Food Safety Laboratories in Sri Lanka
Background

The need for safe food is universal and vital for health. To ensure that citizens are consuming food that is safe and of good quality, the Government of Sri Lanka needs to assess and strengthen its food safety laboratories, which are critical for ensuring food safety. Another related issue is the emergence and spread of chronic kidney disease of unknown etiology (CKDu) in some parts of the country. One of the hypotheses regarding its causation is chemical contamination of food and/or water, which can be detected by a robust network of food safety labs.

According to the Food Act, 1980, the Ministry of Health (MoH), through the Food Control Administration Unit (FCAU), is responsible for ensuring food safety and quality in Sri Lanka. In this context, the MoH requested the WHO Country Office of Sri Lanka for technical assistance to conduct an assessment of the food safety laboratories in the country.

In May 2016, WHO undertook a needs assessment of food safety laboratories focusing on chemical analysis and developed a set of recommendations for strengthening the capacity of Food Safety Laboratories in Sri Lanka.

Methods

A total of nine food safety laboratories were reviewed. Each laboratory was evaluated in terms its key specifications, i.e. (i) legal status, (ii) scope and function, (iii) quality system management, (iv) sample numbers and testing, (v) instrumentation and equipment, (vi) building and facilities, and (vii) personnel and training.

Five official laboratories, with an Approved Analyst/ Additional Analyst as prescribed under the Food Act, were assessed. These five labs were (i) Medical Research Institute, (ii) National Institute of Health Sciences, (iii) City Analyst Colombo, (iv) Government Analyst Department, and (v) Anuradhapura Food Quality Control Laboratory (Chemical analysis section).

The non-official laboratories which were functioning without an Approved Analysis/ Additional Analyst which were assessed were (i) Anuradhapura Food Quality Control Laboratory (Microbiology section), (ii) Kurunegala Provincial Food Laboratory, (iii) Industrial Technology Institute, and (iv) Sri Lanka Standards Institute.
Findings of the assessment

All the official laboratories had approved analysts. However, only one laboratory had applied for accreditation (ISO 17025), implemented a quality system, had relatively modern and high-end equipment, and sufficient space to carry out sample testing.

A) Official laboratories

Only one official laboratory had the necessary expertise, instrumentation and equipment to analyse food safety parameters, which included pesticide residues, mycotoxins, environmental contaminants such as heavy metals and veterinary drug residues. Another laboratory had recently purchased an AAS-Graphite furnace for the purpose of analysing metals in food and water.

The main constraints of the official laboratories included (i) old and deteriorating structure with limited working space; (ii) old and outdated equipment and acute shortage of sophisticated instrumentation; and (iii) limited budget for technical service/maintenance, accreditation, building capacity, and for technical training of the laboratory staff.

B) Non-official laboratories

The four non-official laboratories assessed were in the semi-government and private sectors. All four had excellent laboratory infrastructure, adequate modern equipment, human resources, and expertise. All these non-official laboratories also had good quality systems that were ISO 17025 accredited. However, these were not fully utilized by the FCAU. Though Section 16 of the Food Act, 1980, stipulates that food samples be sent only to a government analyst, Section 17 has the provision that the minister can contact “Additional approved analysts”.

C) Operating procedures for food laboratories

Additionally, standard operating procedures were not coordinated and harmonized, and laboratories had different formats for worksheets and operating procedures.

D) Food sampling

The current sampling methods were deficient owing to the absence of a system to collect, collate and analyse key information from the right sources.
Recommendations

The assessment noted that it is expensive to establish and maintain a good food safety laboratory system aligned with the required standards because of the high costs of equipment and buildings, their maintenance, costs of human capital as well as running costs.

The following factors were taken into consideration while formulating the recommendations:

- the existing situation and performance of current food safety laboratories with major gaps in the capacity of food safety laboratories
- current and future (10 years) needs of the food safety programme
- building on existing infrastructure and capabilities

Based on these factors, four recommendations were proposed.

**Recommendation 1**
Establish a new Central Food Safety Laboratory in a suitable locality to act as the main referral centre and create three dedicated laboratories with specialization in at least two areas of analysis related to contaminants and residues in food creating a network of food safety laboratories. This network should be accredited to ISO 17025 capable of handling current “everyday” food analysis, develop and validate new testing methods and provide training for food analysts.

**Recommendation 2**
Develop a logical system for collecting information and establishing a structured surveillance or monitoring programme with appropriate sampling rates at the national level by the FCAU, in consultation with peripheral Public Health Inspectors (PHI) and food safety laboratories.

**Recommendation 3**
Strengthen the capabilities of food safety analysts and capacity for food inspection in planning and management of food-safety based risks.

**Recommendation 4**
Maximize the use of existing accredited laboratories for implementation of the food safety programme utilizing existing non-official laboratories for food safety for informal or non-enforcement purposes.

The recommendations outlined above are based on a phased approach to improving the official food safety laboratories in Sri Lanka. Implementation of the recommendations will require adequate planning and a high level of commitment from all stakeholders.