

# IMPLEMENTATION OF UTTP EQUIPMENT CALCULATION AND RECAACING IN LAW ENFORCEMENT IN THE FIELD OF LEGAL METROLOGY IN MAKASSAR CITY

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## Abstract

The purpose of this study was to analyze the implementation of calibration and re-calibration in Makassar City as an effort in law enforcement in the field of legal metrology. The research is empirical-legal research. A research location is a place or area where the author conducts research. In the context of this research, the author conducted research in the city of Makassar, specifically the Regional Technical Implementation Unit for Legal Metrology, Makassar City, Makassar Police Station, and several traders. The reason the author chooses the Makassar City UPTD is that the institution is authorized and competent in providing data regarding the supervision of the implementation of calibration and re-calibration in the city of Makassar. Then at the Makassar City Police, the author will ask for data related to Crime in the Legal Metrology field and some traders to provide information regarding the measuring instruments, measurements, and scales used. The data used are primary data and secondary data. The collected data are then analyzed qualitatively. The results of the study indicate that the authority in the management of legal metrology at the center is carried out by the DITMET of the Ministry of Trade whose task is to carry out the formulation, implementation, and control of policies, drafting guidelines, norms, standards, procedures, and criteria as well as providing technical guidance and evaluation of policy implementation in the field of metrology. legal in order to provide wider space for regions to regulate and manage the lives of their citizens, the central government establishes a regional autonomy policy through Law Number 23 Year 2014 (as was the last amendment through Law Number 9 Year 2015) concerning Regional Government. The transfer of authority for the implementation of the previous calibration and calibration from the provincial government is then transferred to the Regency/City Government, which then each region has the right to form a legal Metrology Unit whose task is to carry out calibration and recalculation. In the case of calibration and recalculation obligations, each UTTP instrument has a period of calibration and recalibration period and the one who is entitled to perform the calibration is the calibrator. As a follow-up to the Regional Government Law, the city of Makassar has established a UML in 2017 through Makassar Mayor Regulation No. 82 Year 2017 concerning the formation, position, organizational structure, duties and functions, and work procedures of the legal metrology technical implementing unit at the trade office.

**Keywords:** calculation, equipment, implementation, recaacing, UTTP.

## INTRODUCTION

The development of law will always develop along with the development of society. Likewise, legal issues will also develop along with the development of problems that occur in society. The rapid development of society is accompanied by increasing crime in interacting with one another. In an interaction, there is often an act that violates the law or the rules that have been determined in society.

The idea of a state of law substantively originated from the construction of Aristotle's thought which puts justice as the main goal of the state.<sup>1</sup> The development of society will be accompanied by the development of the world's economy, especially in Indonesia, this has led to an increase in people's needs, both for goods and services. Along with these developments, technological developments have become things that make it easier for consumers to make transactions that are more practical and efficient even in foreign countries. This can also make it easier for consumers to choose the price, type, and quality of a product.

Openness in buying and selling transactions will provide so many challenges for consumers, producers/entrepreneurs, or regulators in this case the government. One of the aspects is that there are increasing problems in supervising buying/selling transactions. The impacts that arise need attention because the dynamic and continuous developments that occur in the economic field will certainly cause many new problems, especially in the field of consumer protection. Consumer protection is a matter of human interest; therefore, it is a hope for all nations in the world to be able to realize relationships of various dimensions that are with each other.<sup>2</sup>

The more sophisticated and modern the technology, the more developed new modes of fraud that occur in the community, for example in the fraud of scales used by the trade. One way is to commit fraudulent practices so that the profits of business actors will be more binding and on the other hand consumers will feel disadvantaged. Whereas the goods that are the object of buying and selling must be certain enough, at least the form and quantity can be determined.<sup>3</sup>

In fact, in this era of free trade, there are still many business actors who do not comply with the rules. business actors only pursue profit by ignoring the rules that have been set by the government. Based on the annual data of the National Consumer Protection Agency (Badan Perlindungan Konsumen Nasional/BPKN), recorded consumer complaints throughout 2020 reached 1,276 reports and in 2021 increased to 3,211 reports.<sup>4</sup> It is clear that consumer protection in Indonesia must be strictly monitored.

One thing that is of concern is the field of measurement, hereinafter known as metrology, which has been known for centuries, and has even been regulated in several religions such as Islam, Hinduism, Buddhism, and Christianity. The need for measuring tools is growing in line with the development of the needs of human life itself. The problem of measurement is also a fundamental need for the government, business actors, and the community. Metrological activities play an important role in protecting the interests of the state, protecting consumers, safety, security, and health of citizens as well as protecting flora and fauna and preserving the environment.

Metrological activities are also the foundation for building national competitiveness, which is needed to promote public welfare. Thus, metrological activities can become an instrument of the state's duties as mandated in the Preamble to the 1945 Constitution of the Republic of Indonesia: to protect the entire Indonesian nation and the entire homeland of Indonesia and to promote the general welfare.<sup>5</sup>

The journey of human civilization has progressed and has become a necessity to compare something with size. This need is related to the activity of exchange or trade, so comparisons using simple weights such as stones or measurements using cubits are common in society. Since then, body parts such as hands and feet have had an important role in determining size. Then it developed into length and the weight of the wood took over the function of the hands and feet because the weight of the wood was considered easier to weigh and the length of the wood was considered easier to measure and compare.

Metrology is the science of measuring broadly, then legal metrology is metrology that manages units of measure, measurement methods and measuring instruments, which involve technical and regulatory requirements based on laws aimed at protecting the public interest in truth. measurement.

