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INDUSTRIAL DEVELOPMENT ORGANIZATION

COMCEC
Cooperation for Development

SUSTAINABLE DEVELOPMENT GOALS

UNIDO's Experiences/Perspectives Supporting the Development of Metrology

23rd MEETING OF THE COMCEC TRADE WORKING GROUP

September 19 -20, 2024, Ankara, Türkiye

Agenda

1 **Metrology Situation in OIC Member Countries**
What does the metrology situation in OIC Member Countries look like from the outside?

2 **UNIDO's Technical Cooperation Portfolio**
How is UNIDO supporting the development of regional and national QI particularly metrology?

3 **Key Considerations and Recommendations for OIC Member Countries**
What are lessons learned by UNIDO can OIC Member Countries apply to strengthen metrology?

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Quality Infrastructure - The system comprising the organizations (public and private) together with the policies, relevant legal and regulatory framework, and practices needed to support and enhance the quality, safety and environmental soundness of goods, services and processes.

The quality infrastructure is required for the effective operation of domestic markets, and its international recognition is important to enable access to foreign markets. It is a critical element in promoting and sustaining economic development, as well as environmental and social wellbeing.

It relies on metrology, standardisation, accreditation, conformity assessment, and market surveillance.

This is the definition of Quality Infrastructure adopted by the members of the INetQI.

INETQI
INTERNATIONAL NETWORK ON QUALITY INFRASTRUCTURE

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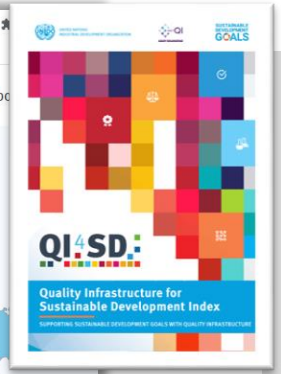
QI4SD Quality Infrastructure for Sustainable Development Index

SUSTAINABLE DEVELOPMENT GOALS



The QI4SD Index summarizes the state of development of Quality Infrastructure (QI) readiness to support the Sustainable Development Goals (people, planet, prosperity).

Developed in a broad consultative process with members and inputs from the INetQI.

2nd edition under preparation, launching 2024.

Launched on 17 June 2022

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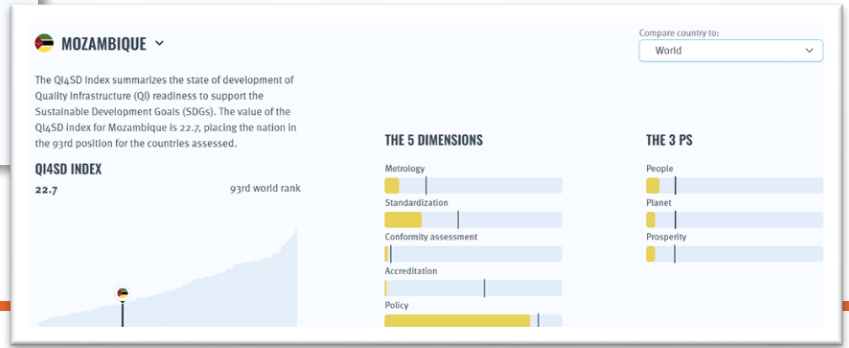

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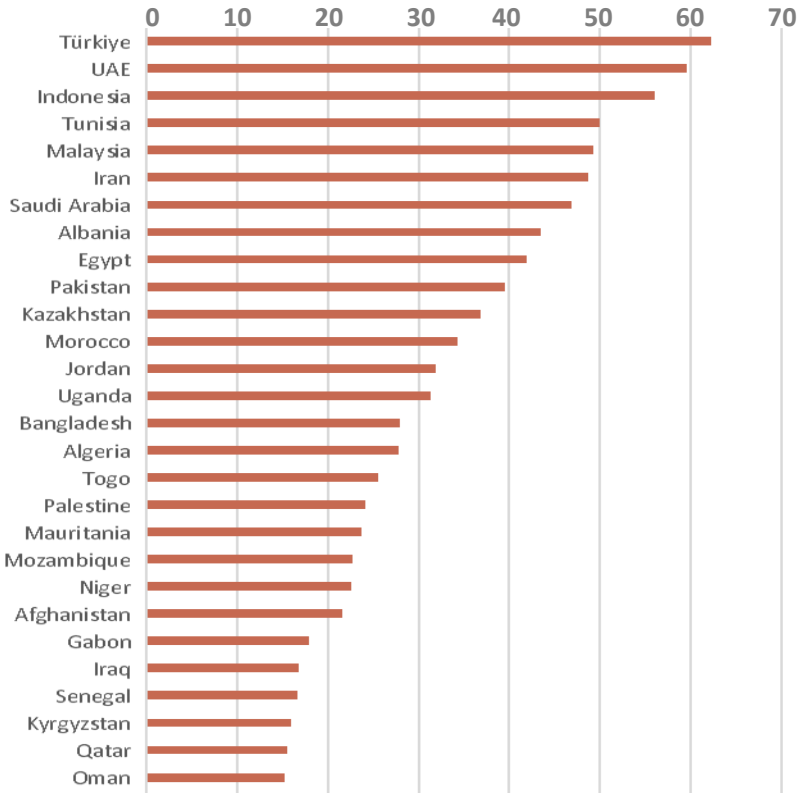
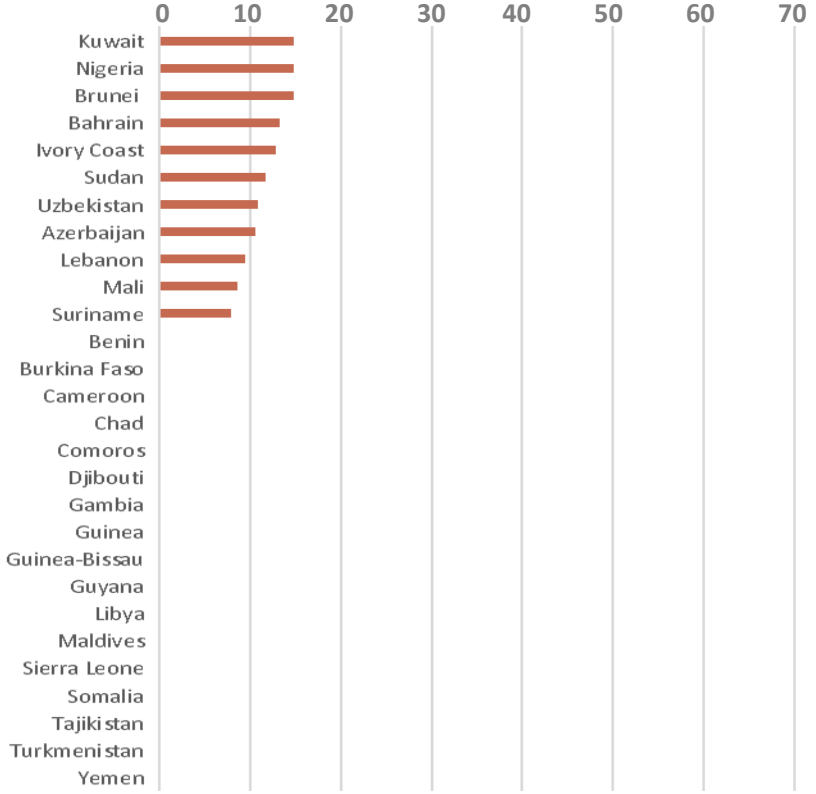
QI4SD Quality Infrastructure for Sustainable Development Index

