



**AFRIMETS**  
Intra-Africa Metrology System  
Système Intra-Africain de Métrologie



# **SUPPORTING THE DEVELOPMENT OF METROLOGY IN AFRICA**

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**26<sup>th</sup> General Conference on Weights and Measures**

**13-16 November 2018**

**Versailles, France**

- Introduction
- Intra-Africa Metrology System
- African Continental Free Trade Area
- Quality Infrastructure
- Measurements for trade
- Metrology in Africa
- Summary



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# Introduction

- Measurements have been carried out for as long as civilization has existed
- In Africa, the early Egyptian civilization had a well established measurement system
- Accurate and reliable measurements will always be a requirement of any organized society



- Metrology in Africa was, until recently, limited to national matters with little regional or international interaction
- The advent of Regional Economic Communities (RECs) introduced cross-border measurement cooperation to support their trade regimes
- The establishment of the African Union (AU) has necessitated inter-RECs measurement cooperation



- To participate in international metrology programmes, Africa's metrology community identified the need to cooperate beyond the RECs
- The Southern African Development Community Cooperation in Measurement Traceability (SADCMET) took this lead role for some time

*Note: SADCMET is an organ of the Southern African Development Community (SADC)*

## Brief history

- SADC MET represented Africa internationally but with limitations due to its association to one REC
- This informed the initiative to create a Pan-African Regional Metrology Organization (RMO)
- AFRIMETS establishment started with a kick-off workshop at Midrand, South Africa in March 2006

## Brief history

- Three rounds of the *AFRIMETS MoU Task Force* meetings followed between May and September 2006 at the same venue and delivered the final MoU
- 1<sup>st</sup> AFRIMETS General Assembly (GA) was held in July 2007 at Midrand, South Africa
- AFRIMETS MoU signed during this GA with a representation of 38 African countries



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# Intra-Africa Metrology System - AFRIMETS

## Mandate

- Promote the development of scientific, industrial and legal metrology issues across Africa
- Operate a fully-fledged Regional Metrology Organization (RMO)

*Note:*

*RMO in accordance with Mutual Recognition Arrangement (MRA) of the International Committee for Weights and Measures (CIPM)*