Legal metrology in Indonesia is specifically regulated in the Law of the Republic of Indonesia Number 2 Year 1981, but public understanding of legal metrology is still not getting enough attention

<sup>1</sup> Achmad Ali, 2002, *Menguak Tabir Hukum: Suatu Kajian Filosofis dan Sosiologis*, PT. Toko Gunung Agung, Jakarta, p. 259-260

<sup>2</sup> Husni Syawali and Neni Sri Imayanti, *Hukum Perlindungan Konsumen*, Mandar Maju: Bandung, 2000, p. 6-7

<sup>3</sup> Subekti, *Aneka Perjanjian* cetakan III, Alumni: Bandung, 1978, p. 14

<sup>4</sup> Badan Perlindungan Konsumen Nasional, see <https://bpkn.go.id/posts/show/id/2040>, BPKN received 1,276 reports during 2020. Accessed on September 26, 2021

<sup>5</sup> Academic Paper of the Draft Law on Amendments to Law Number 2 of 1981 concerning Legal Metrology, p. 2

even though legal metrology activities in Indonesia have started long before Indonesia's independence, namely on February 24, 1923. One of the legacies of the Dutch colonial government who wants to ensure that all the products they take from Indonesia from the hands of farmers are weighed and measured with high precision.<sup>6</sup>

One form of violation of the law in the field of trade that often occurs is a violation of legal metrology. There are many facts on the ground, especially in the market. This is because the measuring instrument used in measuring or weighing the item has been manipulated in such a way<sup>7</sup> Most of the trading activities will not be separated from the use of measuring scales. Scales and other measuring instruments are the most common types of goods measurement tools and are often used in buying and selling transactions. Several types of goods which are usually measured in diameter or in units are also traded with scales or measurements. But in reality, not all traders who use normal scales are honest in weighing, measuring, or measuring.

The central institution responsible for carrying out the formulation, implementation, and control of policies, preparation of guidelines, norms, standards, procedures, and criteria as well as providing technical guidance and evaluation of policy implementation in the field of legal metrology is the Directorate of Metrology under the direction of the Directorate General of Consumer Protection and Orderly Commerce. Ministry of Commerce.

Inaccurate measuring tools allow for additional costs that will certainly affect efficiency in trade and economic losses, both from the consumer and producer sides. Then measuring instruments that are not operated according to standards or traders who are tempted to get personal gain, are very susceptible to causing disputes. Without mutual trust in one correct measure, the transacting parties will take their own initiative.<sup>8</sup>

Supervision of legal metrology is very important for the community because in buying and selling transactions that use measuring instruments or scales, deviations are prone to occur which will harm consumers, especially if a product or item has a net weight of the product and/or item but after being weighed or measured it turns out that the item/goods the product has a difference in weight or size from what is stated on the product packaging.

Various developments have occurred related to measuring instrument technology, the definition of units of measure, testing systems, international agreements, government systems, the implementation of calibration services, community needs, and the number of criminal sanctions and fines, it is necessary to have a law or regulation that comprehensively regulates the metrology system. in an integrated manner in accordance with developments and is visionary so that it is able to answer the need for measurement in the future. The scope of regulation of the Law 1981 on Legal Metrology substantially focuses on legal metrology in terms of trade, while the protection of public interests related to measurement is not only a fundamental need for governments, traders, entrepreneurs, consumers, and trade practices, but legal metrology covers all aspects public interest related to measurements such as health, safety, environment, as well as monitoring and control of natural resources, then in the institutional aspect, there is an overlap of authority, both in the perspective of institutions at the national level, as well as in relation to decentralization. When the metrological tasks do not provide economic benefits, the regions tend to neglect the tasks related to this metrology, including the constraints of limited facilities and infrastructure as well as human resources.

Legal metrology affairs, especially calibration services are the authority of the government, which until now has not been running optimally due to the limited number of metrological human resources, the difficulty of obtaining the formation of eligible employees in the regions, budget constraints, and the wide range of services and a large number of regions. remote and far from the provincial capital. The issuance of Law No. 23 Year 2014 concerning Regional Government, the authority for re-calibrating and supervising services shifts from the provincial government to district/city governments, so it is necessary to restructure the system for administering legal metrology nationally.

In relation to the life of the nation and state, the relationship between the state and metrology is a relationship that must be sustainable. The state needs measurements to provide the necessary information in order to regulate, plan, maintain, and have legal certainty in every spectrum of people's

<sup>6</sup> Rappler.com, 5 *Hal Mengapa Tera Timbangan Penting: Jangan Menimbang Dengan Curang*, rappler.com/indonesia/125058-5-hal-tera-timbangan-penting-jangan-curang. Accessed September 26, 2021

<sup>7</sup> Debora Morina Br Barus, Syawal Amry Siregar, Maurice Rogers. *Penerapan Undang-Undang Nomor 2 tahun 1981 tentang Metrologi Legal Pada Dinas Perindustrian dan Perdagangan Kabupaten Karo*, Jurnal Retentum, 2022, p. 270

<sup>8</sup> Muldri Pudamo James Pasaribu, *Kepastian Hukum Dalam Penyelenggaraan Metrologi Legal Untuk Mewujudkan Perdagangan Yang Adil Dan Aman (Fair and Safe Trade)*. Dissertation University of North Sumatra Medan, 2020, p. 15

lives from agriculture, and factory industry to work for organizations.<sup>9</sup>

Supervision is a form of activity to evaluate the extent to which laws and regulations can be implemented either by the Government as the executor or supervisor or as executor and the community involved in the implementation of the legislation.<sup>10</sup> With regard to supervision, one of the things that becomes a problem is a supervision of weighing measuring instruments that are circulating and used by traders in conducting buying and selling practices.

