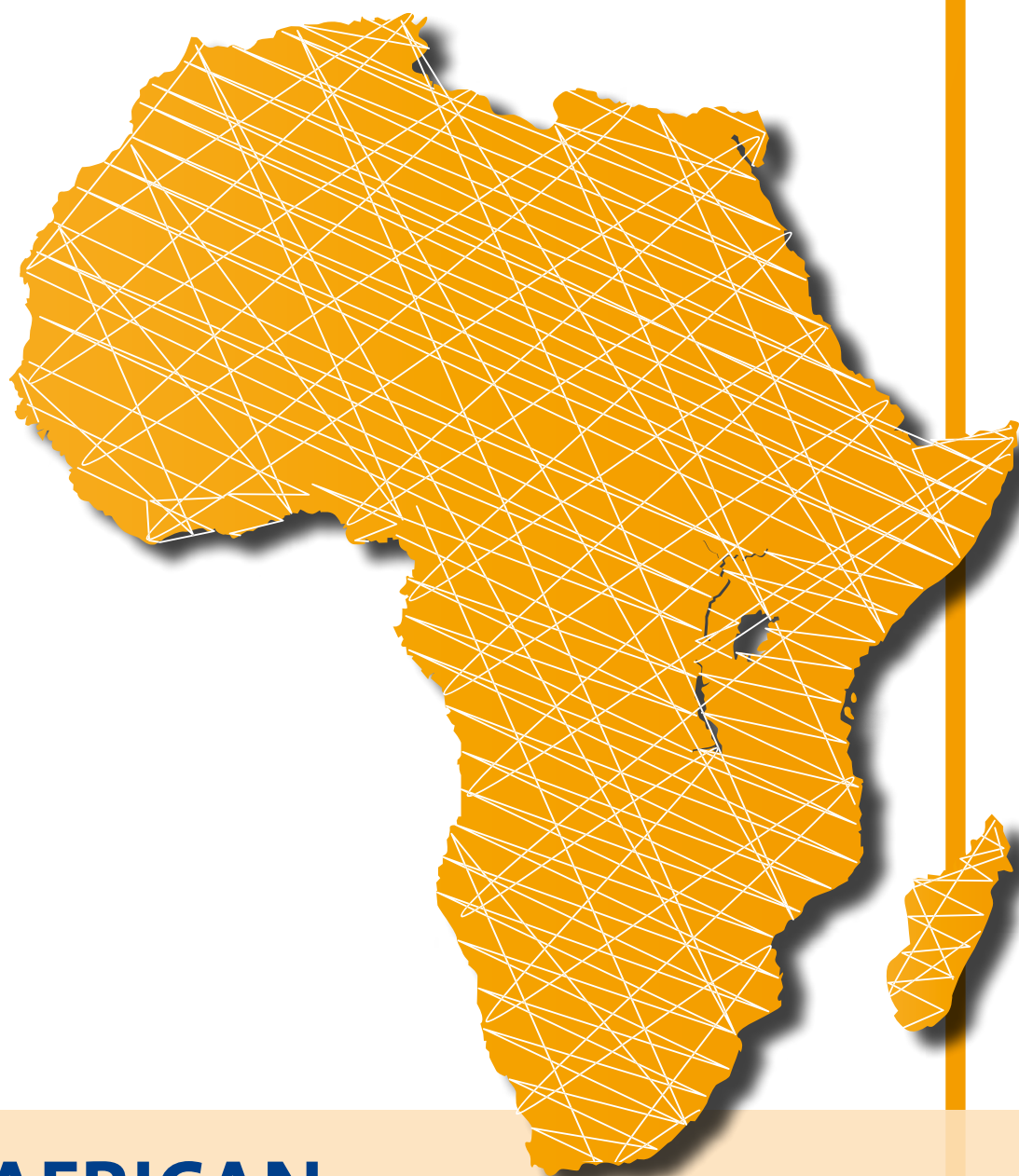


**QUALITY FOR AFRICA**



# **PAN-AFRICAN QUALITY INFRASTRUCTURE**

**Stocktaking Document  
– 2020 EDITION –**

The PAQI initiative is supported by



## ACKNOWLEDGEMENT



The stocktaking study of the status of Quality Infrastructure in Africa, conducted in 2014 and updated in 2017 revealed important data on how African countries are committed to the development of effective Quality Infrastructure at all levels. It is time to update once again after 3 years the data to measure the progress of the development of Quality Infrastructure by the African Countries.

This third phase of the stocktaking exercise to assess the advancement of accreditation; metrology and measurements and standardization in Africa has been conducted by the Pan-African Quality Infrastructure (PAQI) through its four Institutions, African Accreditation Cooperation (AFRAC), Intra-Africa Metrology System (AFRIMETS), African Electrotechnical Standardization Commission (AFSEC) and African Organisation for Standardisation (ARSO).

This particular phase comes after the publication of the very first version of the Sanitary and Phytosanitary (SPS) stocktaking document- 2019 which assessed the capacity of AU Member States to meet the SPS Measures as per the requirements of annex 7 of the AfCFTA.

I wish to express my gratitude to everyone who has been involved in this exercise particularly those from AFRAC, AFRIMETS, AFSEC and ARSO. My special thanks go to the African Union Commission (AUC) for the vital support in promoting Quality Infrastructure related matters in Africa. I am also grateful to PTB Germany for the continuous support to PAQI and especially for facilitating the refining, translation and printing of this document.

Furthermore, I would also like to acknowledge with much appreciation the crucial role of the National Quality Infrastructure Institutions who helped to assemble the parts and gave suggestions about this document.

Finally, my gratitude goes to the former PAQI Chairperson, Dr Hermogene Nsengimana, for his priceless leadership, he tirelessly worked to reach this great achievement among many others.

### **Dr Celestine O. Okanya**

Chairperson, Pan-African Quality Infrastructure (PAQI)  
DG/CEO, Nigeria National Accreditation Service (NiNAS)

This document is available at [www.paqi.org](http://www.paqi.org)



## PREFACE

The official launch of the Pan African Quality Infrastructure (PAQI) by the African Union Commission (AUC) in August 2013 signalled the start of very successful collaboration between continental quality infrastructure institutions and strengthened cooperation between the continental quality infrastructure institutions and the AUC. The PAQI is the African platform on quality matters and operates through its pillars, the African Accreditation Cooperation (AFRAC), the Intra-Africa Metrology System (AFRIMETS), the African Electrotechnical Standardization Commission (AFSEC) and the African Organisation for Standardisation (ARSO).



As part of its efforts to support the African Union (AU) in quality infrastructure related policy making, the PAQI Joint Committee launched the 2014 edition of the PAQI Stocktaking document with a plan to provide updated versions every two or three years. Following publication of the 2014 and 2017 editions of the PAQI Stocktaking document, this 2020 version gives the latest picture of the state of quality infrastructure in Africa and is released just as the African Continental Free Trade Area (AfCFTA) is about to be operationalised. Quality infrastructure Stocktaking is very useful in informing the development of strategies to address non-tariff barriers particularly technical barriers to trade (TBTs) and Sanitary and Phytosanitary (SPS) measures in the AfCFTA.

In summary, there is a positive trend in the development of quality infrastructure in Africa. Nevertheless 47.3% of African Union (AU) Member States still do not meet the level of quality infrastructure requirements to adequately safeguard consumers, protect the environment and support trade and industry. This is particularly crucial considering that almost exactly this proportion (48.3%) applies to countries that have ratified the AfCFTA.

The PAQI quality infrastructure Stocktaking series of publications will continue to be an important source of data that effectively contributes to the formulation of African policy on trade and industrialization as well as directing quality infrastructure technical assistance and capacity building to areas where it is most needed. The PAQI institutions will continue working closely with the AUC in providing quality infrastructure related support to all AU development programmes and *“Agenda 2063 - The Africa We Want”*.

### **Ambassador Albert M MUCHANGA**

African Union Commissioner for Trade and Industry

# CONTENTS

ACKNOWLEDGEMENT.....	III
PREFACE.....	IV
CONTENTS.....	V
LIST OF ACRONYMS.....	VI
<b>1. INTRODUCTION .....</b>	<b>1</b>
1.1 African Accreditation Cooperation (AFRAC).....	2
1.2 Intra-Africa Metrology System (AFRIMETS).....	6
1.3 African Electrotechnical Standardization Commission (AFSEC).....	14
1.4 African Organization for Standardisation (ARSO).....	18
<b>2. SUMMARY OF THE QUALITY INFRASTRUCTURE IN AFRICA .....</b>	<b>22</b>
2.1 Quality Infrastructure classification of African Countries 2020.....	22
2.2 Criteria for classification.....	24
2.3 Stocktaking Map of Quality Infrastructure in Africa.....	25
2.4 Quality Infrastructure classification of Africa Countries (PAQI Index), Comparison 2014/2017 and Trend.....	26
2.5 PAQI Index structural shift 2017 – 2020.....	28
2.6 PAQI Index number of countries by classification .....	29
2.7 PAQI Index and AfCFTA.....	30
<b>ABOUT PAQI .....</b>	<b>31</b>
Establishment of PAQI.....	31
Background of PAQI.....	32

## LIST OF ACRONYMS

ACAP	ARSO Conformity Assessment Programme
AfCFTA	African Continental Free Trade Area
AFRAC	African Accreditation Cooperation
AFRIMETS	Intra-Africa Metrology System
AFSEC	African Electrotechnical Standardization Commission
ARAC	Arab Accreditation Cooperation
ARSO	African Organization for Standardisation
ASHAM	African Standards Harmonisation Model
AU	African Union
AUC	African Union Commission
BIPM	International Bureau of Weights and Measures
CACO	ARSO Conformity Assessment Committee
CENELEC	European Committee for Electrotechnical Standardization
CGPM	General Conference on Weights and Measures
CIPM	International Committee for Weights and Measures
CMC	Calibration and Measurement Capabilities
ECOWAS	Economic Community of West African States
EURAMET	European Association of National Metrology Institutes
IAF	International Accreditation Forum
IEC	International Electrotechnical Commission
ILAC	International Laboratory Accreditation Cooperation
ISO	International Organization for Standardization
JICA	Japan International Cooperation Agency
KCDB	Key Comparison Data Base
LMBs	Legal Metrology Bodies
MAA	Mutual Acceptance Arrangement
MRA	Mutual Recognition Arrangement
NAFP	National Accreditation Focal Points
NECs	National Electrotechnical Committees
NMIs	National Metrology Institutes
NSBs	National Standards Bureaus
OIML	International Organization of Legal Metrology
PAQI	Pan-African Quality Infrastructure
PTB	Physikalisch-Technische Bundesanstalt (The National Metrology Institute of Germany)
QI	Quality Infrastructure
RECs	Regional Economic Communities
RMO	Regional Metrology Organization
SADC	Southern African Development Community
SADCA	Southern African Development Community Cooperation in Accreditation
SADCAS	SADC Accreditation Service
SI	System of Units
SPS	Sanitary and Phytosanitary
SRMO	Sub-regional Metrology Organizations
TBT	Technical Barriers to Trade
UNECA	United Nations Economic Commission for Africa

## 1. INTRODUCTION



ly. The main global transformation drama has of course unfolded in the first half of the year 2020 as a consequence of the COVID-19 corona virus pandemic.

Focusing on Africa, the period 2017 to 2020 witnessed the rapid negotiations progress of the AfCFTA Agreement culminating in its being opened for signature on 21 March 2018 in Kigali, Rwanda. This was followed by the now famous “one year, one month, one week, one day” period it took for the Agreement to enter into force. This was after the required 22 ratifications had been obtained on 29 April 2019. On 7 July 2019 the African Union Heads of State and Government met in Niamey, Niger to officially launch the Operationalisation of the AfCFTA with agreement to start trading under the AfCFTA on 1 January 2020.

As the AfCFTA reached maturity, it was realized that other complimentary instruments and factors would have to be put in place. This resulted in more effort being put towards addressing the supply side of the integration equation – industrialization. The AfCFTA is about increasing intra-African trade and Africa must produce the goods to satisfy this 1.3 billion people and US\$3.4 trillion market. Further, movement of persons, capital and services must also be further liberalized.