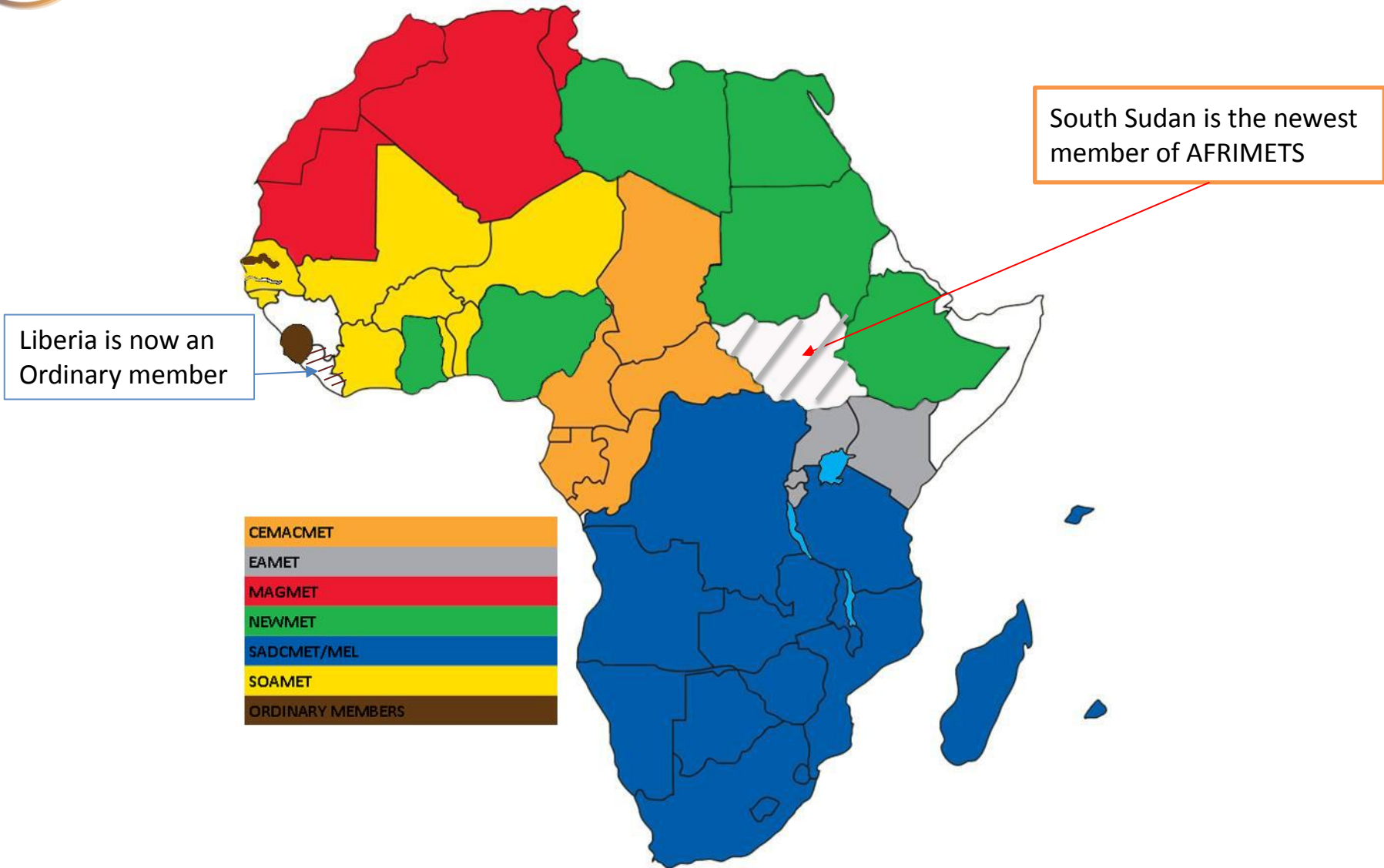




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# Intra-Africa Metrology System - AFRIMETS

## Membership



# African Continental Free Trade Area

- The African Continental Free Trade Area (AfCFTA) is an initiative of the African Union, AU
- AfCFTA is a free-trade agreement initially signed by 44 of 55 AU member states in Kigali, Rwanda on 21 March 2018
- The agreement creates the largest free-trade area in terms of participating countries since the formation of the World Trade Organization



*Note:*

*The AU, established on 9 July 2002, is a continental union consisting of the 55 countries of Africa. Its headquarter is in Addis Ababa, Ethiopia.*



**Towards One African Market**

AfCFTA aims to:

- Create a single continental market for goods and services eventually leading to a customs union
- Resolve the challenges of multiple and overlapping REC memberships ...