SUSTAINABLE DEVELOPMENT GOALS

Quality Index Value





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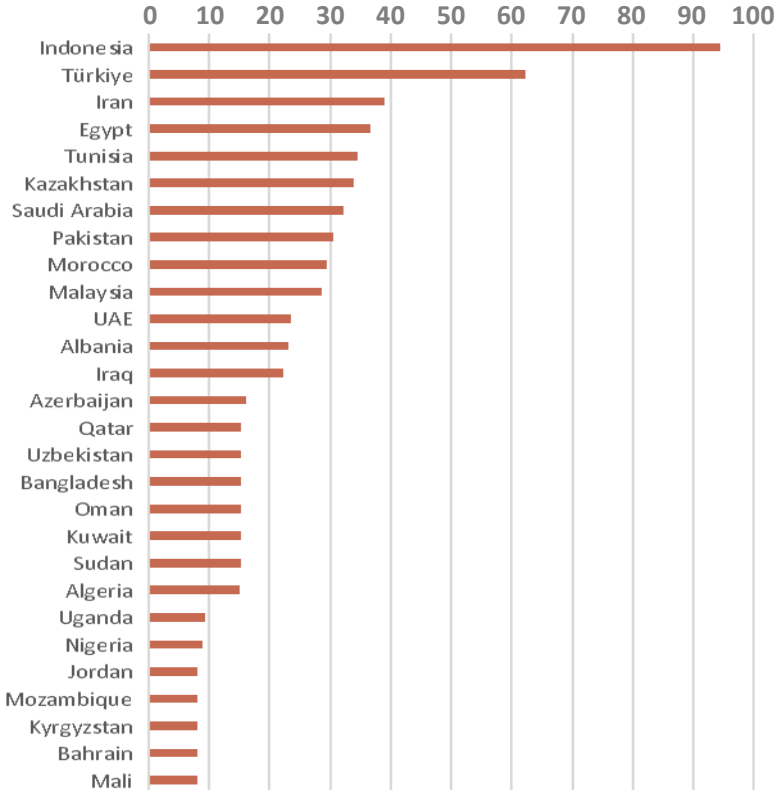
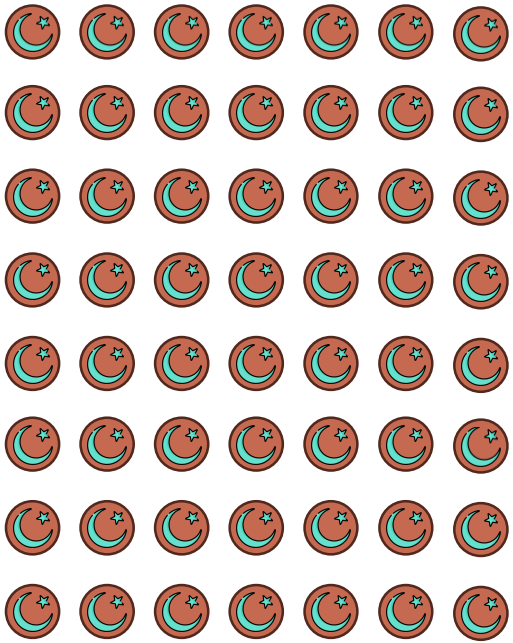
Metrology Value



56 OIC Member Countries



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Memberships in the International Bureau of Weights & Measures (BIPM)

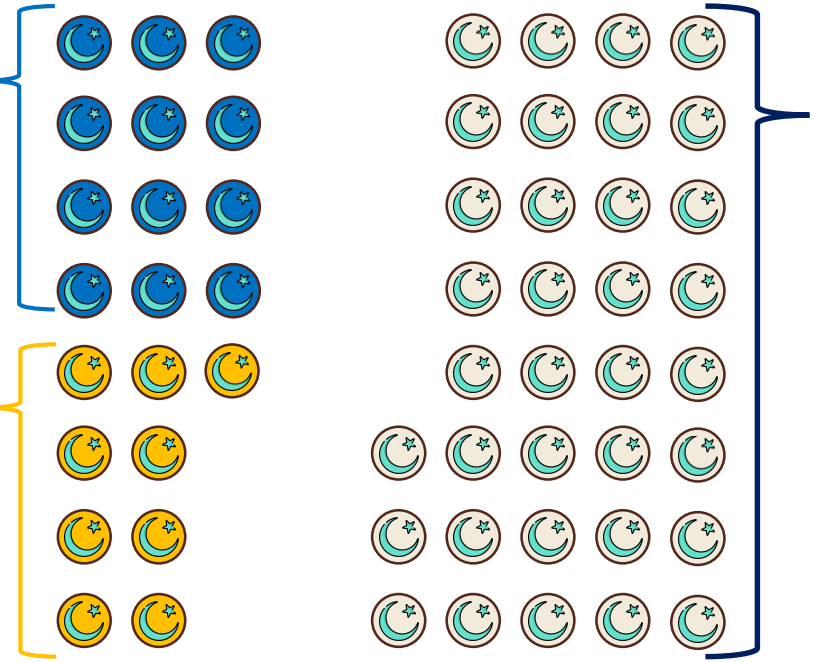
21% OIC Member Countries are Member States of the BIPM.

