GHG Measurement and Verification
Current Practice and future Governance

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BIPM Workshop Global to Urban Scale Carbon Managements
Standard for green house gas inventories, July 1 2015
Total annual GHG emissions of the fuel in t CO2e /year = Amount of fuel consumed in t/year X Lower heat value in GJ/t X Emission factor in t CO2e /GJ X an oxidation factor of 1 means complete oxidation

Total annual GHG emissions of the material in t CO2e /year = Amount of material consumed in t/year X Emission factor in t CO2e /GJ X a conversion factor of 1 means complete conversion
Current Status
ISO14065 Accreditation Programs

EU-ETS 25 countries
TURKAK (Turkey)

ANSI (US)
SCC (Canada)
ema (Mexico)
CGCRE (Brazil)
ECA (Costa Rica)
INDECOPI/SNA (Peru)

JAB (Japan)
TAF (Taiwan)
JAS-ANZ (Australia & New Zealand)
HKAS (Hong Kong)
KAN (Indonesia)
MASM (Mongolia)
NSC (Thailand)
NABCB (India)
SLAB (Sri Lanka)
BoA (Viet Nam)
NIER (Republic of Korea)
BAB (Bangladesh)
NCA (Kazakhstan)
PAB (The Philippine)
PNGLAS (Papua New Guinea)

Black: Operating ISO14065 program
Blue: Preparing for start ISO 14065 program
Green: Development of the ISO 14065 program
ACCREDITATION

CONFORMITY ASSESSMENT BODIES

PRODUCT & SERVICE PROVIDERS

GOVERNMENT

CONSUMERS

PURCHASERS

CONFIDENCE

TRUST

ASSURANCE

Peer Evaluation

International Standards

Standards / Regulatory requirements / Scheme criteria
Multilateral Recognition Arrangement

Country A

AB

ISO14065 & ISO/IEC 17025 accreditation

CAB

ILAC MRA/IAF MLA Member

Demonstrate the equivalence of both accreditation program

Country B

AB

ISO 14065 accreditation and ISO/IEC 17025 accreditation

CAB

Equally Reliable

EU Mandate

ISO14064-1 type GHG program

ISO14064-2 type GHG program

ISO14064-2 type GHG program

CAB

Equally Reliable

ISO14064-1 type GHG program

ISO14064-2 type GHG program

EU Mandate

Equivalent

Acceptance of validation and verification statement and laboratory report

Client of Country B
Future challenge to Climate Change mitigation and adaptation

**Mitigation**
- GHG (time frame, base year, coverage in terms of gases and sectors, GWPs, treatment of emission from land use sector, use of unit (if any) from market mechanism, baseline and assumption used)
- Non GHG (non-GHG goals or actions with short term impacts on GHG emissions)
- Low Carbon Society (long term transformation to low carbon economies and societies)

**Adaptation**
- Adaptation activities, monitoring and evaluation with climate data

Future mechanisms expect more measurement basis, and the scale of GHG measurement to expand to different areas and cities across supply chains. As to reliable measurement and GHG reporting, effective and efficient verification is highly expected.
Quality system with competent personnel, and sampling and its method with standard

As to scale out the boundary of the measurement, the expected monitoring points are increasing.

Quality system with competent personnel support, and the capacity building with standards are relevant.

The supplemental guidance of the sampling method is relevant.
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