

Kenya will host the first Intra-Africa Metrology System (AFRIMETS) Metrology School in Nairobi in conjunction with the United Nations Industrial Development Organisation (UNIDO), the Norwegian Agency for Development Cooperation (NORAD), the Kenya Bureau of Standards (KEBS) and the Weights and Measures Department.

The 2011 AFRIMETS Metrology School

A first of its kind, the 2011 AFRIMETS Metrology School aims at not only giving young metrologists from Africa an introduction to the components that make up a sound measurement system for a country, but also at giving them hands-on experience in a number of technical fields. It has been designed to introduce standards, quality, accreditation and metrology in a balanced way over 10 days

The 2011 AFRIMETS Metrology School creates the opportunity to equip a younger generation of metrologists with the knowledge necessary to build the African metrology infrastructure to an internationally accepted level. Many internationally renowned scientists have been invited to share their knowledge in their particular areas of expertise. In addition to the laboratory experiences, the school participants will also visit several industries to assess the implementation of quality, standards and metrology, and their effect, on the successes of these industries.

Participants from all countries on the African continent were invited, and after a rigorous selection process, two candidates were selected per country. Seven young metrologists from Asia and the Americas are also participating to facilitate networking and inter-regional knowledge exchange.

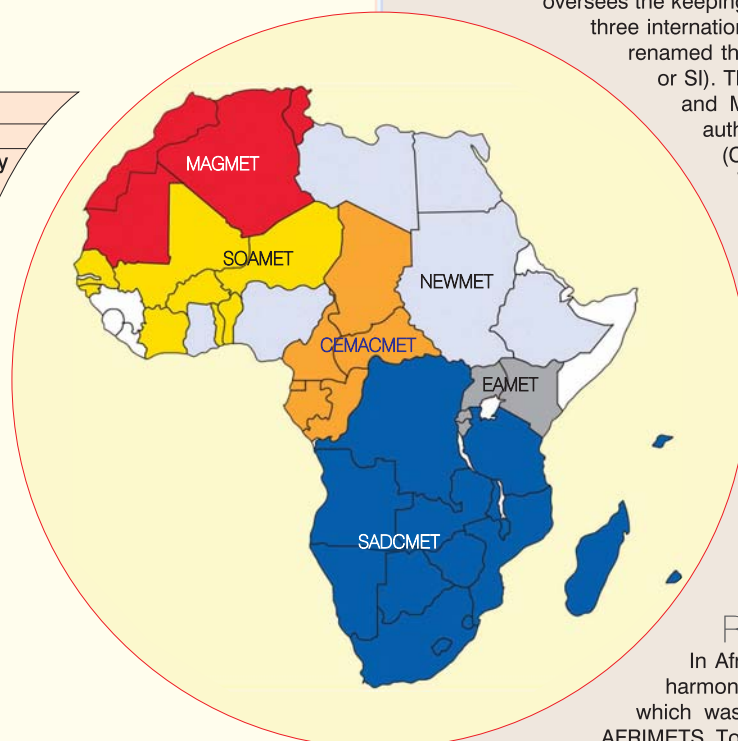
The 2011 Metrology School is part of a project for the institutional strengthening of AFRIMETS and is funded by NORAD and UNIDO. The school is hosted locally by KEBS and Weights and Measures Department.

Who is attending?

84	Participants
45	Countries represented (participants and presenters)
17	International presenters from renowned National Metrology Institutes and supporting organisations
5	Partner enterprises for industrial visits: New Kenya Creameries Co-Operative, GlaxoSmithKline, Bamburi Cement, Petroleum Industrial Services, East African Breweries Limited

Participating countries

Bangladesh	France	Mauritania	Swaziland
Benin	Gabon	Mexico	Tanzania
Botswana	Gambia	Namibia	Togo
Burkina Faso	Germany	Nepal	Tunisia
Burundi	Ghana	Niger	Uganda
Buthan	Guinea	Nigeria	United Kingdom
Canada	Haiti	Rwanda	U.S.A
Cape Verde	Kenya	Senegal	Zambia
Côte d'Ivoire	Lesotho	Seychelles	Zimbabwe
DR Congo	Liberia	Sierra Leone	
Egypt	Maldives	South Africa	
Ethiopia	Mali	Sri Lanka	



The History of Metrology

One of the very first applications of metrology dates back to ancient Egypt and the building of the pyramids, where a "cubit" was used as the length measurement unit for the building of the pyramids. A master cubit was made from marble; equal to the length of the forearm (measured from the elbow to the tip of the middle finger) of the reigning Pharaoh. Foremen of the pyramid building sites had to have their working cubit sticks calibrated regularly against the master cubit, and failure to do so was punishable by death. The cubit was further divided into the span of the hand (one-half cubit), the palm or width of the hand (one sixth), and the digit or width of the middle finger (one twenty-fourth) and the span or the length between the tip little finger to the tip of the thumb. Though the cubit and its divisions were a sound measurement system, the length of the master cubit changed at the death of each Pharaoh.