One of the implementations of the supervisory policy is the formation of an Implementing Body, in this case, the Regional Task Force (Unit Pelaksana Tugas Daerah/UPTD) has the task of carrying out calibration activities and re-calibration or periodic re-testing of measuring instruments and ensuring the accuracy of each measuring instrument, measuring instrument and weighing instrument. In this case, the regional government formed a UPTD to supervise activities related to calibrating/re-calibrating activities, but in practice, the UPTD is considered not optimal in carrying out supervision, it can be seen that there are many indications of irregularities carried out by owners/users of Measuring, Dosing and Weighing Instruments, and Equipment (Alat-Alat Ukur, Takar, Timbang, dan Perlengkapannya/UTTP) in trade transactions that can cause losses to the public/consumers, as it can be seen that the tendency for errors in the UTTP to be in a negative position means that the public/consumers will receive measurement, dosing, and weighing results that are less than the actual size.

UTTP equipment must be calibrated and recalibrated as a control periodically to determine whether the device is still suitable for use. UTTP tools that are not calibrated result in no guarantee of the accuracy of measurement results. Errors in the measurement or weighing results will not only harm consumers but will also harm business actors.<sup>11</sup>

## METHOD

The research is empirical-legal research.<sup>12</sup> Research location is a place or area where the author conducts research. In the context of this research, the author conducted research in the city of Makassar, specifically the Regional Technical Implementation Unit for Legal Metrology, Makassar City, Makassar City Police, and several traders. The reason the author chooses the Makassar City UPTD is that the institution is authorized and competent in providing data regarding the supervision of the implementation of calibration and re-calibration in the city of Makassar. Then at the Makassar Makassar City Police, the author will ask for data related to Crime in the Legal Metrology field and some traders to provide information regarding the measuring instruments, measurements, and scales used. The data used are primary data and secondary data.<sup>13</sup> The collected data are then analyzed qualitatively.

## DISCUSSION

### Authority for the Implementation of Calibration and Recalibration of UTTP Instruments in the Era of Regional Autonomy

The state, in this case the government, in making efforts to protect the welfare of all its people through national development must be planned in all fields. Economic development is one of the fields that plays an important role in encouraging the economic growth of a country which then leads to welfare for all its people. One of the major contributors to Indonesia's economic growth is in the trade sector. The strategic role of trade is to channel the flow of goods and services as well as to meet basic needs and increase income.

The state plays a role in providing the necessary tools to ensure confidence in the measurement results, especially in the trade sector. To support this role, a metrological system is needed which must be supported by:<sup>14</sup>

- a. Legal framework and institutions
- b. Administration and infrastructure
- c. Service and technical competence

<sup>9</sup> John Birch, *Benefit of Legal Metrology for the Economic and Society*, A Study for the International Committee of Legal Metrology, 2003, p. 9

<sup>10</sup> Djainul Arifin, 2014, *Pengawasan Kemetrolgian, Pusat Pengembangan Sumber Daya Kemetrolgian*, p. 13

<sup>11</sup> Heny Suksesi, *Analisis Penggunaan Alat-Alat Ukur, Takar, Timbang, dan Perlengkapan Lainnya (UTTP) Dalam Pedagangan Barang*, Jakarta: Pusat Perdagangan Dalam Negeri, 2013, p. 2

<sup>12</sup> Irwansyah, *Penelitian Hukum, Pilihan Metode dan Praktik Penulisan Artikel*, Mirra Buana Media, Yogyakarta, 2020, p. 158

<sup>13</sup> Kadarudin, *Penelitian di Bidang Ilmu Hukum (Sebuah Pemahaman Awal)*, Formaci Press, Semarang, 2021, p. 171

<sup>14</sup> Muldri Pudamo James Pasaribu, 2020, *Loc.Cit.*, p. 18

d. External relationships and recognition.

If it is related to the legal and institutional framework, the state must be present in playing a metrological role to provide assurance of certainty and accuracy of measurements in fair transactions and maintain a competitive market. Including terms of authority.

The authority to carry out calibrations and recalibration before the era of regional autonomy began from the enactment of the Calibration Ordinance in 1923 until 1981. The issuance of the Law 1981 on Legal Metrology encouraged the implementation of centralized metrology. Then this arrangement was changed several times and the last one was the Law on Legal Metrology in 1981. The formation of the Law on Legal Metrology in 1981 was one of the consequences of Indonesia's participation in international organizations in the field of uniformity of units of measure and scales used for the public interest, namely the Organization International Metrology Legale (OIML). Indonesia has been a permanent member of the OIML since 1960. In 1999, which marked the start of decentralization, the authority for metrology was carried out by the central government, and the metrology was fully carried out by the provincial government in the form of supervision and implementation of calibrations and re-calibrations.

In realizing the order of measurement for the public interest, the implementation of legal metrology is vital to the order of measurement on the UTTP instrument because it has a large impact on the correctness of the measurement when conducting buying and selling transactions. In order to provide a wider space for regions to regulate and manage the lives of their citizens, the central government established a regional autonomy policy through Law Number 23 of 2014 (as was the last amendment through Law Number 9 of 2015) concerning Regional Government.

The enactment of the 2014 Regional Government Law which replaced the old Regional Government Law, caused a change in the authority of the Trade Sector, sub-standardization and consumer protection affairs which mandated the implementation of legal metrology in the form of Calibration, Recalibration, and Supervision which was originally the full authority of the Provincial Government to be handed over to the Government. Regency/City.

