



## Total diet study for Sub-Saharan Africa

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The project helped to plug knowledge gaps on food safety risks, empowering governments to target resources more effectively. By collecting and analysing data on food contaminants from 4,000 samples of foodstuffs, cross-referenced with consumer data from 70,000 households, the first regional Total Diet Study generated a robust evidence base to improve food safety decision-making. In turn, this will help the public and private sector to plug critical gaps and target resources more effectively.

Headlines from the Study's findings found that certain foods, consumed domestically and exported, were heavily contaminated. STDF is working with the Codex Coordinating Committee for Africa (CCAFRICA) and other partners to share the Study's methodology and findings in the region, and scale-up the evidence-based approach to benefit consumers across Africa.

Watch the film "How safe is Africa's food?" to find out more [here](#).

Read the Lancet article on "Human dietary exposure to chemicals in sub-Saharan Africa: safety assessment through a total diet study" [here](#).

Listen to "The Codex podcast (Ep 6) – Studying diets in Africa" to find out more [here](#).

### STDF/PG/303

#### Status

Completed

#### Start Date

01/04/2014

#### End Date

31/12/2018

#### Project Value (US\$)

\$1,333,853

#### STDF Contribution (US\$)

\$1,191,353

#### Beneficiaries

Benin  
Cameroon  
Mali  
Nigeria

#### Implementing Entities

Food and Agriculture Organization of the United Nations (FAO)

#### Partners

## **Background**

Little is known about the levels of chemical contamination of food in Sub-Saharan Africa. In these countries, except for a few exported products, foods are not regularly monitored for toxic chemicals. Chemical hazards associated with food constitute both a public health problem and an obstacle to market access in most African countries including Nigeria, Benin, Cameroon and Mali. A significant part of the population may suffer from chronic complications or die as a consequence of eating contaminated food, resulting in decreased labour productivity and higher costs for National Health Systems, which in turn affect national budgets and investment. In addition, the participation of sub-Saharan African countries in international trade flows is often inhibited by a number of constraints, including: (i) lack of a risk-based approach to food safety issues; (ii) inadequacy and inefficiency of competent authorities in law enforcement; (iii) lack of surveillance and alerts systems; (iv) inadequate application of good practices such as Good Manufacturing Practices and Good Agricultural Practices; (v) weak technical and analytical capacity of national laboratories; (vi) insufficient contribution to the development of international standards. These shortcomings in African countries have frequently undermined food safety systems and caused economic losses as a result of rejected food exports.

The present project will provide an overview of the chemical risks of mainstream food commodities in the target countries and estimate the compliance of their food production with the prevailing international standards. This diagnostic should decrease the vulnerability to export rejection of the major exported commodities (e.g. coffee, cocoa and ground nuts) and improve market access for other food commodities like fresh fruit and vegetables. The food basket to be analysed will be composed of, on the one hand, products which are readily available on national markets and represent a significant share of the local consumers' typical diet and, on the other hand, the most important export products by value, namely cocoa, fresh fruits (including nuts), coffee, fish and other seafood. Finally, trade between sub-Saharan African countries will also be considered as market access may be easier to obtain within the region, as opposed to the broader market in which more stringent food safety criteria may apply.

The TDS methodology is useful to assess dietary exposure to chemical contaminants. The FAO and the WHO promote the use of total diet studies as a cost-effective means to set future priorities and monitor the potential health impact of chemicals in the food supply. TDS help to determine a given population's exposure to chemical substances across the entire diet and includes the following steps: use of consumption data to select foods that represent a typical diet; gathering information on preparation methods in order to analyse "food as consumed"; pooling into related food groups before analysis.

## **Expected Results**

### ***Strengthened capacity to conduct a Total Diet Study***

The project will begin by identifying and sharing existing data in participating countries (food consumption data, household budget surveys, economic and trade statistics) as well as collecting up-to-date policy documents and strategic reports, if available. A regional conference and national stakeholder meetings (one per country) will then be held in order to inform technical food safety staff of the initiative and to train them in the proposed approach. Particular attention will be paid to food sampling and preparation, which should be as close as possible to the consumption and preparation habits of the population. Lastly, the project will proceed with the acquisition of food sampling and preparation tools, which are needed in order to avoid any deterioration or cross contamination of foods.

### ***TDS lists are elaborated***

National food consumption data will be harmonized and prepared to fit the purpose of the TDS approach. If no individual consumption data are available, Household Budget Surveys will be modified accordingly, so as to obtain information of the consumption of food per adult equivalent. The resulting data will be used to create a food list which corresponds to 80%-90% of total diets; additional foods considered particularly important will also be included, such as highly contaminated foods, or products consumed in large quantities by a given sub-population. In addition, food lists will be completed with food products of particular (actual or potential) trade interest for the countries involved, in order to assess the safety of such foods with a view to increasing market access at regional and international levels.

### ***Food contamination data are generated***

Information will be collected at different levels of the agro-food chain through preliminary survey on places of purchase and food preparation in each country, such as: (i) areas of food production; (ii) areas of food sales; (iii) food processing establishments (agro-industrial and artisanal); (iv) school and business canteens, restaurants and hotels. Representatives of

the food industry, restaurants and hotels will be interviewed in order to identify the most frequented establishments for the purchase of food and to determine the most common food preparation habits and recipes. A sampling plan will then be elaborated by a panel of specialists, containing instructions for the purchase and conservation of food and its delivery to storage before shipment to laboratories. A computerized database will be designed, laboratories will be selected to perform chemical analyses and thousands of food samples will be collected.

#### ***Risk assessments for harmful food chemicals***

The exposure to risk of the populations in the selected sub-Saharan African countries will be assessed by matching data on the occurrence of contamination with validated and harmonized quantitative consumption data. A workshop will be held that aims to characterize the risk for national populations according to international criteria.

#### ***Knowledge shared and stakeholder groups sensitized on the outcome of TDS***

All data and information collected or generated during the study will be organized into an accessible database, which should remain updated and maintained by the countries following project completion. Participants will discuss the outcomes of the project and propose follow-up initiatives at national stakeholder meetings (one per country), and initiate a regional strategy for risk management at a final regional meeting (including plans to monitor and control chemicals identified as being critical for public health or international trade). Food sectors which could benefit from future market access will also be identified and possible strategies discussed.

#### ***TDS outcome translated into risk management, communication and policy***

Specific assistance will be provided to food safety authorities, on pilot scale, to take appropriate mitigation measures in line with the results of the Total Diet Studies. This will consist of six months follow-up activities and support for risk managers in the implementation of concrete action plans. Good practices for risk analysis will be disseminated across the region, with particular focus on food monitoring, risk assessment and risk communication based on outcome 5.