



NEWMET REPORT



To

The 8th AFRIMETS GA

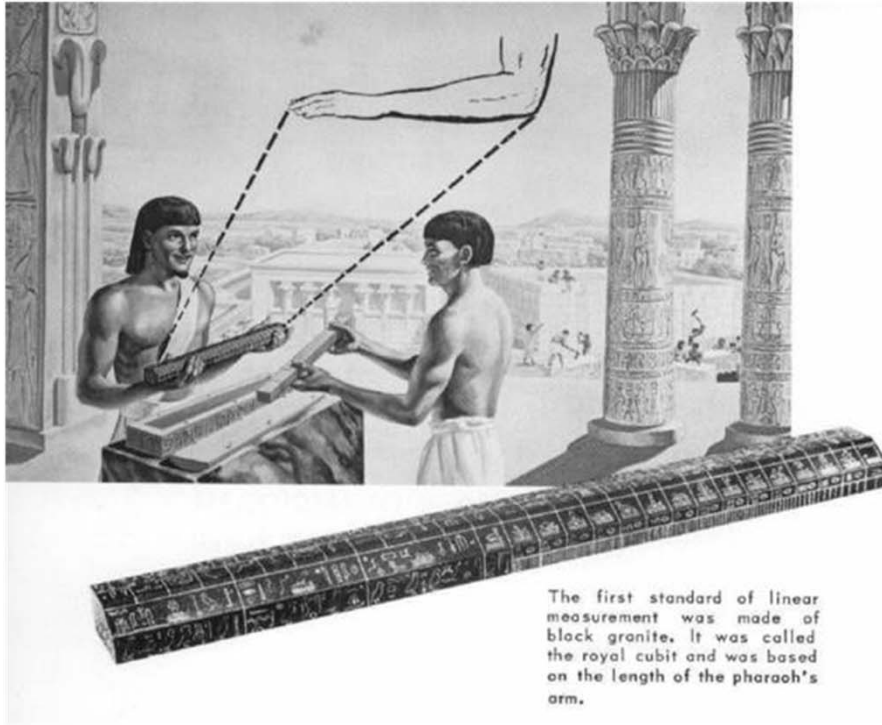
Addis Ababa, Ethiopia, June 2014

Presented by

Prof. Dr. Adel B. Shehata

President of NIS-Egypt, Chair of the NEWMET

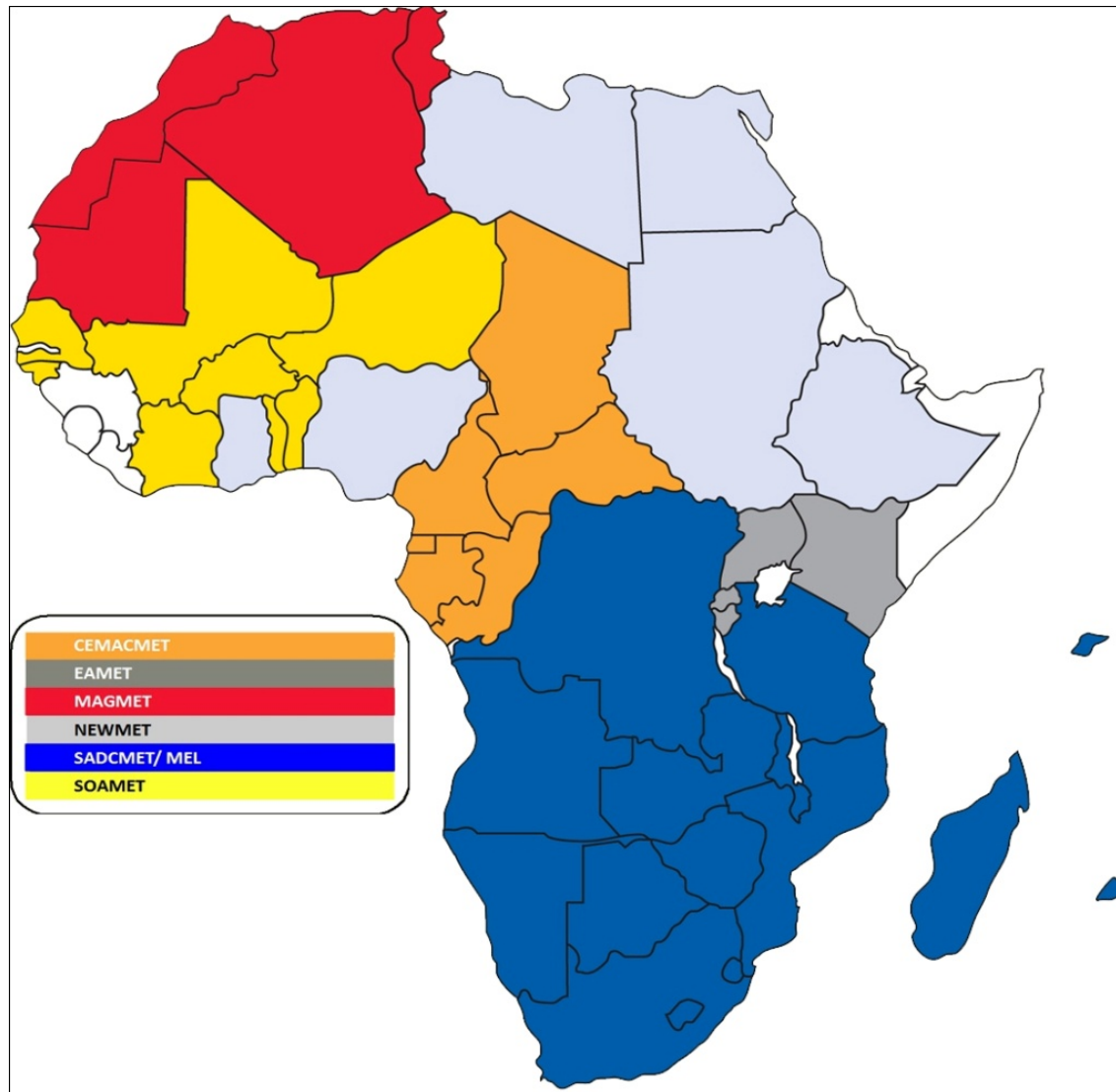
The Royal Cubit



로얄 이집트 큐빗 마스터
(~2600 BC)