It is well understood that none of the above programmes can fully succeed without robust quality infrastructure to support movement of goods and services through removal of unnecessary trade barriers and also to give assurance of the quality of the goods and services being traded. The slogan “one market, one standard” echoes the important need to achieve harmonization in the AfCFTA single market for supply chain predictability and successful joint venture operations.

From the time that the PAQI Joint Committee published its last Quality Infrastructure Stocktaking report in 2017, Africa, and indeed the world, have changed drastically.

COVID 19 has impacted African economies to unprecedented levels. Travel bans and border closures brought tourism and commerce to a grinding halt. Lockdowns diminished manufacturing and all related activities have been negatively impacted. Worldwide economies are expected to shrink to levels last seen during the great depression of the 1920s. The situation however resulted in pressure to support the health delivery systems and other crisis supplies such as relief food provisions. Both these sectors rely heavily, as was quickly evident, on quality infrastructure. The quality of personal protective equipment (PPE) and pharmaceutical drugs became very important considerations. Provision of healthy and safe food was also very important. The post COVID-19 period, which is expected to be a highly digitized environment, will rely on quality infrastructure to assure quality, safety and hygiene as well as to keep us connected through cyber space.

The PAQI quality infrastructure Stocktaking 2020 is therefore being published at a crucial time. The report presents the progress made on the continent in the area of quality infrastructure and clearly indicates the areas where further investments should be made for the continent as a whole to reach acceptable quality infrastructure levels. On the positive side, in comparison to 2014 and 2017 the periods of earlier editions of the Stocktaking report, general improvement in African national quality infrastructure conditions has been observed. More will however need to be done for Africa to reach the stage where its quality infrastructure can be considered to be truly world class.

This 2020 continental quality infrastructure review uses similar indicators and criteria as was used in the previous research. This provides for a comparative analysis to better observe the changes in the development of quality infrastructure in Africa. Of particular interest is the comparative analysis, which is shown at the end of Chapter 2.



## 1.1 African Accreditation Cooperation (AFRAC)

AFRAC, one of the four pillars of the PAQI, is a cooperation of accreditation bodies (national and multi-economy), National Accreditation Focal Points (NAFP), sub-regional accreditation cooperations and stakeholders was launched in 2010. Building capacity in accreditation on the continent with the goal eliminating technical barriers to trade through managing and expanding an internationally recognised and acceptable mutual recognition arrangement for national, regional and global acceptance of Africa's goods and services as well as to support government's public policy objectives, drives the AFRAC mission.

The main objectives of AFRAC are to provide internationally recognised and accepted accreditation support to industry, traders and to contribute to the protection of health and safety of the public and the protection of the environment, thereby, facilitating trade and contributing to the improvement of Africa's competitiveness within the global market. The AFRAC Mutual Recognition Arrangement (MRA) which was launched in 2014 is internationally recognized having achieved this status in May 2018.

Through using internationally recognized accredited testing, certification, inspection, verification which are collectively known as conformity assessment services, the following advantages can be realized:

- Avoidance of expensive re-testing, re-certification or re-inspection thus making traded goods and services more competitive in the market;
- Avoidance of costly rework;
- Facilitate the ease of access to regional, and international markets through a network of MRA's.

This international recognition of the AFRAC MRA is therefore a key enabler for the full integration of Africa into the world trading system and acceleration of economic growth within the continent.

As at 31 May 2020, AFRAC had a total of 23 members in the following membership categories: a) Arrangement Members, b) Full Members, c) Associate Members and d) Stakeholder Members. Six (6) Accreditation Bodies are signatories to the AFRAC MRA. These Arrangement Members are all independent accreditation bodies appointed or recognised by the respective governments of the Member States or sub-regional economic block and had been peer reviewed and found to be operating in accordance with the international standard ISO/IEC 17011.

CATEGORY	CRITERIA
1 Fully operational Accreditation Body and/or ILAC/IAF signatory	<ul style="list-style-type: none"> <li>• Official body responsible for accreditation</li> <li>• Signatory to the ILAC and IAF Mutual, Multi-Lateral Arrangement (MRA/MLA)</li> <li>• Signatory to the AFRAC, SADCA and/or ARAC MRA/MLA</li> </ul>
2 Fully operational Accreditation Body and signatory to the AFRAC MRA and/or ARAC MLA	<ul style="list-style-type: none"> <li>• Official body responsible for accreditation</li> <li>• Not a signatory to the ILAC or IAF Arrangement</li> <li>• Signatory to the AFRAC, SADCA and/or ARAC Arrangement</li> </ul>
3 Fully operational Accreditation Body and associate member to the ILAC/IAF and/or full member of AFRAC, SADCA and/or ARAC	<ul style="list-style-type: none"> <li>• Official body responsible for accreditation</li> <li>• Not a signatory to the ILAC/IAF/AFRAC, SADCA and/or ARAC arrangements</li> <li>• Associate member of ILAC and or IAF</li> <li>• Full member of AFRAC, SADCA and/or ARAC</li> </ul>
4 Establishment of an accreditation body in progress	<ul style="list-style-type: none"> <li>• In process of establishing an accreditation infrastructure</li> <li>• Affiliate member of AFRAC, SADCA and/or ARAC</li> </ul>
5 No official institute responsible for accreditation	<ul style="list-style-type: none"> <li>• No official accreditation infrastructure in place or under development</li> </ul>

Table 1: Classification criteria for accreditation (2020)



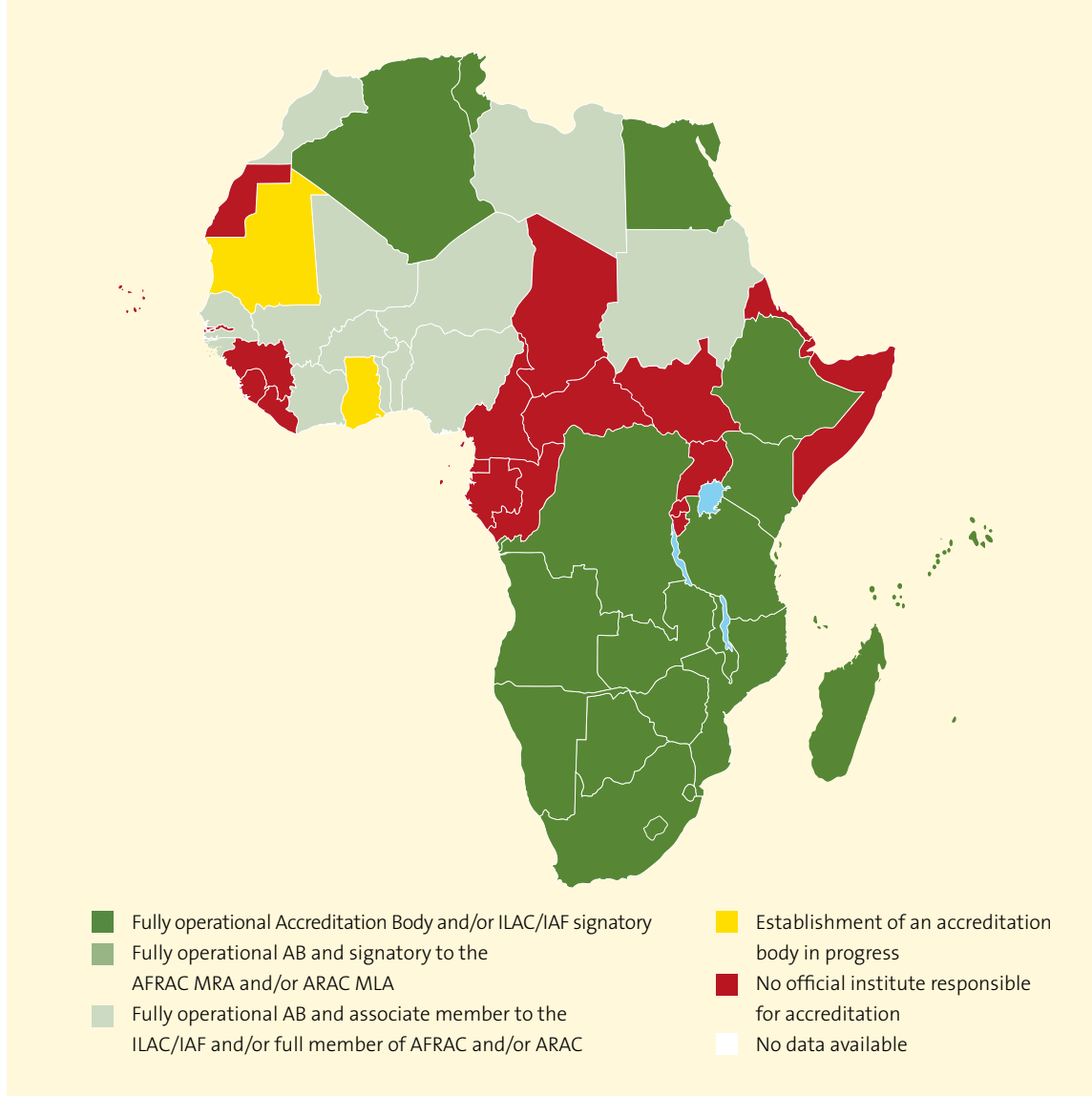


Figure 1: AFRAC stocktaking

CATEGORY	COUNTRY
1	Algeria, Egypt, Ethiopia, Kenya, Mauritius, South Africa and Tunisia Covered by SADC Accreditation Services (SADCAS) a multi-economy accreditation body: Angola, Botswana, Comoros, Democratic Republic of the Congo, Eswatini, Lesotho, Madagascar, Malawi, Mozambique, Namibia, Seychelles, Tanzania, Zambia and Zimbabwe
2	
3	Libya, Morocco, Nigeria and Sudan Covered by SOAC (West Africa Accreditation Body) a multi-economy accreditation body: Benin, Burkina Faso, Côte d'Ivoire, Guinea-Bissau, Mali, Niger, Senegal and Togo
4	Ghana and Mauritania
5	Burundi, Cameroon, Cape Verde Islands, Central Africa Republic, Chad, Congo, Djibouti, Equatorial Guinea, Eritrea, Gabon, Gambia, Guinea, Liberia, Rwanda, Sahrawi Republic, Sierra Leone, Somalia, Sao Tome and Principe, South Sudan and Uganda

Table 2: Classification of capabilities in accreditation (2020)

Note: Cape Verde Islands, Gambia, Guinea, Liberia, Sierra Leone are Member States of ECOWAS. According to ECOWAS Regulation C/REG.19/12/13 on Quality Infrastructure Scheme, ECOWAS should ensure that all accreditation services are available in the region. To this end, MoUs could be signed between these countries & national or multi economies accreditation bodies in operation within the region.

Note 2: Tunisia and Algeria are signatories (full members) to the ILAC MRA, although not signatories to the AFRAC or ARAC MRA.