Table 1. Sub-Business in the Field of Legal Metrology

Sub Affairs	Central Government	Province	Regency/City Area
Consumer Protection Standards	a. Implementation, and evaluation of consumer protection, standardization, and quality of goods, as well as supervision of goods, as well as supervision of circulating goods and/or services throughout the territory of the Republic of Indonesia b. Implementation, control, and evaluation of legal metrology in the territory of the Republic of Indonesia. c. Implementation of legal metrology in the context of special handling	Implementation of consumer protection, quality testing of goods, and supervision of circulating goods and/services in all districts/cities	Implementation of legal metrology in the form of calibration, re-calibration and supervision

In terms of authority, the table shows that there are three divisions of tasks between the central government, the provincial government, and the city/regency government. In accordance with Article 9

of the 2014 Regional Government Law, there are classifications of government affairs, namely:<sup>15</sup>

- a. Absolute Government Affairs, namely government affairs which are fully the authority of the central government
- b. Concurrent Government Affairs, namely Government Affairs are divided between the Central Government and the provincial and district/city regions. Concurrent government affairs are handed over to the regions as a form of regional autonomy.
- c. General Government Affairs, namely government affairs that are under the authority of the president as head of government.

The implementation of legal metrology is included in the affairs of the government of choice, but in Law on legal metrology still treats it as a matter of the central government. This of course affects the institutional aspect.<sup>16</sup> This has implications for the non-optimal service to the community, including its supervision and development.

As a manifestation of the Regional Government Law, there has been a transfer of authority for calibration and recalculation, which was previously the full authority of the provincial government, then shifted to the authority of the district/city government. technically the Minister issued the Minister of Trade Regulation No. 115 Year 2018 concerning the Legal Metrology Unit in which every Regency/City is required to have a legal Metrology Unit in charge of carrying out the calibration and re-calibration of the UTTP instrument.

The transfer of authority for legal metrology activities to the Regency/Municipal Government includes calibration and recalculation as well as its supervision. The calibration and re-calibration are carried out by the Legal Metrology Unit (Unit Metrologi Legal/UML) formed by the Regent/Mayor. UML is led by a Head who must have attended education and training in the field of Metrology. The establishment of UML must meet the requirements, namely to have a Certificate of Capability for Calibration and Recalibration of Measuring Equipment, Weighing Instruments, and Equipment (Surat Keterangan Kemampuan Pelayanan Tera dan Tera Ulang Alat Ukur, Timbang dan Perlengkapannya/SKKPTTU UTTP) This letter is issued by the Minister.

The problem that occurs is that if a region has not been able to carry out calibration and recalculation activities because it has not met the requirements of the UTTP SKKPTTU, then the regional government must cooperate with the nearest Regency/City Government. Based on the latest data in 2020 since the enactment of the Regional Government Law, currently, the number of UMLs that has been established is 373 regencies/cities out of 508 regencies/cities in Indonesia.<sup>17</sup> This is what is allegedly going to make legal Metrology activities not run effectively and efficiently.

Changes in regional autonomy should encourage changes in the direction of metrology handling policies in the regions, especially regarding regional taxes and levies contained in Law Number 28 Year 2009 concerning Regional Taxes and Levies (Undang-Undang Pajak dan Retribusi Daerah/UUPRD). In this law, retribution and re-calibration services can be charged so that the regions can increase their regional income through the implementation of legal metrology. This problem occurs when most of the regencies and cities do not have regulations regarding the collection of regional retributions. By authority, the government can provide direct services to the community in the UUPRD which divides it into three objects, namely:

- a. General services
- b. Business services
- c. Certain Licensing Services

Calibration and recalculation services have indeed been included in the type of Public Service, but hierarchically they must first be listed in the Legal Metrology Regulation and then the amount of the fee can be determined in the Retribution Regulation.

In terms of institutional authority and authority in carrying out tasks, in its development metrology in Indonesia has several institutions that have different functions and authorities, namely:

1. Research Center for Metrology-Indonesian Research Institute (Puslit – LIPI)

From the results of the elaboration of the Legal Metrology Law, it is necessary to have an institution that fosters national standards which is then stipulated through Presidential Decree No. 79 of 2001 concerning the National Standards Committee for Units of Measure (Standar Nasional Untuk Satuan Ukuran/SNSU Committee). The Indonesian Institute of Sciences (Lembaga Ilmu Pengetahuan

<sup>15</sup> Andi Desmon, *Pengaturan Urusan Pemerintahan Wajib Pelayanan Dasar oleh DPRD Dalam Kerangka Otonomi Daerah*, Jurnal UNES Swara Justitia, Padang, 2019, p. 232

<sup>16</sup> Inosentius Samsul, *Politik Hukum Pengelolaan Migas Pasca-Putusan Mahkamah Konstitusi*, Jakarta: P3DI Setjen DPR RI dan Azza Grafika, 2014, p. 169

<sup>17</sup> Laporan Kinerja Direktorat Metrologi tahun 2020, p. 124

Indonesia/LIPI) is an institution that oversees the Metrology Research Center (Puslit Metrology) and has a special function to manage SNSU technical through research and development in accordance with the development of science, technology, and international regulations.

### 2. National Standardization Agency (Badan Standarisasi Nasional/BSN)

The National Standardization Agency is a government institution under the President of the Republic of Indonesia which has the function of developing and fostering standardization and conformity assessment activities in Indonesia in a National Standardization System (Sistem Standarisasi Nasional/SSN). In terms of metrology, BSN has a role as one of the national metrology institutions which are mandated by the government to manage national standardization and to ensure that the measurement results of the tools used are guaranteed in value and can be traced to the international system.<sup>18</sup>

### 3. Directorate of Metrology - Directorate General of Consumer Protection and Orderliness of the Ministry of Trade

The implementation of legal metrology cannot be separated from the responsibility of the state, the management of Metrology, especially in the trade sector in Indonesia, is managed by the Directorate of Metrology (Direktorat Metrologi/DITMET) of the ministry of trade which is technically testing UTTP tools in the field of trade transactions. The government through the Ministry of Trade is responsible for policies in the field of legal metrology. The Ministry of Trade through DITMET under the supervision of DJKPTN has the duties and functions to carry out the formulation, implementation, and control of policies, preparation of guidelines, norms, standards, procedures, and criteria as well as provide technical guidance and evaluation of policy implementation in the field of legal metrology.

