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**THE LEGAL METROLOGY BRAZILIAN MODEL**

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**Abstract:** Objectifying to present the legal metrology Brazilian model, this article will concept its aspects, showing the characteristics, procedures and the main lines.

In this context, the National Institute of Metrology, Standardization and Industrial Quality (Inmetro - Instituto Nacional de Metrology, Standardization e Qualidade Industrial – *Instituto Nacional de Metrologia, Normalização e qualidade Industrial*), considering its mission, the effective and efficient warranty of the activities in the whole country (Brazil has continental dimensions), the structure aimed for the legal metrology work is responsibility of the Legal Metrology Direction (Dimel – *Diretoria de Metrologia Legal*), with the support of the Metrological State Organizations (OME – *Órgãos Metrológicos Estaduais*) for that Inmetro has delegated the operational activities of metrological verifications and supervision of measurement instruments in use and pre-packed goods. This OME constitute the Brazilian Net of Legal Metrology and Quality – Inmetro (RBMLQ-I – *Rede Brasileira de Metrologia Legal e Qualidade-Inmetro*). Dimel does, directly, the Metrological Technical Regulation (RTM – *Regulamento Técnico Metrológico*) and the type approval of measurement instruments, being responsible for the management of the RBMLQ-I work.

The operation of the RBMLQ-I in accordance with Inmetro strategies and politics for legal metrology activities, including the normative prescriptions, the way of action, the appropriation act and the resources are primordial factors for the best attainment of the Institute's mission, in the metrological guarantee of the measurements to the citizen protection and the consolidation of a free trade and a fair invitation to bid.

**Keywords:** legal metrology. model. metrological technical regulation.

## INTRODUCTION

The first reference of metrology and measure standards can be found in the Bible, in Levítico, chapter 19, versicle 35 and 36:

*"You will not commit injustice in the judgment, nor in the pole, nor in the weight, nor in the measure. Scales right jousts, weights, efa (measured of capacity) right, and just*

*him (measured of weight) you will have; i am you your Gods, who I took off you of the Land of Egypt."*

Metrology is the name given to the science of the measurements. It has an important impact on our daily life, playing essential role in several fields, for instance: research and development, industry, agriculture, medicine, energy production and distribution, telecommunications, transports, building, commerce. (RÉCHE, 1996)

Metrology contributes in significant a way for the economy of a country, what can be noticed through the determination of products and services global value whose prices are determined by measurements.

The measures accuracy is one of the most important aspect for the social and economic development. In another way, it is applied to the interest to the incolumidade of the people, wherever is necessary to protect them against the effect of inexact measurements that can bring serious risks to the health and the security of the citizen, and even their death.

In the health area, the correct diagnosis, the perfect attendance of support to the life and the security against contagious diseases are basic premises for the guarantee of human life.

The security and the health of the citizen, as well as the protection to the consumer and the environment are essential for the improvement of the quality of life.

Another aspect of metrology concerning to the conservation of the established accuracy and lots of actions in an organization capable to support the scientific and technological research, as well as the numerous necessities of industrial and commercial sectors. This aspect that if can call applied metrology, understands the adoption of diverse units of measure, with the appropriate aid of measurement instruments and other ways, in accordance with the different necessities.

When the applied metrology is practised in agreement the law, can be called legal metrology. Potentially, all the domain of the applied metrology is opened to the legal metrology, but, in the practical one, it is limited the certain sectors that vary of a country for another one.

According to the International Organization of Legal Metrology (OIML – *Organização Internacional de Metrologia Legal*), legal metrology means “part of metrology relating to activities which results from statutory requirements and concern measurement, units measurement, measuring instruments and methods of measurement and which are performed by competent bodies” (OIML, 2000).

Metrology becomes legal metrology when the legislators introduce obligatory legal requirements for the units measurement, the methods of measurement and the measurement instruments.

Legal Metrology is the entirety of the legislative, administrative and technical procedures established by, or by reference to public authorities, and implemented on their behalf in order to specify and to ensure, in a regulatory or contractual manner, the appropriate quality and credibility of measurements related to official controls, trade, health, safety and the environment. Legal metrology is considered a responsibility of the government, a responsibility to be implemented by or on behalf of the government. The legal metrology bodies are in such a way the regulating authorities as the agencies of the assessment of conformity in all fields, where measuring instruments and measurements are controlled by governmental or official regulating control. This control, defined as metrological control, is composed, amongst others, of the initial verifications (carried through in the plants) and of the subsequential verifications (carried through the instrument after to be placed in use, when of maintenance, repair and calibration).

### **1.1. Concepts and field of performance**

The legal metrology is present in all levels and sectors of a developed nation. During the life, people will have contact with a great number of measuring instruments obliged to the metrological regulation. The governmental actions in the field of the legal metrology objectify, on the other hand, the dissemination and maintenance of measures and harmonized units, of another one, the supervision and examination of measuring instruments and methods of measurement.

The main objective legally established in the economic field is to protect the consumer buying products and measured services, and the salesman, supplying of these. The accuracy of measuring instruments, especially in commercial activities, hardly can be conferred by the second involved part, that does not possess measuring instruments. It is task of the metrological control to establish adequate transparency and confidence between the parts, on the basis of impartial assays.

Nowadays, commercial activities are not only submitted to the governmental supervision in developed countries, but also, measuring instruments in official activities like medical field, medicine manufacture, as well as in the fields of occupational protections, ambient and of the radiation. The measurement accuracy assumes special importance in the medical field face to the negative effect that resulted of lesser trustworthiness can cause in the human being health.

The procedures and instruments used in modern diagnosis and therapy are in part so complex and expensive that can induce manufacturers and users not to measure the exactness due to quality of the examinations or not to execute them in the demanded extension, to reduce costs.

According to document - Strategical Lines for Brazilian Metrology 2003-2007, approved by Conmetro, through the Resolution n. 1/ 2003, the legal metrology, in its essence, is an exclusive function of the State. It consists of a set of technician procedures, legal and administrative, established by means of legal devices, for the public authorities, aiming at to guarantee the quality of the measurements carried through in the trade transactions and relative the public controls to the health, the environment, the security, the protection to the consumer, among others.

In this direction, through the legal metrology, the State controls some measuring instruments categories, used in economic and official relationships and on determined operations of measurement (public health, environment etc.).

Therefore, legal metrology pays attention at four basic directions:

- a) the quality of the measuring instruments used in trade transactions, aiming at to assure the trustworthiness of the measures and to prevent the fraud;
- b) the essential activities of the State, offering the ways of measurement and control that guarantee security, fairness and effectiveness to the action of the State;
- c) the productive activities, in view of give the companies adequate and compatible measuring instruments;
- d) the national industry measuring instruments and pre-packed goods, aiming at to the improvement of the quality of its products and to the increase of its competitiveness.