12 Countries

Bureau International des Poids et Mesures

16% OIC Member Countries are Associate States or part of an Associate Economy of the BIPM.

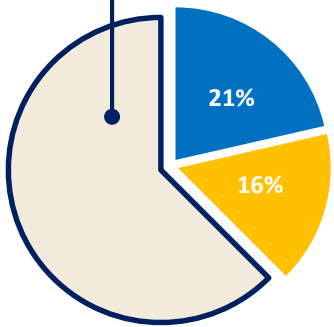
9 Countries



63%

OIC Member Countries have **NO** membership to the BIPM.

35 Countries



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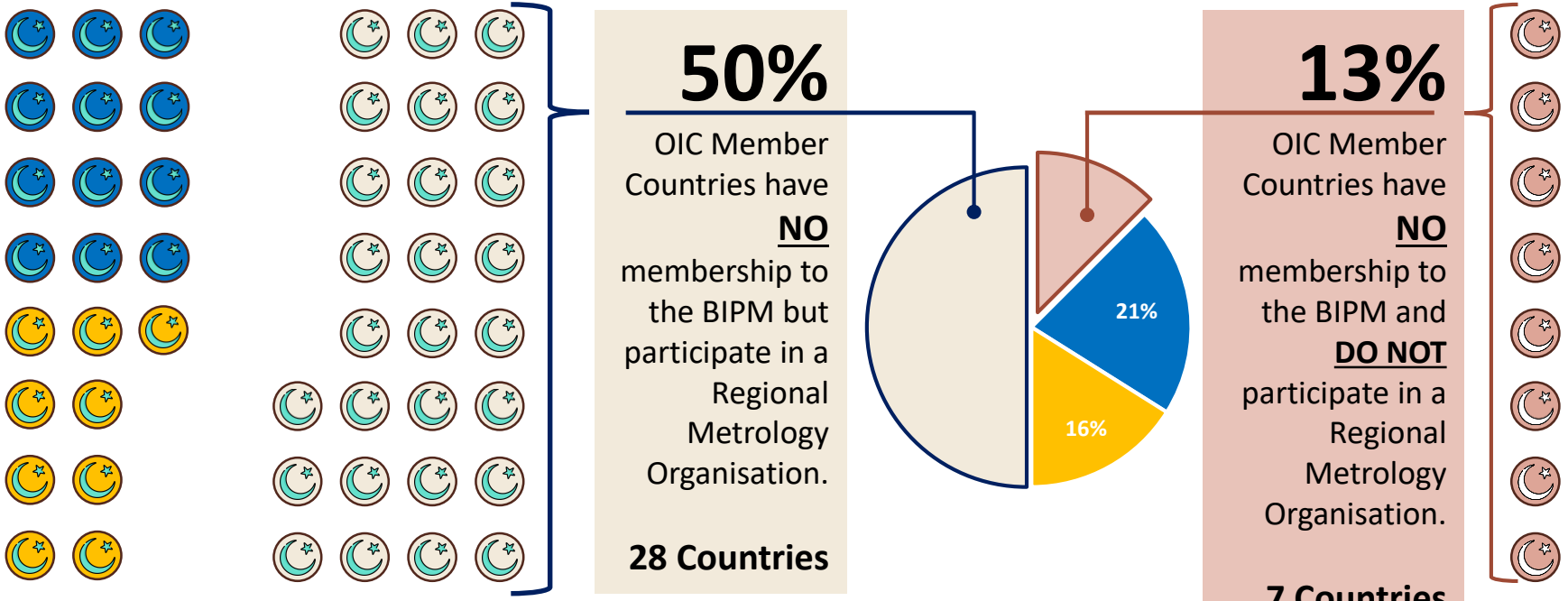
Memberships in the International Bureau of Weights & Measures (BIPM)



50%

OIC Member Countries have **NO** membership to the BIPM but participate in a Regional Metrology Organisation.

28 Countries

13%

OIC Member Countries have **NO** membership to the BIPM and **DO NOT** participate in a Regional Metrology Organisation.

7 Countries

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Memberships in the International Bureau of Weights & Measures (BIPM)

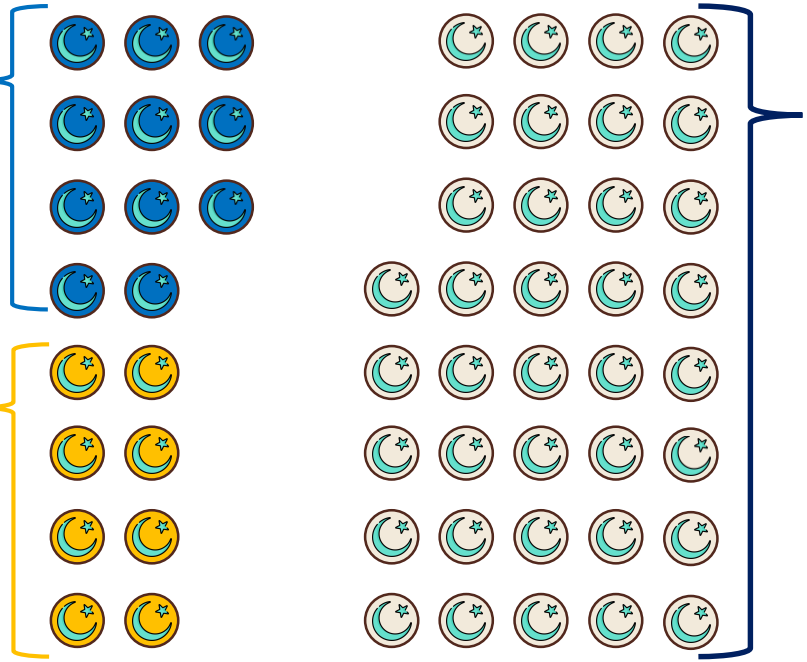
20% OIC Member Countries are Member States of the BIPM.

11 Countries

Bureau International des Poids et Mesures

14% OIC Member Countries are Associate States or part of an Associate Economy of the BIPM.