The central government in facilitating efforts to accelerate the improvement of measuring order in the regions has established the Legal Metrology Standardization Center (hereinafter abbreviated as BSML). BSML itself has 4 (four) regional halls, each located in North Sumatra Province (covering the entire Sumatra region). Special area of Yogyakarta (covering the whole of Java, Bali and Nusa Tenggara). South Kalimantan (covering the entire territory of Kalimantan). South Sulawesi (covering the whole of Sulawesi, Maluku, and Papua).<sup>19</sup> BSML is a government facilitator in accelerating the improvement of UTTP calibration services in the regions through the facilitation of Metrological HR, standard test equipment and technical guidance to the Legal Metrology Technical Implementation Unit. BSML also has a role in maintaining the traceability of the test standards used in the calibration/recalibration service so that the tests used in the calibration/recalibration service ensure that the measurement results are correct throughout the territory of Indonesia. However, seeing the scope of supervision of each BSML is quite broad, it is feared that the supervision will not run effectively.

The metrological legal framework in substance must receive attention and need to be reorganized so as to clarify the position of institutional authority and authority in carrying out tasks. Because the activities of implementing legal metrology must be regulated in a comprehensive and coherent policy and contained in legislation.

### Obligations of Calibration and Recalibration of UTTP Equipment

The law is made of course to be implemented; it is manifested in the form of actions that must be carried out. One form of implementing these actions is the obligation of each UTTP to be calibrated and recalibrated. The obligation to calibrate and recalibrate in legal metrology has a role in realizing it primarily in consumer protection and trade order in terms of the correctness of measurement, dosing, and weighing. The implementation of legal metrology activities such as calibration and recalibration as well as supervision of measuring, measuring, weighing tools and equipment (UTTP), packaged goods (BDKT) and units of measure are carried out by providing legal guarantees and certainty so as to create mutual trust in the results. measurement, dosing and weighing.<sup>20</sup>

There are two very important elements in achieving the objectives of the UUML, namely the correctness of measurement, as well as certainty and order in using measuring instruments. The correctness of measurement can be achieved through the use of measuring instruments with units of measure that are traceable to international standard base units.

Truth in measurement must achieve certainty and truth, then the equipment used must be adequate and have high accuracy. The law exists to stipulate that before being used for the first time, UTTP equipment must be calibrated first and UTTP equipment to be re-calibrated periodically to ensure whether the UTTP equipment is appropriate and in accordance with the standards for use.

<sup>18</sup> Head of Public Relations Bureau of BSN Zul Amri in World Metrology Day 13 May 2022. See <https://www.bsn.go.id/main/berita/detail/12891/bsn-di-hari-metrologi-dunia> accessed June 2, 2022

<sup>19</sup> Article 23 Regulation of the Minister of Trade of the Republic of Indonesia No. 60/M-DAG/PER/8/2016

<sup>20</sup> Metrology Directorate Performance Report 2020, p. 1

UTTP tools that are used all the time in trade transactions with a fairly high frequency will allow changes to certain parts. This has the potential for errors in measurement that will harm consumers and business actors.

The accuracy of the UTTP tool must be returned to its initial ability through calibration and re-verification activities called recalibration. The marking through calibration and re-calibration of UTTP equipment is a form of protection provided by the state to the public, in this case, business actors and consumers.

Calibration and re-calibration activities consist of checking, testing, and affixing calibrations. The implementation of legal metrology through calibrating and re-calibrating activities for UTTP equipment is an obligation as stated in the Law on Legal Metrology. The provisions in Article 12 of Law on Legal Metrology mandate that UTTP equipment must be calibrated and recalibrated.

Article 12

Government Regulation stipulates that measuring instruments, weighing scales, and equipment is:

- a. Must be calibrated and recalibrated
- b. Freed from calibration or recalculation or from both
- c. The conditions must be met.<sup>21</sup>

In the technical implementation, UTTP must be calibrated and must be recalibrated as UTTP which is directly or indirectly used or stored in a ready-to-use state for the purpose of determining the results of measurement, dosing, or weighing for:<sup>22</sup>

- a. Public interest
- b. Effort
- c. Deliver or receive goods
- d. Determining levies or wages
- e. Determine the final product within the company and/or
- f. Implementing laws and regulations

Before the calibration stamp is affixed, the scale will be tested for its metrological properties by the civil servant who is given the full task, responsibility, and authority as well as the rights by the official authorized to perform the calibration. These tests include:

Test of truth, Test of extremity, Test of adjustment, Test of tare, Test of repeatability with the final result legitimate or canceled, and other tests according to the type of scale.<sup>23</sup> If the scale can show the correct value, then the scale can be affixed with a valid calibration mark by the certifier which has the following symbol:

Table 2. Caliper Stamp Symbol

No.	Symbol	Information
1.		Valid Sign, the valid calibration mark is in the form of a pentagon in which there are numbers indicating the year code of the valid sign.
2.		Cancel Sign, the calibration mark is in the form of a triangle with a vertical line in it. This calibration stamp is affixed and/or installed on the UTTP that does not meet the requirements at the time of calibration and re-calibration.
3.		Guarantee Sign, this calibration mark is in the form of a circle with a flower image in it. This mark is affixed and/or installed on the UTTP section to prevent exchange and/or alteration.

