



## Measuring up

### The invisible thin line: Quality assurance and well-being of the world

**T**he baby has a rash and you decide to seek the doctor's advice. After reviewing the analysis report from a clinical laboratory, the doctor concludes that the rash is not serious and prescribes a topical antifungal lotion. The local pharmacist fills the prescription and, in a few days, nobody will remember the rash. Modern medical magic? Absolutely, but even more amazing is that this pleasant outcome

was made possible by a huge invisible network that ensures the quality of all services and products which facilitated the cure of the rash.



In several countries, quality infrastructure ensures that the products and services delivered to its citizens meet minimal specifications, which safeguards the well-being of all. But in many developing countries this infrastructure is incomplete or at inception and prevents those economies from attaining their full potential. Recognizing the problem, a group of international organizations have come together in an initiative known as the Joint Committee on Coordination of Technical Assistance to Developing Countries in Metrology, Accreditation and Standardization (JCDCMAS) to try to improve the trade capacity infrastructure of those countries. But before we talk about the JCDCMAS, let's first consider this invisible network of services that enables modern economies to effectively compete in the global market.



A conventional quality infrastructure is formed by five basic elements: standards, testing, certification, metrology, and accreditation. Each of these elements works with others to ensure the quality of goods and services produced by the local economy. Now let's review them in more detail.



**Standards** – documentary standards are agreed sets of specifications for the goods and services produced and/or consumed by the local economy. Their value is tremendous as they give the supplier and consumer a confidence in the common ground for conducting their business transaction.

With the increasing globalization of markets, International Standards (as opposed to regional or national stand-



ards) have become critical to the trading process, ensuring a level playing field for exports, and ensuring imports meet internationally recognized levels of performance and safety. As a result, membership in international organizations that produce standards is of increasing importance to countries that engage in global trade. The apex International Standards organizations today are: the International Electrotechnical Commission (IEC, [www.iec.ch](http://www.iec.ch)), which covers electrotechnology and related conformity assessment; the Telecommunication Standardization Bureau of ITU (ITU-T, [www.itu.int/ITU-T/](http://www.itu.int/ITU-T/)), which covers telecommunications; and ISO ([www.iso.org](http://www.iso.org)), which covers nearly all other technical fields, a number of service sectors, management systems and conformity assessment.



**Testing** – prior to making a product or service available for consumption, it needs to be tested to assure its compliance with the specifications contained in the documentary standards detailing its quality. In most countries, testing is conducted by a network of laboratories which, through accreditation and proficiency testing, have demonstrated their ability to assess the quality of the products that they test with a level of competence and independence that is satisfactory to all interested parties.



**Metrology** – no testing would be possible unless the characteristics of the product or service in question can be measured in a way which compares them against physical or chemical references of known value. Therefore, adequate methods for measuring

## JCDCMAS members



the properties of products and services are fundamental to the quality assessment process. Of special importance is that those measurements can be traced back to national and international references through a process known as traceability.

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As is the case with international documentary standards, globalization requires that many of the measurements made locally can be shown to be traceable to national standards which are equivalent to national standards in other countries. International organizations such as the International Bureau of Weights and Measures (BIPM, [www.bipm.org](http://www.bipm.org)) – which provides the basis for a single, coherent system of measurements throughout the world, traceable to the International System of Units (SI) – and the International Organization of Legal Metrology (OIML, [www.oiml.org](http://www.oiml.org)) – which assures that legislation governing metrology matters within each country have a uniform international base – provide the infrastructure needed to guarantee the equivalence of the national measurement systems of all countries.



**Certification** – based on the results from accredited laboratories and on the specifications from documentary standards, certification bodies can make third-party declarations of the compliance of products and services with the written standards ruling their manufacturing and delivery in the local market and/or the certification of the organization's management system (QMS, EMS, etc.).

## Main Focus

Such certifications enable customers to trust the quality of the products and services that they consume without having to further investigate the competence of the supplier.



**Accreditation** – national accreditation bodies help ensure the competence of the national network of testing and calibration laboratories by making certain that the measurements in these laboratories are traceable to national standards and by performing proficiency tests which give an indication of the expertise of the staff performing those tests. The national accreditation bodies also help ensure the competence of the network of certification bodies, operating within each country, by ensuring that the third party declarations made by certification bodies are performed consistently and in accordance with the relevant standards. International organizations such as the International Accreditation Forum (IAF, [www.iaf.nu/](http://www.iaf.nu/)) and the International Laboratory Accreditation Co-operation (ILAC, [www.ilac.org/](http://www.ilac.org/)) are working to ensure that the output from accredited certification bodies and accredited laboratories (respectively) in one country is accepted by authorities and customers in other countries, as if they had been made by a local accredited certification body or laboratory. This acceptance reduces the need for additional third party declarations and testing at importation ports thus resulting in savings for consumers.

Together, these five elements try to ensure that the products and services that an economy produces and consumes live up to the quality expectations of prospective customers. In the case of international trade, national quality infrastructures with the elements described here work with local importers/exporters to ensure that the quality of products is only assessed once, thus



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preventing expensive retesting prior to entering foreign markets.

In the developing world, many countries are in the process of implementing the above-mentioned infrastructure and this leads to local situations where the quality assurance structure is incomplete. Certainly, any level of quality infrastructure is better than none, but the lack of any of these key elements forces exporters from these countries to seek the conformity assessment services at the port of entry for their products/services, thus placing them at a competitive disadvantage even before they reach their intended market. And in many cases these addi-



**Metrology, standardization and conformity assessment – Building an infrastructure for sustainable development, which is available free of charge on ISO's Web site [www.iso.org](http://www.iso.org) and as a four-page brochure, is based on a paper prepared by the Joint Committee on Coordination of Technical Assistance to Developing Countries in Metrology, Accreditation and Standardization (JCDCMAS).**

tional costs can be insurmountable; for example, the World Bank estimates that 70% of the burden on developing countries' manufactured exports results from trade barriers. Therefore, if developing countries are to compete effectively in the global market, technical barriers to trade (TBT), arising from international quality specifications, need to be addressed through effective quality infrastructures that have been tailored to the local needs. International organizations such as the United Nations Industrial Development Organization (UNIDO, [www.unido.org/](http://www.unido.org/)) and the International Trade Centre (ITC, [www.intracen.org/](http://www.intracen.org/)) are working to secure the establishment of this type of infrastructure in the developing world through trade capacity projects aimed at making TBT a thing of the past.

The Joint Committee on Coordination of Technical Assistance to Developing Countries in Metrology, Accreditation and Standardization (JCDCMAS, see [www.jcdcmas.org](http://www.jcdcmas.org)) seeks to bring together all specialized organizations operating at a global level that are active in promoting MAS (metrology, accreditation, and standardization) as a tool for sustainable economic development. Its members try to coordinate their efforts aimed at the developing world, aspiring one day to have an international strategy and work plan which would enable the optimization of resources; to reach those with the greatest need in the least amount of time.

If you feel that the JCDCMAS could be of assistance somewhere in the world, or if your organization shares our goals and would like to help, we urge you to contact us at: [secretariat@jcdcmas.org](mailto:secretariat@jcdcmas.org). ■