A status in children (12-59 months)
- Infectious status (CRP, AGP) of children (12-59 months) will be known
- The final report of the results obtained will be prepared, including information about anemia. This report will include a description of the dosage and statistical analysis methodologies and references about the materials/equipment used.
- A workshop to share and disseminate the results will be organized

Phasing of technical assistance

The analysis of the samples will be conducted with the coordination of the ITA and under the direction of the SUN FP. The present technical assistance project will be carried out in two phases.

Phase 1:

- o The ITA will forward the samples to the Pasteur Institute in Dakar.
- o The Pasteur Institute will carry out the laboratory tests and forward the database of raw results to the ITA.
- o The ITA will share the results with the SUN FP and Nutrition International-TAN.

Phase 2 :

The consultant will:

- o Conduct an in-depth analysis of the results and make proposals for recommendations
- o Submit a final report



- Organize a workshop to share and disseminate the information in close collaboration with the ITA and the CLM

Scope

This technical assistance has been endorsed by various nutrition stakeholders in Senegal who are looking for results to better understand micronutrient deficiencies in the target population. The data will be used to develop appropriate strategies to overcome the gaps and challenges in addressing micronutrient deficiencies in the country. Phase 2 of the TA dealing with the analysis and dissemination will involve as many nutrition stakeholders as possible. As part of the analysis plan, various interviews, consultations and data collection efforts will involve stakeholders and help to understand the results. Dissemination will raise awareness and influence participants and stakeholders on nutrition issues.

Quality

This technical assistance will help to design quality programmes that will address specific micronutrient deficiency gaps. The quality of programmes could influence the quality of nutrition services and care provided by health and nutrition participants in communities, health centres and hospitals. Appropriate awareness-raising messages will be used to improve the general population's knowledge and awareness of the consequences of micronutrient deficiencies.

Coordination

The SUN FP will remain the main coordinator of nutrition interventions in Senegal and for this TA, the ITA in collaboration with the SUN FP will lead the communications, exchanges and collaboration with the Pasteur Institute. For Phase 2, the ITA, in collaboration with the SUN FP, will ensure the coordination of the participation and inputs of the various participants and stakeholders in nutrition (government, NGOs, SUN movement, UN agencies). The consultant will work closely with the ITA to ensure successful analysis and dissemination.

Capacity

The ITA will work closely with the consultant and follow up on the different stages of the technical assistance. This will also strengthen the ITA's capacity. The lessons learned from the process will strengthen the organizational knowledge and serve as a springboard for future similar projects.

Gender Equality

Nutrition International is committed to gender equality. The consultant is required to indicate how he or she will ensure that gender equality considerations are included in the way Nutrition International



provides technical assistance. Examples of gender mainstreaming could include, without being limited to, the inclusion of government departments responsible for women to the extent that this is possible, the inclusion of gender-specific indicators, the gender breakdown of emerging data and the review of relevant gender-specific documentation. In order to achieve this, Nutrition International has developed the following tools which can be accessed using the links below:

- [Nutrition International guidelines on Integrating Gender Equality into Technical Assistance](#)
- [Nutrition International background document on Gender and Nutrition](#)
- [Nutrition International PowerPoint presentation \(Gender 101\)](#)

Scope of work

The consultant will engage in the following activities and produce the expected results. The technical proposal will provide details on the goal-oriented activities, as well as the schedule, the level of effort required for each activity, the number of days required, and the roles and responsibilities of each team member.

The consultant will need to ensure that Nutrition International's gender equality policies are firmly rooted in the objectives and expected results of this technical assistance. The consultant will develop a plan for integrating gender equality into the activities and deliverables.

Phase 1 Activities

The Pasteur Institute will:

1. Analyze the iron, CRP, AGP, folate and vitamin A status in women (15-49 years)
2. Analyze the iron status, CRP, AGP and vitamin A status in children (12-59 months)

Phase 2 Activities

The consultant will:

3. Develop a study protocol describing all proposed data analyses and methods (all variables and types, statistical methods to be applied, etc.). Submit this protocol to the ITA and Nutrition International for approval before beginning statistical analyses. This protocol will document the process and serve as a capacity-building tool for individuals as well as organisations.
4. Work closely with the ITA to conduct the statistical analyses to identify the socioeconomic factors of iron, folate and vitamin A deficiency and anemia, including gender inequalities.



5. Conduct descriptive and statistical analyses and interpret the results.
6. Draft a report for comments from the ITA and Nutrition International. This will include a summary of the initial micronutrient survey with methods used and all current findings: micronutrient status, and deducing recommendations for improving policies to address micronutrient deficiencies in women of childbearing age (15-49 years) and children (12-59 months).
7. Finalize the report based on the ITA and Nutrition International comments.
8. Have the final report approved by the ITA, Nutrition International, SUN FP and government entities.
9. Organize a workshop to share and disseminate the results of the study.

