

The Global Food Safety Laboratory Network (the “One-FoodLab”)

One-FoodLab

Addressing the health burden of unsafe food and promoting economic development through food trade require strong systems promoting prevention and control of risks at all stages from production to consumption. Strong laboratories capable of measuring the microbiological and chemical risks are essential components of these systems and require strategic investments in both infrastructure and human capacity building. To this effect, the World Bank is launching the One-FoodLab network to convene stakeholders at all levels to:

- 1) Coordinate and amplify programs and activities for larger impact;
- 2) Offer a platform to share resources that addresses the needs of developing countries and provides networking opportunities that build trust;
- 3) Create mechanisms to facilitate financing of laboratory infrastructure and activities; and
- 4) Analyze the outcomes and impacts of stakeholder investments to improve efficacy and impact

Convene, coordinate and amplify impact

The World Bank, its partners and programs in agriculture and food industry promote sound investments and global cooperation for food safety capacity building to strengthen businesses and food safety control systems in developing countries. In support of these efforts, it is launching the Global Food Safety Laboratory Network (the “One-FoodLab”) to convene and coordinate laboratory capacity building donors, investments, programs, and activity implementers of relevant stakeholder groups to amplify their reach and impact. The network will provide mechanisms for laboratories involved in national food control systems and the private sector to share best practices, communicate and build trust, multiply the number of beneficiaries of learning mechanisms, partner to facilitate procurement and consult on fit-for-purpose investments in infrastructure.

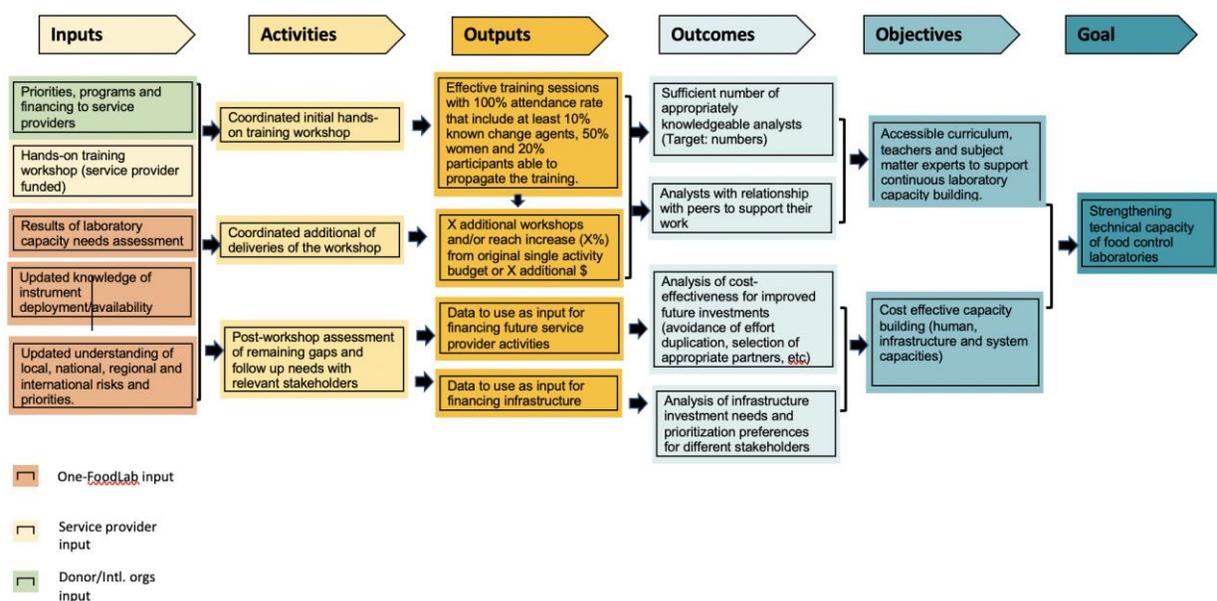
Background: The call for strong, coordinated food safety systems

Four key capacities must be secured in order to accomplish full food safety system management: human capital; physical infrastructure; management mechanisms to function correctly and secure continuous improvement; and an enabling regulatory environment with enforcement capability. All four elements must be present for proper functioning of the food safety system and the absence of any one element could impede the functioning of another. Understanding the complementarities and interdependencies of these capacities is critical to the design and implementation of efforts to reduce food safety hazards (Jaffee, Henson, Unnevehr, Grace, & Cassou, 2019).

