

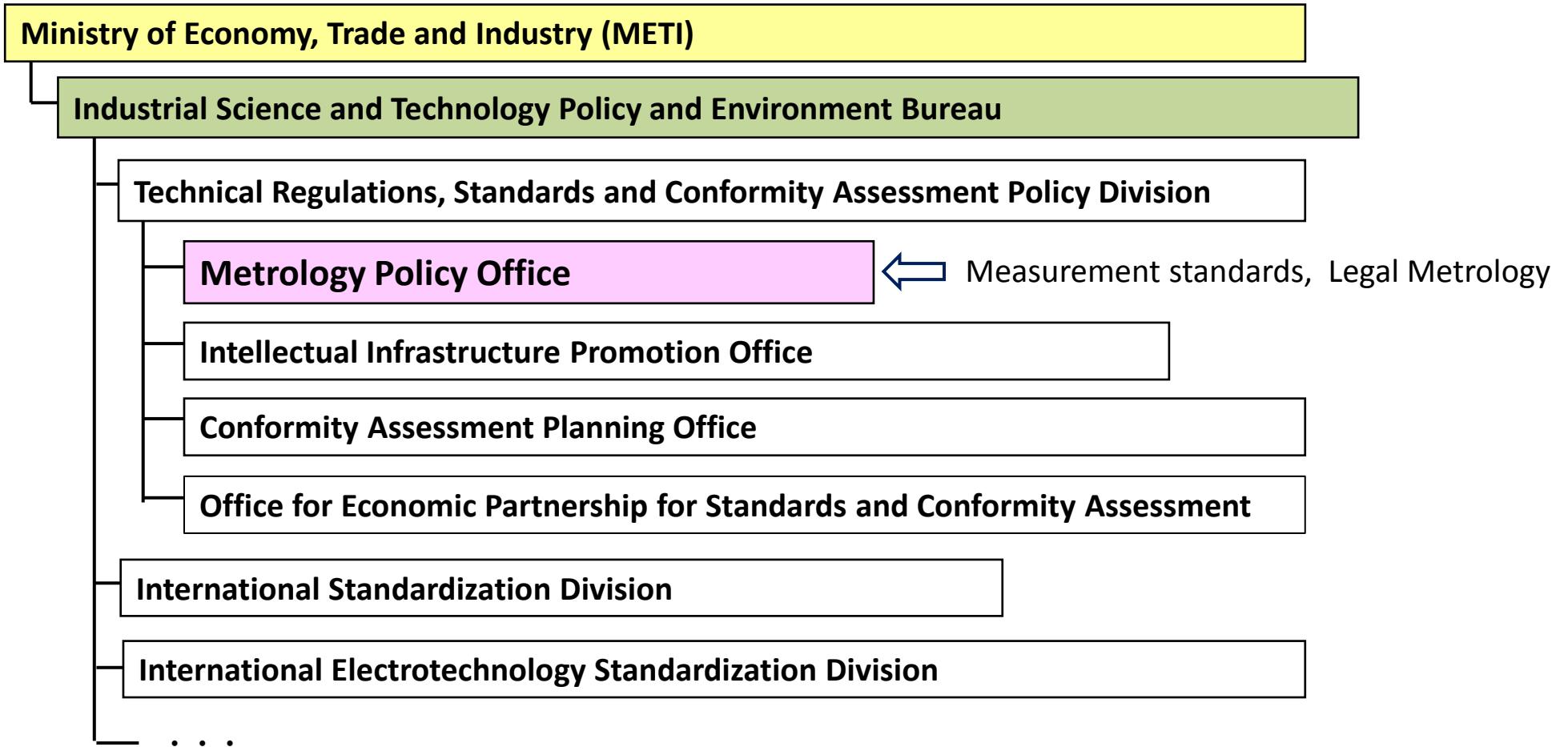
Metrological Control System of Japan

24 November 2016

**Metrology Policy Office,
Ministry of Economy, Trade and Industry**

Introduction

● Organization chart of METI



※ Since July 2014, Measurement and Intellectual Infrastructure Division and Metrology Policy Office were reorganized into Intellectual Infrastructure Promotion Office and Metrology Policy Office. Now Metrology Policy Office has all the responsibility of administrative activity of metrology.