Libya is a Full member of ARAC, but not a signatory or member of ILAC/IAF

**Table 3: AFRAC comparison - 2014/2017/2020**

NO	COUNTRY	ISO Code	AFRAC 2014	AFRAC 2017	AFRAC 2020
1	ALGERIA	DZA	5	2	1
2	ANGOLA	AGO	2	1	1
3	BENIN	BEN	5	4	3
4	BOTSWANA	BWA	2	1	1
5	BURKINA FASO	BFA	5	5	3
6	BURUNDI	BDI	5	5	5
7	CAMEROON	CMR	5	5	5
8	CAPE VERDE ISLANDS	CPV	5	5	5
9	CENTRAL AFRICAN REPUBLIC	CAF	5	5	5
10	CHAD	TCD	5	5	5
11	COMOROS	COM			1
12	CONGO	COG	5	5	5
13	CÔTE D'IVOIRE	CIV	5	5	3
14	DEM. REPUBLIC OF THE CONGO	COD	2	1	1
15	DJIBOUTI	DJI	5	5	5
16	EGYPT	EGY	1	1	1
17	EQUATORIAL GUINEA	GNQ	5	5	5
18	ERITREA	ERI	5	5	5
19	ESWATINI	SWZ	2	1	1
20	ETHIOPIA	ETH	2	2	1
21	GABON	GAB	5	5	5
22	GAMBIA	GMB	5	5	5
23	GHANA	GHA	4	4	4
24	GUINEA	GIN	5	5	5
25	GUINEA-BISSAU	GNB	5	5	3
26	KENYA	KEN	3	3	1
27	LESOTHO	LSO	2	1	1
28	LIBERIA	LBR	5	5	5
29	LIBYA	LBY	3	3	3
30	MADAGASCAR	MDG	2	1	1

NO	COUNTRY	ISO Code	AFRAC 2014	AFRAC 2017	AFRAC 2020
31	MALAWI	MWI	2	1	1
32	MALI	MLI	5	5	3
33	MAURITANIA	MRT	5	5	4
34	MAURITIUS	MUS	2	1	1
35	MOROCCO	MAR	2	3	3
36	MOZAMBIQUE	MOZ	2	1	1
37	NAMIBIA	NAM	2	1	1
38	NIGER	NER	5	5	3
39	NIGERIA	NGA	4	4	3
40	RWANDA	RWA	5	5	5
41	SAHRAWI REPUBLIC	ESH	5	5	5
42	SAO TOME AND PRINCIPE	STP			5
43	SENEGAL	SEN	5	5	3
44	SEYCHELLES	SYC	2	1	1
45	SIERRA LEONE	SLE	5	5	5
46	SOMALIA	SOM	5	5	5
47	SOUTH AFRICA	ZAF	1	1	1
48	SOUTH SUDAN	SSD	5	5	5
49	SUDAN	SDN	5	5	3
50	TANZANIA	TZA	2	1	1
51	TOGO	TGO	5	5	3
52	TUNISIA	TUN	1	1	1
53	UGANDA	UGA	5	5	5
54	ZAMBIA	ZMB	2	1	1
55	ZIMBABWE	ZWE	2	1	1

Table 3: AFRAC comparison - 2014/2017/2020

## 1.2 Intra-Africa Metrology System (AFRIMETS)

The Intra-Africa Metrology System (AFRIMETS) was formed in 2006 with membership drawn from the African Sub-regional Metrology Organizations (SRMO).

The main mandate of AFRIMETS is to promote the development of scientific, industrial and legal metrology issues across Africa and to operate as a fully-fledged Regional Metrology Organization (RMO), in accordance with the Mutual Recognition Arrangement (MRA) of the International Committee for Weights and Measures (CIPM). The mandate is fulfilled by establishing internationally acceptable national measurement standards traceable to the International System of Units (SI), providing

traceability to the SI through calibrating measuring instruments, regulating measurements for legal purposes, developing and producing reference materials and organizing proficiency testing schemes. Several NMIs also provide conformity assessment services.

The membership of AFRIMETS is per country. Each country is represented by the national metrology institute (NMI) responsible for Scientific & Industrial metrology and the body responsible for Weights and Measures or the Legal Metrology Body (LMB). Member countries that are signatories to a SRMO are called Principal Members and member countries not part of a SRMO, Ordinary Members. NMIs and LMBs outside Africa can become Associate Members. Other organisations with an interest in AFRIMETS can become Observers.

CATEGORY	CRITERIA
1 NMIs participating in the CIPM MRA	<ul style="list-style-type: none"> <li>• Official institutes responsible for scientific &amp; industrial metrology</li> <li>• Member State of International Bureau of Weights and Measures (BIPM)</li> <li>• Capabilities in most areas of metrology, or those critical for the country</li> <li>• At least some in-house realization of the International System of Units (SI)</li> <li>• International traceability in place for all national standards</li> <li>• AFRIMETS (or EURAMET)-approved quality system in place</li> <li>• Most laboratories accredited or peer reviewed</li> <li>• Calibration and Measurement Capabilities (CMC) entries in Key Comparison Data Base (KCDB), or imminent</li> </ul>
2 NMIs participating in RMO activities	<ul style="list-style-type: none"> <li>• Official institutes responsible for scientific &amp; industrial metrology</li> <li>• Associate of General Conference on Weights and Measures (CGPM)</li> <li>• Capabilities in most areas of metrology, or those critical for the country</li> <li>• International traceability in place for all or critical national standards</li> <li>• AFRIMETS (or EURAMET)-approved quality system in place, or imminent</li> <li>• Most laboratories accredited or peer reviewed</li> </ul>
3 NMIs providing national traceability	<ul style="list-style-type: none"> <li>• Official institutes responsible for scientific &amp; industrial metrology</li> <li>• Associate of CGPM, or plans to become one in next 5 years</li> <li>• Capabilities in basic areas of metrology, or those critical for the country</li> <li>• Traceability in place for critical national standards</li> <li>• Quality system in place</li> <li>• Critical laboratories accredited or peer reviewed</li> </ul>
4 Basic scientific metrology infrastructure	<ul style="list-style-type: none"> <li>• Official institutes responsible for scientific &amp; industrial metrology</li> <li>• Capabilities in basic areas of metrology, or those critical for the country</li> <li>• Traceability in place for some parameters</li> <li>• Quality system in place or being developed</li> </ul>
5 Limited or no scientific metrology infrastructure	<ul style="list-style-type: none"> <li>• No official institute responsible for scientific &amp; industrial metrology</li> <li>• Very basic facilities in a government department or related institute</li> </ul>

Table 4: Classification criteria for scientific and industrial metrology (2020)

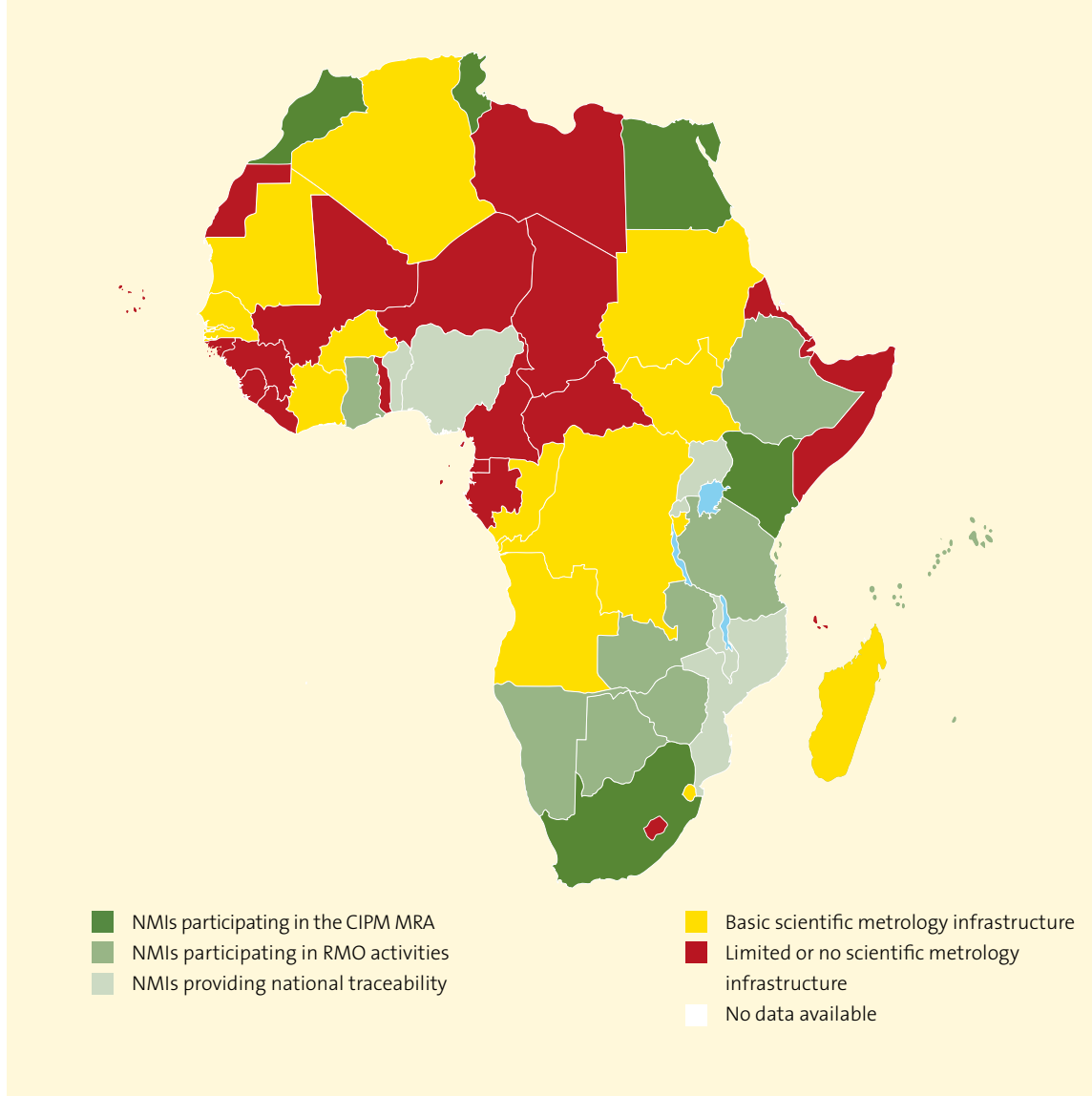


Figure 2: AFRIMETS stocktaking (scientific & industrial metrology)

In addition to developing accurate, internationally accepted measurement capabilities, the secondary focus of the 46 member-country institutions is to provide measurement conformity assessment and testing capabilities needed for an AfCFTA.

To keep track of the development of Scientific & Industrial metrology and Legal metrology, a set of classifications were developed to classify the maturity of development and to provide a clear picture of the status of both categories of metrology in a country.

CATEGORY	COUNTRY
1	Egypt, Kenya, Morocco, South Africa and Tunisia
2	Botswana, Ethiopia, Ghana, Mauritius, Namibia, Seychelles, Tanzania, Zambia and Zimbabwe
3	Benin, Malawi, Mozambique, Nigeria, Rwanda and Uganda
4	Algeria, Angola, Burkina Faso, Burundi, Congo, Côte d'Ivoire, Democratic Republic of the Congo, Eswatini, Gambia, Madagascar, Mauritania, Senegal, South Sudan and Sudan
5	Cameroon, Cape Verde Islands, Central African Republic, Chad, Comoros, Djibouti, Equatorial Guinea, Eritrea, Gabon, Guinea, Guinea-Bissau, Lesotho, Liberia, Libya, Mali, Niger, Sahrawi Republic, Sao Tome and Principe, Sierra Leone, Somalia and Togo

Table 5: Classification of capabilities in scientific & industrial metrology

## AFRIMETS scientific & industrial metrology comparison - 2014/2017/2020

NO	COUNTRY	ISO Code	AFRIMETS scientific & industrial 2014	AFRIMETS scientific & industrial 2017	AFRIMETS scientific & industrial 2020
1	ALGERIA	DZA	5	5	4
2	ANGOLA	AGO	5	5	4
3	BENIN	BEN	3	3	3
4	BOTSWANA	BWA	3	3	2
5	BURKINA FASO	BFA	4	4	4
6	BURUNDI	BDI	4	4	4
7	CAMEROON	CMR	4	4	5
8	CAPE VERDE ISLANDS	CPV			5
9	CENTRAL AFRICAN REPUBLIC	CAF	5	5	5
10	CHAD	TCD	5	5	5
11	COMOROS	COM			5
12	CONGO	COG	5	5	4
13	CÔTE D'IVOIRE	CIV	4	4	4
14	DEM. REPUBLIC OF THE CONGO	COD	4	4	4
15	DJIBOUTI	DJI			5
16	EGYPT	EGY	1	1	1
17	EQUATORIAL GUINEA	GNQ	5	5	5
18	ERITREA	ERI			5
19	ESWATINI	SWZ	4	4	4
20	ETHIOPIA	ETH	3	3	2
21	GABON	GAB	5	5	5
22	GAMBIA	GMB			4
23	GHANA	GHA	2	2	2
24	GUINEA	GIN			5
25	GUINEA-BISSAU	GNB			5
26	KENYA	KEN	1	1	1
27	LESOTHO	LSO	5	5	5
28	LIBERIA	LBR			5
29	LIBYA	LBY	5	5	5
30	MADAGASCAR	MDG	4	4	4