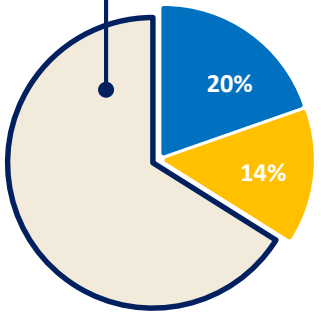
8 Countries



66%

OIC Member Countries have **NO** membership to the BIPM.

37 Countries



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Memberships in International Organization of Legal Metrology (OIML)

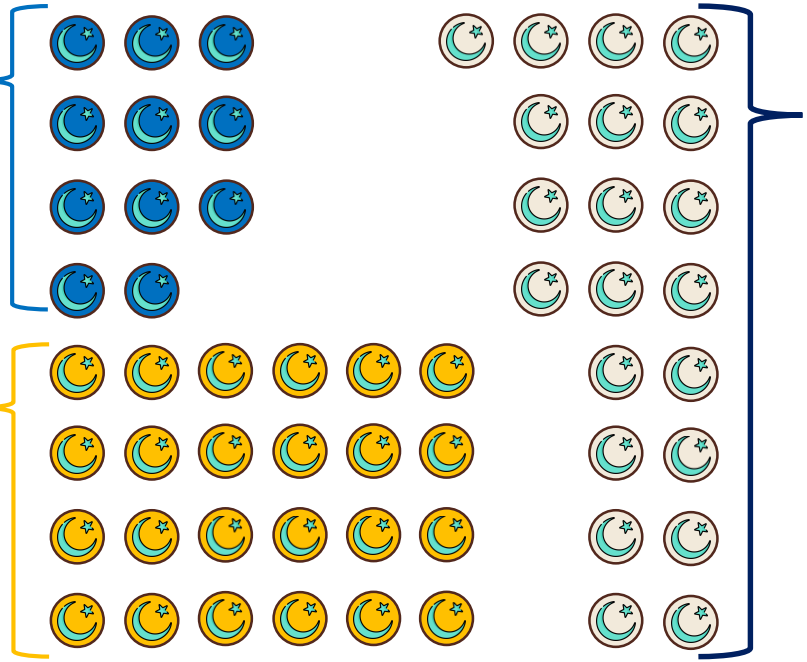
20% OIC Member Countries are Member States of the OIML.

11 Countries

OIML

43% OIC Member Countries are Corresponding Members of the OIML.

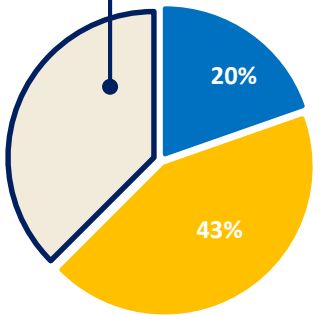
24 Countries



37%

OIC Member Countries have **NO** membership to the OIML.

21 Countries



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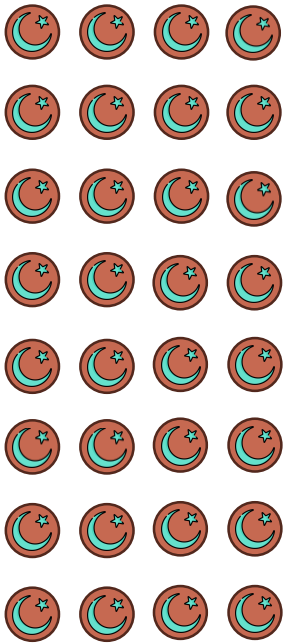
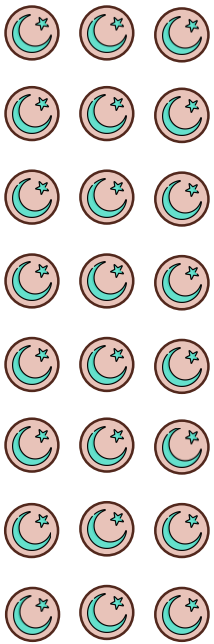
Non-ACP Member Countries of the OIC

24 ACP Member Countries of the OIC





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SUSTAINABLE DEVELOPMENT GOALS

Non-ACP Member Countries of the OIC

Bureau International des Poids et Mesures

No ACP Member State within OIC is a full Member State of the BIPM.

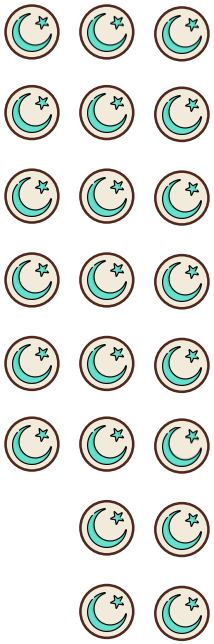
0 Countries

8% ACP Member States within OIC are Associate States or part of an Associate Economy of the BIPM.

2 Countries

Note: Both countries (Guyana and Suriname) are a part of the CARICOM Associate Economy.

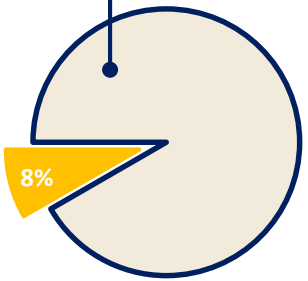
24 ACP Member Countries of the OIC



92%

ACP Member States within OIC Member Countries have **NO** membership to the BIPM.

22 Countries



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Non-ACP Member Countries of the OIC

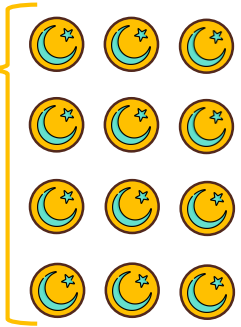
OIML

No ACP Member State within OIC is a full Member State of the OIML.

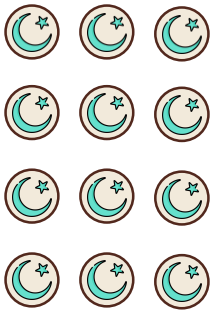
0 Countries

50% ACP Member States within OIC are Corresponding Members of the OIML.

12 Countries



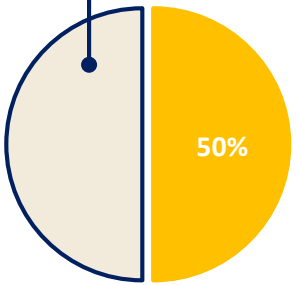
24 ACP Member Countries of the OIC



50%

ACP Member States within OIC Member Countries have **NO** membership to the OIML.