Laboratories play a critical role in data collection for the risk assessment required for the adoption (or regionalization) of standards, to enable countries to participate in Codex activities, to resolve trade disputes and, in the long term, to ensure that the regulatory system in place provides the intended level of protection for the population. Adequate infrastructure, qualified staff trained to handle the samples and specialized equipment, and teams of experts to interpret laboratory results and translate them into risk management recommendations provide the science basis of these regulatory systems. Subsequently, quality assurance and accreditation schemes bring further credibility and trust to the system.

Fully functioning laboratories allow for the impartial control of food (Scholliers & Van den Eeckhout, 2011), food safety governance (Jaffee, Henson, Unnevehr, Grace, & Cassou, 2019, p. 140), compliance of agricultural products for proper marketing (World Bank, 2009) and consumer protection from adulteration. The broad scope of competencies needed to achieve these goals cannot be obtained in isolation. Interconnected laboratories provide a critical element of support to meet the requirements of a fast-moving technological landscape adopted by trade partners and needed to address the growing number of contaminants of concern. Many international organizations and trade partners support capacity building activities and infrastructure in developing countries; One-FoodLab will increase the efficacy of these investments by mapping capacities at a global level, fostering interaction and leveraging of resources, and will potentially showcase gaps or inform critical control points. Networks enable effective operations, promote efficiency, and provide surge capacity for one another (The World Bank, 2018).

Theory of Change Diagram (an example)



Who Benefits?

One-FoodLab benefits everyone in different ways.

For donor and implementers, the network will provide means to increase the impact of investments and activities by coordinating the participation of greater numbers of beneficiaries, suggesting and supporting low to no-cost actions that can reach broader audiences and by showcasing their work to enable leveraging and propagation.

For donor governments, One-FoodLab will provide convening opportunities to increase the impact of bilateral and multilateral assistance, and will contribute to better dissemination of information about not only the theory, but also the implementation of risk-based food safety systems that will contribute to food safety, food security and economic growth for all.

For beneficiary governments, the acceleration of laboratory capacity building, ability to benefit from assistance initially targeting other countries and the increased resilience of the laboratories will contribute to increased trust in the provision of safe food and trade facilitation.

Private laboratories and enterprises will be given opportunities to interact with public entities, which will benefit both sides through fostering a better understanding of priorities, mission and resources.

Consumers worldwide will benefit from these achievements through the provision of safe food that also favors trade, which results in access to more diverse nutrition and improved buying power. In turn, trade facilitation benefits businesses and farmers alike to contribute to local, regional and national economic growth.

One intangible benefit of the network will be to blur the line between donors and beneficiaries. Indeed, as investments are leveraged and their expansion directed, a once-beneficiary becomes the giver of assistance.

One-FoodLab

Mission

Promote food safety, consumer health and trade through the convening of stakeholders, coordination of cooperative capacity building for analytical laboratories involved in regulatory food safety systems globally, broadening of the reach of project outcomes and facilitation of investments in fit-for-purpose infrastructure.

The specific objectives are to:

1. Strengthen food regulatory systems by:
 - a. **Strengthening the technical capacity of food control laboratories** to ensure that they produce correct results through facilitation of training, ring tests and other cooperative activities delivered within a coordinated multiplicative framework. Increasing the number

of laboratories obtaining satisfactory results in ring tests will raise confidence in the safety of the food for consumers and trade partners.

- b. **Educating stakeholders (regulators and businesses) about the role of laboratories** and efficient use of their limited resources. Helping governments establish risk-based monitoring and verification programs within their food safety regulations will lead to safer food consumed locally and traded, while reducing the economic burden of 100% testing and other inefficient hazard-based testing schemes.
- c. **Promoting research using shared data for local and regional risk assessments** that support decision making based on science. Promoting data sharing for research will support the capacity of developing countries to establish rules based on regional risk assessments by reducing the burden of data for each participating country, as well as enable active participation in Codex, which will help push standards to reflect the realities of developing countries better.

2. Build **trust and confidence that facilitate trade** across countries and regions by:

- a. **Fostering information sharing**, including research, case studies and lessons learnt. Isolation is one of the greatest hurdles for laboratory scientists in developing countries. It is often remediated through bilateral cooperation, which is helpful but only offers limited benefits to the scientists. On one hand, One-FoodLab will generate a better insight into gaps of knowledge and/or access to fit-for-purpose methodologies by engaging analysts in regional and thematic discussion groups, and on the other hand, the professional relationships created by these discussion groups will enable less developed laboratories to receive informal (and free) assistance that will accelerate their capacity building.