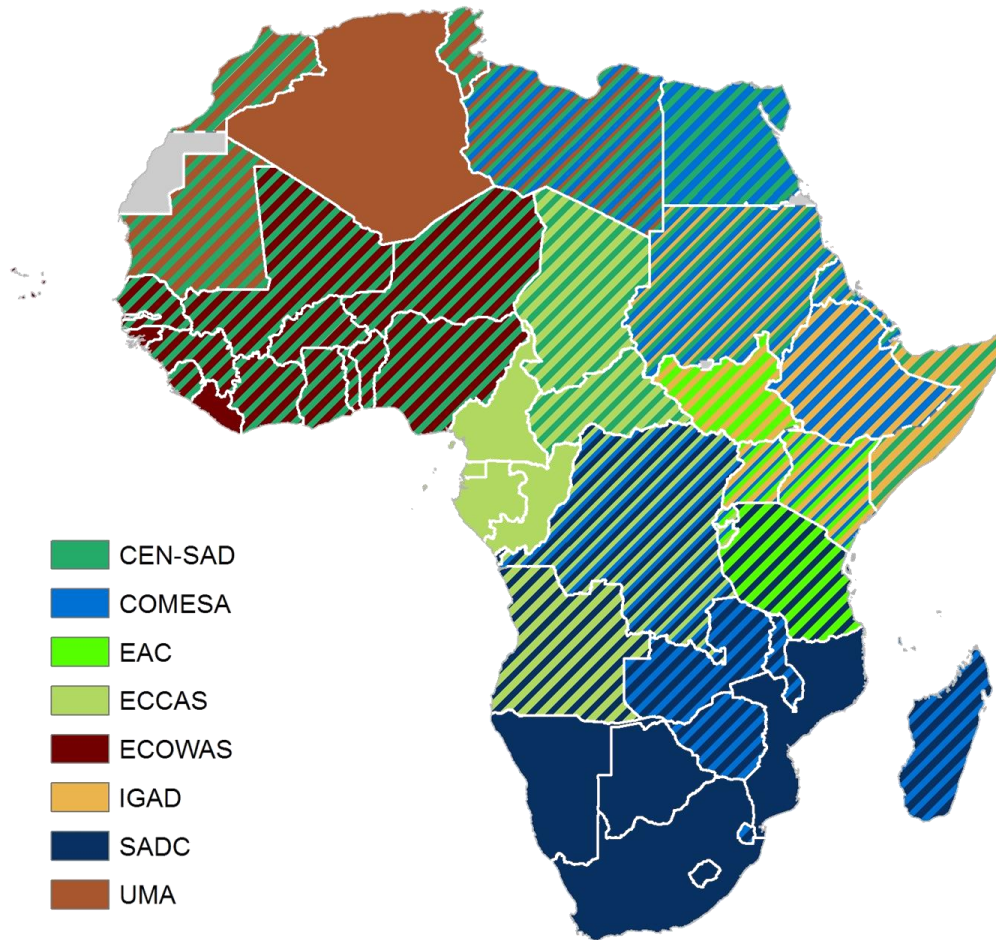
*Note:*

*AfCFTA brings together 55 countries with a combined population of more than one billion people and a combined GDP of more than US \$3.4 trillion*



**Towards One African Market**

## AfCFTA and the RECs



- By July 2018, another five countries signed the AfCFTA Agreement bringing the total to 49 - only 6 countries have yet to sign up
- Instruments signed:
  - Protocol on Trade in Goods
  - Protocol on Trade in Services
  - Protocol on Rules and Procedures on the Settlement of Disputes



Towards One African Market



# African Continental Free Trade Area Mechanisms of the AfCFTA

- The Agreement



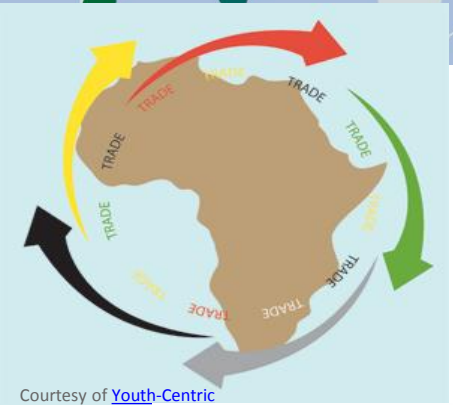
- Customs Union

(90 % of Tariff lines to have a zero duty in 5 years)

- Common market

- Monetary Union

- Single Currency



Towards One African Market



## Why a “Quality Infrastructure”?

What does it mean for the Continent and in terms of the AfCFTA?

- Enhanced product quality and compatibility
- Enhanced safety and health
- Decreased (negative) environmental impact
- Increased trade opportunities
- Facilitating innovations to the market place



# Quality Infrastructure



- AU requires a functional quality infrastructure to successfully deliver the AfCFTA
- The Pan-African Quality Infrastructure (PAQI) forum answers to this need
- PAQI is constituted by four pillar organizations:
  - African Organisation for Standardisation (ARSO)
  - African Electrotechnical Standardization Commission (AFSEC)
  - African Accreditation Cooperation (AFRAC)
  - Intra-Africa Metrology System (AFRIMETS)
- Measurements underpin the activities of a sound Quality Infrastructure

# Quality Infrastructure

## PAQI - Linkages

PAN-AFRICAN QUALITY INFRASTRUCTURE







# Measurements for trade

The trade of fruit, cereal, meat and manufactured products, has a large number of technical measures (SPS and TBT) that require accurate measurement

