



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



AFRIMETS TCRI Report

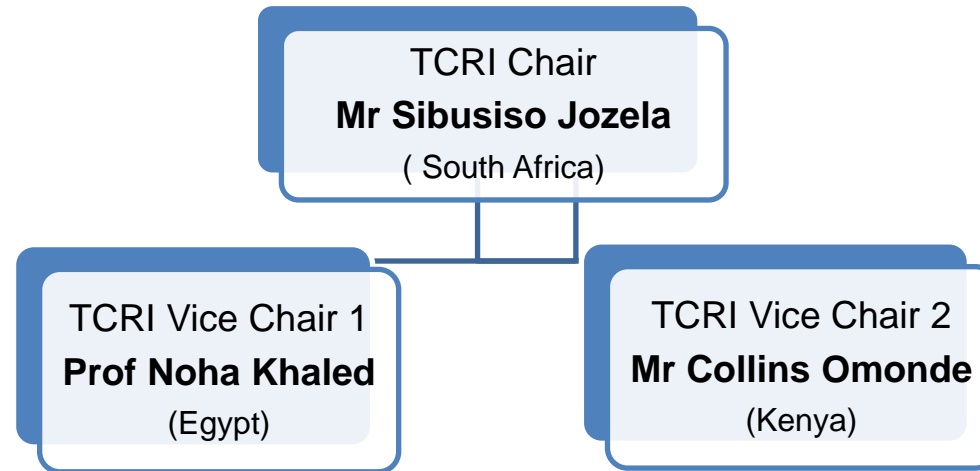
TCRI Chair: S Jozela

15th AFRIMETS GA
21 July 2022

OVERVIEW

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Changes in the Afrimets TCRI Structure



CCRI (I): Prof Noha Khaled **CCRI (II):** Mr M van Staden **CCRI (III):** Prof Ahmed El-Sersy

Diagnostic Radiology: Mr Refuoe Pepenene (SA)

Services: Dr Reham Hamdy

Feedback from the Recent TCRI Meetings

Country Representations

- The meeting was held virtually on 18 July 2022, with the following countries represented:
 - **Egypt** (3), **Kenya** (2), **South Africa** (3), Nigeria (2) and Sudan (2)
- Stable connectivity is an issue, leading delays.
- The country representatives were encouraged to include more participants from their institutes as this meeting was virtual (**12 participants** in the meeting)
 - Increased exposure to TCRI activities
 - Help with succession planning

Feedback from the Recent TCRI Meetings

Report on Comparisons

- There are currently no on-going comparisons organised within the RMO.

RECENT PARTICIPATION ON OTHER RMO, CC COMPARISONS

Comparison	Period	Participating NMI	Status	To Support CMC?
APMP.RI(I)-K3 (Air Kerma for medium energy X-rays)	2016	NMISA, NIS	Draft A Report	Yes
APMP.RI(I)-S3 (Air Kerma for ISO X-ray beams)	2016	NMISA	Final Report published	Yes
APMP.RI(I)-K8 (Reference Air Kerma for Ir-192)	2017	NMISA	Final Report published	Yes
EURAMET.R(I)-S16	2020	NMISA	Awaiting Draft A report	Yes
IAEA Protection	2021	NMISA, KEBS	Report Received	Yes
IAEA Therapy	2021	NMISA	Report Received	Yes
CCRI(III)-S1 (Ambient dose equivalent rate meters)	2022	NMISA	Results submitted	Yes
APMP.RI(I)-K7	2022	NMISA, NIS	Results submitted	Yes
CCRI(III)-S2.Hp(10):	2024	NMISA	Planned	Yes

Feedback from the Recent TCRI Meetings

Report on Comparisons

Radioactivity Comparisons Completed (2021-2022)