- b. Collaboratively **developing and implementing laboratory quality management systems** (Goulding, 2017). By creating a repository of information and providing the communication

Theory of change
If the right analysts (GFSLN contribution) are provided appropriate analytical skills (Service provider contribution), then they will deploy fit-for-purpose methods in their laboratories that increase confidence and facilitate trade.

channels to create groups of shared interest, One-FoodLab will provide a venue for laboratories to work together and leverage each other's resources and experiences. Sharing practical information, such as SOPs, methods, alternative implementation better suited to local realities and "tricks of the trade", developing laboratories will be able to not only gather the paperwork for effective quality assurance, but implement it in a manner that is auditable by trade partners and eventually adequate for accreditation.

- c. **Facilitating the convening of peers** who can support each other. Many opportunities for relationship building are missed because they go unnoticed. By coordinating and promoting communications among members, One-FoodLab will be able to point out and leverage opportunities such as coordinating lab visits and pairing around conferences and meetings, identifying groups of laboratories that could benefit from other laboratories' experiences (especially for the adoption of new methods and procurement), create

training opportunities within conferences and meetings, and thereby improving the resilience of laboratories faced with staff rotation, etc.

3. **Improve information access** for developing countries that **fosters science-based regulatory harmonization** by

- a. **Developing a capacity building platform** for human capacity and technical advancements. Leveraging the teaching skills of network members, course materials and the convening and coordinating power of the network will facilitate the delivery of low- to no-cost training opportunities. More importantly, it will increase the visibility of training opportunities so that laboratories can arrange their own participation rather than wait for a project or a sponsor to offer them training. A platform containing information, identifying opportunities and providing contact mechanisms will help amplify the reach and impact of members' activities.
- b. Maintaining an updated, reliable and globally applicable **repository of food safety analytical capacity information**. Information access was identified as a hurdle in developing country laboratories of the APEC region (APEC Regional Consultation 2013). The time and cost of maintaining an up-to-date repository that is also curated for quality has limited this type of library gathering. However, the network can leverage the benefits of information provided and curated by its members through a sort of "crowd-sourcing" mechanism.
- c. **Disseminating information on risk-based, whole-of-government approach** to the development of regulations where and when needed. It is not sufficient to develop capable laboratories for food safety; they must be integrated into appropriate regulatory systems that use the data generated by the laboratory to achieve their goals of protecting consumers and facilitating trade. To this effect, giving laboratory scientists the knowledge and experience to participate in the rule-making process or the development of the regulatory system in their country will contribute to better utilization of laboratory resources and alignment for SPS and TBT requirements from the start.

One Project – Several theories of change

Example Project: Create a laboratory network platform on the internet with cell phone accessibility

- **By** providing access to a platform for information sharing and discussion, **we will** improve the safety of food (knowledge leads to better selection of methods and understanding of their scope of applicability) and facilitate trade (harmonization of methods facilitates systems comparison and acceptance).
- **If** there is better knowledge and utilization of fit-for-purpose methods, **then** analysts in DC can participate in discussions and debate instead of producing results in isolation and without verification mechanisms.
- **If** DC analysts are involved in discussions with peers, **then** they are equipped to contribute to the development of standards, thus ensuring that international standards incorporate the circumstances of DC in their nature and applicability.

d. **Promoting and delivering education to analysts on the use of analytical data in Codex**. Developing the quality of data that is brought to Codex by developing countries will increase their ability to affect international standards to address their countries' realities.

4. **Analyze the barriers and promoters of impact for investments in infrastructure to increase their efficacy to improve health and economic outcomes** by

- a. **Compiling and conducting capacity gap analyses** that convene public and private stakeholders to identify barriers to growth. By considering the needs of the public health and economic development officials, the gaps perceived by businesses and the experience of fully developed systems actors, One-FoodLab will deliver strategic information for investment.
- b. Convening stakeholders for **consultation on the prioritization and chronological deployment of investment** from donor organizations and other stakeholders. Providing input on the current situation and expertise on the risks and mitigation strategies for infrastructure investments in developing countries, One-FoodLab will help avoid building empty shells or delivering expensive instrumentation in environments that cannot support their operation.
- c. Creating public-private partnership mechanisms to **facilitate procurement** of infrastructure and supplies needed by laboratories to fulfill their mission. An important barrier to the adoption of adequate methodology to address risk in developing countries is the cost of instrumentation and supplies. Costs are much higher than in developed countries for a number of reasons including the low volume of purchases from each laboratory that limits access to volume discounts, the sale through indirect channels (i.e. distributors) who only process small volumes of supplies and instruments, a lack of harmonization of import requirements for laboratory instruments and supplies, etc. Convening stakeholders and promoting mechanisms such as procurement pools will help reduce these costs and facilitate the adoption of fit-for-purpose methods by all laboratories.