Deliverables

- Report containing the raw analysis results
- Consultant's study protocol, for approval
- Databases in Excel format, which can be processed by computer, with all raw data (biochemical analyses and applied controls) and final data per respondent (anonymous). This format must be capable of allowing the reproduction of all analyses performed.
- A draft report on micronutrient status (iron, CRP, AGP, folates, vitamin A), anemia and socio-economic factors (in Word format, to allow easy editing and comments).
- A final report on micronutrient status (iron, CRP, AGP, folates, vitamin A), anemia and socio-economic factors (in Word, pdf, paper and electronic formats)
- Hard copies for stakeholders at the sharing workshop
- A report to be disseminated nationally

Use of deliverables

The deliverables produced in this technical assistance are intended to be used by different stakeholders. These include various government ministries, meaning the ministries of health, agriculture, trade, education, water and sanitation, decentralization and local government, environment, family and social welfare, development partners working in the nutrition sector, and UN agencies, among others. It is expected that the deliverables will be used as follows:

- Baseline for Senegal's Multisectoral Strategic Plan for Nutrition in its Phase 2 and in particular for its Strategic Objectives 5 and 6.



- Evaluation of the impact of food fortification strategies (soft wheat flour and edible refined oils) with micronutrients
- Design and development of new nutrition proposals to address gaps and challenges in nutritional status and to address micronutrient deficiencies

The following deliverables will also be shared with the Department for International Development (DFID).

- A final report on micronutrient status (iron, CRP, AGP, folates, vitamin A), anemia and socio-economic factors (in Word, pdf, paper and electronic formats)
- A report about the workshop to share and disseminate information nationally

Assignment location

The consultant will work for 20 days to gather the necessary data for the report. If the consultant is an international consultant, a 10-day presence in Senegal will be required.

All travel required under this consultancy will be provided for by Nutrition International. Travel allowance maximums are based on standard rates of the organization.

Deadline

This mission will be implemented in 2 phases, as indicated above. Phase 1 will be carried out by the Pasteur Institute within 2 months of receipt of the samples. Phase 2 will last 2 months from the time the results of Phase 1 are submitted by the Pasteur Institute.

Management and Reporting/Coordination Mechanism

- Nutrition International will provide funding for the technical assistance, and payment will be conditional on fulfillment of the mission and achievement of the results agreed on at the time of the signature of the contract.
- A limited technical committee will be set up to monitor this technical assistance. It will be chaired by the CLM and the ITA will provide the secretariat. In addition to the CLM and the ITA, it will include Nutrition International, the Pasteur Institute and the consultant.
- The ITA and Nutrition International will be responsible for the technical guidance and quality assurance of the work carried out by the consultant.
- The SUN FP will provide coordination and leadership for Phases 1 and 2.



- The Pasteur Institute and the consultant will work under the direct supervision of the ITA, SUN FP and Nutrition International in Senegal.
- The Pasteur Institute and the consultant promise not to divulge or use the results obtained within the framework of this mission without prior authorisation from Nutrition International and the ITA.
- The Pasteur Institute and the consultant will respect the confidentiality of all information accessed during their mission which is considered secret or incompatible with the interests of the ITA and Nutrition International.
- The Pasteur Institute and the consultant will be responsible to the ITA and Nutrition International for all deliverables for the mission. Nutrition International will provide funding and technical input for the mission.

Profile/qualifications of TA providers

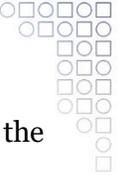
For this mission, the Pasteur Institute will be commissioned by Nutrition International to carry out biochemical dosages in the laboratory (Phase 1). For Phase 2, an internationally renowned consultant with proven experience in biochemistry, analysis of biochemical markers of nutritional status and statistical mining of data will be recruited. Candidates may consider a team of national and international consultants (if required for the assignment).

Application Process

Interested consultants are invited to send their applications by email to TechnicalAssistance@NutritionIntl.org before **September 20, 2020**, indicating as subject “**SEN-03 Application: Name of the company/firm**” and “**Impact study on micronutrients in Senegal**”. Only complete applications will be considered.

The applications should include:

- An up-to-date Curriculum Vitae (CV)
- A technical proposal: no more than five pages, describing the understanding of the task, the proposed methodology, the responsibilities of the key participants and a detailed work plan that distinguishes the activities from the results.
- A financial proposal: including the per diem rate, the proposed number of trips/days in the country and any other expenses required to fulfill the terms of the consultation (field trips, meetings, equipment, etc.).



- A confirmation email after completion of the NTEAM's profile of all consultants listed in the application.

NB: Please title your application email as follows: Application TAN CODE: Name/company - Full TA title

Nutrition International is committed to gender equality. Consultants are required to indicate how they will ensure that gender equality considerations are included in the way they provide technical assistance.

References

1. World Nutrition Report, 2019
2. Ndèye Fatou Ndiaye, Basic iron status/folates of Senegalese women of reproductive age and measurement of iron bioavailability from soft wheat flour using stable isotopes in mother/child pairs in the context of micronutrient food fortification in Senegal. Université Cheikh Anta Diop Dakar Senegal, Single PhD thesis on Nutrition and Human Food, 2019.
3. Ndèye Fatou Ndiaye, Nicole Idohou-Dossou, Adama Diouf, Amadou Tidiane Guiro, Salimata Wade. Folate and iron deficiencies and their association with anemia among women of childbearing age in Senegal: results of a national cross-sectional survey. Food and Nutrition Bulletin 2018; Volume: 39; 1, 65-74.
4. UCAD/Nutrition Laboratory. Baseline report about vitamin A and iron status in children aged 12-59 months and women of childbearing age (15-49 years) within the framework of the micronutrient food fortification programme in Senegal, 2011.