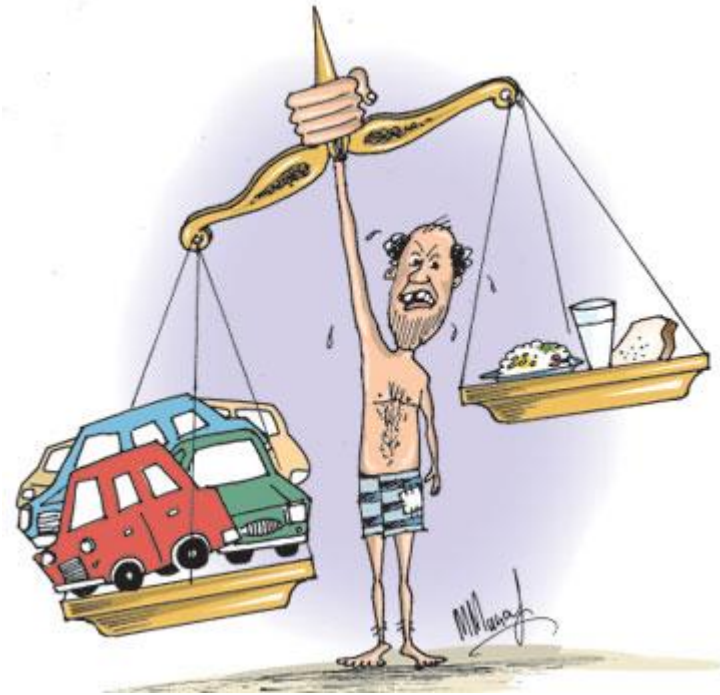




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# Measurements for trade

**Measurement deficiencies create trade imbalances!**





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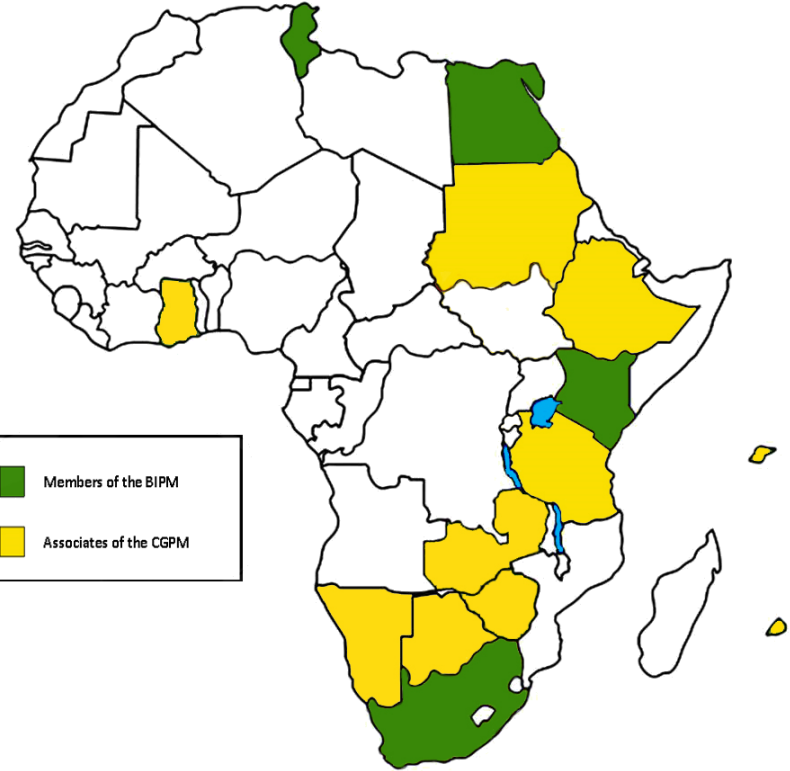
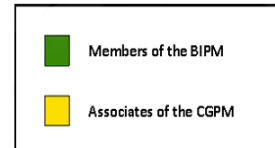
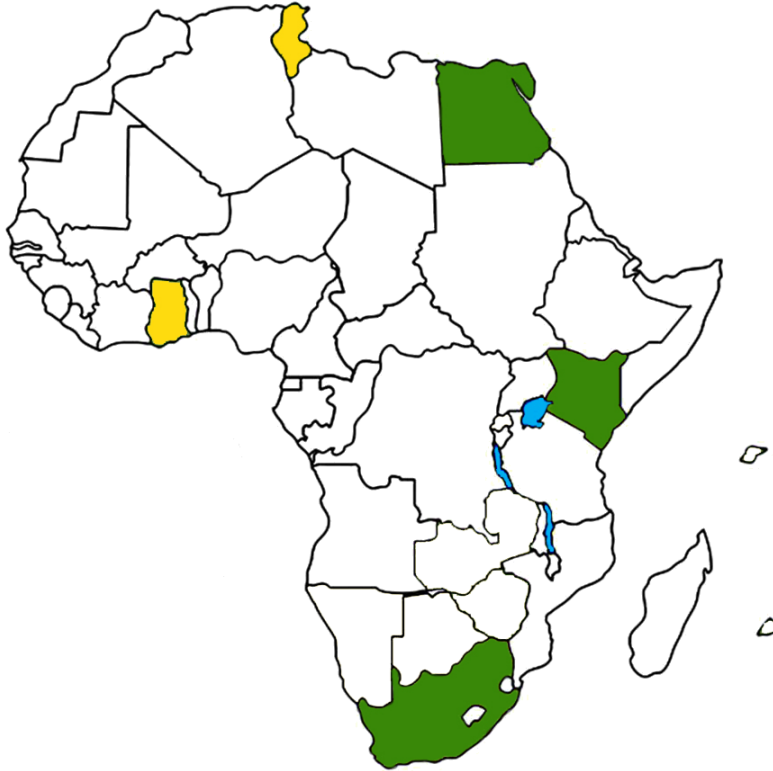
# Metrology in Africa