12 Countries



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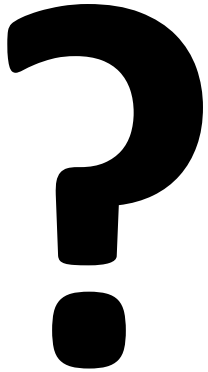
POLICIES

Is there a National Quality Policy?

How is this aligned to the Regional Quality Policy?

Is there a national metrology policy and strategic plan for the NMI and NLMA?

Is there a Policy or Strategy for OIC/COMCEC to guide the support for QI development & cooperation within OIC ?



DEMAND

What is the local demand for metrology?

How is the NMI's and NLMA's relationship(s) with stakeholders (regulators, industry, academia)?

SUPPLY

What is the local supply of metrology services in relation to the sustainable demand?

How can the unsustainable national demand be fulfilled within OIC ?

LEGISLATION

Is the current metrology legislation aligned with the OIML D1 international recommendation?

Do the regulations adequately address the metrology needs of the country?

MANAGEMENT

How is metrology governed?

How easy is it to ensure metrological traceability?

How easy is it to access accreditation?

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UNIDO's Technical Cooperation Portfolio

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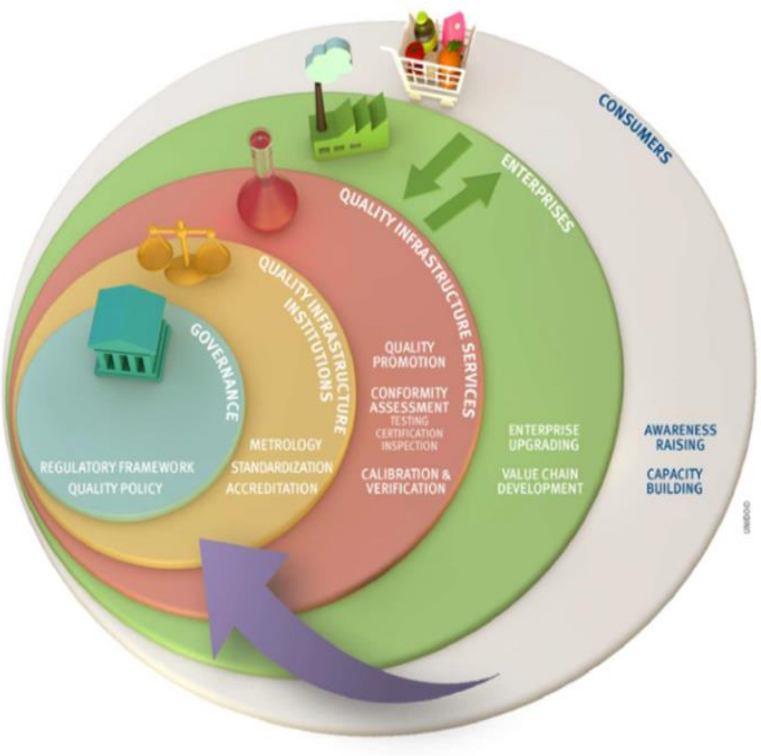
UNIDO's Approach to Quality Infrastructure Development



1 TECHNICAL COOPERATION

- All areas of QI
- Continental
- Sub regional
- National

2 ANALYTICAL, RESEARCH AND POLICY ADVICE

- Global tools
- Rejection Analysis
- Culture for Quality
- QI Atlas / QI Map
- QI4VC tool
- Quality Policy

3 NORMATIVE & QUALITY-RELATED ACTIVITIES

- QI definition
- Trilogy on Quality Policy
- Laboratory Policy guidelines

4 STRATEGIC PARTNERSHIPS, KNOWLEDGE TRANSFER

- INetQI
- Knowledge Hub
- Pan-African Partnerships

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UNIDO's Approach to Quality Infrastructure Development

Effective harmonized policies & frameworks

- Development of legal and regulatory Frameworks for Quality Infrastructure Systems
- Implementation of quality and conformity assessment related policies implementation
- Guides and Tools for better informed Policy Decisions on QI as part of BE/Policy Reform
- Support to Pan-African and Regional Quality Policies
- Promotion of Quality Culture

Recognized compliance of products and services

- Value chain compliance with quality, standards and technical regulations and enhanced quality assurance system through development and international harmonization of technical regulation and standards on quality, safety and sustainability
- Mutual recognition and harmonization of conformity assessment schemes
- Support Value Chains from production to processing and conformity assessment to export requirements
- Developing capacity in economic, social and environmental compliance at production and post-production.

SME Competitiveness and Market Access

- Enterprise competitiveness and enhanced trade capacity through application of productive, resource efficient, clean and sustainable processing practices, establishing internal and supply chain traceability systems and enhance value addition
- Strengthening of the enabling business environment for enhancing compliance with TBT and other requirements
- Enhancing SME opportunities for business and export and supporting export promotion agencies capacity-building
- Support to private sector aggregation and clustering

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Mozambique

SUSTAINABLE DEVELOPMENT GOALS

Instituto Nacional de Normalização e Qualidade-IP

Activities

- Technical assistance towards extending the scope of the calibration services of INNOQ accredited in terms of ISO/IEC 17025.
- Development of software tailored for the newly procured metrology equipment that allows record-keeping, uncertainty calculation and issue of calibration certificates.
- Support the calibration of measurement standards and selected laboratory equipment to maintain traceability to the SI.
- Technical assistance in designing and refurbishing calibration laboratories in the region of Nampula.
- Study tours and training about technical regulations for legal metrology.
- Supported the participation of INNOQ officials in the international and regional metrology for a.