NO	COUNTRY	ISO Code	AFRIMETS scientific & industrial 2014	AFRIMETS scientific & industrial 2017	AFRIMETS scientific & industrial 2020
31	MALAWI	MWI	4	4	3
32	MALI	MLI	5	5	5
33	MAURITANIA	MRT	5	4	4
34	MAURITIUS	MUS	3	3	2
35	MOROCCO	MAR	3	3	1
36	MOZAMBIQUE	MOZ	4	4	3
37	NAMIBIA	NAM	4	4	2
38	NIGER	NER	5	5	5
39	NIGERIA	NGA	4	4	3
40	RWANDA	RWA	4	4	3
41	SAHRAWI REPUBLIC	ESH			5
42	SAO TOME AND PRINCIPE	STP			5
43	SENEGAL	SEN	5	5	4
44	SEYCHELLES	SYC	4	3	2
45	SIERRA LEONE	SLE	5	5	5
46	SOMALIA	SOM			5
47	SOUTH AFRICA	ZAF	1	1	1
48	SOUTH SUDAN	SSD			4
49	SUDAN	SDN	5	4	4
50	TANZANIA	TZA	3	3	2
51	TOGO	TGO	5	5	5
52	TUNISIA	TUN	1	1	1
53	UGANDA	UGA	3	3	3
54	ZAMBIA	ZMB	4	3	2
55	ZIMBABWE	ZWE	3	3	2

Table 6: AFRIMETS scientific & industrial metrology comparison - 2014/2017/2020

CATEGORY	CRITERIA
1 Recognized legal metrology system at national, regional and international levels)	<ul style="list-style-type: none"> <li>• Official institute responsible for legal metrology</li> <li>• Member State of the International Organization of Legal Metrology (OIML)</li> <li>• OIML Mutual Acceptance Arrangement (MAA) signatory</li> <li>• Trade metrology Act (including or with plans to include health, safety, environment and trade)</li> <li>• Facilities to carry out technical activities</li> <li>• Competent staff</li> <li>• Pre-packages</li> <li>• Participation in OIML technical committees</li> <li>• Categories of measuring instruments that fully support the scope of the Legal Metrology Act</li> <li>• Approved quality system in place, accreditation or certification</li> </ul>
2 Imbedded LM system with regional and international participation	<ul style="list-style-type: none"> <li>• Official institute responsible for legal metrology</li> <li>• Member State of the OIML</li> <li>• Legal system in place for weights and measures and plans for Legal Metrology Act to include health, safety, environment and trade</li> <li>• Facilities to carry out technical activities</li> <li>• Competent staff</li> <li>• Pre-packages</li> <li>• Participation in OIML technical committees</li> <li>• Categories of measuring instruments that fully support the scope of the Trade Metrology Act</li> <li>• Approved quality system in place, accreditation or certification</li> </ul>
3 Organized LM system with SRMO participation	<ul style="list-style-type: none"> <li>• Official institute responsible for legal metrology</li> <li>• Corresponding Member of OIML</li> <li>• Legal system in place for weights and measures</li> <li>• Facilities to carry out technical activities</li> <li>• Competent staff</li> <li>• Pre-packages</li> <li>• Categories that fully support the scope of the Trade Metrology Act</li> <li>• Participation in SRMO technical activities</li> </ul>
4 LM existence at National level with limited resources	<ul style="list-style-type: none"> <li>• Legal system in place, with at least fit-for-purpose regulations for main national issues</li> <li>• Some facilities to carry out technical activities</li> <li>• Trained staff to support technical activities</li> <li>• REC participation</li> <li>• Technical instructions</li> </ul>
5 No official LM	No facility and/or act/regulations

Table 7: Classification criteria legal metrology (2020)



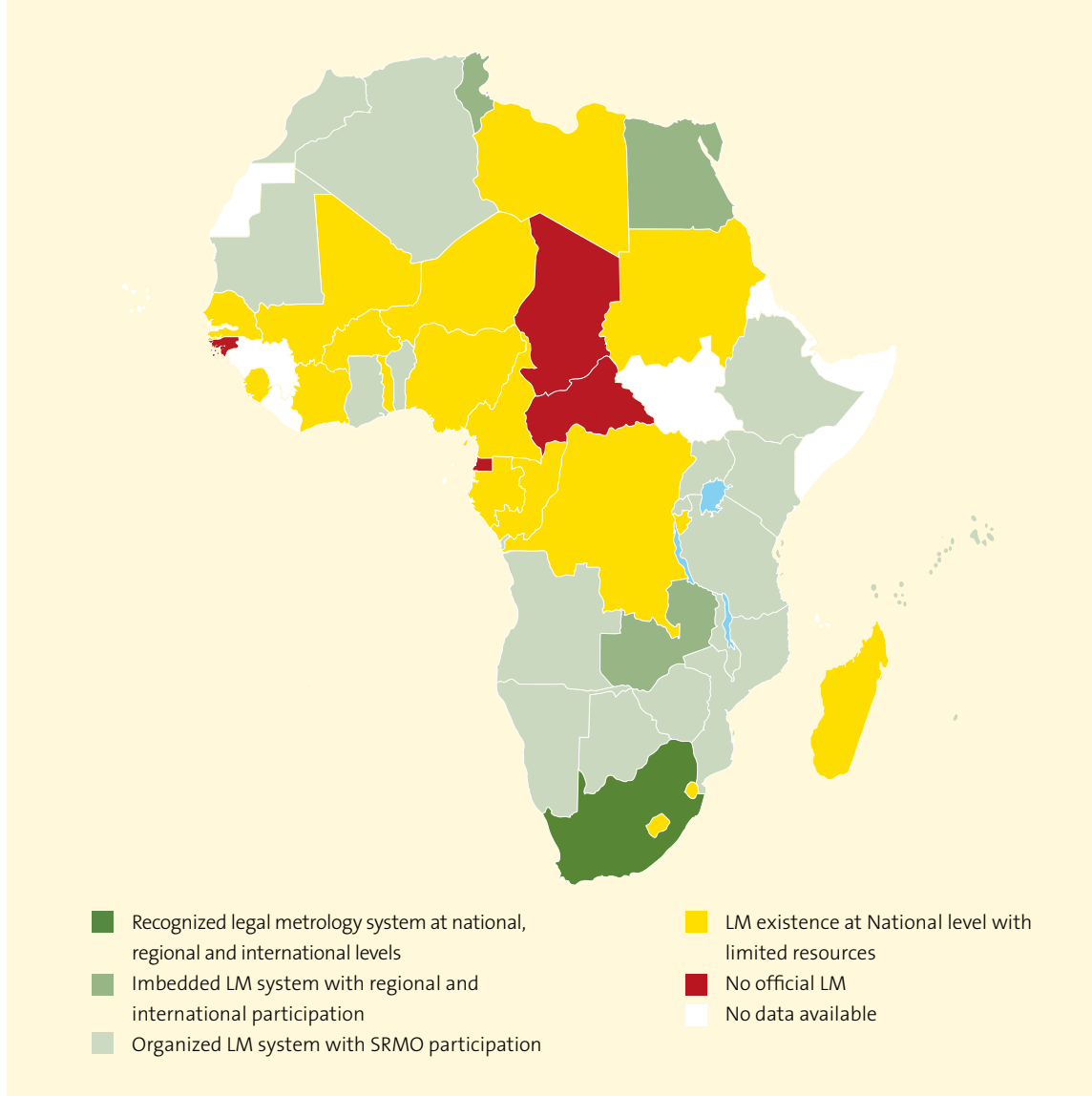


Figure 3: AFRIMETS stocktaking (legal metrology)

CATEGORY	COUNTRY
1	South Africa
2	Egypt, Tunisia and Zambia
3	Algeria, Angola, Benin, Botswana, Ethiopia, Ghana, Kenya, Malawi, Mauritania, Mauritius, Morocco, Mozambique, Namibia, Rwanda, Seychelles, Tanzania, Uganda and Zimbabwe
4	Burkina Faso, Burundi, Cameroon, Congo, Côte d'Ivoire, Democratic Republic of the Congo, Eswatini, Gabon, Lesotho, Libya, Madagascar, Mali, Niger, Nigeria, Senegal, Sierra Leone, Sudan and Togo
5	Central African Republic, Chad, Equatorial Guinea, Guinea-Bissau
No information	Cape Verde Islands, Comoros, Djibouti, Eritrea, Gambia, Guinea, Liberia, Sahrawi Republic, Sao Tome and Principe, Somalia and South Sudan

Table 8: Classification of capabilities in legal metrology

## AFRIMETS legal metrology comparison - 2014/2017/2020

NO	COUNTRY	ISO Code	AFRIMETS legal 2014	AFRIMETS legal 2017	AFRIMETS legal 2020
1	ALGERIA	DZA	3	3	3
2	ANGOLA	AGO	4	3	3
3	BENIN	BEN	3	3	3
4	BOTSWANA	BWA	4	4	3
5	BURKINA FASO	BFA	4	4	4
6	BURUNDI	BDI	4	4	4
7	CAMEROON	CMR	4	4	4
8	CAPE VERDE ISLANDS	CPV			
9	CENTRAL AFRICAN REPUBLIC	CAF	5	5	5
10	CHAD	TCD	5	5	5
11	COMOROS	COM			
12	CONGO	COG	4	4	4
13	CÔTE D'IVOIRE	CIV	4	4	4
14	DEM. REPUBLIC OF THE CONGO	COD	4	4	4
15	DJIBOUTI	DJI			
16	EGYPT	EGY	3	4	2
17	EQUATORIAL GUINEA	GNQ	5	5	5
18	ERITREA	ERI			
19	ESWATINI	SWZ	4	4	4
20	ETHIOPIA	ETH	4	4	3
21	GABON	GAB	4	4	4
22	GAMBIA	GMB			
23	GHANA	GHA	4	3	3
24	GUINEA	GIN			
25	GUINEA-BISSAU	GNB	5	5	5
26	KENYA	KEN	3	3	3
27	LESOTHO	LSO	4	4	4
28	LIBERIA	LBR			
29	LIBYA	LBY	4	4	4
30	MADAGASCAR	MDG	4	4	4

NO	COUNTRY	ISO Code	AFRIMETS legal 2014	AFRIMETS legal 2017	AFRIMETS legal 2020
31	MALAWI	MWI	4	4	3
32	MALI	MLI	4	4	4
33	MAURITANIA	MRT	4	3	3
34	MAURITIUS	MUS	4	3	3
35	MOROCCO	MAR	3	3	3
36	MOZAMBIQUE	MOZ	4	3	3
37	NAMIBIA	NAM	4	3	3
38	NIGER	NER	4	4	4
39	NIGERIA	NGA	4	4	4
40	RWANDA	RWA	4	3	3
41	SAHRAWI REPUBLIC	ESH			
42	SAO TOME AND PRINCIPE	STP			
43	SENEGAL	SEN	4	4	4
44	SEYCHELLES	SYC	4	3	3
45	SIERRA LEONE	SLE	4	4	4
46	SOMALIA	SOM			
47	SOUTH AFRICA	ZAF	2	1	1
48	SOUTH SUDAN	SSD			
49	SUDAN	SDN	4	4	4
50	TANZANIA	TZA	4	3	3
51	TOGO	TGO	4	4	4
52	TUNISIA	TUN	3	3	2
53	UGANDA	UGA	4	3	3
54	ZAMBIA	ZMB	4	3	2
55	ZIMBABWE	ZWE	4	3	3

Table 9: AFRIMETS legal metrology comparison - 2014/2017/2020



### 1.3 African Electrotechnical Standardization Commission (AFSEC)

The African Electrotechnical Standardization Commission (AFSEC) was established in February 2008, having legal status in accordance with Article 24 of the Convention of the African Energy Commission, through declarations of the Conferences of African Ministers of Energy. AFSEC's mission is in the fields of standards and conformity assessment systems for electricity, electronics and related technologies. With the prime aim of improving access to electricity for African populations, it is responsible for:

- Identification of existing standards and prioritization of the needs for standards in Africa
- Harmonizing existing standards either through the adoption of international standards or where necessary their adaptation to African conditions
- Promoting appropriate conformity assessment systems to assess and improve the quality of electrical products and services.