## BIPM Membership

2007



2018







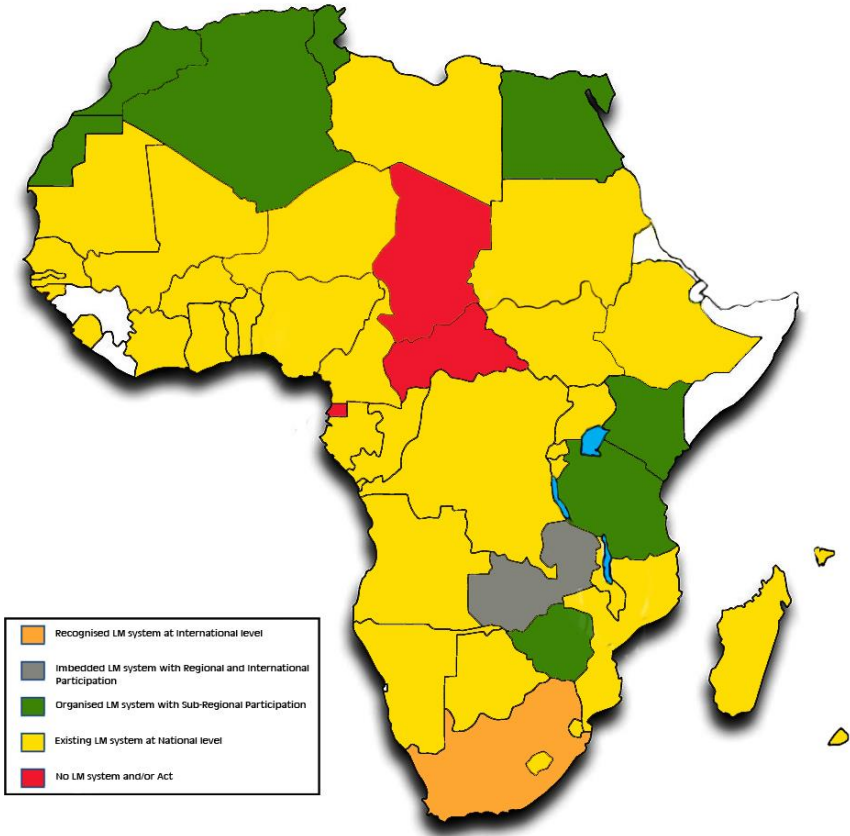
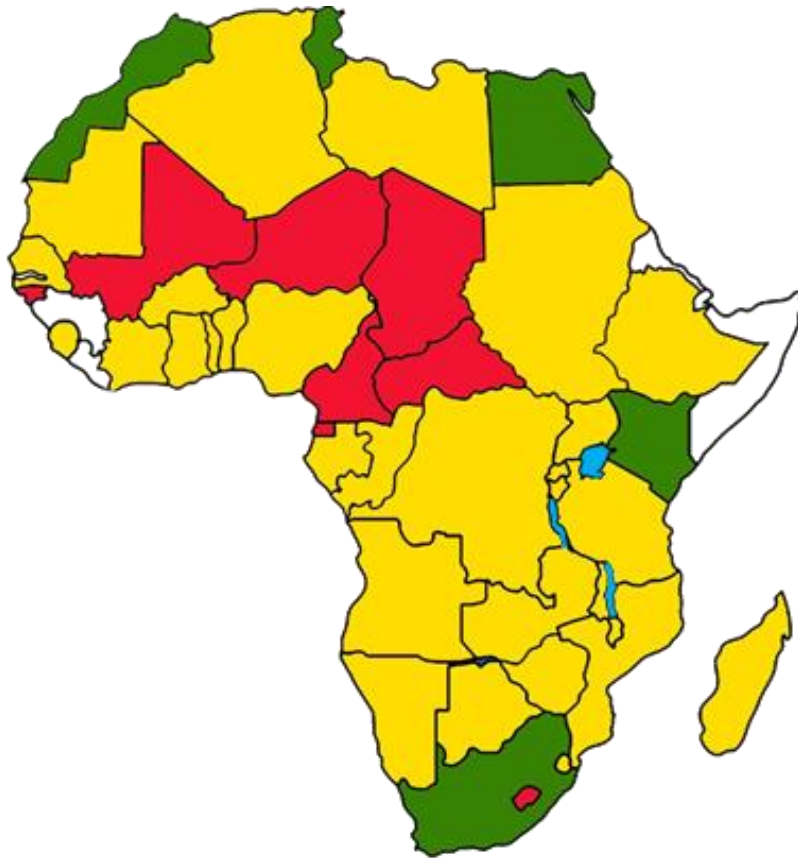
# Metrology in Africa