### **1.2. Metrological control**

According to International Vocabulary of Terms in Legal Metrology – VIML – *Vocabulário Internacional de Metrologia Legal* (OIML, 2000), the metrological control is a set of activities, of legal metrology, aiming at the metrological assurance, or either the regulation, half the technician and necessary operations, used to guarantee the credibility of the results of the measurement in legal metrology. The metrological control understands:

- metrological supervision;
- the metrological skill;
- legal control of the measuring instruments.

The metrological supervision is the type of control carried through in the manufacture, importation, installation, use, maintenance and repair of measurement instruments, aiming at to verify if they are used in correct way, in that if it relates to the observance of the laws and the metrologicals regulations.

The metrological skill is a set of operations that has for purpose to examine and to certify, for example to testify together to justice, the conditions of a measurement instrument and to determine its characteristics, metrologicals among others, in reference to the applicable prescribed requirements.

The legal control of measurement instruments, assigns, in global way, the legal operations the one that can be submitted the measurement instruments, such as: appreciation technique of models (types), initial verification of the new instruments of measurement, verification subsecente (where if it after includes the periodic verification of the instruments of measurement in use and the verification repair, maintenance and calibration), autoverification for the manufacturer, installation for authorized entity, declaration of installation, the authorization to the ranks of authorized assay, the maintenance of instruments in use, I fix it for repaired authorized, the intercomparação of measures, the metrological assessment (skill) and the inspection in service.

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### **1.3. Initial and subsecentes verifications**

The verification is a procedure that the examination understands, the marking and/or emission of a certificate that evidences and confirms that the instrument satisfies to the prescribed requirements. The initial verification of a measurement instrument is that one carried through in the instrument for the first time before its rank in use. The verification subsecente is that one carried through after to the initial verification, including the verification after repairs, maintenance and calibration and, after reprovação or the order of the user, and the obligator periodic verification, effected in interval of time periodically specified and according to procedure fixed in regulation.

## **2. BRAZILIAN INFRASTRUCTURE METROLOGICAL: ADMINISTRATIVE RELATIONS AND OPERATIONAL INSTRUCTIONS**

The continuous scientific and technological development of the metrology and its increasing insertion in the economy and the daily one of the population have led to a permanent evolution in the target and the organization of the metrological activity.

A global vision of the metrology in the great economies of the world allows to identify a basic structure with three main components:

- system of metrological control of obligatory character, in areas citizens to the regulation of the State - the Legal Metrology;
- nets of laboratories of calibration and assays, composed for private and public entities, of raised capillarity, organized in function of the necessities of the market, in that if it relates to the services demanded for the diverse sectors of the economy, and the social demands, in that if relate to the sectors under the responsibility of the State. In any of the cases, these services must operate inside of rules that assure its credibility and its quality and guarantee the conditions of competition and the rights of the final customer. Here, the existence of a solid system of accreditation is basic;
- national metrological institute of public law (in some few countries are a private institution but with control and subvention of the State), that it makes responsible for the national standards and the management and operation of inherent the strategical functions to the beginning of the chain of rastreabilidade in the Country.

It is exactly this metrological, responsible institution mainly for the guard of the metrologicals standards of national reference, as well as for the accomplishment or reproduction and dissemination of the units of measure of the International System of Units (SI – *Sistema Internacional de Unidades*), and its harmonization in worldwide level, that constitutes the essence of the "National Institute of Metrology (INM – *Instituto Nacional de Metrologia*)" of each country. The accomplishment of these tasks, in turn, requires high scientific and technological knowledge, beyond international recognition, what it implies permanent and vigorous activity of scientific and technological research, in the border of the knowledge.

The globalization has demanded a great effort of reorganization of the Metrology, to deflagrate a strong movement of joint of the national metrologicals justinian codes, in the different countries, inside of regional, subregional and global structures. Articulated, mainly, for the International Bureau of Weights and Measures (BIPM – *Bureau Internacional de Pesos e Medidas*)<sup>1</sup>, this movement has for purpose to guarantee the trustworthiness, credibility, rastreabilidade, universality and coherence in the measurements carried through in the whole world.

### **2.1. The National System of Metrology, Standardization and Industrial Quality (Sinmetro – Sistema Nacional de Metrologia, Normalização e Qualidade Industrial)**

The Sinmetro<sup>2</sup> is a brazilian system, constituted of public and private entities, that exert activities related to the

<sup>1</sup> BIPM (home page: [www.bipm.org](http://www.bipm.org))

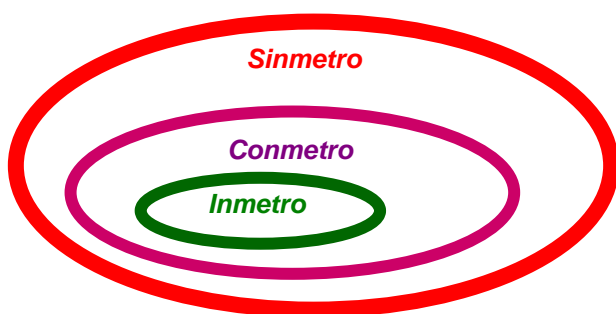
<sup>2</sup> Later assessor committees had been created to today assist it in the diverse segments of its performance, having the

metrology, standardization, industrial quality and certification of conformity.

The Sinmetro was instituted by law 5.966, of 11 of December of 1973, to create an infrastructure of technological services capable to evaluate and to certify the quality of products, processes and services by means of certification organisms, net of calibration and assay laboratories, organisms of training, organisms of proficiency assays and organisms of inspection, all credential ones for the Inmetro.

To sustain this system the organisms of standardization, the laboratories of scientific and industrial metrology and the justinian codes of legal metrology of the states. This structure is formed to take care of to the necessities of the industry, the commerce, the government and the consumer.

The Sinmetro is involved in diverse activities related to the Brazilian Program of Quality and Produtividade (BPQP), program directed toward the improvement of the quality of products, processes and services in the industry, commerce and federal administration. Figure 1 to follow represents the National System of Metrology, Standardization and Industrial Quality (Sinmetro – *Sistema Nacional de Metrologia, Normalização e Qualidade Industrial*) and other involved organizations with the development of the metrology in Brazil.



**Fig. 1: National System of Metrology, Standardization and Industrial Quality (Sinmetro - *Sistema Nacional de Metrologia, Normalização e Qualidade Industrial*)**

### **2.1.1.1. National Advice of Metrology, Standardization and Industrial Quality (Conmetro – *Conselho Nacional de Metrologia, Normalização e Qualidade Industrial*)**

The Conmetro is the normative agency of the Sinmetro and is presided over by the minister of the Development, Industry and Foreign commerce.

following ones: Brazilian Committee of Metrology (CBM), Brazilian Committee of Standardization (CBN), Brazilian Committee of Evaluation of Conformidade (CBAC), Committee of the World Trade Organization (Committee of the WTO), Codex Alimentarius, and the Brazilian Committee of Regulation.