AFSEC is recognized by the International Electrotechnical Commission (IEC) through a cooperation agreement signed in 2009. It has formal cooperation agreements with the European Committee for Electrotechnical Standardization (CENELEC) and cooperation agreements within the field of electrotechnical standardization with several national standards bodies. AFSEC Members are National Electrotechnical Committees (NECs), one per African member state. Affiliate members are drawn from African Power Pools, and other regional and continental structures. Since 2017 till 2019, the principle changes to AFSEC membership have been the addition of Ethiopia, Guinea, Uganda and Zimbabwe, while Libya is still ceasing all activity. Côte d'Ivoire and Ghana AFSEC Members have become IEC Associated Members. There have been encouraging signs of growing interest with three (3) more countries to join AFSEC. Six (6) countries are now having established their NECs and having joined the IEC affiliate country programme.

CATEGORY	CRITERIA
1 NECs participating in both regional and international standardisation	<ul style="list-style-type: none"> <li>• Establishment of National Electrotechnical Committee</li> <li>• Member of AFSEC</li> <li>• Member of IEC</li> <li>• Participation in AFSEC Technical /Sub committees</li> <li>• Participation in IEC Technical / Sub committees</li> <li>• Technical Committee Chair/Secretariat AFSEC</li> <li>• Technical Committee Chair/Secretariat IEC</li> </ul>
2 NECs participation in regional standardisation and limited international standardisation	<ul style="list-style-type: none"> <li>• Establishment of National Electrotechnical Committee</li> <li>• Member of AFSEC</li> <li>• Affiliate Member of IEC</li> <li>• Participation in AFSEC Technical /Sub committees</li> <li>• Participation in IEC Technical / Sub committees</li> <li>• Technical Committee Chair/Secretariat AFSEC</li> </ul>
3 NECs not members of AFSEC but participating in limited standardisation	<ul style="list-style-type: none"> <li>• Establishment of National Electrotechnical Committee</li> <li>• Not a member of AFSEC</li> <li>• Affiliate /Member of IEC</li> <li>• Participation in IEC Technical work</li> </ul>
4 No establishment of NECs or the NECs are not active members of IEC or Affiliate	<ul style="list-style-type: none"> <li>• No National Electrotechnical Committee</li> <li>• Member of IEC/Affiliate member</li> <li>• Passive member of IEC</li> </ul>
5 No establishment of NECs - No activity	<ul style="list-style-type: none"> <li>• No Establishment of NEC</li> <li>• Not a member of AFSEC or IEC</li> </ul>

Table 10: Classification criteria for electrotechnical standardisation (2020)

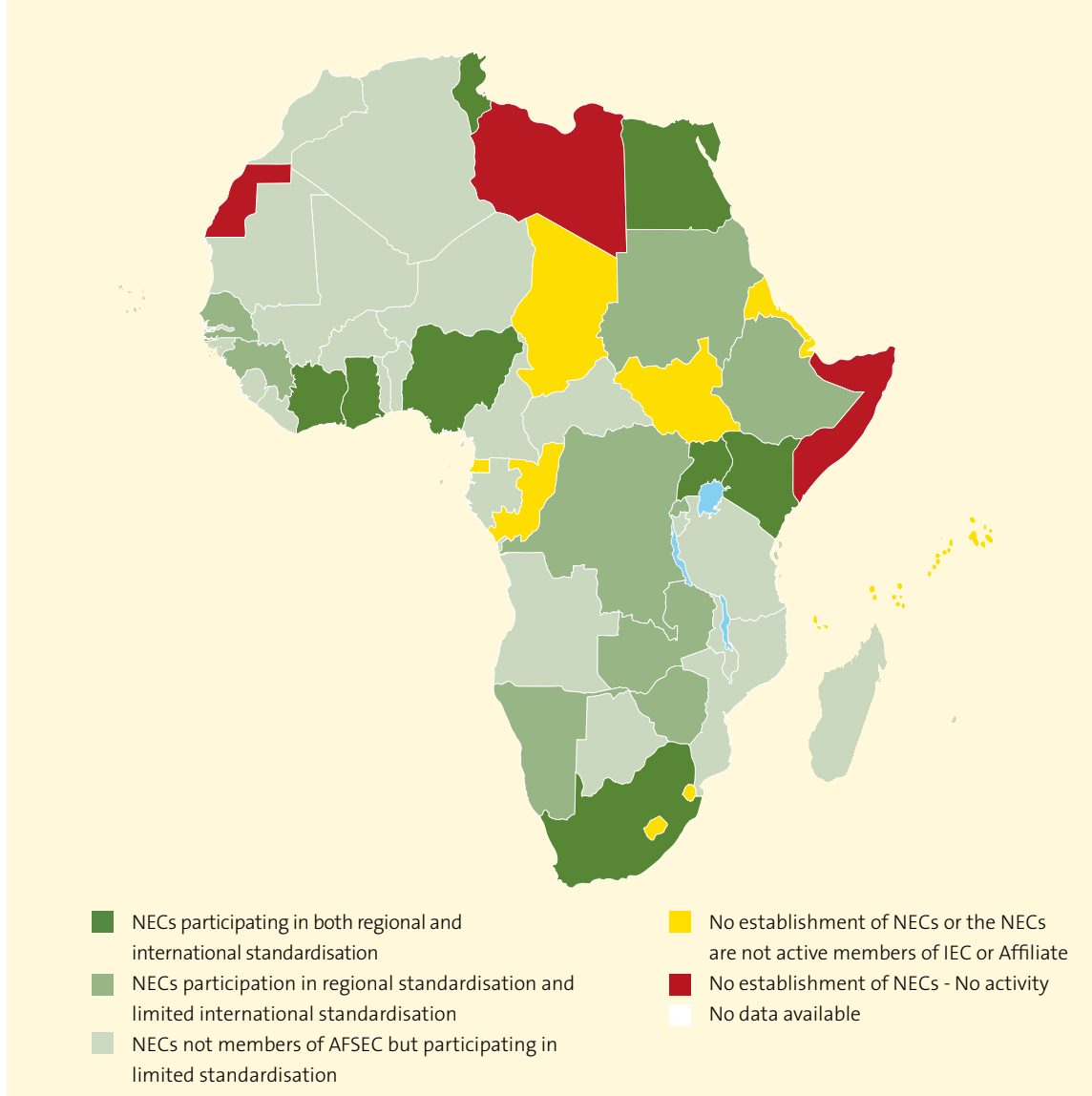


Figure 4: AFSEC stocktaking

CATEGORY	COUNTRY
1	Cote d'Ivoire, Egypt, Ghana, Kenya, Nigeria, South Africa, Tunisia and Uganda
2	Democratic Republic of the Congo, Ethiopia, Guinea, Namibia, Rwanda, Senegal, Sudan, Zambia and Zimbabwe
3	Algeria, Angola, Benin, Botswana, Burkina Faso, Burundi, Cameroon, Cape Verde Islands, Central African Republic, Gabon, Gambia, Guinea Bissau, Liberia, Madagascar, Malawi, Mali, Mauritania, Mauritius, Morocco, Mozambique, Niger, Sao Tome and Principe, Sierra Leone, Tanzania and Togo
4	Chad, Comoros, Congo, Djibouti, Equatorial Guinea, Eritrea, Eswatini, Lesotho, Seychelles and South Sudan
5	Libya, Sahrawi Republic and Somalia

Table 11: Classification of capabilities in electrotechnical standardisation (2020)

## AFSEC electrotechnical standardisation comparison – 2014/2017/2020

NO	COUNTRY	ISO Code	AFSEC 2014	AFSEC 2017	AFSEC 2020
1	ALGERIA	DZA	3	3	3
2	ANGOLA	AGO	4	4	3
3	BENIN	BEN	4	3	3
4	BOTSWANA	BWA	3	3	3
5	BURKINA FASO	BFA	3	3	3
6	BURUNDI	BDI	3	3	3
7	CAMEROON	CMR	3	3	3
8	CAPE VERDE ISLANDS	CPV	5	4	3
9	CENTRAL AFRICAN REPUBLIC	CAF	4	4	3
10	CHAD	TCD	4	4	4
11	COMOROS	COM			4
12	CONGO	COG	4	4	4
13	CÔTE D'IVOIRE	CIV	2	2	1
14	DEM. REPUBLIC OF THE CONGO	COD	2	2	2
15	DJIBOUTI	DJI	5	5	4
16	EGYPT	EGY	1	1	1
17	EQUATORIAL GUINEA	GNQ	5	5	4
18	ERITREA	ERI	4	4	4
19	ESWATINI	SWZ	4	4	4
20	ETHIOPIA	ETH	3	3	2
21	GABON	GAB	3	3	3
22	GAMBIA	GMB	3	3	3
23	GHANA	GHA	2	2	1
24	GUINEA	GIN	3	3	2
25	GUINEA-BISSAU	GNB	4	4	3
26	KENYA	KEN	1	1	1
27	LESOTHO	LSO	4	4	4
28	LIBERIA	LBR	5	4	3
29	LIBYA	LBY	1	5	5
30	MADAGASCAR	MDG	4	3	3

NO	COUNTRY	ISO Code	AFSEC 2014	AFSEC 2017	AFSEC 2020
31	MALAWI	MWI	3	3	3
32	MALI	MLI	4	3	3
33	MAURITANIA	MRT	4	3	3
34	MAURITIUS	MUS	3	3	3
35	MOROCCO	MAR	3	3	3
36	MOZAMBIQUE	MOZ	3	3	3
37	NAMIBIA	NAM	2	2	2
38	NIGER	NER	3	3	3
39	NIGERIA	NGA	1	1	1
40	RWANDA	RWA	2	2	2
41	SAHRAWI REPUBLIC	ESH	5	5	5
42	SAO TOME AND PRINCIPE	STP		5	3
43	SENEGAL	SEN	2	2	2
44	SEYCHELLES	SYC	4	4	4
45	SIERRA LEONE	SLE	3	3	3
46	SOMALIA	SOM	4	5	5
47	SOUTH AFRICA	ZAF	1	1	1
48	SOUTH SUDAN	SSD	4	4	4
49	SUDAN	SDN	2	2	2
50	TANZANIA	TZA	4	3	3
51	TOGO	TGO	4	3	3
52	TUNISIA	TUN	3	2	1
53	UGANDA	UGA	3	3	1
54	ZAMBIA	ZMB	2	2	2
55	ZIMBABWE	ZWE	3	3	2

Table 12: AFSEC electrotechnical standardisation comparison – 2014/2017/2020



#### 1.4 African Organization for Standardisation (ARSO)

In Africa, the increased reference to standardisation (and its attendant Compliance Infrastructure) in trade and economic policies and as a regulatory instrument and development tool, in Africa by Development Partners and Institutions, Political actors, Policy Makers, Economists and Industrialists is a clear pointer on the future prospects of Africa’s sustainable Development, and the eminent role of ARSO and the PAQI Institutions in general.

On a very positive light, the African Continental Free Trade Area Agreement which came into force on 31st May 2019, under its TBT Annex 6 binds all State parties to commit to the progressive elimination of tariffs and non-tariff barriers to trade in goods and under Article 5: Fields of Cooperation, has provided that States Parties shall cooperate in the development and implementation of standards, technical regulations, conformity assessment procedures, accreditation, metrology, capacity building and enforcement activities

and in Article 6.2 b, c, d and f respectively, calls on the State parties to adopt the harmonised African standards by ARSO and AFSEC.

Formed in 1977 by the African Union and the United Nations Economic Commission for Africa (UNECA), ARSO has the fundamental mandate to promote standardisation in Africa through the harmonisation of standards and conformity Assessment procedures, and promoting the related mutual recognition arrangements to promote intra-African Trade as well as access to the global markets. To date ARSO has harmonized over 1300 standards through 13 Technical harmonization committees with participation from stakeholders from member states. The anticipated standards to be harmonised by ARSO is comparable to the 4,547 HS6, Tariff lines for the AfCFTA.