The outcomes of the One-FoodLab will be centered on the increased capacity to verify the effectiveness of regulatory systems in ensuring that food is safe and trade partners can be confident. More specifically, One-FoodLab will contribute to:

1. Increase the analytical capacity of food safety laboratories
2. Improve the reliability of data generated by its members
3. Support the implementation of quality assurance programs and, where appropriate, accreditation
4. Promote regulatory systems with laboratory management that ensures the protection of public health and promote trade within budgetary constraints to maximize benefits and the reduction of risks.

Impact

1. Increased **effectiveness** of local and regional laboratories, especially the quality and reliability of testing results, that will contribute towards opening new markets or other pathways to economic growth (World Bank, 2009);
2. Improved **service** of local and regional laboratories, including the types of analytical testing offered, the number of samples that can be handled and value-addition such as recommendations for action (World Bank, 2009);

3. **Improved public health** from reduced health risks (World Bank, 2009), more effective control of foodborne contaminants and pathogens (World Bank, 2009) at national, regional and global levels, and stronger food safety regulatory systems;
4. **Improved market access** through demonstrable compliance with bilateral and multilateral sanitary and phytosanitary (SPS) requirements (World Bank, 2009);
5. Increased uptake of fit-for-purpose **innovation**, where it supports the mandate and responsibilities of laboratories in regulatory authorities and industry.

At a local level, the improvement of the laboratory capacity will contribute in the building of stronger and more cohesive food systems, help shift the focus from addressing hazards to risk management, prioritize decision making, and enable a move away from a reactive to a preventive approach food safety management. At an international level, the network will foster cooperation for specialized training, which is a resource efficient tool (Jaffee, Henson, Unnevehr, Grace, & Cassou, 2019, p. 110) to improve food systems and public health, foster safe and fair trade, and promote development. Participation in the network will contribute to build confidence and trust among analysts and associated stakeholders to accelerate capacity building and facilitate the adoption of fit-for-purpose methods and technologies, which in turn support consumer health and facilitate trade.

Members of One-FoodLab

The network approach will be leveraged by a broad base of participants that shall both provide and receive the services of the network. It is envisioned that One-FoodLab will be composed of reference and regulatory laboratories, private laboratories delivering services for regulatory decision-making as well as private service providers and industrial laboratories. The expected roles and responsibilities of members and any tiered structure arrangement will be outlined in an agreed instrument. While aiming to include and assist all relevant laboratories, the network is expected to be initiated by a relatively small group of existing highly capable laboratories and regional networks already involved in international assistance activities. Initial beneficiary laboratories will likely be those already receiving assistance; these laboratories will act as regional focal points to expand the reach of the network to those laboratories that are either too small, not directly-enough linked with international trade or simply not in geographies prioritized by current projects and donors. This will ensure that the network is a value-addition organization that builds on what already exists, fosters the coordination of programs and activities, and is in a position to very quickly gather a significant amount of information in its repository. Initial entrants are expected to include:

1. Regulatory Laboratories:
 - a. Canada: Canadian Food Inspection Agency
 - b. Chile: Chilean Food Safety and Quality Agency (ACHIPIA) and Integrated System of Food Laboratories
 - c. European Union: European Food Safety Authority (EFSA) and EU Reference Laboratories
 - d. Germany: German Federal Institute for Risk Assessment (BfR)
 - e. India: Food Safety and Standards Authority of India (FSSAI)
 - f. Kenya: Kenya Bureau of Standards

- g. Malaysia; Ministry of Health
 - h. Singapore: Singapore Food Agency
 - i. South Africa:
 - j. United States: U.S. Department of Agriculture
 - k. Vietnam: Ministry of Health and National Agro-Forestry-Fisheries Quality Assurance Department (NAFIQAD)
2. Established national and regional networks
 - a. SAFE (UNIDO): Arab region
 - b. Red RALACA (IAEA): Latin America and Caribbean
 - c. PACA: Africa
 - d. INFAL/RILAA: Americas
 - e. Global Foodborne Infections Network (GFN) (WHO): Global
 - f. ASEAN Food Testing Laboratories Network (Committee): ASEAN region
 - g. APEC Food Safety Cooperation Forum (Partnership Training Institute Network): APEC region
 - h. AFoSaN: Africa
 3. Education service providers
 - a. ACE II Africa Center of Excellence for Food Safety and Mycotoxins (Nigeria)
 - b. APTECA
 - c. IFSTL
 - d. PARERA
 - e. RIKILT and other EURL
 - f. US Land Grant Universities
 4. International Organizations delivering laboratory capacity building programs for food safety
 - a. WHO/FAO (including EMPRES Food Safety, GFN and INFOSAN)
 - b. IAEA
 - c. STDF
 - d. UNIDO
 - e. World Food Program
 5. Private Enterprises dedicating corporate funds to their social responsibility in food safety
 - a. (Nestle, Waters, Mars, 3M, Cargill, Danone, etc)