It is collegiate an inter-ministerial one, integrated for the ministers of the Development, Industry and Foreign commerce, of Science and Technology, the Health, the Work and Job, the Environment, the Foreign affairs, Justice, of Agriculture, Cattle and Supplying and of the Defense, participating still the presidents of the National Institute of Metrology, Standardization and Industrial Quality (Inmetro – *Instituto Nacional de Metrologia, Normalização e Qualidade Industrial*), of the Brazilian Association of Technical Standards (ABNT – *Associação Brasileira de Normas Técnicas*), of the National Confederation of Industrie (CNI – *Confederação Nacional da Indústria*) and the Institute of Defense of the Consumer (Idec – *Instituto de Defesa do Consumidor*)<sup>3</sup>.

The Conmetro acts, in the practical one, by means of its assessor committees technician, that are opened to the society, for the participation of representative entities of the areas academic, industry, commerce and other activities interested in the question of the metrology, the standardization and the quality in Brazil.

The assessor committees technician of the Conmetro are the Brazilian Committee of Standardization (CBN – *Comitê Brasileiro de Normalização*), Brazilian Committee of Assessment of Conformidade (CBAC – *Comitê Brasileiro de Avaliação da Conformidade*), Brazilian Committee of Metrology (CBM - *Comitê Brasileiro de Metrologia*), Committee of the Codex Alimentarius of Brazil (CCAB - *Comitê Codex Alimentarius do Brasil*), Committee of Coordination of Barriers Techniques to Commerce (CBTC - *Comitê Brasileiro de Barreiras Técnicas*) and the Brazilian Committee of Regulamentation (CBR – *Comitê Brasileiro de Regulamentação*). (Adapted of SILVA, 2003)

### **2.1.1.1. National Institute of Metrology, Standardization and Industrial Quality (Inmetro – *Instituto Nacional de Metrologia, Normalização e Qualidade Industrial*)**

The Inmetro is a federal autarchy, tied with the Industry, Ministry of Public Works and the Economy and Foreign commerce, that acts as Executive Secretariat of the National Advice of Metrology, Standardization and Industrial Quality (Conmetro – *Conselho Nacional de Metrologia, Normalização e Qualidade Industrial*) - collegiate inter-ministerial, that is the normative agency of the National System of Metrology, Standardization and Industrial Quality (Sinmetro – *Sistema Nacional de Metrologia, Normalização e Qualidade Industrial*).

Objectifying to integrate a articulated sistêmica structure, the Sinmetro, the Conmetro and the Inmetro had been created by law 5.966, of 11 of december of 1973, fitting to this last one to substitute then the National Institute of Weights and Measures (INPM – *Instituto Nacional de Pesos e Medidas*) and significantly to extend its ray of performance, the service of the brazilian society.

<sup>3</sup> The ABNT, the CNI and the Idec had started to have the right to vote from 5 of march of 1997, for force of the decree nº 2.171.

In the scope of its ample institutional mission, the objective Inmetro to fortify the national companies, increasing its productivity by means of the adoption of mechanisms destined to the improvement of the quality of products and services.

Its mission is to promote the quality of life of the citizen and the competitiveness of the economy through the metrology and the quality.

Amongst the abilities and attributions of the Inmetro they are distinguished:

- to execute the national politics of metrology and the quality;
- to verify the observance of the standards legal techniques and, as for the units of measure, methods of measurement, materialized measures, daily pay-measured instruments of measurement and products;
- to keep and to conserve the standards of the units of measure, as well as implanting and keeping the chain of rastreability of the standards of the units of measure in the Country, form to become them harmonic internally and compatible in the international plan, aiming at, in primary level, to its universal acceptance e, in secondary level, to its use as have supported to the productive sector, with sights to the quality of goods and services;
- to fortify the participation of the Country in the international activities related with metrology and quality, besides promoting the foreign and international interchange with entities and organisms;
- to give to support administrative technician and to the National Advice of Metrology, Standardization and Industrial Quality (Conmetro - *Conselho Nacional de Metrologia, Normalização e Qualidade Industrial*), as well as the its committees of advising, acting as its Executive Secretariat;
- to foment the use of the technique of management of the quality in the Brazilian companies;
- to plan and to execute the activities of accreditation of laboratories of calibration and assays, suppliers of assays of proficiency, organisms of certification, inspection, training and others, necessary to the development of the infrastructure of technological services in the Country;
- to co-ordinate, in the scope of the Sinmetro, the obligatory and voluntary certification of products, processes, services and the voluntary certification of staff. (SILVA, 2003)

To follow the two on assessor committees of the Conmetro directly in the Brazilian model of legal metrology are presented.

#### **2.1.1.2. Brazilian Committee of Metrology (CBM – Comitê Brasileiro de Metrologia)**

Created for the Conmetro resolution n° 02, of 19 of May of 1995, the Brazilian Committee of Metrology (CBM - *Comitê Brasileiro de Metrologia*) is a collegiate assessor of

the National Advice of Metrology, Standardization and Industrial Quality (Conmetro – *Conselho Nacional de Metrologia, Normalização e Qualidade Industrial*) and has for objective to undertake actions related to the planning, formularization and assessment of the basic lines of direction related the brazilian politics of metrology.

The CBM is constituted by governmental institutions and other representatives of the civil society, as it would carry n° 294, of 25 of July of 1995, the Industry, Ministry of Public Works and the Economy and Commerce Exterior (MDIC – *Ministério do Desenvolvimento, Indústria e Comércio Exterior*).

The CBM was congregated, for the first time, in 16 of August of 1995, for occasion of the International Seminary of Metrology for Control of the Quality, carried through in Florianópolis, Santa Catarina. In August of 1997, for election of its members, the representative of the Brazilian Association of the Industry of Máquinas and National Equipamentos/Sindicato of the Industry of Machines assumed the presidency of the CBM (Abimaq/Sindimaq – *Associação Brasileira da Indústria de Máquinas e Equipamentos/Sindicato Nacional da Indústria de Máquinas*), position until then busy temporarily for the president of the Inmetro. For force of the resolution of the Conmetro, that created it, the executive secretariat is of ability of the Inmetro, exerting this function the director of scientific and industrial metrology. (SILVA, 2003)

#### **2.1.1.3. Brazilian Committee of Regulation (CBR – Comitê Brasileiro de Regulamentação)<sup>4</sup>**

The Brazilian Committee of Regulation (CBR - *Comitê Brasileiro de Regulamentação*)<sup>5</sup>, composition for members indicated for the regulable authorities, of form to improve the regulatories practical, respecting themselves the objectives, the especificidades and the differences between them, contributing for the international insertion of the Country.

