

AVI COMMENTARY

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Laboratory Accreditation: Why Does Quality Matter?

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Many facets of our daily lives are impacted by laboratory discoveries, including clean water quality, food safety, medical care, environmental sustainability, and various manufacturing products. In addition, accredited laboratory findings are used by business owners, authorities, organisations, and customers to adhere to standards and foster trust.

To protect public health, a product must fulfil the authority's standards. Moreover, the reliability and traceability of the products' certification are vital for global commercialisation and exportation. Therefore, the ability of the competent laboratory to confirm the details of the products' quality and risk before submitting them to the designated authority for approval saves time for businesses. Testing and calibration facilities are thus essential to the exporting process. They contribute significantly by offering accurate and reliable measurement data as scientific proof.

For timely delivery, tangible findings must be well accepted by relevant parties because many businesses require functional laboratories recognised by international standards, notably testing and calibration laboratories. This article aims to explain the laboratory accreditation process and its challenges and benefits. It also offers some recommendations.

Government Regulations and Standards

The ISO/IEC 17025: 2017 focuses on the general requirements for qualified testing and calibration laboratories. It was created 43 years ago and has since been amended six times. This standard helps guarantee the quality management system, quality assurance, and metrological traceability. In particular, in emerging economies like Cambodia, it facilitates access to the global market and fosters the expansion of Small and Medium Enterprises (SMEs).

Accreditation is the formal recognition that the laboratory is competent to carry out precise tests. Even though some of the information about the accreditation process can also depend on the accreditation body, the general process should be the same in following such steps as application submission, document review, accreditation assessment, corrective action and/or follow-up visit, accreditation decision, and monitoring and reassessment.

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For laboratory test results to be recognised by authorities and suppliers, they must meet ISO/IEC 17025 criteria. To guarantee the results' quality, accuracy, and reliability, accredited industrial sectors offer laboratory testing, calibration, sampling, and measurement services. Technical competence in a laboratory is influenced by several factors, such as staff qualifications and experience, correctly calibrated and maintained appropriate equipment, adequate quality assurance procedures, reliable testing procedures, measurement traceability to national standards, and suitable testing facilities. As a result, consumers may find and choose reliable testing, measurement, and calibration services more easily, thanks to accreditation, which gives competent laboratories formal confirmation.

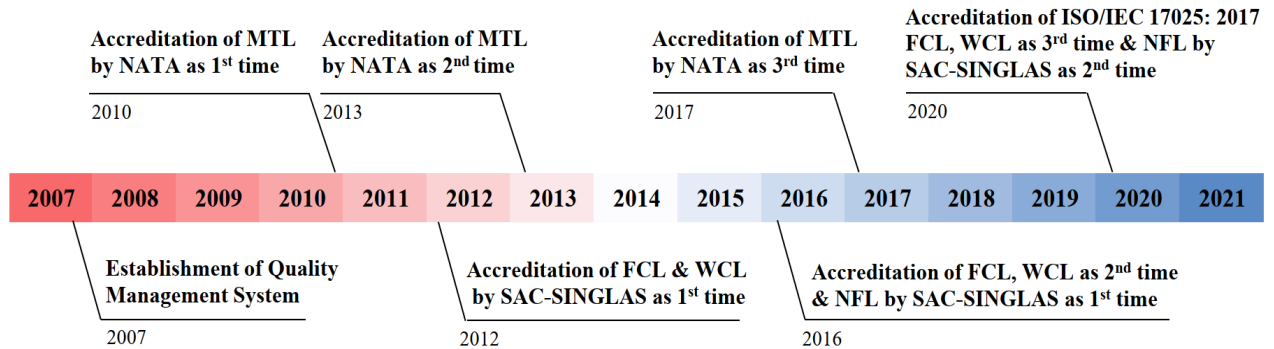
The benefits of using recognised laboratories include:

- 1) Saving money on repeated tests. The best, most precise, and error-free results are achieved via a recognised laboratory. It implies that it is no longer required to pay exorbitant fees for repeated testing.
- 2) Reducing risk. To lessen the likelihood of damage, poor usability, and short durability, a licensed laboratory evaluates goods, machinery or materials.
- 3) Promoting patron loyalty and confidence. When products and services are tried-and-true and of high quality, they attract new customers and keep old customers loyal, thus increasing sales.
- 4) Increasing global product recognition. When goods and services are highly regarded, endorsed, put through rigorous testing, and standardised, they begin to achieve global recognition.

Cambodia established the Science, Technology, and Innovation (STI) Ecosystem in 2021. STI is crucial in assisting Cambodia to realise its vision of becoming a high-income country by 2050. However, Cambodia's national innovation system still has a relatively weaker base regarding norms and guidelines. Therefore, the approved laboratories are crucial in enhancing Cambodia's national innovation system. Interestingly, the Science, Technology, and Innovation National Laboratory (STINL), which was recently established under the National Institute of Science, Technology, and Innovation (NISTI) of the Ministry of Industry, Science, Technology & Innovation (MISTI), has its former name as the Industrial Laboratory Center of Cambodia (ILCC).

Moreover, STINL has used its quality assurance system to confirm conformity to ISO/IEC 17025: 2017. In addition, it has certifications from the Singapore Accreditation Council-Singapore Laboratory Accreditation Scheme (SAC-SINGLAS) for chemical and biological testing and the National Association of Testing Authorities (NATA), Australia, for Microbiology Testing Laboratory (MTL). The reassessment of STINL is shown in Figure 1.

Figure 1: The history of reassessment of STINL, 2007-2021



*FCL: Food Chemical Laboratory

NFL: Non-Food Laboratory

MTL: Microbiology Testing Laboratory

WCL: Water Chemical Laboratory

NATA: National Association of Testing Authorities

SAC-SINGLAS: Singapore Accreditation Council-Singapore Laboratory Accreditation Scheme

In conclusion, the pursuit of accreditation in a laboratory is driven by the internal pressure to enhance, prove, and guarantee the reliability of analytical results and external pressure from the corporate sector to get international recognition and access to the global market. A certified laboratory can do testing, instruction, research, calibration, and other tasks and provide advice, workshops, and specialised training. It can also help staff members develop their professional experiences.

Without reliable laboratory data, the sale of products would become almost impossible, and integrating domestic goods into regional and global value chains will remain a long way off. Therefore, the public and private sectors must combine their efforts and resources to improve governance, invest in human capital through professional development and lifelong learning, strengthen research capacities and quality, foster collaboration and networking among key actors, and create an environment conducive to tech transfer. It is important to invest more in laboratory accreditation to promote Cambodia's national innovation ecosystem.

The views expressed are the author's own and do not reflect the views of the Asian Vision Institute.