Introduction

● History of the Act

- ◆ In Japan, **Measurement Standards** and **Legal Metrology** are administrated by “the Measurement Act” and the related cabinet orders and ministerial ordinances.

◆ History

701	Start of Metrological Control by Taiho-Code.
1891	Established The Weight and Measures Act. ⇒Establishment of Japan’s modern legal metrology system.
1951	The Measurement Act newly established replacing the Weight and Measures Act.
1992	The Measurement Act was fully amended.
2016	Review of Metrological Control System
2017	(Planned) Amend the related cabinet orders and ministerial ordinances

Introduction

● Organizations Related to the Act

**Metrology Policy Office,
Ministry of Economy, Trade and Industry (METI)**

**Measurement Administration
Council**

Local Government (47 Prefectures and 126 Specified Municipalities)

- Verification and inspection of verification standards
- Periodic inspection
- Control over measuring instruments / prepackages

National Metrology Institute of Japan (NMIJ)

- Maintenance of national primary standards
- Calibration services
- Dissemination of certified reference materials (CRMs)
- Type approval (other than electricity meters)
- Inspection of verification standards

Japan Electric Meters Inspection Corporation (JEMIC)

- Type approval and verification of electricity meters
- Inspection and Calibration of electric measuring instruments

National Institute of Technology & Evaluation (NITE)

- Accreditation for the national certification schemes such as MLAP, JNLA, ASNITE and JCSS

<Related OIML Activities>

National mirror committees corresponding to OIML

(composed of METI, NMIJ, Manufacturers belonging to the Japan Measuring Instruments Federation, Users and Consumers, etc.)

Introduction

● The Purpose and Structure of the Act

Establish the Standards of Measurement

Ensure Execution of Proper Measurement

Thereby

**Contribute to
Economic Development and Cultural Enhancement**

General Matters

- Purpose
- Definition
- Miscellaneous Provisions
- Penal Provisions

Establish the Standards of Measurement

- Unification of Measurement Units
- Calibration of Measuring Instrument (JCSS)

Ensure Execution of Proper Measurement

- Commodity Quantities System
- Regulation of Specified Measuring Instruments
- Measurement Certification Business, and Specified Certified Measurers
- Proper Measurement Control Business Places

Establish the Standards of Measurement

● Unification of Measurement Units

◆ Statutory Measurement Units

- Based on SI Units and other international decisions and practices
- Other than Statutory Measurement Units: “Non-Statutory Measurement Units”
 - 【Example】 · Yard and Pound Units
 - Japanese original Units (Kan(weight), Shaku(length))

◆ Regulation of Measurement Units

- Prohibit Use of Non-Statutory Measurement Units for Transactions or Certifications.
- Prohibit Sale and Display of Measuring Instruments Graduated or/and Marked with Non-Statutory Measurement Units (*)
aim to ensure not to use Non-Statutory Measurement Units
(*) Including Measuring Instruments which is graduated or/and marked with both units, or/and have function of switching to Non-Statutory Measurement Units

Establish the Standards of Measurement

● Calibration of Measuring Instrument (known as JCSS)

◆ Japan Calibration Service System (JCSS)

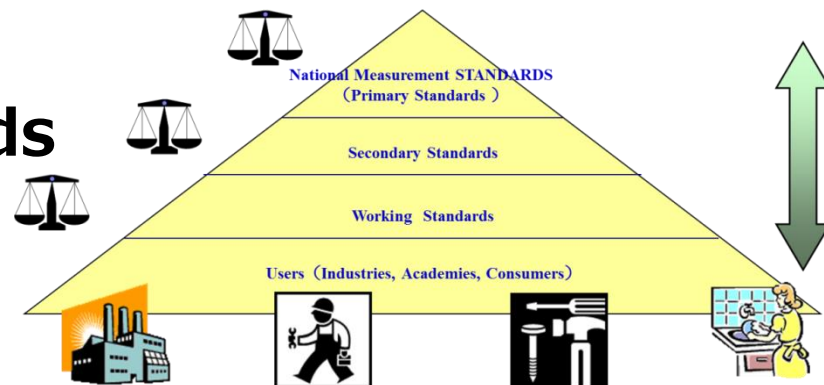
➤ Designation of Specified Standard Instruments

- METI designates national measurement standards (Primary Standards).
- NMIJ, JEMIC and Designated Calibration Organization (NICT, CERI, JQA) calibrate Secondary Standards of Accredited Calibration Laboratories with their National Measurement Standards, and issue the JCSS Calibration Certificates.