AFRIMETS



ADVANCES at GSA-GHANA

- **A new calibration laboratory for moisture and humidity will be functioned end of this year**
- **A testing laboratory for mycotoxins has been accredited**
- **A team has attended the Directors meeting at the BIPM**
- **The reorganization of legal metrology will take place this year**

ADVANCES at NMIE-ETHIOPIA

- **Balance and electrical laboratories was accredited in 2014 in addition to mass, pressure, temperature and volume laboratories which were accredited before.**
- **Ethiopia is in the way to be an an associate member in the meter convention.**



NIGERIA AND LYBIA

- **They do not react to the NEWMET activities**



ADVANCES at SSMO-SUDAN



- **I paid a visit to SSMO in Khartoum, May 2013 and gave a presentation on the CIPM MRA and its importance for the international trade**
- **SSMO signed for the NEWMET and are taking steps for the associate membership in the metre convention.**

ADVANCES at NIS-EGYPT

- **NIS has got more CMCs recognized (Torque – IR – Chemistry – Electrical resistance)**
- **The AFRIMETS TCQ has approved the NIS QS as fit-for – purpose for the CIPM MRA.**
- **NIS has piloted mass and pressure comparisons in the NEWMET**
- **The mass lab at NIS has developed two measurement standards, one for density of liquids and one for density of solids**

NIS Developed Measurement Standard for Density of Liquids



NIS Developed Measurement Standard for Density of Solids



Mass comparison

The aim was to compare the performance of a set of OIML standard masses within the NEWMET NMIs

nominal value

10 kg

500 g

20 g

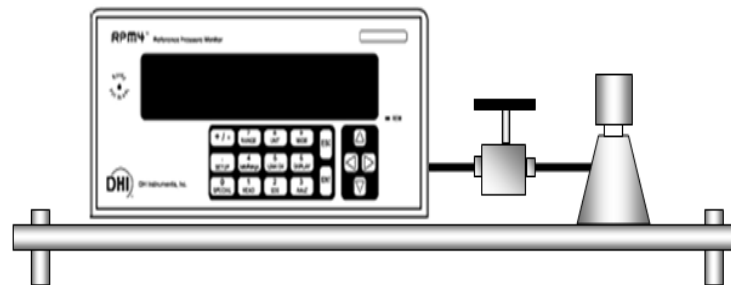
2 g

100 mg



Pressure comparison

The aim is to compare the performance of hydraulic pressure standards within the NEWMETNMIs , in the range 20-200 MPa in gauge mode. The artifact was pressure monitor



Participating NMIs

- NIS - EGYPT
- NMIE - ETHIOPIA
- GSA - GHANA

For Mass

- Measurements have been finished at the three NMIs, NIS and NMIE and GSA.
- Draft A report is expected to be issued within one month.

For Pressure

- Measurements were finished at NIS and NMIE.
- Measurements by Ghana GSA will be carried out after 4 months.



Metrology Training Courses Presented by NIS

Training programs in 2014/2015

No	Program	Period
1	Mass Metrology course	12 – 16 /11/2014
2	Pressure Metrology course	19 – 23 /11/2014
3	Density Metrology course	26-30 /11/2014
4	Calculation of uncertainty	22 – 26 /03/2015

The course will be conducted in English

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Mass Metrology course
5 working days
half time class room
half time practical training

Class room

- **Calibration of high accuracy electronic balances and Evaluation of Comparators.**
- **Calibration of masses of all classes**
- **Applying methods and equations including standard deviation calculations**
- **Air density measurements**
- **Balances uncertainty during calibrations**
- **Balances uncertainty during using**

Practical

- **Calibration of weighing scales**
- **Calibration of high classes masses**
- **Detection of sources of errors and method of improvement of process**
- **Applying Least square method for masses Calibration**
- **Calculations of uncertainty for different process**



Pressure Metrology course
5 working days
half time class room
half time practical training

Class room

- 🏠 Introduction to pressure metrology
- 🏠 Calibration of pressure gauges according to DKD-R-6- 2003.
- 🏠 Writing SOP for pressure gauges calibration
- 🏠 Pressure balance theory practice, construction and calibration
- 🏠 Calibration of pressure balances.
- 🏠 Calculation of distortion coefficient for piston cylinder assembly.

Practice

- Calibration of dial pressure gauges
- Calibration of digital pressure gauges
- Calibration of absolute pressure gauges
- Calibration of pressure balance usage
- Calibration of transmitters
- Calibration of barometers
- Calculation of uncertainty of using and calibration of pressure balance

Introduction to Density Metrology

5 working days
half time class room
half time practical training

- 🏠 Scope and Definitions
- 🏠 Different methods of density measurement
- 🏠 Preparation of standard liquids
- 🏠 Hydrometers and the International standards (OIML standard)
- 🏠 Uncertainty for measurement of liquid density.
- 🏠 Calibration of Hydrometers using Free Floating method.
- 🏠 Measurements of solid density.
- 🏠 Uncertainty for measurement of solid density.
- 🏠 Sources of errors.

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Thank you for your
attention