The CBR<sup>6</sup>, in joint with the Brazilian Committee of Assessment of Conformidade (CBAC - *Comitê Brasileiro de Avaliação da Conformidade*), the Brazilian Committee of Metrology (CBM - *Comitê Brasileiro de Metrologia*), the Brazilian Committee of Standardization (CBN - *Comitê Brasileiro de Normalização*), the Committee Codex Alimentarius of Brazil (CCAB - *Comitê Codex Alimentarius do Brasil*) and the Permanent Commission of Consumidores (CPCON - *Comissão Permanente DOS Consumidores*) will consider a guide of good practical regulatórias, on the basis

<sup>4</sup> Resolution n° 2, of 9 of June of 2005. It makes use on the creation of the Brazilian Committee of Regulation (CBR – *Comitê Brasileiro de Regulamentação*) and the adoption of practical directed to the elaboration of standards and Regulations.

<sup>5</sup> Executive secretariat of the Conmetro, heard the regulable authorities, will consider the Internal regulation of this committee.

<sup>6</sup> The Inmetro will act as Executive Secretariat of the CBR.

of the abilities of the State and in the international agreements of which Brazil is signatory, establishing a common agreement of the concepts and terminologies related to the activities of regulation, standardization, assessment of conformity and metrology, considering the peculiarities of each regulable authority. The guide of good practical regulatórias will have to also consider market questions and the interests of the consumers.

It fits to stand out that, the CBR, when elaborating the guide of good practical regulatórias, defines the nature of the requirements that are object of a normative document of obligatory character and of a normative document of voluntary character. That the regulable authority, so soon if makes use of the cited guide and when of the elaboration of normative documents of obligatory character, if it abides by the requirements for each product or regulated service, in its area of legal ability, fitting to it to establish the distinction enters those pertinent ones to a normative document of obligatory character and to a normative document of voluntary character.

The credibility of the measurements strong is associated with the rastreabilidade that, according to VIM<sup>7</sup> it is defined as "Property of the result of a measurement or the value of a standard to be related the established references, generally national or international standards, through a continuous chain of comparisons, all having established uncertainties." However, in some cases, the trustworthiness can be assured through the comparability or of the reproductibility of the measurement results.

### 2.1.2. Brazilian Nets of Laboratories

The metrology systems, in practically the whole world, have in its operational base a set of laboratories of calibration and assays believed for the organism of national recognized accreditation, whose objective, in last analysis, is to provide metrological trustworthiness to the final user.

A long chain of laboratories is formed thus that has, as starting point, the corresponding National Institute of Metrology (INM – *Instituto Nacional de Metrologia*), institution that ideally establishes the international interrelações with the systems and institutions, regional and foreign, of primary metrology. One is therefore about a set of institutions - public, private and not governmental of the biggest importance for the development of the country and the competitiveness of the national companies, in the domestic markets and external. In this context, the basic factor of success rests in the trustworthiness of the system and each one of its parts.

The user of metrology in Brazil, to the similarity of that he occurs in the developed countries, makes use of some routes to get rastreabilidade for its measurements, as he is illustrated in the presented flowchart to follow. The form most trustworthy is to carry through calibration and/or assays in laboratories believed for the Inmetro, or either, pertaining laboratories the Brazilian Net of Calibration (RBC – *Rede Brasileira de Calibração*) or the Brazilian Net of Laboratories of Assays (RBLE - *Rede Brasileira de*

*Laboratórios de Ensaios*), which will give to the user the necessary rastreabilidade, with high trustworthiness, guaranteed for a system of recognized acreditação internationally.

The laboratory believed for the Inmetro has established, in first place, the rastreabilidade of its instruments and systems of measurement to existing the national standards of metrological reference in the proper Inmetro. These standards of the Inmetro can pass for comparison interlaboratorial in regional level, in the scope of the Inter-American System of Metrology (SIM - *Sistema Interamericano de Metrologia*), for intermediary of which arrive at the BIPM. But the Inmetro can also participate of comparison-key, co-ordinated for the proper BIPM and, in this way, reach the top of world-wide the metrological hierarchy.

In the domain of the dissemination of the units of measure, two nets formed for laboratories believed for the Inmetro exist in Brazil (RBC – *Rede Brasileira de Calibração* and RBLE – *Rede Brasileira de Laboratórios de Ensaios*). They congregate abilities techniques and laboratorial qualification, acting in the calibration of standards and instruments of measurement and in the accomplishment of assays that assure the provisions of trustworthy services of metrology.

In a general way, the laboratories are tied with the industry, the universities and the institutions of research, acting in services of calibration of standards, systems of measurement, instruments and materialized measures, as well as in the accomplishment of assays specialized for the different litigious sectors, in particular for the certification of the conformity of products. The related believed laboratories establish the bond with the units of the International System of Units (SI – *Sistema Internacional de Unidades*), for intermediary of the use of metrologicals standards of reference tracked to the national standards that, in turn, are intercompareds with the international standards. Currently, the concession of acreditação of calibration laboratories and assays meet under the responsibility of the Inmetro, through its General Coordination of Accreditation (CGCRE – *Comissão Geral de Acreditação*), whose ability is today recognized internationally, through the agreement of recognition with the International Laboratory Accreditation Cooperation (Ilac), fórum international that it congregates the national organisms of accreditaion.

Although not pertaining to the Nets of Laboratories Believed for the Inmetro (RBC *Rede Brasileira de Calibração* and RBLE – *Rede Brasileira de Laboratórios de Ensaios*), other entailed laboratories exist the metrologicals nets and institutions that are evaluated by formal criteria, the example of the Brazilian Net of Analytical Laboratories in Health (Reblas - *Rede Brasileira de Laboratórios Analíticos em Saúde*), the scope of the Ministry of Health (MS – *Ministério da Saúde*) and some state metrologicals nets, beyond others, amongst them of the state foundation of ambient protection (Fepam - *Fundação Estadual de Proteção Ambiental*) of the national agency of telecommunications (Anatel – *Agência Nacional de*

*Telecomunicações*), of the national agency of the petroleum (ANP – *Agência Nacional do Petróleo*) and of the national association of the manufacturers of automobile vehicles (Anfavea – *Associação Nacional de Fabricantes de Veículos Automotores*), that they do not possess recognition the International.

### **2.1.3. Companies of repairs of regulated instruments of measurement**

The delegated agencies of the Inmetro for execution of the activity of the legal metrology, considering the terms of the effective metrological regulation, are competent to authorize private companies, known as maintenance workshops, to execute services of repairs and maintenance in instruments of measurement regulated in order to become them in use conditions, in accordance with foreseen in the regulation pertinent the metrological technician.

### **2.1.4. Authorized organizations to carry through the autoverification**

The Brazilian metrological structure foresees that manufacturers, with unit manufacturer in Brazilian territory, and with conditions for execution of the referring metrological assays to the initial verification of the instruments that they manufacture, and according to regulation pertinent metrological technician, can opt to the auto verification. In the same way, importers, headquarters in territory Brazilian, since that they prove to possess installations in Brazilian territory and conditions techniques for execution of the referring metrological assays to the initial verification of the measurement instruments that they matter and they commercialize, also can be contemplated the auto verification.