<sup>21</sup> Law No. 12 Year 1981 on Metrology

<sup>22</sup> Article 3 Paragraph 1 of the Minister of Trade of the Republic of Indonesia No. 67/M-DAG/PER/8/2018

<sup>23</sup> Firda Novi Lestari, *Ahzyd, Analisis Perbandingan Pengujian Timbangan Elektronik Menggunakan Syarat Teknis NO.131/SPK/KEP/10/2015 dan Perhitungan Limit of Performance (LOP)*, Universitas Gadjah Mada, 2018 p. 1

4.		Entitled Employee Sign, this sign is in the form of a circle with a letter code in it. This sign is affixed and/or UTTP is attached to identify the employee performing the calibration.
5.		Regional Signs, this sign is in the form of an Oval with numbers written in it. This number is the regional code of the Technical Implementation Unit (UPT) and the Legal Metrology Unit (UML).

In line with article 12 of the Legal Metrology Law, there are UTTP instruments that must be calibrated and recalibrated which are then regulated in detail in Appendix I of Government Regulation No. 67 Year 2018 concerning measuring, measuring, weighing, and equipment equipment that must be calibrated and recalibrated.

Table 3. Measuring Instruments, Measures, Weighs, and Their Equipment That Must Be calibrated and re-calibrated

No.	Measuring Tools, Measures, Weighs, And Their Equipment (UTTP)
1.	Wood Meter
2.	Tire Measure
3.	Non-Automatic level Gauge
	<ul style="list-style-type: none"> <li>a. Depth tape</li> <li>b. Ullage Temperature Interface (UTI)</li> </ul>
4.	Automatic Level Gauge <ul style="list-style-type: none"> <li>a. Capacitance level gauge</li> <li>b. Radar level gauge</li> <li>c. Ultrasonic level gauge</li> <li>d. Float level gauge</li> <li>e. Servo level gauge</li> <li>f. Electromagnetic level gauge</li> </ul>
5.	Taxi meters
6.	Parking meters
7	Dose <ul style="list-style-type: none"> <li>a. Wet dose</li> <li>b. Dry dose</li> </ul>
8.	Oil Fuel Car Measuring Tank
9.	Measuring tank fixed cylinder upright fuel oil
10.	Barge measuring tank
11.	Ship gauge
12.	Weighing machine <ul style="list-style-type: none"> <li>a. conveyor belt scale</li> <li>b. Weighing in motion</li> <li>c. Railweight Bridge (Moving Train Scales)</li> <li>a. d. Checking and sorting scales</li> </ul>
12.	Weighing is not automatic <ul style="list-style-type: none"> <li>a. conveyor belt scale</li> <li>b. Weighing in motion</li> </ul>

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- c. Railwight Bridge (Moving Railroad Scales)
  - d. Checking and sorting scales
- 
13. Non-Automatic Scales
- a. Non-automatic scales with automatic appointments
    - 1) Class II, class III and Class IV electronic scales
    - 2) Spring scale
    - 3) Quick scale
  - b. Non-automatic weighing scales that are not automatically indicating which are not automatically indicating (Quick Table Scales)
  - c. Non-automatic scales whose designation is not automatic:
    - 1) Balance
    - 2) Dacin
    - 3) Milligrade Scales
    - 4) Sentimental Weighing
    - 5) Decimal Scales
    - 6) Sliding Weighing Scales
    - 7) Beranger Table Scales
- 
14. Water level meter
- 
15. Fuel Oil Measuring Pump
- 
16. LPG Measuring Pump
- 
17. Gas Fuel Measuring Pump
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18. Fuel Oil Flow Meters and Related Products:
- a. Positive displacement meter
  - b. Turbine flow meter
  - c. Mass flow meter (mass flow meter)
- 
19. Gas meter
- a. Meter gas rotary piston
  - b. Meter gas turbin
  - c. Mater gas diafragma
  - d. Meter gas orifice
  - e. Ultrasonic gas flow meter
- 
20. Water meter with normal diameter (DN) < 254 mm
- 
21. Electrical energy meter (kWh meter)
- a. class 2 or (A) and class 1 or (B) kWh meters
  - b. kWh meter class 0.5 or © and class 0.2 or (D)
- 

Each UTTP instrument has a different period of time for recalculation as stated in Attachment I to Government Regulation No. 68 Year 2018 calibration and re-calibration of UTTP tools.

Table 4. UTTP Recalibration Period

No.	UTTP Type	Recalibration Period (Years)
1.	Automatic level Cauge	2
2.	Oil Fuel Car Measuring Tank	2
3.	Oil Fuel Upright Cylinder Fixed Gauge Tank	10
4.	Barge Measuring Tank and Vessel Measuring Tank	6
5.	Diagfagma Gas Meter	10

6.	Ultrasonic gas flow meter	7
7.	Water Meter - Nominal Diameter (DN) < 50 mm; - 50 mm < Nominal Diameter (DN) < 254mm.	5 3
8.	Electromechanical/Dynamic kWh meter	15
9.	Electronic/Static kWh Meter	10
10.	Custody Transfer Measuring System (CTMS)/Floating Measuring Tank System	3
11.	UTTP Equipment Tool	Follow the relevant UTTP recalibration period.

Each UTTP instrument has an obligation to calibrate and recalibrate in accordance with its time period because if the re-calibration obligation is ignored, it will result in a criminal witness in accordance with the criminal provisions of the Law on Legal Metrology.

#### Implementation of Calibration and Recalibration in Makassar City

One form of implementation of the Regional Government Law, namely the delegation of the implementation of calibration and recalculation, is the formation of the UML. This UML will later accommodate the implementation of the calibration and re-calibration of the UTTP device in the Regency/City. Makassar is one of the regions in the province of South Sulawesi that already has the UTTP SKKPTTU and Calibration Cap.

Makassar City established a legal Metrology UPT

Makassar is one of the regions that have formed UML through the establishment of the Makassar Legal Metrology Technical Implementation Unit (UPT Legal Metrology Makassar) through Mayor Regulation Number 82 Year 2017 concerning the Establishment, Position, Organizational Structure, Duties, and Functions and Work Procedures of the Implementing Unit Legal Metrology Technical at the Trade Service. With this Mayor's Regulation, the Legal Metrology UPT was formed at the Trade Office.