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Mozambique

SUSTAINABLE DEVELOPMENT GOALS

Funded by the European Union

Instituto Nacional de Normalização e Qualidade-IP

Impact

- Clients have access to a broader scope of accredited calibration services.
- Increased revenues for INNOQ.
- Enhanced access by producers and enterprises in the central region of Mozambique to calibration services.
- Mozambique's enhanced profile in the region and internationally due to active participation in regional and international metrology networks

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SUSTAINABLE DEVELOPMENT GOALS

QUALITAN Tanzania

Provision of Equipment for the 7 metrology labs:

- Equipment and Reference Standards procured for 7 metrology labs:
  - Mass, Volume; Force & Torque; Temperature, Pressure & Chemical metrology

Capacity Building

- **Development of Business plans & Digital Transformation of the 9 metrology labs**
  - Business Plans developed for 9 metrology labs at TBS. Implementation of these business plans underway following approval of TBS governing body
  - Development, installation of Laboratory Information Management System (LIMS) & training on LIMS

- **Trainings on ISO17025:**

Impact

- Sustained accreditation of calibration services; enhanced scope of calibration services based on client needs
- Reduction in turnaround time – issuance of reports etc

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GQSP Indonesia

National Metrology Institute (NMI) has been supported through UNIDO's GQSP Indonesia since 2019.

GLOBAL QUALITY AND STANDARDS PROGRAMME

Phase I: 2019-2023

- Supported the establishment of new NMI microbiology lab (NBML*)
- Developed a Business plan and roadmap
- Capacity buildings International/National experts & in collaboration with the Swiss Federal Institute of Metrology (METAS)
  - validation, verification, and optimization of microbiology equipment for producing Certified Reference Materials (CRM)
  - ISO 35001
  - Internal Audit

GLOBAL QUALITY AND STANDARDS PROGRAMME

Phase II: 2023-2026

- Strengthen the established NMI microbiology lab (NBML)
- Implement the developed Business plan and roadmap

Milestones by 2025

- NMBL accredited on ISO 17025, 17043 (PTP), 17034 (RMP)
- Production of certified reference materials

Milestones by 2026

- NMBL full operational based on business plan

**NBML focuses on testing halal food (DNA testing) and food safety (Microbiology contamination)*

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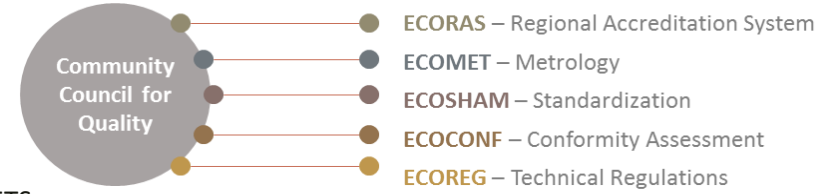
West Africa

Under the regional component of the EU-funded West Africa Competitiveness Programme (WACOMP), UNIDO provided support to ECOQUAL and CQC, comprising Metrology:

ECOWAS Regional Quality Policy (ECOQUAL): *"establish a framework for the development and operation of an appropriate, relevant, effective and efficient quality infrastructure to facilitate intra-regional & international trade, protect consumers, the environment, and promote sustainable economic development."*

The Community Council for Quality (CCQ) is one of the key instruments used for the implementation of ECOQUAL, comprising the following key regional quality infrastructure institutions:



Achievements under Metrology:

Regional level:

- UEMOA metrology law adopted
- ECOWAS Committee for Metrology (ECOMET) operational & member of AFRIMETS
- TCs and WGs created
- ECOMET guides for calibration developed

National level:

- 320 technicians trained
- 2 national metrology bills
- NMIs provided with basic calibration equipment
- 2 calibration labs re-accredited

Further support to be provided by UNIDO through the Africa Trade Competitiveness and Market Access Programme (ATCMAP) in ECOWAS, SADC, COMESA, ECCAS and Continental Level in support to PAQI Secretariat, starting early 2025.

WAQIP West Africa Competitiveness and Quality Infrastructure Project
FUNDED BY THE EUROPEAN UNION | IMPLEMENTED BY UNIDO

WACOMP West Africa Competitiveness Programme

ACP Quality Infrastructure (QI) Project
Programme Fact Sheet

Title: Supporting quality and regulatory infrastructure, value chain-specific quality infrastructure services and quality culture promotion in the African, Caribbean and Pacific Group of States"

Funding

Intra-ACP action funded by the European Commission and the Organization of African, Caribbean and Pacific States (OACPS)

Budget

7.0

million EUR

Start

2022

January

End

2025

December

Coverage

3

regions through a regional Quality Infrastructure organisation or responsible institution.

QUALITY IN ACP

Implementation Partners

African Organisation for Standardisation (ARSO)

CARICOM Regional Organisation for Standards & Quality (CROSQ)

Pacific Island Forum Secretariat (PIFS)/ Pacific Quality Infrastructure (PQI) Initiative

Project Objective

To support quality and regulatory infrastructure improvements in ACP countries, enhance value-chain specific QI Services and promote a Quality Culture.

Outcome

Enhanced Quality Infrastructure and regulatory climate that supports and enhances the ability of firms to compete, grow and prosper in domestic, regional and international markets.

Output 1

Quality and regulatory infrastructure (Q&RI) governance enhanced (through improved capacity and increased asset base of regional and continental Q&RI institutions).

Output 2

Regional / sub-regional value chain-specific QI Services strengthened.

Output 3

Quality Culture in the ACP countries enhanced.

Priority Activities

Africa

- **Alignment of National Quality Policies with Africa Quality Policy.**
- Standards development for Value Chains including Voluntary Sustainability Standards with an upgrade for digitalization process of standard development and online library
- Supporting Conformity Assessment Bodies (CABs) to facilitate the adoption of the VC standard
- **Building of Quality Culture by developing & promoting QI academic materials for secondary and tertiary institutions**
- Capacity building for stakeholders engaged in mainstreaming the requirements for international trade (ATWP, WTO National Inquiry point, …)

Caribbean

- **National Standards & Metrology Strategies**
- Alignment of National Laboratory Policies with Regional Policy
- Standards Development Platform
- Standards development for Value Chains including Voluntary Sustainability Standards
- **Establish and expand competent metrology services**
- **Promotion of quality in secondary and tertiary education institutions**
- Impact study on National Quality Awards

Pacific

- Development of Pacific Quality Policy and support to alignment of National Quality Policies
- **Updating of Metrology Legislation**
- Standards development for selected Value Chain
- Development of testing capabilities to support selected Value Chains
- **Promotion of quality in secondary and tertiary education institutions**
- **Awareness raising for professional and consumer associations**

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UNIDO Knowledge Tools

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Laboratory Network (LabNet)

This innovative database provides information on services offered by Conformity Assessment Bodies (CABs) around the world in the area of calibration, testing, certification, and inspection.