From July 2020, Standards Harmonisation will be based on 14 sectors with 80 Technical Committees, with different working groups, which have been identified under the reviewed ARSO ASHAM and based on the recommendations of the UNECA 2019 Study on the Regional value chains and standardisation in Africa, in which

CATEGORY	CRITERIA
1 NSBs Participating in regional and international activities	<ul style="list-style-type: none"> <li>• Official National Standards Body</li> <li>• Member of ARSO</li> <li>• Full Member of ISO</li> <li>• Participation in ARSO Technical/ Sub committees</li> <li>• Participation in ISO Technical/ Sub committees</li> <li>• Participation in Regional Harmonization of Standards.</li> </ul>
2 NSBs Participating in Regional and limited International Activities	<ul style="list-style-type: none"> <li>• Official National Standards Body</li> <li>• Member of ARSO</li> <li>• Correspondent or subscriber Member of ISO</li> <li>• Participation in ARSO Technical/ Sub committees</li> <li>• Participation in ISO Technical/ Sub committees</li> <li>• Participation in Regional Harmonization of Standards.</li> </ul>
3 NSBs Participating in limited Regional and limited International Activities but not ARSO Members	<ul style="list-style-type: none"> <li>• Official National Standards Body</li> <li>• Member of ISO</li> <li>• Participation in ISO Technical work</li> <li>• Participation in Regional Harmonization of Standards</li> </ul>
4 Passive members in both regional and international standardization	<ul style="list-style-type: none"> <li>• Official National Standards Body</li> <li>• Member of ISO / ARSO</li> </ul>
5 No official NSBs	<ul style="list-style-type: none"> <li>• No Official Standards Body</li> </ul>

Table 13: Classification criteria for standardization (2020)



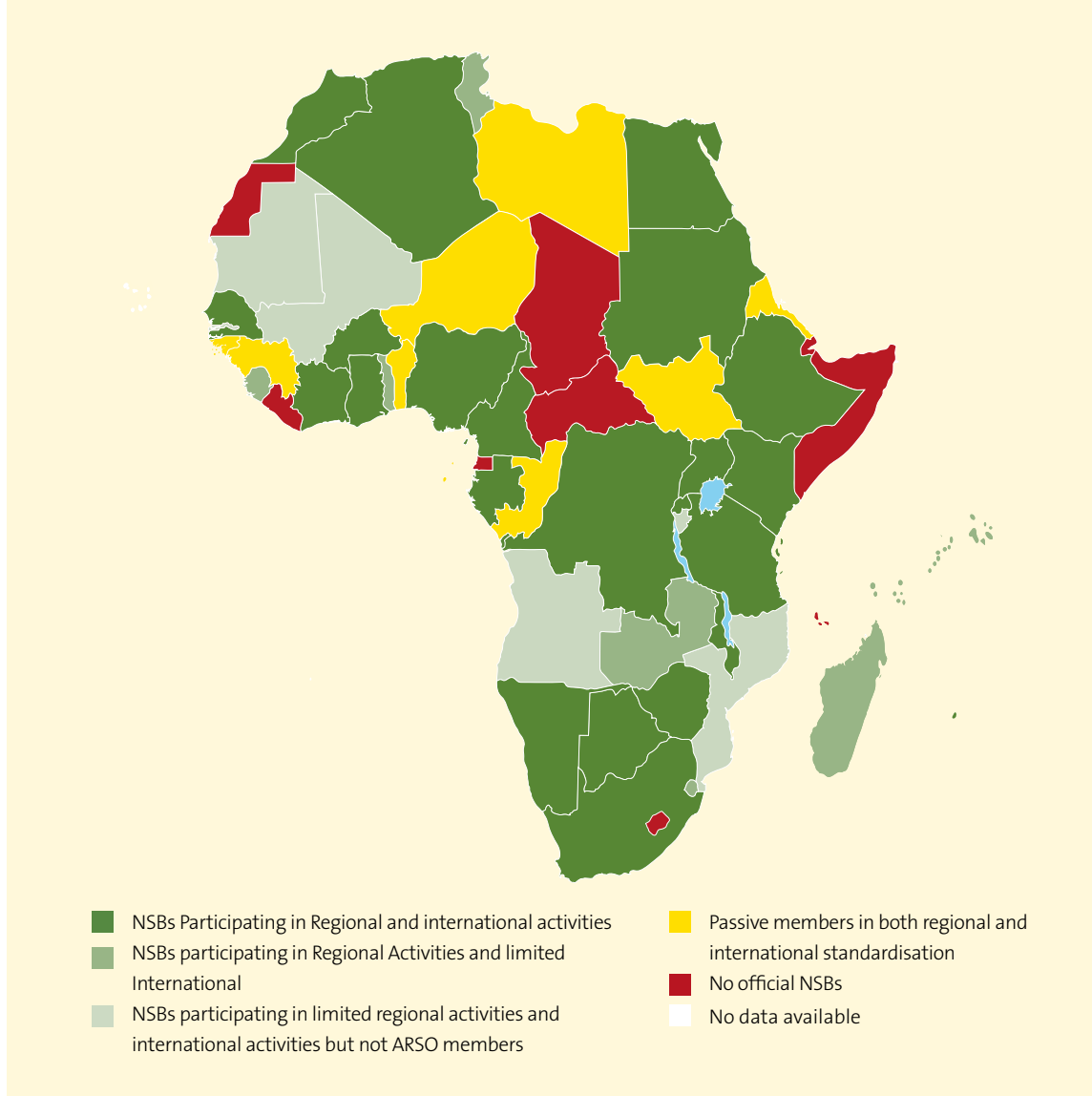


Figure 5: ARSO stocktaking

ARSO and the RECs are working very closely. The ARSO Conformity Assessment Programme (ACAP) under the ARSO Conformity Assessment Committee (ARSO CACO) aims at establishing various tools and capacity building for Good Conformity Assessment Practices (testing, certification, inspection, market surveillance, laboratory accreditation and calibration) based on

recognized harmonized standards, and facilitating Mutual Recognition Arrangements and Mutual Equivalence Arrangements, among African countries. The ACAP Programme covers certification 10 schemes that includes eco-labelling and promoting the EcoMark Africa label for goods and services complying with African sustainability standards.

CATEGORY	COUNTRY
1	Algeria, Botswana, Burkina Faso, Cameroon, Cote d'Ivoire, Democratic Republic of the Congo, Egypt, Ethiopia, Gabon, Ghana, Kenya, Malawi, Mauritius, Morocco, Namibia, Nigeria, Rwanda, Senegal, South Africa, Sudan, Tanzania, Uganda and Zimbabwe
2	Eswatini, Liberia, Madagascar, Seychelles, Sierra Leone, Togo, Tunisia and Zambia
3	Angola, Burundi, Gambia, Mali, Mauritania and Mozambique
4	Benin, Congo, Eritrea, Guinea, Guinea-Bissau, Libya, Niger, Sao Tome and Principe and South Sudan
5	Central African Republic, Chad, Comoros, Djibouti, Equatorial Guinea, Lesotho, Saharawi Republic and Somalia

Table 14: Classification of capabilities in standardization (2020)

Note: Cape Verde Islands official National Standards Body existing but not Member of ISO or ARSO

## ARSO standardisation comparison – 2014/2017/2020

NO	COUNTRY	ISO Code	ARSO 2014	ARSO 2017	ARSO 2020
1	ALGERIA	DZA	3	3	1
2	ANGOLA	AGO	4	4	3
3	BENIN	BEN	1	1	4
4	BOTSWANA	BWA	1	1	1
5	BURKINA FASO	BFA	1	1	1
6	BURUNDI	BDI	4		3
7	CAMEROON	CMR	1	1	1
8	CAPE VERDE ISLANDS	CPV		5	
9	CENTRAL AFRICAN REPUBLIC	CAF		5	5
10	CHAD	TCD		5	5
11	COMOROS	COM		5	5
12	CONGO	COG	5	5	4
13	CÔTE D'IVOIRE	CIV	1	1	1
14	DEM. REPUBLIC OF THE CONGO	COD	1	1	1
15	DJIBOUTI	DJI		5	5
16	EGYPT	EGY		1	1
17	EQUATORIAL GUINEA	GNQ	1	5	5
18	ERITREA	ERI	4	5	4
19	ESWATINI	SWZ	2	2	2
20	ETHIOPIA	ETH	1	1	1
21	GABON	GAB	1	1	1
22	GAMBIA	GMB	4		3
23	GHANA	GHA	1	1	1
24	GUINEA	GIN	2	2	4
25	GUINEA-BISSAU	GNB	2	2	4
26	KENYA	KEN	1	1	1
27	LESOTHO	LSO	4	4	5
28	LIBERIA	LBR	2	2	2
29	LIBYA	LBY	1	4	4
30	MADAGASCAR	MDG	2	2	2

NO	COUNTRY	ISO Code	ARSO 2014	ARSO 2017	ARSO 2020
31	MALAWI	MWI	2	2	1
32	MALI	MLI	3	3	3
33	MAURITANIA	MRT	4	3	3
34	MAURITIUS	MUS	1	1	1
35	MOROCCO	MAR	3	3	1
36	MOZAMBIQUE	MOZ	4	3	3
37	NAMIBIA	NAM	1	1	1
38	NIGER	NER	2	2	4
39	NIGERIA	NGA	1	1	1
40	RWANDA	RWA	1	1	1
41	SAHRAWI REPUBLIC	ESH			5
42	SAO TOME AND PRINCIPE	STP		5	4
43	SENEGAL	SEN	1	1	1
44	SEYCHELLES	SYC	2	2	2
45	SIERRA LEONE	SLE	2	2	2
46	SOMALIA	SOM		5	5
47	SOUTH AFRICA	ZAF	1	1	1
48	SOUTH SUDAN	SSD		4	4
49	SUDAN	SDN	1	1	1
50	TANZANIA	TZA	1	1	1
51	TOGO	TGO		4	2
52	TUNISIA	TUN	1	1	2
53	UGANDA	UGA	1	1	1
54	ZAMBIA	ZMB	2	2	2
55	ZIMBABWE	ZWE	1	1	1

Table 15: ARSO standardisation comparison – 2014/2017/2020

## 2. SUMMARY OF THE QUALITY INFRASTRUCTURE IN AFRICA

### 2.1 Quality Infrastructure classification of African Countries 2020

NO	COUNTRY	ISO Code	AFRAC	AFRIMETS		AFSEC	ARSO	PAQI Index
				Sc. & Ind. Metrology	Legal Metrology			
1	ALGERIA	DZA	1	4	3	3	1	2.6
2	ANGOLA	AGO	1	4	3	3	3	2.2
3	BENIN	BEN	3	3	3	3	4	1.8
4	BOTSWANA	BWA	1	2	3	3	1	3
5	BURKINA FASO	BFA	3	4	4	3	1	2
6	BURUNDI	BDI	5	4	4	3	3	1.2
7	CAMEROON	CMR	5	5	4	3	1	1.4
8	CAPE VERDE ISLANDS	CPV	5	5	0	3	0	0.4
9	CENTRAL AFRICAN REPUBLIC	CAF	5	5	5	3	5	0.4
10	CHAD	TCO	5	5	5	4	5	0.2
11	COMOROS	COM	1	5	0	4	5	1.2
12	CONGO	COG	5	4	4	4	4	0.8
13	CÔTE D'IVOIRE	CIV	3	4	4	1	1	2.4
14	DEM. REPUBLIC OF THE CONGO	COD	1	4	4	2	1	2.6
15	DJIBOUTI	DJI	5	5	0	4	5	0.2
16	EGYPT	EGY	1	1	2	1	1	3.8
17	EQUATORIAL GUINEA	GNQ	5	5	5	4	5	0.2
18	ERITREA	ERI	5	5	0	4	4	0.4
19	ESWATINI	SWZ	1	4	4	4	2	2
20	ETHIOPIA	ETH	1	2	3	2	1	3.2
21	GABON	GAB	5	5	4	3	1	1.4
22	GAMBIA	GMB	5	4	0	3	3	1
23	GHANA	GHA	4	2	3	1	1	2.8
24	GUINEA	GIN	5	5	0	2	4	0.8
25	GUINEA-BISSAU	GNB	3	5	5	3	4	1
26	KENYA	KEN	1	1	3	1	1	3.6
27	LESOTHO	LSO	1	5	4	4	5	1.2
28	LIBERIA	LBR	5	5	0	3	2	1
29	LIBYA	LBY	3	5	4	5	4	0.8
30	MADAGASCAR	MDG	1	4	4	3	2	2.2