The autoverification is the set of assays applied to an instrument of measurement, carried through for the manufacturers or importers of measurement instruments, under metrological supervision of the Inmetro and of its delegated agencies, to prove that these take care of to the conditions prescribed for its approval in initial verification. The authorizations are granted through the Inmetro for the Direction of Legal Metrology.

### **2.1.5. Ranks of authorized assays (PEA – *Postos de Ensaio Autorizados*)**

Are organizations of distribution of water, of electric energy and gas, situated in Brazilian territory that they execute, for intermediary of units proper or contracted, the overhauling, the repair and the installation of hydrometers, of measurers of electric energy and gas measurers, for execution of the metrological assays applied to these instruments, in attendance to the verification after repairs the one that if subject, can, also, request the Direction of Legal Metrology of the Inmetro the authorization for execution of metrological assays.

The Rank of Authorized Assay is the legal entity whose organizational, proper or contracted, situated unit in Brazilian territory receives authorization to after proceed the assays from the verification repairs in instruments from

measurement, under metrological supervision of the Inmetro and of its delegated agencies.

## **2.2. Brazilian administrative structure**

### **2.2.1. The National Institute of Metrology, Standardization and Industrial Quality (Inmetro – *Instituto Nacional de Metrologia, Normalização e Qualidade Industrial*)**

Situated in the District of Xerém, city of Duque de Caxias, the laboratorial campus hosts three directions: (i) Direction of Scientific and Industrial Metrology (Dimci – *Diretoria de Metrologia Científica e Industrial*); (ii) Direction of Legal Metrology (Dimel – *Diretoria de Metrologia Legal*) and (iii) Direction of Administration and Finances (Diraf – *Diretoria de Administração e Finanças*).

The administrative headquarters of the Inmetro are located in the Long River, in the city of Rio de Janeiro, being installed: the Presidency, the Direction of the Quality, the Coordination of International Subjects, the General Coordination of Accreditation, the General Coordination of Planning, the General Office of the attorney general, the Internal Auditorship, the Cabinet, the Ouvidoria and other units of support also exist installations in Brasília, São Paulo and Belo Horizonte. The main activities of the Inmetro are:

- to execute the national politics of metrology and quality;
- to verify the observance of the standards legal techniques and as for the units of measure, methods of measurement, materialized measures, daily pay-measured instruments of measurement and products, in all the domestic territory;
- to keep and to conserve the standards of the units of measure, as well as implanting and keeping the chain of rastreabilidade of the standards of the units of measure in the country, of form to become them harmonic in the internal plan and compatible in the international plan, aiming at, in primary level, to its universal acceptance e, in secondary level, to its use as have supported to the productive sector, with sights to the quality of goods and services;
- to fortify the participation of the country in the international activities related with metrology and quality, besides promoting the foreign and international interchange with entities and organisms;
- to give to support administrative technician and to the Conmetro, as well as the its committees of advising, acting as its executive secretariat;
- to foment the use of the technique of management of the quality in the Brazilian companies;
- to plan and to execute the activities of acreditação of laboratories of calibration and assays, suppliers of assays of proficiency, organisms of certification, inspection, training and others, necessary to the development of the infrastructure of technological services in the country;

- to co-ordinate, in the scope of the Sinmetro, the assessment of the obligatory and voluntary conformity of products, processes, services and staff;
- the emission of metrological regulations competes to the Inmetro technician, for being this an exclusive activity of the State, as they are those of fiscalization and metrological verification, on to the legal metrology, and of fiscalization of products, the processes and services regulated and with evaluated conformity. To exert such activities, the Inmetro celebrates accords with the state governments, by means of the Justinian codes of Weights and Measures (Ipem), that they execute, on behalf of the Inmetro and for delegation of this, the corresponding services, forming the RBMLQ-I.

The branches of activities of the Inmetro are:

- scientific and Industrial Metrology;
- legal Metrology;
- assessment of Conformity;
- accreditation of Laboratories and Organisms of Certification;
- technological information;
- education for the Quality.

The direction of the responsible Inmetro for the legal metrology is the Direction of Legal Metrology, whose main attributions are shown to follow.

To the Direction of Legal Metrology it competes guiding, to plan, to direct, to co-ordinate, to control and to promote the execution of activities in the scope of the legal metrology, to consider projects of regulations technician and, specifically:

- to consider programs of formation and perfecting of human resources in legal metrology;
- to specify the requirements that the models of materialized measures and instruments of measurement will have to fill, examining them, defining them and approving them;
- to enunciate the requirements and specifications that the daily pre-packed goods will have to satisfy;
- to approve and to supervise the programming of the activities to be developed for agencies executors of the operational activities of metrology;
- to establish the equipment specifications, standards and installations to be used for the agencies executors of the operational activities of metrology;
- to participate of related the international and regional forums to the activities of Legal Metrology.

### 2.2.1.1. Applied general structure to the legal metrology

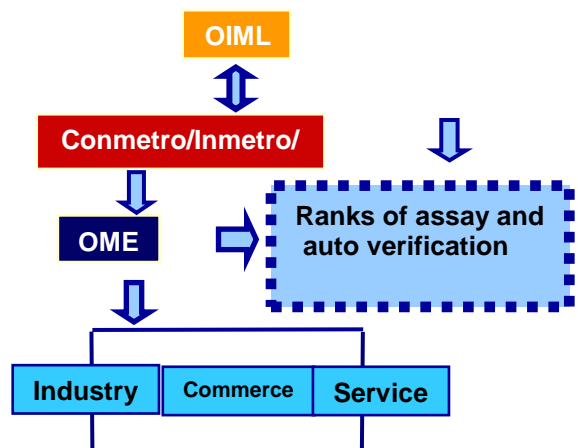


Fig. 2: Structure of brazilian legal metrology

The Inmetro is organism of the Federal, responsible Government for all the actions developed in the scope of the metrology, the Country, keeps diverse interchanges in levels national and international, changing to experiences and innovations, objectifying the attendance of the requirements of the society. The Direction of Legal Metrology (Dimel – *Diretoria de Metrologia Legal*) has the incumbency to develop all the actions of the Institution, come back toward the legal aspects of the metrology.

In this context, valley to stand out that the OIML, intergovernmental entity that congregates around 100 countries, amongst these Brazil, having as one of the main attributions to consider the harmonization and the lines of direction in international level in the scope of the legal metrology, considers as being legal metrology. According to OIML, legal metrology is to the part of the metrology that establishes legislative, administrative procedures and technician for or reference to the public authorities, that are implemented in name of these authorities, with the intention to guarantee, in regulatória or contractual way, the appropriate quality and the credibility them relative measurements to the official controls, the commerce, the health, the security and the environment.