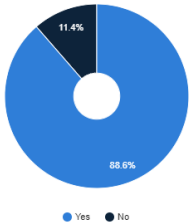
Service providers by type

Overall Amount

1246

Type of service provider	Registered CABs
Calibration laboratory	292
Certification body	79
Inspection body	254
Testing laboratory	621

Accreditation status



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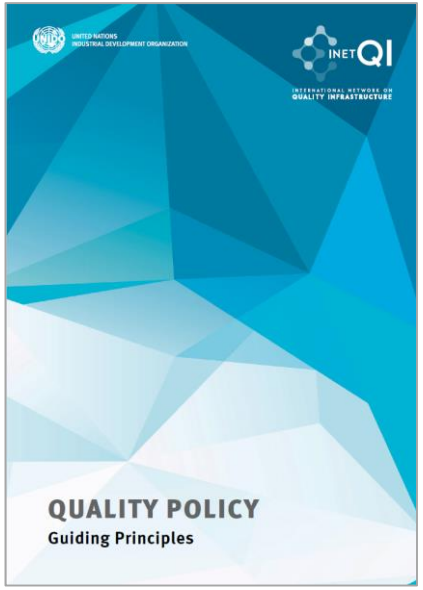
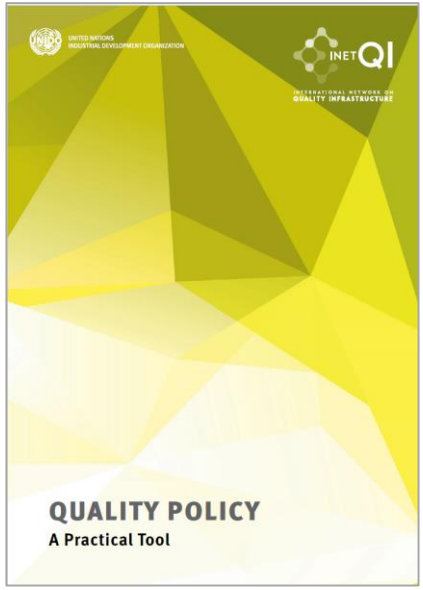
Publications





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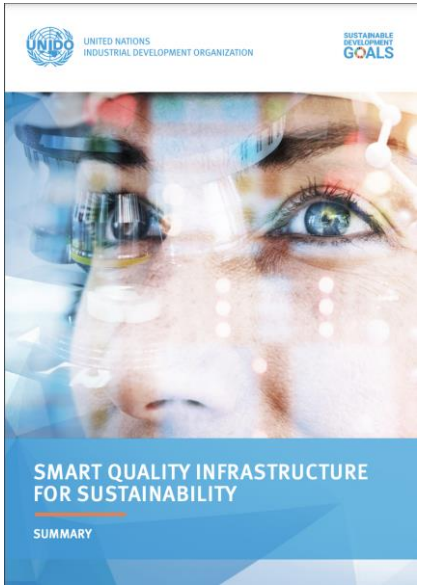
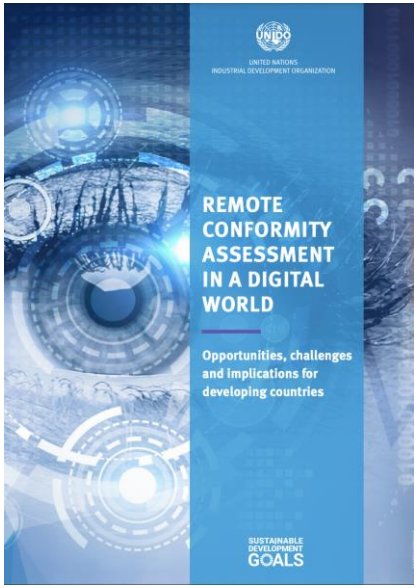
SUSTAINABLE DEVELOPMENT GOALS

Publications





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INDUSTRIAL DEVELOPMENT ORGANIZATION

SUSTAINABLE DEVELOPMENT GOALS

Considerations and Recommendations

The BIPM

CELEBRATING 150 BIPM 1875 – 2025

… is the **intergovernmental organization established by the Metre Convention in 1875,** through which Member States act together on matters related to measurement science and measurement standards

The BIPM is the home of the **International System of Units (SI)** and the **international reference time scale (UTC).**

CENTRE for COLLABORATION
Scientific and technical collaboration between Member States

ADVOCACY
Representing the world-wide measurement community

BIPM

COORDINATION
of the world-wide measurement system

- Laboratory activities
- Calibrations | Comparisons
- JCGM | CIPM MRA | UTC
- CBKT | JCTLM

Established in 1875 when 17 States signed the Metre Convention, now with 64 Member States and 36 Associates, covering around 98 % of the world's GDP according to 2023 IMF data.

"TO ASSURE THE INTERNATIONAL UNIFICATION AND PERFECTION OF THE METRIC SYSTEM"

UNITED NATIONS
INDUSTRIAL DEVELOPMENT ORGANIZATION

Bureau International des Poids et Mesures

SUSTAINABLE DEVELOPMENT GOALS

Wider participation
in BIPM activities

Resolution 6: *On universal adherence to the Metre Convention*

- **New membership category - "Observer"** will be able to establish links to the world's measurement system via
  - attendance of meetings of the CGPM, BIPM's plenary body, without voting rights.
  - access to tailor-made capacity-building activities and dedicated information resources.
  - participation in the celebration of 20 May - World Metrology Day worldwide.

There would be no membership fee required for an Observer status.

Achieving Observer status will give visibility at the international level of the fact of the implementation of the SI and UTC.

*Appropriate actions to be proposed for consideration by the CGPM at its 28th meeting to be held in **October 2026**.*

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SUSTAINABLE DEVELOPMENT GOALS

Key Considerations

Policy, Legal and Regulatory Framework

- National Quality Policy
- Metrology Policy
- Metrology Legislation & Regulations
- Continuous understanding of national demand

Management Capacity

- Leadership & Governance
- Organizational Strategy
- Quality Management System
- Organizational culture
- Human Resource Management
- Financial planning & sustainability
- Customer focus

Technical Capacity

- Human Resources
- Capacity Building
- Laboratory Facilities
- Equipment
- Metrological Traceability
- Digitalization
- Customer satisfaction & relationships

Quality Promotions

- Brand identity
- Education
- Marketing
- Lessons learned

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Stakeholder Relationship Management

Developing Economies

1 All in one

2

NMI
Scientific & Industrial

NLMA
Legal

or

Note: The critical determinant of how the national metrology system will look (within international recommendations) is what is sustainable with the local demand.