One-FoodLab envisions itself as an ever-growing network that eventually would be integrated by all countries with installed laboratory capacity or looking to implement their own food safety analytical capacity. The network has a public-private nature, for there is recognition of the relevant role played by private laboratories delivering services or within food industries, and of the fact that ultimately what matters is the overall capacity of the laboratory system (World Bank, 2009).

Criteria for laboratory inclusion in One-FoodLab will be agreed upon at a later time, but the objective is to offer at least a minimum of support, in the form of a repository of information, to all interested laboratories via a web platform with appropriate media considering the bandwidth limitations and easier access through cellular telephone in developing countries. Importantly, laboratories receiving specific capacity building assistance will be required to contribute assistance in return through efforts coordinated by the Network

to ensure sustainability, multiplicative effect and the creation of cost-effective regional and/or thematic hubs of support.

Monitoring and Evaluation

There currently is no information available on the state of food safety laboratories globally. Consequently, One-FoodLab will conduct an initial assessment of capacity and needs through consultation with governments, international organizations and industry groups. This will help establish a baseline for measuring improvement to efficiently coordinate actions that will have the most impact on the global situation. Importantly, emphasis will be initially be placed on **amplifying the reach and impact of current investments**, programs and projects of the members. Strategic partnerships will be established to leverage existing resources and garner support for the functions of convener, coordinator and to host the information portal.

A monitoring and evaluation plan will be integrated in the network management to ensure the network's continuous alignment with **sustainable development goals** and optimal use of financial resources. Specific desired outputs and indicators will be selected to address the important pillars of laboratories that support strong food safety systems such as appropriate screening and confirmation capacity for contaminants, access to reference laboratories for performance verification and support, and monitoring programs that build trust. The deliverables of projects and activities amplified by the network will be reported as outcomes through carefully selected metrics and the impact on health, trade facilitation and resilience of laboratories evaluated annually.

Funding and Donor Support for One-FoodLab

The initial needs assessment necessary to properly target network efforts will be supported by the IFC. The network currently has no independent source of funds and will not have fund raising as a main task or priority. One-FoodLab will actively promote the convening of donors, implementers and service providers already acting in different regions to offer a coordination mechanism for their actions and amplify impact. The World Bank's GFSP Secretariat will be charged with donor relations and will suggest financial support for the above-stated functions to be included in existing and future projects and programs. Mechanisms may include funds for general operation or discrete funds to amplify the reach of a specific project, for example. **One-FoodLab is not an implementer or capacity building service provider** and as such will not accept funds tied to these functions. It will also discourage rerouting of funds that currently support effective regional laboratory networks; building on the successes of existing networks and cooperation mechanisms is at the heart of One-FoodLab and as such, these networks are important members that we wish to promote and not replace.

The bulk of the impact of the network will be obtained through leveraging existing member resources, including laboratory infrastructure, the technical capacity of staff and the provision of information. The World Bank's Global Food Safety Partnership will serve as One-FoodLab Secretariat and will coordinate donors (both in-kind and in-cash), provide financial analysis for investments and effective monitoring and evaluation of investments.

Accountability and transparency will be ensured through an annual report issued by the Secretariat of One-FoodLab. The commitment to the mission shall be monitored and directed by a Management Committee composed of representatives of the member groups to be agreed upon.

The time has come

Capacity building assistance for agriculture and food has been a target of investment to support food security since the Green Revolution, but the inclusion of safe food in the International Health Regulation of 2005 has emphasized its importance for population health, international trade and travel. While a vast array of investments and capacity building assistance have been provided, impact assessments have repeatedly concluded that the impact was limited, the scope is often too narrow (sectoral for example), or there is a lack of coordination with other activities that result in duplication of efforts. As organizations look to increase the impact of their investments, there is a recognized need for successful partnerships, including with private sector actors, to avoid duplication, catalyze the repetition of effective training, build knowledge and trust among stakeholders, broaden the geographical reach of successful mechanisms and generally capitalize on each other's work to move forward faster. One-FoodLab aims to be the driver of this change.

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