Of this form, the metrology starts to have legal character, when the legislators introduce obligatory legal requirements for the units of measurement, the methods of measurement and the instruments of measurement objectifying to assure an adequate level of credibility and exactness, confirmed of the measurements. Brazil comes following this international context. The implementation of these obligatory legal requirements is of responsibility of the State, delegated to the competent Institution. In the case of Brazil, the Inmetro, as it foresees the legislation metrological.

### 2.2.4 Model of performance applied to the legal metrology

The Figures show in simplified way aspects of the model of performance of the legal metrology. For exercise of its mission, and in view of all guaranteeing efficient and

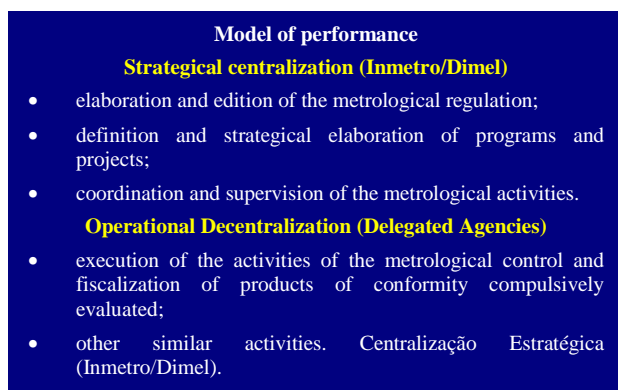


efficient covering of the extensive Brazilian territory, the structure of execution of the Legal Metrology account, beyond this Direction the Inmetro, with state and municipal metrologicals agencies to which had been delegated the operational activities of metrological verification and supervision of instruments in use and daily pre-peaked goods and that they constitute the Brazilian Net of Legal Metrology and Quality - RBMLQ-I.

To the Direction of Legal Metrology of the Inmetro - Dimel, along with directly executing the regulation metrological technique and the appreciation technique of models of measurement instruments, incube to manage the execution of the delegated activities the RBMLQ-I.

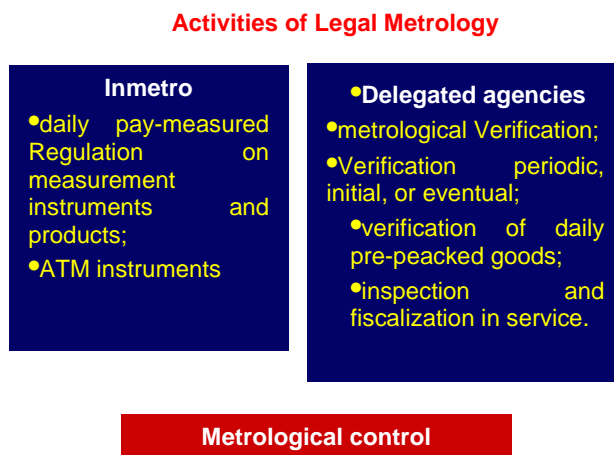
The performance of the RBMLQ-I, in perfect tuning with the politics and the strategies dictated for the Inmetro for the activity of legal metrology, including the normative lapsings, the form of performance, the budget and the source of resources, is primordial factor for the best achievement of the mission of this Autarchy, in the metrological guarantee of the measurements of interest to the protection of the citizen and the consolidation of a free market of and joust competition. Picture 1 to follow presents the models of centered and decentralized performance.

Picture 1: Models of centered and decentralized performance



Another aspect deserves prominence in this introductory part: the organisms of the legal metrology, besides being invested of regulating authority, are responsible for the assessment of conformity in all the fields where the instruments of measurement and the measurements will be citizens to the metrological control of the State. All the pertinent actions to the activities of legal metrology in the Inmetro, had started to be of ability of the Direction of Legal Metrology (Dimel – *Diretoria de Metrologia Legal*), as it can be synthecized by Picture 2 to follow.

Picture 2: Activities of the Delegated Dimel and the Agency



Currently activities in the commercial field are not only submitted to the governmental supervision in Brazil, but, also, instruments of measurement in official activities, in the medical field, as well as in the fields of ambient protection. The exactness of the measurements assumes special importance in the medical field face to the some negative effect that resulted of lesser trustworthiness can provoke to the health human being.

The verification of measurement instruments is an injunction meaning that they are in accordance with the approved model and observes the lapsings of allowed maximum error.

### 2.2.5 Brazilian Net of Legal Metrology and Quality (RBMLQ-I – Rede Brasileira de Metrologia Legal e Qualidade-Inmetro)

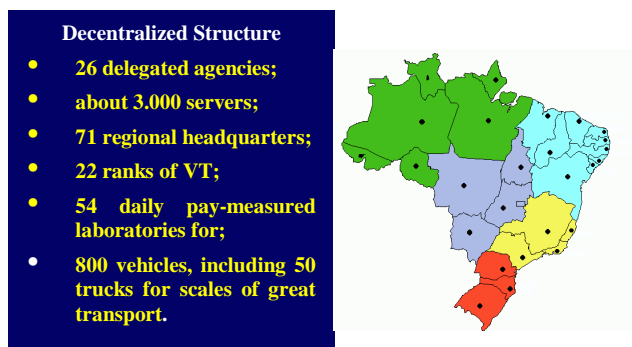


Fig. 3: Composition and localization of the RBMLQ-I in the domestic territory

The RBMLQ-I is composed, currently, for 26 agencies delegated, and counts on 71 regional headquarters, beyond 22 ranks of verification of vehicle-tank and 54 laboratories of daily pay-measures, with 800 vehicles being 50 trucks for scales of great transport. The contingent of operating staff in these activities is of approximately 3,000 servers, being 760 metrologistas, 460 assistant and 220 technician of superior level. In 2005, the RBMLQ-I verified around 11 million

measurement instruments and examined around a million of examinations in daily pre-peaked goods.

The high administration, in participativo and articulated way with the managerial body, defines the strategical aiming of the organization with focus in the satisfaction of the necessities of the interested people. Directors, Coordinators and Controlling constitute a system of leadership directed toward the improvement of the performance. The RBMLQ-I involves activities in the diverse States, exerted for delegated agencies (state IPEN and others). The process of taking of decision, communication and implementation of actions related with these activities understands a system of specific meetings. The proposals of the diverse Sectorial Chambers are validated by the Managing Advice and debated and approved in the Plenary assembled.

### **2.2.6 Strategical planning of the Dimel**

The complexity and the diversity of the activities under the responsibility of the Inmetro, beyond the changes of economic scenes, occurrences in function of the globalization, from the last decade, compelled the high direction of the Institution to the elaboration, implantation and implementation of a strategical planning with the focus in the identification of values, the vision of future and the mission, lining up the Institution the new scene and, in this way, taking care of, with quality, the demands of the industry and the society. Inside of this context documents that approached the strategical planning of the Inmetro and its diverse directions, brought up to date had been elaborated later. (Institucional strategical Plan of the Inmetro for 2002-2010; Coordination of Planning. Strategical plan business-oriented - metrological control 2000-2003; Direction of Scientific and Industrial Metrology. Strategical lines of direction for Brazilian metrology 2003-2007).