- ✓ Measurement of low level gamma emitters: IAEA-TEL-2021 world-wide PTS for low level gamma measurements.
- ✓ First time participation in measurement of low level tritium in a mixed RN water sample. IAEA-TEL-2021 world-wide PTS for H-3
- ✓ CCRI(II)-S15 comparison (for Low-level activity concentrations of K-40 and Cs-137 in mushroom): Gamma-spec.
- ✓ BIPM.RI(II)-K2 Cd-109 comparison. (Primary measurement system)
- ✓ BIPM.RI(II)-K1 Co-60 comparison (Primary measurement system)
- ✓ Method development: Sr-90 measurement. Ongoing.
- ✓ Measurement support for Nuclear Regulator: LSC H-3 measurements in Surface Fresh Water samples (Koeberg Nuclear Power Station Environment)
- ✓ HPGe measurements for detecting gamma emitters in Surface Fresh Water samples, plant material & milk samples from Koeberg area.
- ✓ Testing for non-radioactivity in food and other products
- ✓ Successfully completed ISO 17025 assessment. Maintain ISO 17025 accreditation.

Feedback from the Recent TCRI Meetings

Report on Comparisons

PLANNED TCRI COMPARISONS

Comparison	Pilot NMI	Period	Protocol Finalisation
AFRIMETS.RI(I)-K1	NIS	2022	Q3/2022
AFRIMETS.RI(I)-K4	NIS	2022	Q3/2022
AFRIMETS.RI(I)-S1	KEBS	2022	Q3/2022
AFRIMETS.RI(III)-S1	NMISA	2024	Q4/2023

Feedback from the Recent TCRI Meetings

Current and future developments

NMI	Current Project	Future Plans
SAEC (Sudan)	<ul style="list-style-type: none">• Establishment of therapy capabilities• Building Capacity (Human and equipment)	Establishment of: <ul style="list-style-type: none">• Neutron Capabilities• Diagnostic Radiology• Contamination monitor calibrations
KEBS (Kenya)	<ul style="list-style-type: none">• Upgrading Calibration Services for radiation therapy• Upgrading calibration capabilities for imaging• Upgrading the existing Quality Management System (QMS)• Dosimetry human resource development	Benchmarking measurement capabilities: <ul style="list-style-type: none">• Participate of comparisons• Accreditation