➤ Accredited Calibration Laboratories

- NITE assesses and accredits Accredited Calibration Laboratories with ISO/IEC 17025 requirements.
- Accredited Calibration Laboratories Calibrate measuring instruments of Users with Secondary Standards and issue the JCSS Calibration Certificates.

⇒ Link between
the National Metrological Standards
and other measuring instruments
by calibration.



Ensure Execution of Proper Measurement

● Commodity Quantities System

◆ Execution of Accurate Measurements

- 【When selling the 29 specified commodities】
Measure the net quantity of specified commodities so as not to exceed quantity tolerance
- 【When selling the 29 specified commodities packed or bottled】
Attach a label indicating the net quantity of the package or bottle

(Example)

Classification of Specified Commodities	Quantity Tolerance
Rice, Beans, Flour, Sugar, Tea, Snacks, Meat & Salt etc.	5-50g: 4%, 50-100g: 2g, 100-500g: 2% 500g-1kg: 10g, 1-25kg: 1%
Vegetables, Fruits, Noodles, Fishes & Seaweed, etc.	5-50g: 6%, 50-100g: 3g, 100-500g: 3% 500g-1.5kg: 15g, 1.5-10kg: 1%
Milk, Sauce, Vinegar, Beverage, Alcohol, etc.	5-50ml: 4%, 50-100ml: 2ml, 100-500ml: 2% 500ml-1l: 10ml, 1-25l: 1%

Ensure Execution of Proper Measurement

● Regulation of Specified Measuring Instruments

◆ 18 Specified Measuring Instruments

- Measuring instruments necessary to establish standards for their structure and instrumental error, in order to ensure proper execution of measurements

(Future Plans)

- *Add automatic weighing instruments as a new category of specified measuring instruments*
- *Consider whether hydrogen dispensers should be added to the specified measuring instruments.*

◆ Regulation on Using Specified Measuring Instruments

- Must not use or possess Specified Measuring Instruments without the passage of a verification test, for transactions or certifications.