In this way, the Strategical Plan business-oriented in accordance with passed to be structuralized the new strategy and the Directions of the Institution had passed to be considered Areas of Business and to be structuralized through Processes, Specific and Operational Processes and of Projects, having as focus the customer. In this context, they are the sets of five business-oriented Strategical Plans, defined for each one of the Units of Business, or either, Standardization and Dissemination of the Units of Measure; Technological information for the Metrology and Quality; Assessment of Conformity and Education for the Metrology and Quality and Metrological Control this, of responsibility of the Dimel. For each Process the Specific and Strategical Objectives, the purposes, the lines of direction, and the goals had been mapeados, beyond the respective pointers of performance assessment.

In the case of the Direction of Legal Metrology the Strategical Plan of Macroprocess was elaborated Metrological Control for 2004-2007 that it presents the following characteristics: The mission is ample and lasting a declaration of intentions that individualiza and distinguishes the business and the reason from being of an institution or agency, in relation to others of the same type.

The Mission of Macroprocess Metrological Control is:

*“To provide the adequate security and the exactness to the measurements, in the scope of the legal metrology, contributing for the competitiveness of the productive sector and the quality of life of the citizen.”*

Essential Attributes:

- to give services with excellency, ethics and transparency;
- to observe and to respect the effective legal requirements;
- to promote the credibility of the services of legal metrology before the society.

In view of the concretion of its Mission, Macroprocess cm will be guided, until year 2007, for a great express strategical conquest through the following.

Vision of future:

*“In 2007, we will be referencial reliable together to the Brazilian and leader society in legal metrology in the South America, with strong international participation and focus in the strategical areas demanded by the society”.*

To fulfill its Mission and to carry through its Vision of Future, in view of the necessities, requirements and challenges that the external environment evidences, the cm will pautará its efforts, in horizon 2004-2007, according to global Strategical Options. These Options determine the great focus of action of Macroprocess. In horizon 2004-2007, the effort of Macroprocess cm will be concentrated in the accomplishment of 8 Strategical Objectives, related to its activity-end and also to the development of its internal capacities, representing the results to be reached or kept in the period. For each Strategical Objective Lines of Action had been defined, that indicate the main initiatives that will be ece of fishes in practical to reach them.

In accord with the adopted international concept for the Legal Metrology, the following specific objective was established for the metrological control: to provide for detainers and manufacturers with instruments with measurement and materialized measures and metrologicals conditions of daily pre-peaked goods, regulations technician and certifyd of approval and verification of its products, aiming at to the protection of the citizen and the competition joust.

The main operations to translate, in the practical one, the mission attack to the Direction of Legal Metrology of the Inmetro, thus are defined: edition of regulations technician, appreciation technique and metrological verification (initial and subsequente) of instruments of measurement, supervision (fiscalization) of instruments in use and daily pre-peaked goods.

Thus, it is the metrological control structuralized in 6 specific processes - Management of the RBMLQ-I, management of the Dimel, control of the measurement instruments, metrological supervision, regulation Metrological and Insertion and international participation - which, supported in orienting operational processes of the routine activities, are come back to the arrive of the respective strategical objectives.

For exercise of its mission, and in view of all guaranteeing efficient and efficient covering of the extensive brazilian territory, the structure of execution of the legal metrology account, beyond this Direction of the Inmetro, counts on state metrologicals agencies to which had been delegated the operational activities of metrological verification and supervision of regulated instruments of measurement in use and daily pre-peacked goods and that they constitute the Brazilian Net of Legal Metrology and Quality (RBMLQ-I). To the Direction of Metrology Legal (DIMEL), along with directly executing the regulation metrological technique and the ATM of measurement instruments, incube to manage the execution of the activities delegated to the RBMLQ-I.

**2.6.1. Strategical option: Partnership, integration and occupation of space**

- **Objective 1:** To extend the performance of the brazilian legal metrology in the south america and to fortify its international, regional integration and together recognition the foreign fóruns and institutions same types;
- **Objective 2:** To extend the partnerships and the development of projects in set with national organizations;
- **Objective 3:** To increase the knowledge, external and internal, on the activities, the results and the importance of the legal metrology.

**2.6.2. Strategical option: Magnifying of the performance target**

- **Objective 4:** To extend offers of services;
- **Objective 5:** To perfect and to extend the metrological supervision.

**2.6.3 Strategical option: to fortify of the internal capacities**

- **Objective 6:** To improve the physical and technological infrastructure conditions of the Dimel and the RBMLQ-I;
- **Objective 7:** To perfect the model of management of the Dimel and to increase the capacity technique, administrative and managerial of its human resources.

**2.6.4 Strategical option: Management of the RBMLQ-I**

- **Objective 8:** To extend the abilities techniques, administrative and of management of the Human

resources of the RBMLQ-I and to increase the productivity of the given services.

In the period 2004-2007 Macroprocess "Metrological Control" will implement a composed wallet for 10 great lined up strategical projects with the strategical objectives and the defined lines of action for the legal metrology, mentioned to follow:

- **Project 1:** Fortify of the abilities techniques, administrative and managerial of the Human resources of Macroprocess Metrological Control;
- **Project 2:** Development of new services;
- **Project 3:** Perfectioning of the communication and maximização of the knowledge of the metrological control;
- **Project 4:** Magnifying of the metrological control in national level;
- **Project 5:** Insertion and international participation;
- **Project 6:** Perfectioning of the internal processes;
- **Project 8:** Regional centers of metrology;
- **Project 9:** Modernization of the laboratories of the Direction of Legal Metrology in Xerém;
- **Project 10:** Modernization of installations and equipment of the delegated agencies;
- **Project 11:** Accomplishment of international event of Legal Metrology "1º International Congress of Legal Metrology – Cmel (*Congresso Internacional de Metrologia Legal*)”.

**2.2.7 Metrological regulation**

Law 9933/1999 fortified the Inmetro in regards to its ability, establishing that it competes to the Inmetro elaborating and forwarding regulations technician in the areas that will be determined to it by the Conmetro; it competes, also:

- to elaborate and to forward, with exclusiveness, regulations technician in the area of metrology, enclosing the control of the amounts with that the products, previously measured without the presence of the consumer, are commercialized, fitting to it to determine the form of indication of the related amounts, good thus the tolerated shunting lines;
- to exert, with exclusiveness, the power of administrative policy in the area of assessment of conformity in relation to the products for it regulated or ability who is delegated to it;
- to all execute, to co-ordinate and to supervise the activities of legal metrology in the brazilian territory, being able to celebrate accord with agency and entities same types of the states, the Federal District and the cities for this end.