Developed Economies

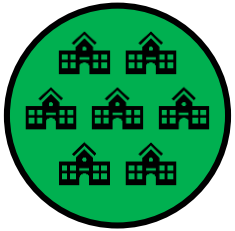
3

NMI
Scientific

NLMA
Legal

or

Calibration Labs
Industrial

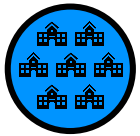


or

4

NMI & DIs
Scientific

and



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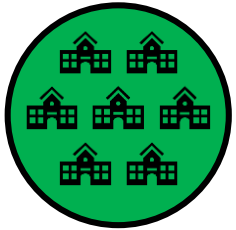

Roles and Responsibilities

	National Metrology Institute		National Legal Metrology Authority(ies)	
	International engagement –BIPM, RMOs, etc.		International engagement – OIML, RLMO, etc.	
	Metrology Policy, Legislative, Regulatory, Governance & Funding Structures.			
	Advice on standards and legislation			
	Expert technical advice on standards			
	Maintenance & dissemination of national measurement standards	Maintenance & dissemination of certified reference materials	Responsibility for metrology laws	Testing & evaluation for type approval
			Type approval/ registration	Conformity to type
Calibration Laboratories	Advice on improving measurement methods	Training & testing of metrologists	Inspection of pre-packaged products	Market Surveillance
	Calibration	Testing	Verification	In-service inspection

Adapted from OIML D1:2020

Challenges and Solutions

Limited Government Support	• Lobby/train key Government decision makers. • Strengthen relationship with private sector. • Expose decision makers to the benefits (study tours).
Financial sustainability	• Development of only services that support sustainable demand. • Partnerships to provide unsustainable services
Limited human resource pool	• Inclusion of metrology in secondary and tertiary education. • Digitalization of processes and services.
High staff attrition	• Development of cadre of metrology experts (private and public sectors). • Development of e-learning course. • Progressive salary scales. • Address organizational culture

Challenges and Solutions

Limited client base/demand	• Quality Promotions – marketing and rapport building.
Unavailability of laboratory facilities	• Retrofitting or construction in line with sustainable demand.
Weak regional transportation	• Relationships with competent specialized couriers. • Technicians travel with standards.
Brand of the NMI as a regulator	• Brand of the NMI as a regulator

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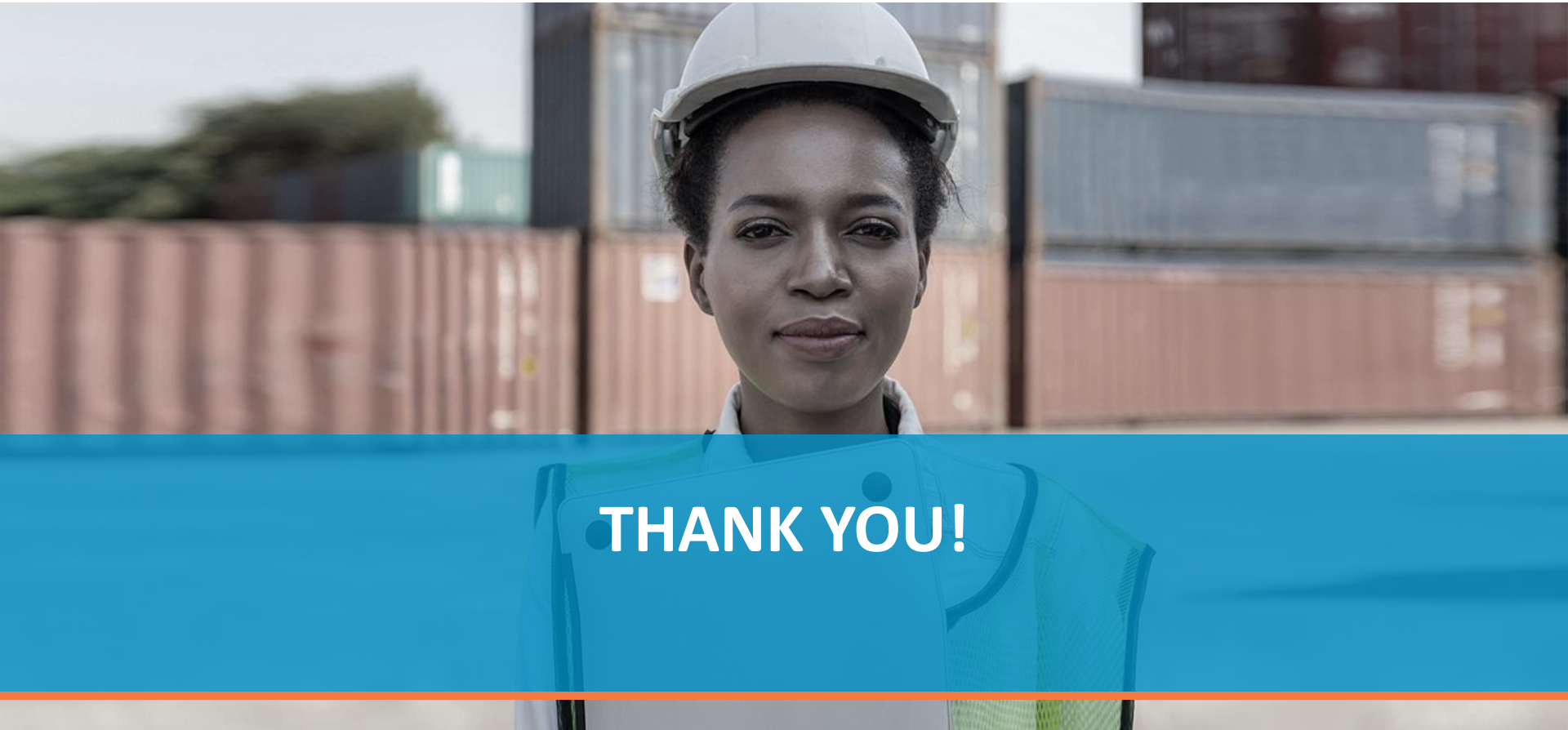

THANK YOU!