Feedback from the Recent TCRI Meetings

Current and future developments

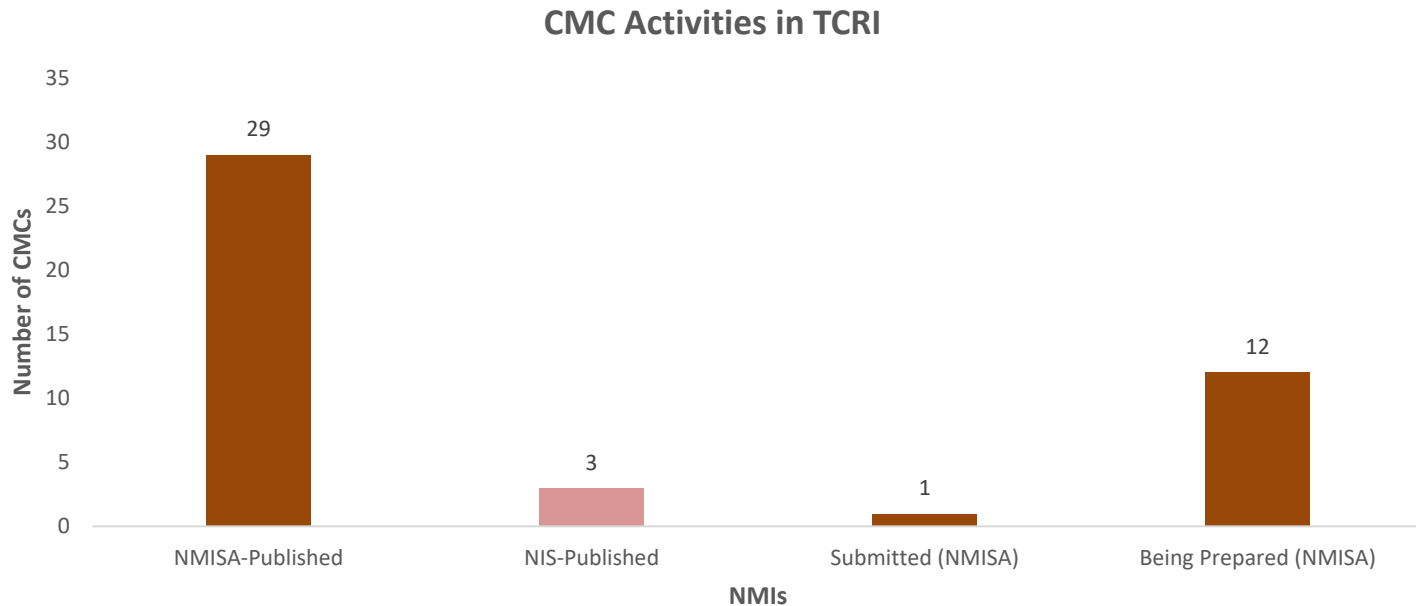
NMI	Current Project	Future Plans
NIRPR (Nigeria)	<ul style="list-style-type: none">• Establishment of the National Diagnostic reference level• Participation in IAEA CRP E24024	Benchmarking measurement capabilities: <ul style="list-style-type: none">• Participate of comparisons
NMISA (South Africa)	<ul style="list-style-type: none">• Establishment of radon measurement capabilities• Automation of measurement systems• Re-establishment of ISO Narrow Spectrum Beams• Establishment of National DRLs	Benchmarking measurement capabilities: <ul style="list-style-type: none">• Participate of comparisons• Publication of CMCs on KCDB
NIS (Egypt)	<ul style="list-style-type: none">• Development of a primary standard for protection.• CRP proposal in diagnostic radiology submitted to IAEA	Benchmarking measurement capabilities: <ul style="list-style-type: none">• Participate of comparisons• Publication of CMCs on KCDB

Feedback from the Recent TCRI Meetings

Regional Capacity Building

- In line with the CCRI strategy **to build capabilities at smaller NMIs/Dis**, the TCRI identified areas where capacity needs to be developed in the region:
 - Webinars on relevant technical areas organised by **BIPM** and **IAEA**
 - Training on Uncertainty of Measurements
 - Training on piloting of comparisons
 - Training in Dosimetry measurements - Continuing
- The TCRI will utilise available avenues within CCRI to achieve the goal of building capacity.
- Knowledge sharing activities within Afrimets TCRI will also be virtually organised.
 - **Technical Workshops** on completed development projects
 - This will ensure that the barrier created by travelling expenses is removed
 - A database of videos training material will also be documented and shared

Afrimets TCRI CMC Activities



- ✓ NMISA recently submitted CMCs for publication
 - ✓ 17 CMCs Published on 02 December 2021, 11 CMCs published on 29 June 2022.
 - ✓ 4 are new CMCs and the rest modified
- ✓ NIS Egypt recently published a new CMC in air kerma
- ✓ Afrimets TCRI currently reviewing a EURAMET submitted CMC

Feedback on the CCRI RMO WG Activities

Use of an IAEA report to support CMC claims - **UPDATE**

- A large number of SSDLs and some NMIs participate in IAEA bilateral comparisons and proficiency tests
- The RMO WG acknowledged the significant contribution to metrology enabled by these services, and noted that laboratories use these services because:
 - They
 - It's
 - May
- When used to support a CMC claim, technical reviewers require additional details which are not usually in the IAEA report
- The RMO WG therefore decided that:
 - it will request a meeting with the IAEA to discuss the additional details that may be included on the reports in order to fully support the SSDL's CMC claim.

THE IAEA HAS REVISED ITS REPORT TO BE MORE COMPREHENSIVE TO SUPPORT SSDLs and NMIs WHO WANT TO USE THE REPORT TO CLAIM CMCs

Note: The IAEA is in principle willing to review bilateral comparison reports and add relevant details that would enrich the report and make it easier for CMC reviewers.



THANK YOU