Ensure Execution of Proper Measurement

● Regulation of Specified Measuring Instruments

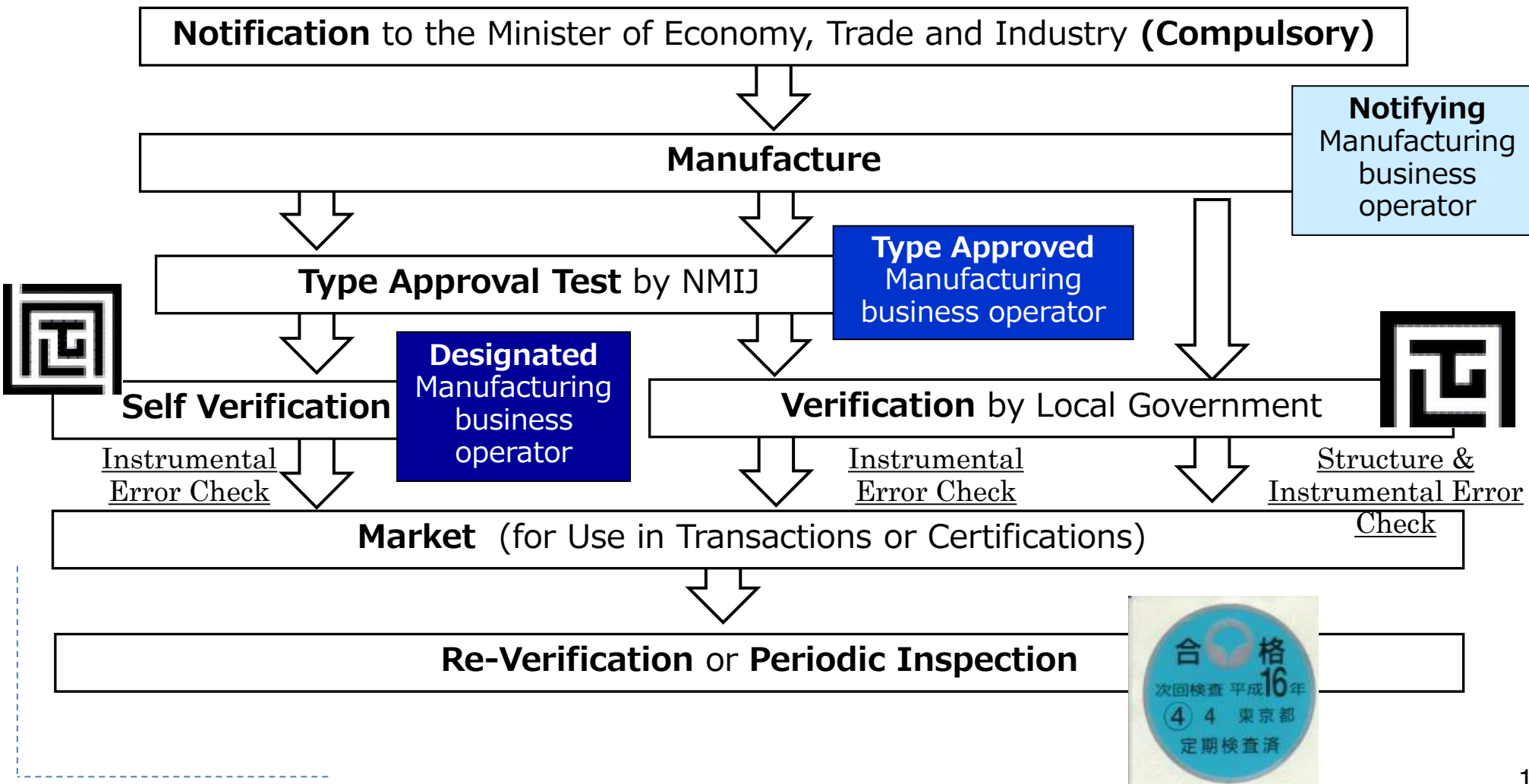
◆ 18 Specified Measuring Instruments

1	Taxi meters	9	Flow Meters
2	Mass Meters • Nonautomatic weighing instruments • Weights	10	Heat Meters
		11	Maximum Demand Power Meters
		12	Watt-Hour Meters
		13	Reactive Watt-Hour Meters
3	Thermometers	14	Illuminance Meters
4	Leather Area Measuring	15	Sound Level Meters
5	Volume Meters	16	Vibration Level Meters
6	Flow Velocity Meters	17	Densitometers
7	Density Hydrometers	18	Hydrometer Type Gravimeters
8	Aneroid Pressure Gauges		

Ensure Execution of Proper Measurement

● Regulation of Specified Measuring Instruments

◆ Flow Chart – Manufacture, Sale, Use-

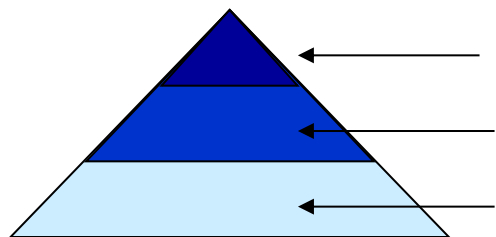
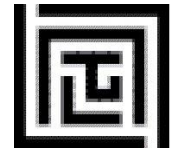


Ensure Execution of Proper Measurement

● Regulation of Specified Measuring Instruments

◆ Types of Manufacturing Business Operator

- **Notifying manufacturing business operator** (compulsory)
 - Notify to the Minister via a prefectural governor before production and sale
- **Type approved manufacturing business operator**
 - Obtain “Type Approval” from NMIJ or JEMIC
 - Be exempted from structural checks by local government
- **Designated manufacturing business operator** (Quality Control: ISO 9000 Series)
 - Obtain designation from the Minister
 - Conduct the Self Verification
(Be exempted from Performance Check by local government)
 - Attach a stamp to show the compliance with a technical regulation.