The Legal Metrology Implementing Unit is led by the head of the UPT who is under and responsible to the head of the service. The duties and functions of the Legal Metrology UPT are as follows:<sup>24</sup>

- 1) Legal Metrology UPT has the task of carrying out some of the official duties in legal metrology operational technical services
- 2) Legal Metrology UPT in carrying out the following tasks
  - a. Planning activities in the field of legal metrology
  - b. Implementation of activities in the field of legal metrology
  - c. Division of tasks and control the implementation of activities in the field of legal metrology
  - d. Implementation of other functions assigned by superiors related to their duties and functions.

The calibration and re-calibration in the city of Makassar is carried out at the UPT Metrology legal office and outside the office. Regulations regarding the implementation of calibration and recalibration are contained in the Regulation of the Minister of Trade of the Republic of Indonesia Number 68 Year 2018 concerning the calibration and recalibration of measuring, measuring, weighing and equipment instruments, namely:

Article 4

- (1) The calibration can be carried out at:
  - a. UPT or UML
  - b. Other laboratories;

<sup>24</sup> Makassar Mayor Regulation Number 82 Year 2017 concerning the Establishment, Position, Organizational Structure, Duties and Functions and Work Procedures of the Legal Metrology Technical Implementation Unit at the Trade Office, p. 3

- c. Fixed UTTP place
  - d. Importer warehouse for UTTP from import; or
  - e. Factory location for UTTP production
- (2) The re-calibration can be carried out at:
- a. UPT or UML;
  - b. Other laboratories;
  - c. Where UTTP is installed
  - d. The venue for the trial is re-calibrated outside the UPT or UML
  - e. UTTP place used.<sup>25</sup>

#### Calibration and re-calibration service procedures in the city of Makassar

Calibration and re-calibration must be carried out by the clerk on duty at the UPT or UML in accordance with their working area. A clerk is an employee who has the right in process of marking with a valid calibration mark or an applicable invalid calibration mark or providing a written statement marked with a valid calibration or invalid calibration mark based on tests carried out on UTTP.<sup>26</sup> Legal Metrology UPT must be supported by authorized and competent employees in order to avoid activities that may cause conflicts of interest, commercial pressures, finances, and other pressures that affect the quality of the calibration.

The calibration and recalculation services in the city of Makassar are carried out by 9 calibrators and 1 metrological supervisor. Calibration and re-calibration services in the city of Makassar are carried out according to office service operating hours and the implementation of calibration and re-calibration of permanently installed UTTPs such as gas station nozzles and other UTTPs that cannot be moved will go through an administrative process, namely, the producer can send a letter addressed to UPT Metrology is legal to be calibrated and recalibrated. For UTTP equipment that can be moved, such as scales, traders can bring the scales directly to the office.

One of the services of the Makassar City Legal Metrology UPT is to carry out calibration and re-calibration outside the office, namely by conducting a calibration session, namely the implementation of calibration and re-calibration of UTTP equipment which in its implementation will be held and carried out in a certain place, such as traditional markets or traditional markets. other crowded places.<sup>27</sup>

The procedures for carrying out the calibration and re-calibration of the UTTP instrument can be described as follows:<sup>28</sup>

1. The owner or proxy shall bring the UTTP instrument to the UPT office or to the calibration and recalculation service at the place where the calibration session is being held for testing.
2. UTTP equipment will be checked and inspected by inspectors and reparators in accordance with procedures and methods as well as traceable standards both nationally and internationally.
3. Testing the UTTP tool will result in 2 (two) possibilities, namely Legitimate or Canceled. If the result is valid, it will be marked with a valid calibration mark by the calibrator, but if the result is Cancel then it will be marked with a Cancel calibration and cannot be reused.
4. Owners or Authorized Holders make payments for services at a rate in accordance with the service retribution rate for calibration and recalibration in the Makassar City Regional Regulation No. 12 Year 2011 concerning general levy rates.

The application of sanctions against users of UTTP devices that are not marked with valid certificates.

Legal metrology activities consist of monitoring and recalculation. In 2021 the field of legal metrology supervision of the Makassar City Trade Office has carried out data collection on the object of legal metrology UTTP supervision.

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<sup>25</sup> Regulation of the Minister of Trade of the Republic of Indonesia Number 68 Year 2018 concerning Calibrating and Re-Calibrating Measuring, Weighing and Equipment Instruments, p. 4

<sup>26</sup> Analysis of the use of measuring, measuring, weighing and equipment tools (UTTP) in the trade of goods. 2013, the Center for Domestic Trade Policy, the agency for the study and development of trade policies, the ministry of trade, 2013, p. 12

<sup>27</sup> Florianus Yudhi Priyo Amboro and Lily Persyadayani, *Efektivitas Pelaksanaan Pengawasan Metrologi Legal Terhadap Peningkatan Retribusi Daerah di Kota Tanjung Pinang*, Jurnal of Law and Policy Transformation, 2021, p. 120

<sup>28</sup> Interview with Jamaluddin Head of Legal Metrology UPT Makassar on 22 April 2022

Table 5. Makassar City Trade Service Metrological Monitoring Data in 2021

No.	UTTP Tools in Makassar City in 2021	Amount
1.	Public Refueling Station (Stasiun Pengisian Bahan Bakar Umum/SPBU)	40
2.	Gold Scales	281
3.	Traditional market (Pasar Rakyat)	2.659
4.	Modern Store	200
5.	Fruit store	239
Total		3.419

Then in 2018 – until the first quarter of 2022, the Technical Implementation Unit for Legal Metrology in Makassar as an institution that has the task of performing calibration and recalculation services has carried out data collection on UTTP equipment that has been calibrated and recalibrated.