The Organisation of Metrology

International Metrology Systems

The need for an international system of measurements that allow countries to compare their measurements in an equivalent manner led to the formation of the Metre Convention on 20 May 1875. It is called the Convention du Mètre in French, and is also referred to in English as the Treaty of the Metre). The Metre Convention established a permanent organisational structure for member governments to act in common accord on all matters relating to units of measurement, and oversees the keeping of measurement standards based on the metric system through three international organisations. In 1960, the system of units it established was renamed the "International System of Units" (Système international d'unités or SI). The Metre Convention created the International Bureau of Weights and Measures (BIPM), an intergovernmental organisation under the authority of the General Conference on Weights and Measures (CGPM) and the supervision of the International Committee for Weights and Measures (CIPM). Countries that are signatories to the CIPM's Mutual Recognition Arrangement (MRA) recognise the measurement capabilities of the other signatory countries.

In 1955, The International Organisation of Legal Metrology (OIML), an intergovernmental treaty, was established to oversee all activities for which legal requirements are prescribed on measurement, units of measurement, measuring instruments and methods of measurement, these activities being performed by or on behalf of governmental authorities, in order to ensure an appropriate level of credibility of measurement results in the national regulatory environment. The OIML develops model regulations, International Recommendations, which provide Members with an internationally agreed-upon basis for the establishment of national legislation on various categories of measuring instruments.

Regional Structures

In Africa, scientific and legal metrology activities are coordinated and harmonised through the Intra-Africa System for Metrology (AFRIMETS), which was established in 2007. Currently 46 countries are members of AFRIMETS. To ensure the success of regional development, metrology activities in Africa have been structured into six sub-regions (see the image map of Africa).

"Now is the time to invest in the future"

- Dr Wynand Louw, Chairperson, AFRIMETS

What is Metrology?

Metrology, the science and practice of measurement, is strategically important in a country's development. When we trade, whether you buy something in your local shop, nationally or internationally, we measure. Trading systems relies on these measurements being "right" wherever they are made. But how do we know that these measurements are "right"? That is the job of metrologists – scientists who specialize in measurement techniques and who provide the framework for accurate measurement that industry, legislators, regulators and the general public can rely upon.

Two kinds of Metrology

Scientific/Industrial Metrology

Scientific metrology, as undertaken national metrology institutes (such as KEBS in Kenya) and the International Bureau of Weights and Measures (BIPM), based in Paris, France, establishes and validates the accuracy and comparability of measurements. This is achieved by connecting measurement standards of known metrological behaviour in NMIs through an unbroken chain of measurements to the International System of Units (the SI) or internationally stated references. In this way, traceable measurement results can be achieved across the globe.

Legal Metrology

Legal metrology comprises all activities for which legal requirements are prescribed on measurement, units of measurement, measuring instruments and methods of measurement. These activities are being performed by or on behalf of governmental authorities, in order to ensure an appropriate level of credibility of measurement results in the national regulatory environment. (Definition taken from OIML D 1 Elements for a Law on Metrology, 2004).

National Systems

For a country to successfully operate in the international trade arena, it needs to establish a national metrology infrastructure. This comprises of an institute that takes care of the scientific metrology needs and a legal metrology function. Depending on the country, these functions can be in one institute or in two different institutes.

In Kenya, KEBS is responsible for the scientific metrology under the Ministry of industrialisation, and the Weights and Measures Department, under the Ministry of Trade, for legal metrology.

Who is UNIDO?

The United Nations Industrial Development Organization (UNIDO), based in Vienna, Austria, is a specialized agency of the United Nations. Its mandate is to promote and accelerate sustainable industrial development in developing countries and economies in transition, and work towards improving living conditions in the world's poorest countries by drawing on its combined global resources and expertise. UNIDO has assumed an enhanced role in the global development agenda by focusing its activities on poverty reduction, inclusive globalization and environmental sustainability. Its services are based on two core functions: as a global forum, to generate and disseminate industry-related knowledge; as a technical cooperation agency, to provide technical support and implement projects. UNIDO focuses on three main thematic areas, in which seek to achieve long-term impact:

- ▲ Poverty reduction through productive activities
- ▲ Trade capacity-building
- ▲ Energy and Environment

UNIDO partners with donor bodies/institutes to implement development projects. In this project, UNIDO partnered with NORAD.

"It is an opportunity that rarely presents itself on the African continent"

- Geraldo Albasini, Vice-chair for Legal Metrology, AFRIMETS

"Metrology is fundamental to trade"

- UNIDO