## Legal Metrology Categorisation

2007



2018



- Recognised LM system at international level
- Imbedded LM system with Regional and International Participation
- Organised LM system with sub-Regional Participation
- Existing LM system at National level
- No LM system and/or Act

- 634 CMCs published in the KCDB from AFRIMETS - up from 535 in 2017
- Significantly, more countries are contributing to this number of CMCs compared to just four as recently as 2017
  - South Africa = 533
  - Egypt = 39
  - Kenya = 17
  - Tunisia = 14
  - Zimbabwe = 13
  - Zambia = 11
  - Namibia = 7

# Metrology in Africa

## Plans and focus areas

- African food and feed reference materials programme
- Metrology capacity building for safe food and feed in developing economies - nuts, maize, tea, cereal, coffee, cacao, wine, fruits
- Shortening the traceability chain for Africa

### Mycotoxins



**Multiple  
toxins in  
maize &  
wine**

**Aflatoxins in  
African  
ground nuts**



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# Metrology in Africa

## Plans and focus areas

- ✓ Africa Matrix Reference Materials
- ✓ Kibble (Watt balance)
  - ❖ New Programmable Josephson Voltage Array
  - ❖ New Quantum Hall System
- ✓ Avogadro project
- ✓ Nanoscience and Technology
- ✓ Primary Acoustic Gas Thermometer





# Metrology in Africa

## Plans and focus areas

In support of accredited testing facilities:

- Produce calibration solutions
- Introduce a Proficiency Testing (PT) scheme category within the comparison framework





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# Metrology in Africa

## Plans and focus areas

- Assist countries to improve testing facilities in support of the of the AfCFTA:
  - Identify crucial measurements to support trade
  - Identify testing capability gaps in for export products
  - Establish testing hubs for export products
- Services database for metrology institutes (peer reviewed acceptance of capabilities for trade)

- Metrology in Africa is now integrated into the international metrology system
- AFRIMETS has contributed greatly to this integration process
- AFRIMETS along with the other Quality Infrastructure organizations is playing a key role in the realization of the African Continental Free Trade Area (AfCFTA)

**THANK YOU**