Designated manufacturing business operator

Type approved manufacturing business operator

Notified manufacturing business operator

Ensure Execution of Proper Measurement

● Regulation of Specified Measuring Instruments

◆ Re-verification or Periodic Inspection

- **With Valid Period of Verification; Re-verification**
(Example)

Water Meters	8 Years	Gas Meters	10 Years
Fuel Dispensers	7 Years	Heat Meters	8 Years

- **Without Valid Period of Verification, Periodic Inspection**

Non Automatic Weighing Instruments	2 Years
Weight	2 Years
Leather Area Measuring Instruments	1 Year

- **Without Valid Period of Verification, Only Initial Verification**
(Example)

Thermometers
Aneroid Pressure Gauges

Ensure Execution of Proper Measurement

● Measurement Certification Business System

◆ Measurement Certification Business (2 types)

- Certify the result of measurement of following things in the business
 - 【General measurement certification business】
 - Length, Weight, Area, Volume, Heat for transportation, deposit or sale or purchase
 - 【Environment measurement certification business】
 - Concentration of substances in air, water or soil, sound level, Vibration acceleration level
- (May) Issue Measurement Certificate
- (May) Bear Mark of Measurement Certification on the certificates



◆ Criteria

- Obtain registration from prefectural governor
- Criteria for registration
 - Allocate Certified Measurer(s) each business
 - Perform measurement control (Arrangement of measuring instruments, maintenance of accurate measurements, improvement of measurement methods, etc.)
 - Have Specified Measuring Instruments conforming to technical standards and not exceeding the tolerance for use

Ensure Execution of Proper Measurement

● Certified Measurers System

◆ Certified Measurer

- A person with knowledge and experience necessary to properly perform inspections of measuring instruments and measurement control activities, registered by METI
- About 14,000 people currently registered

◆ Main Tasks

- Periodic inspections of the specified measuring instruments in lieu of those inspections commonly executed by local government
- Provide a proper metrological control for “Measurement Certification Business” and “Proper Measurement Control Business Place.”

◆ Criteria

(Option 1) Pass national examination + have practical experience

(Option 2) Graduate training course provided by NMIJ + have practical experience + be accredited by Measurement Accreditation Council

➤ **There are two other types of Certified Measurers**

- Certified Environmental Measurers (Concentration)
- Certified Environmental Measurers (Sound & Vibration Acceleration Level)

Ensure Execution of Proper Measurement

● Proper Measurement Control Business Place System

◆ Proper Measurement Control Business Place

A place of a company that uses measuring instruments and performs proper measurement control, designated by the Minister or prefectural governor (Example: retail store, supermarket or factory)

◆ Merits of the system

- Exemption from periodic inspection for specified measuring instruments having taken self-inspection
- Exemption from re-verification after simple repairs on condition of compliance with related regulation

◆ Criteria

- Engage in business using a specified measuring instrument
- Perform proper measurement control
- Periodic inspections are taken by a certified measurer
- Staff undergo management guidance of measurement by certified measurers
- Internal management rules of measurement is established

Enforcement

● Enforcement

- ◆ Collection of reports and on-site inspection
 - Carried out by officials of the Ministry, the prefectural government and a specified municipality
- ◆ Removal of verification mark from specified measuring instruments, when;
 - Not conforming to the technical standards
 - Exceeding the tolerance for use
 - Valid period of verification mark has expired
- ◆ Measurement administration council (Establish and convene)
- ◆ Fees
 - Type approval test
 - Verification test etc.
- ◆ Measurement training by NMIJ
- ◆ Penalty
 - Maximum :1 year imprisonment or/and 1 million yen fine
 - Minimum : a non-penal fine of not more than 100,000 yen

Report on 1 November, 2016

● The future state of the measurement administration – for next 10 years –

- Reviewed various issues related to the legal metrology system as a whole.
- Discussed the direction of the revision from the following 3 viewpoints.

Viewpoint 1 : Promote entry of private business operators

Towards assurance of proper measurement

- Promote entry of private manufacturing business operators and laboratories which have high technological capacities in product development, evaluation test, and quality control.
- Promote utilization of Certified Measurers

Viewpoint 2 : Respond to technological innovation and changes in social environment

In order to respond to technological innovation of measuring instruments and changes in the social environment surrounding measurement administration.

- Review regulations
- Introduce of new regulations

Viewpoint 3 : Reclassify and/or clarify the scope and the provisions of current regulations

- Take measures necessary to make them appropriate

Thank you for your attention.

If you like to learn more about the Measurement Act,
please visit the following website (Japanese Law Translation)

Website: <http://www.japaneselawtranslation.go.jp/law/detail/?vm=04&re=01&id=82>