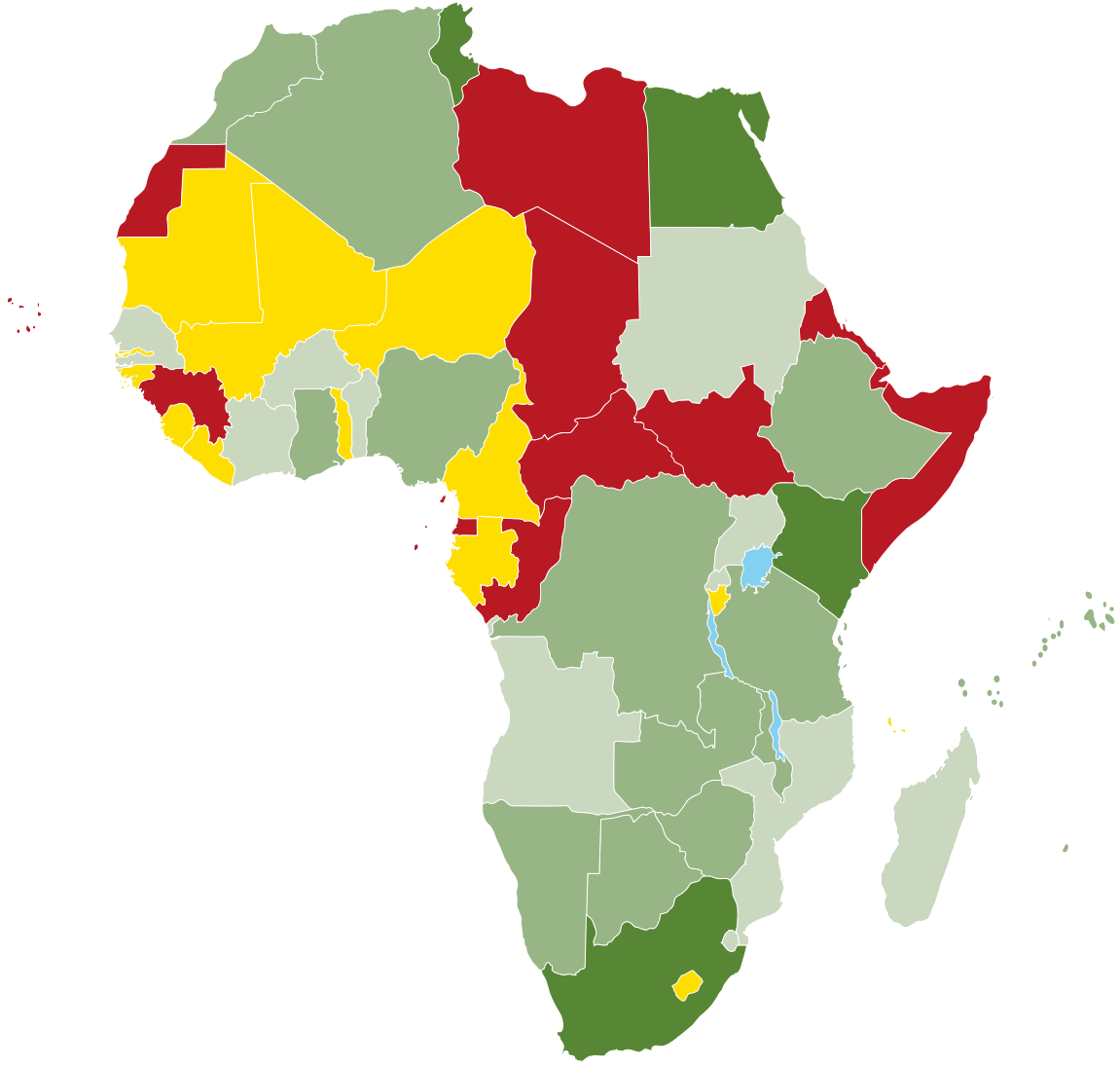
NO	COUNTRY	ISO Code	AFRAC	AFRIMETS		AFSEC	ARSO	PAQI Index
				Sc. & Ind. Metrology	Legal Metrology			
31	MALAWI	MWI	1	3	3	3	1	2.8
32	MALI	MLI	3	5	4	3	3	1.4
33	MAURITANIA	MRT	4	4	3	3	3	1.6
34	MAURITIUS	MUS	1	2	3	3	1	3
35	MOROCCO	MAR	3	1	3	3	1	2.8
36	MOZAMBIQUE	MOZ	1	3	3	3	3	2.4
37	NAMIBIA	NAM	1	2	3	2	1	3.2
38	NIGER	NER	3	5	4	3	4	1.2
39	NIGERIA	NGA	3	3	4	1	1	2.6
40	RWANDA	RWA	5	3	3	2	1	2.2
41	SAHRAWI REPUBLIC	ESH	5	5	0	5	5	0
42	SAO TOME AND PRINCIPE	STP	5	5	0	3	4	0.6
43	SENEGAL	SEN	3	4	4	2	1	2.2
44	SEYCHELLES	SYC	1	2	3	4	2	2.6
45	SIERRA LEONE	SLE	5	5	4	3	2	1.2
46	SOMALIA	SOM	5	5	0	5	5	0
47	SOUTH AFRICA	ZAF	1	1	1	1	1	4
48	SOUTH SUDAN	SSD	5	4	0	4	4	0.6
49	SUDAN	SDN	3	4	4	2	1	2.2
50	TANZANIA	TZA	1	2	3	3	1	3
51	TOGO	TGO	3	5	4	3	2	1.6
52	TUNISIA	TUN	1	1	2	1	2	3.6
53	UGANDA	UGA	5	3	3	1	1	2.4
54	ZAMBIA	ZMB	1	2	2	2	2	3.2
55	ZIMBABWE	ZWE	1	2	3	2	1	3.2

## 2.2 Criteria for classification

CATEGORY	WEIGHT SCORE	SCORE RANGE	COUNTRIES
Well developed	4	3.3-4.0	Egypt, Kenya, South Africa, Tunisia
Reasonably developed	3	2.5-3.2	Algeria, Botswana, Democratic Republic of the Congo, Ethiopia, Ghana, Malawi, Mauritius, Morocco, Namibia, Nigeria, Seychelles, Tanzania, Zambia, Zimbabwe
Partially developed	2	1.7-2.4	Angola, Benin, Burkina Faso, Côte d'Ivoire, Eswatini, Madagascar, Mozambique, Rwanda, Senegal, Sudan, Uganda
Limited	1	0.9-1.6	Burundi, Cameroon, Comoros, Gabon, Gambia, Guinea Bissau, Lesotho, Liberia, Mali, Mauritania, Niger, Sierra Leone, Togo
Non or very little	0	0-0.8	Cape Verde Islands, Central African Republic, Chad Republic, Congo, Djibouti, Equatorial Guinea, Eritrea, Guinea, Libya, Sahrawi Republic, Sao Tome and Principe, Somalia, South Sudan
Not categorized	-	-	-

The highest average = 4, the lowest average = 0

### 2.3 Stocktaking Map of Quality Infrastructure in Africa



- Well developed QI
- Reasonably developed QI
- Partially developed QI
- Limited QI
- Non or very limited QI

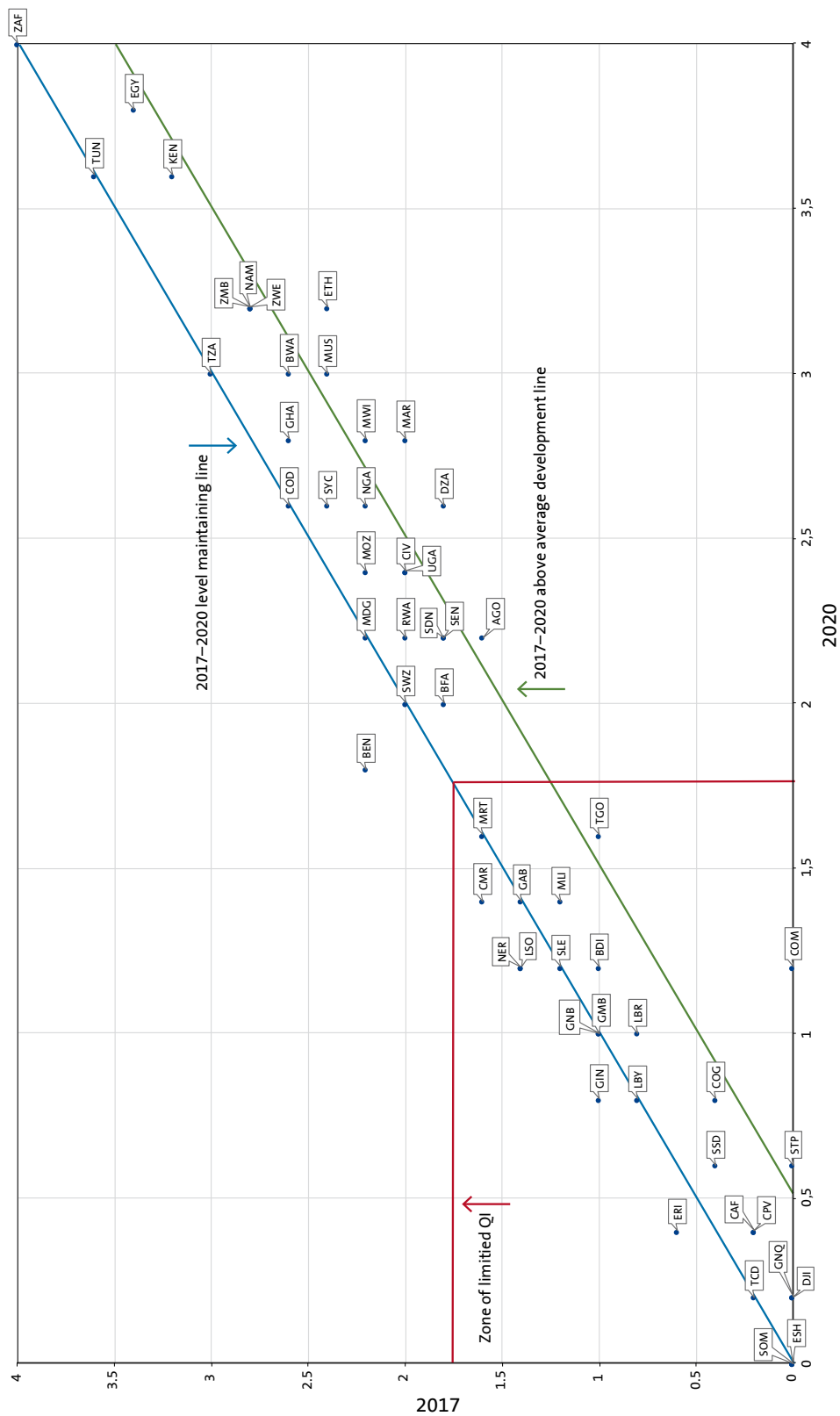
## 2.4 Quality Infrastructure classification of Africa Countries (PAQI Index), Comparison 2014/2017 and Trend