Table 6. Statistic Reports for the Last 3 Years of the City of Makassar (Data from the Directorate General of Consumer Protection and Order of Commerce, Directorate of Metrology)

No.	Year	Calibration	Recalibration
1.	2019	0	1,994
2.	2020	0	517
3.	2021	0	322
4.	March – April 2022	0	1,164

The data was obtained from the Directorate General of Consumer Protection and Order of Commerce, Directorate of Metrology, and Ministry of Trade. From these data, there are differences in the number of UTTP tools, both from the Legal Metrology Supervision section and data from the Legal Metrology Implementing Unit. For example, in 2021 the number of potential UTTP devices in Makassar is 3,419, but only 322 UTTP devices have been successfully recorded in DITMET.

From the data, the author did not get data related to the application of sanctions imposed, such as the application of administrative sanctions because the sanctions were in the form administrative because the city of Makassar itself has not regulated the sanctions specifically through Regional Regulations. This causes the legal UPT Metrology to only apply verbal warnings to business actors who are still using UTTP tools that have not been calibrated and recalibrated.

In terms of the application of city sanctions, the UPT Makassar city cannot apply sanctions because the Perwali used as a reference in the formation of the UPT is only the basis for the formation of a legal Metrology UPT unit or organization under the Department of Trade as we know there are two types of legislation that can be used as a reference regarding types of sanctions in the content of the Regional Regulation, namely Law No. 12 Year 2011 concerning the formation of laws and regulations and the Regional Government Law, namely:

Article 15 Law No. 12 Year 2011

Content material regarding criminal provisions can only be contained in regional laws and regulations

Article 238 of the Regional Government Law

- (1) Perda may contain provisions concerning the imposition of coercive costs for enforcing/implementing the perda in whole or in part to violators in accordance with the provisions of laws and regulations.
- (2) Perda may contain the threat of imprisonment for a maximum of 6 (six) months or a fine of a maximum of Rp. 50,000,000, - (fifty thousand rupiah).

The indicator that describes the condition of legal metrology supervision is the presentation of UTTP marked with valid calibrations, then the indicator is calculated through a comparison between the number of UTTPs marked with valid calibrations compared to the number of potential UTTPs that must be calibrated and recalibrated. Where if the potential of UTTP equipment is directly proportional to the number of UTTP equipment that has been calibrated and recalibrated, the supervision in the field of metrology will be better.

From these data, it was found that there was inconsistency from the legal Metrology UPT of Makassar. "At the time the Regional Government Law came into effect, there was stagnation in the Metrology UPT coupled with the occurrence of a Pandemic, so the implementation of supervision, guidance, and calibration and re-calibration services was not running optimally. However, the Makassar City Legal Metrology UPT continues to make improvements related to the supervision of calibration and re-calibration services, namely in 2022 the City Legal Metrology UPT has conducted direct calibration sessions to traditional markets and supermarkets. The recalibration session is the re-calibration of the UTTP collected in a certain place. The purpose of the trial is to foster a culture of orderly measurement among traders who carry out buying and selling transactions using UTTP tools".

UPT Metrology legal Makassar city in 2022 has carried out various forms of efforts to create an orderly measure in the city of Makassar. They carry out this service both inside the office and outside the office such as in traditional markets and in various supermarkets in the city of Makassar. The implementation of calibration and re-calibration activities in the office and outside the Legal Metrology UPT office in 2022 was only carried out in March this was due to a change in leadership at the Makassar City Legal Metrology UPT.

The form of service carried out by the Legal Metrology UPT in the city of Makassar is to carry out calibration and re-calibration services inside and outside the office, the Legal Metrology UPT interpreter is assisted by the reparator, to ensure the scales are in good condition or the repairs make repairs if the measuring instrument is damaged. Repairmen have a very vital function in supporting calibration and re-calibration activities, but the biggest challenge is that the reparation staff has not been legally recognized.

The implementation of legal metrology in the city of Makassar is also expected to be a source of local revenue (Pendapatan Asli Daerah/PAD) for the city of Makassar to support the improvement of services and regional independence in financing the implementation of local government. this is stated in the Makassar City Regional Regulation No. 12 Year 2011 concerning public service levies.

The obligation to have a Legal Metrology Unit in this case a Regional Technical Implementation Unit is the main requirement in carrying out legal metrology. If an area does not yet have a UML, then the area does not yet have the authority to calibrate and recalculate and collect retribution. For regions that do not yet have a UML, they can carry out metrology service activities through cooperation with the nearest district/city government that already has UML.

## CONCLUSION

The authority in the management of legal metrology at the center is carried out by the DITMET of the Ministry of Trade whose task is to carry out the formulation, implementation, and control of policies, drafting guidelines, norms, standards, procedures, and criteria as well as providing technical guidance and evaluation of policy implementation in the field of metrology. legal in order to provide wider space for regions to regulate and manage the lives of their citizens, the central government establishes a regional autonomy policy through Law Number 23 Year 2014 (as was the last amendment through Law Number 9 Year 2015) concerning Regional Government. The transfer of authority for the implementation of the previous calibration and calibration from the provincial government is then transferred to the Regency/City Government, which then each region has the right to form a legal Metrology Unit whose task is to carry out calibration and recalculation. In the case of calibration and recalculation obligations, each UTTP instrument has a period of calibration and recalibration period and the one who is entitled to perform the calibration is the calibrator. As a follow-up to the Regional Government Law, the city of Makassar has established a UML in 2017 through Makassar Mayor Regulation No. 82 Year 2017 concerning the formation, position, organizational structure, duties and functions, and work procedures of the legal metrology technical implementing unit at the trade office.

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