NO	COUNTRY	ISO Code	PAQI Index 2014	PAQI Index 2017	PAQI Index 2020	Trend
1	ALGERIA	DZA	1.8	1.8	2.6	↑
2	ANGOLA	AGO	1.2	1.6	2.2	↑
3	BENIN	BEN	1.8	2.2	1.8	↘
4	BOTSWANA	BWA	2.4	2.6	3.0	↗
5	BURKINA FASO	BFA	1.6	1.8	2.0	↗
6	BURUNDI	BDI	1.0	1.0	1.2	↗
7	CAMEROON	CMR	1.6	1.6	1.4	↘
8	CAPE VERDE ISLANDS	CPV	0.0	0.2	0.4	↗
9	CENTRAL AFRICAN REPUBLIC	CAF	0.2	0.2	0.4	↗
10	CHAD	TCO	0.2	0.2	0.2	→
11	COMOROS	COM		0.0	1.2	↑
12	CONGO	COG	0.4	0.4	0.8	↗
13	CÔTE D'IVOIRE	CIV	1.8	2.0	2.4	↗
14	DEM. REPUBLIC OF THE CONGO	COD	2.4	2.6	2.6	→
15	DJIBOUTI	DJI	0.0	0.0	0.2	↗
16	EGYPT	EGY	3.6	3.4	3.8	↗
17	EQUATORIAL GUINEA	GNQ	0.0	0.0	0.2	↗
18	ERITREA	ERI	0.4	0.6	0.4	↘
19	ESWATINI	SWZ	1.8	2.0	2.0	→
20	ETHIOPIA	ETH	2.4	2.4	3.2	↑
21	GABON	GAB	1.4	1.4	1.4	→
22	GAMBIA	GMB	0.6	1.0	1.0	→
23	GHANA	GHA	2.4	2.6	2.8	↗
24	GUINEA	GIN	1.0	1.0	0.8	↘
25	GUINEA-BISSAU	GNB	0.8	1.0	1.0	→
26	KENYA	KEN	3.4	3.2	3.6	↗
27	LESOTHO	LSO	1.2	1.4	1.2	↘
28	LIBERIA	LBR	0.6	0.8	1.0	↗
29	LIBYA	LBY	2.2	0.8	0.8	→
30	MADAGASCAR	MDG	1.8	2.2	2.2	→



NO	COUNTRY	ISO Code	PAQI Index 2014	PAQI Index 2017	PAQI Index 2020	Trend
31	MALAWI	MWI	2.0	2.2	2.8	↑
32	MALI	MLI	0.8	1.2	1.4	↗
33	MAURITANIA	MRT	0.6	1.6	1.6	→
34	MAURITIUS	MUS	2.4	2.4	3.0	↑
35	MOROCCO	MAR	2.2	2.0	2.8	↑
36	MOZAMBIQUE	MOZ	1.6	2.2	2.4	↗
37	NAMIBIA	NAM	2.4	2.8	3.2	↗
38	NIGER	NER	1.2	1.4	1.2	↘
39	NIGERIA	NGA	2.2	2.2	2.6	↗
40	RWANDA	RWA	1.8	2.0	2.2	↗
41	SAHRAWI REPUBLIC	ESH	0.0	0.0	0.0	
42	SAO TOME AND PRINCIPE	STP	0.0	0.0	0.6	↑
43	SENEGAL	SEN	1.6	1.8	2.2	↗
44	SEYCHELLES	SYC	1.8	2.4	2.6	↗
45	SIERRA LEONE	SLE	1.2	1.2	1.2	→
46	SOMALIA	SOM	0.0	0.0	0.0	→
47	SOUTH AFRICA	ZAF	3.3	4.0	4.0	→
48	SOUTH SUDAN	SSD	0.2	0.4	0.6	↗
49	SUDAN	SDN	1.6	1.8	2.2	↗
50	TANZANIA	TZA	2.2	3.0	3.0	→
51	TOGO	TGO	1.0	1.0	1.6	↑
52	TUNISIA	TUN	3.4	3.6	3.6	→
53	UGANDA	UGA	1.8	2.0	2.4	↗
54	ZAMBIA	ZMB	2.2	2.8	3.2	↗
55	ZIMBABWE	ZWE	2.4	2.8	3.2	↗

## 2.5 PAQI Index structural shift 2017 – 2020



## 2.6 PAQI Index number of countries by classification

CLASSIFICATION	2014	2017	2020
Well developed	4	3	4
Reasonably developed	0	8	14
Partially developed	21	17	11
Limited	13	13	13
Non or very little	14	12	13
No data	3	2	

A positive trend in the development of QI was already evident for the majority of African countries in the 2014-2017 investigation period. This positive trend continues for the period 2017-2020. This is especially true for the countries that already had a partially developed QI and now have adequate quality assurance services available. These efforts are highly commended. However, the number of countries whose QI is very limited or hardly developed has remained the same. It should be noted that all African countries are now included in the 2020 PAQI index.

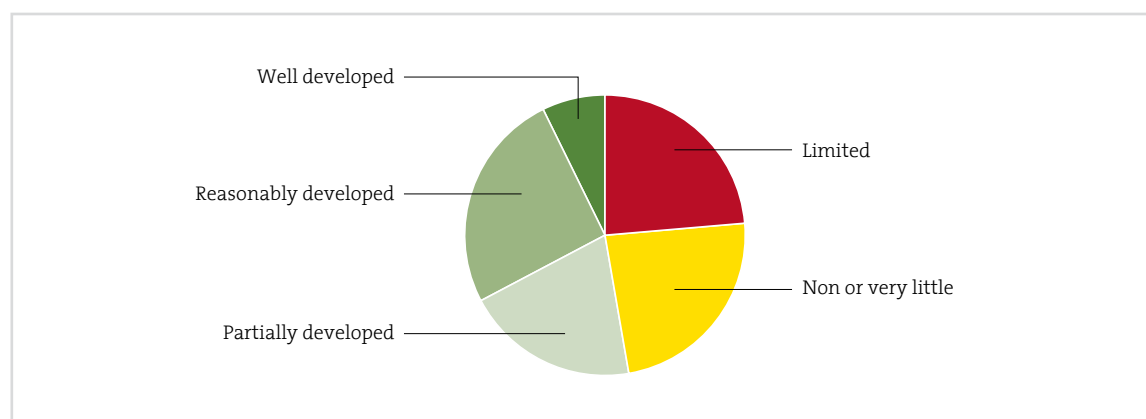
No change was observed for 15 countries, although a differentiation must be made here, six (6) of these countries were already at a satisfactory or high level in the earlier analyses. Further investments in the expansion of their

QI are urgently required for Benin, Cameroon, Chad, Eritrea, Gabon, Gambia, Guinea, Guinea-Bissau, Libya, Mauritania, Niger, Sierra Leone, Somalia and Sahrawi Republic.

Algeria, Angola, Ethiopia, Malawi, Mauritius, Morocco and Togo made a clear leap. Furthermore, there is a positive trend for 21 other countries.

Comoros, Equatorial Guinea and Sao Tome and Principe, and are also ranked with some improvement but are still on a very low level. Sahrawi Republic is listed for the first time.

In summary, there is a positive trend for the development of QI in Africa. Nevertheless, it can still be stated that 47.3% of the member states of the African Union do not have sufficient QI to meet the demands and to safeguard consumer and environmental protection.



PAQI Index Classification for 55 African Countries – 2020

## 2.7 PAQI Index and AfCFTA

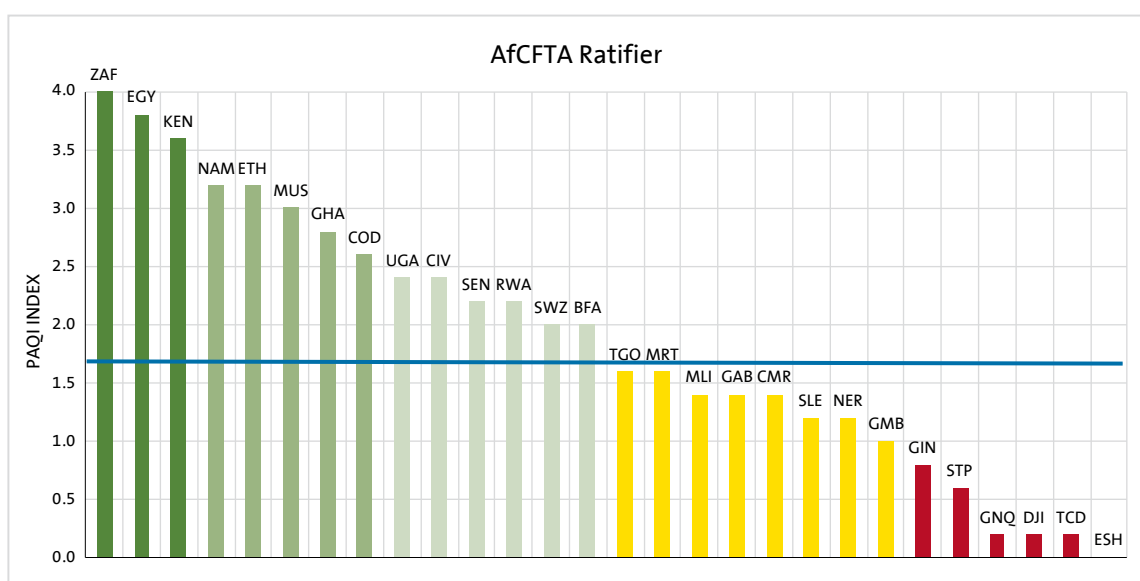
Due to their influence on trade and sustainable development the World over, issues of Quality Infrastructure (metrology, standards, accreditation and conformity assessment) as well as technical regulations are taking central place as instruments of trade, economic and competition policies.

Increasingly, reference to standardisation (and its attendant compliance infrastructure) in trade and economic policies as a regulatory instrument and development tool has been observed. Therefore, in Africa political actors, policy makers, economists, industrialists as well as development partners are launching bold initiatives such as the development of national, regional and continental strategies and policies on QI, e.g. an Africa Quality Policy. These are clear indicators of the future prospects of Africa embracing cooperation in standardisation and technical regulation as a key pillar in its sustainable development programmes.

The AfCFTA Agreement which came into force on 30th May 2019 binds all State Parties to commit to the progressive elimination of tar-

iffs and non-tariff barriers to trade. In Article 5 of the Agreement's Annex 6 on Technical Barriers to Trade, State Parties are required to cooperate in the development and implementation of standards, technical regulations, conformity assessment procedures, accreditation, metrology, capacity building and enforcement activities. Articles 6.2 b, c, d and f of the same annex call on State Parties to adopt harmonised African standards developed by ARSO and AFSEC where relevant international standards are not available.

With the ratification of the AfCFTA Agreement, the signatory states commit to fulfilling the conditions agreed to in the Agreement. In the case of quality infrastructure, the PAQI Index shows that 48.3% of the countries that have so far ratified the AfCFTA Agreement would not be able to fully comply with requirements of Annex 6 of the agreement due to shortcomings in some or all of their quality infrastructure in particular the means to meet requirements for reducing unnecessary technical barriers to trade and sanitary and phytosanitary measures.



## ABOUT PAQI

### Establishment of PAQI

PAQI was officially inaugurated on 30<sup>th</sup> August 2013 by the Director for Trade and Industry, African Union Commission, where by members comprising of, the African Accreditation Cooperation (AFRAC), the Intra-Africa Metrology System (AFRIMETS), the African Electro technical Standardisation Commission (AFSEC) and the African Organisation for Standardisation (ARSO) have formalized their cooperation as members of the Pan African Quality Infrastructure (PAQI) by signing a Memorandum of Understanding.

The 20<sup>th</sup> Conference of African Ministers of Industry (AU CAMI) recognize PAQI as the continental platform for all matters related to standardization, metrology, accreditation and conformity assessment in order to strengthen the competitiveness of Africa's goods and services and contribute towards the industrialization of the continent and its sustainability. PAQI fits well in the strategy for the implementation of the Action Plan for Boosting Intra-Africa Trade (BIAT) and above all for the African Continental Free Trade Area (AfCFTA).

### Vision

To be an efficient, effective, sustainable and internationally recognized PAQI contributing towards achievement African socioeconomic goals.

### Mission

To strengthen the regional and global competitiveness of Africa's goods and services and contribute towards an improved quality of life for the African people through prudent use of standards, measurements, conformity assessment and accreditation.



The African Accreditation Cooperation (AFRAC)



The Intra-Africa Metrology System (AFRIMETS)



The African Electrotechnical Standardisation Commission (AFSEC)



The African Organisation for Standardisation (ARSO)



Consultative workshop on the development of the Africa Quality Policy, Nairobi 2019



Upgrading of African Quality Infrastructure within the AfCFTA,  
15<sup>th</sup> PAQI Joint Committee Meeting in Addis Ababa, Ethiopia on the 12<sup>th</sup> February 2020