The Inmetro will be able to delegate the execution of activities of its ability. As for the attributions related with

the legal metrology and the obligatory certification of conformity, endowed with being able of administrative policy, the delegation will be restricted the public entities that reunam the necessary attributes for this cometimento. In relation to the ranks of authorized assays, of private and public entities, it is condition fully would be taken care of considering that the terms of the law if relate to the delegation how much to the power of administrative policy and not how much to the execution of the assays.

The Inmetro, for delegation of the Conmetro, withholds, ample ability on the activities of legal metrology, in special approving, through would carry, regulations metrologicals technician on materialized measures, instruments to measure and daily pre-peacked goods. You would carry Inmetro publish the approvals of model of measures and instruments to measure. The regulations technician establish, for individual categories of instruments, the essential requirements, techniques and metrologicals, how much to the conditions of use and verification, to the obligator registrations and marks of control and validity of the verifications. Currently, the regulation encloses instruments of measurement in the diverse fields of measurement, such as: mass, length, capacity, electric largenesses, temperature, specific mass, in the field of the health, of the security of the citizen, and the environment, where if they include the instruments of automatic pesagem, the weights, the measures of capacity for liquids, the water measurers, the measuring bombs combustibile liquids and gas to propagate, the domiciliary gas measurers, electromechanical and electronic measurers of electric energy, the taximeters, the speed measurers, the cronotacógrafos, the measures of length, the systems of measurement for petroleum and natural gas, the areometers for alcohol and petroleum, the thermometers for alcohol and petroleum, the clinical thermometers e the sphygmomanometers, also the digital ones, instruments of measurement of gases to propagate, *frenômetros*, the daily pay-measured sender of gas indication, systems of Liquefect Gas of the Petroleum (GLP - *Gás Liqüefeito do Petróleo*) to the granary, and products.

Currently, the brazilian metrological regulation presents index of compatibility with the recommendations of the OIML around 80%, that is, it takes care of to all the requirements technician and metrologicals established in pertinent the international recommendation.

The metrologicals regulations technician are elaborated by Work groups consisting by technician of the Inmetro, of the RBMLQ-I, representatives of the manufacturers of instruments of measurement, the users and consumers and interested entities of classroom, according to especificidade of the subject; they follow the orientações contained in the International Recommendations of the OIML, however also adopted in scope of the Mercosul. They exist currently about 27 Documents, 119 Recommendations and 3 Vocabularies of the OIML that encloses the some fields of performance of the legal metrology. The legal procedures of metrological control must contemplate new alternatives of operacionalização of the activity of legal metrology, objectifying to follow the dynamics of the social relationships and the technological modernization of the

Country, in particular making possible the expansion of the field of performance of the metrologicals services, or either, of legal metrology, of calibration and of assays.

Annually, in the beginning of each year, they are defined and approved the programs of work of elaboration of the metrologicals regulations technician and the standards of procedures for the Direction of Legal Metrology, through Administrative order, to be developed in the diverse instituted work groups in the scope of the Dimel.

It is understood as metrologicals regulations technician to the set of lapsing techniques and metrologicals, lowered for would carry of the president of the Inmetro, of obligatory character, with validity in all the Brazilian, relative territory to the instruments of measurement, materialized measures and measured products daily pay, in the field of performance of the legal metrology.

For didactic effect, and agreement of the regulation process they present to follow it Figures 4, 5 and 6 that they show the some levels of the regulation, the infrastructure for its elaboration and approval, and the impactantes vectors that must be taken in consideration for an assessment and definition how much to the subject prescribed it.

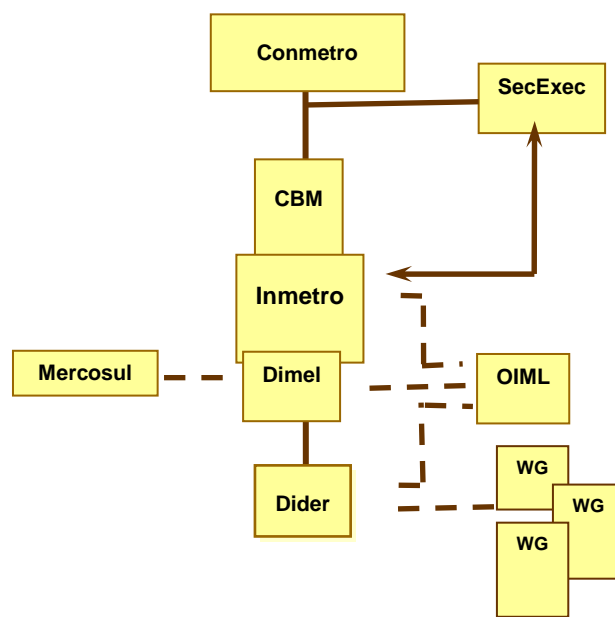


Fig. 4: Matrical structure of the regulation national technique

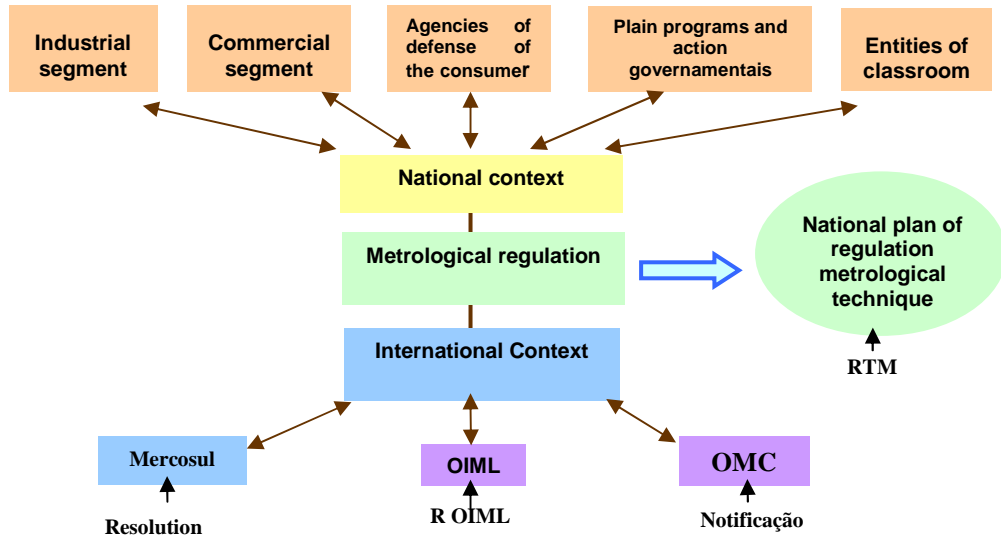


Fig. 5: Impacts vectors in the process of metrological regulation

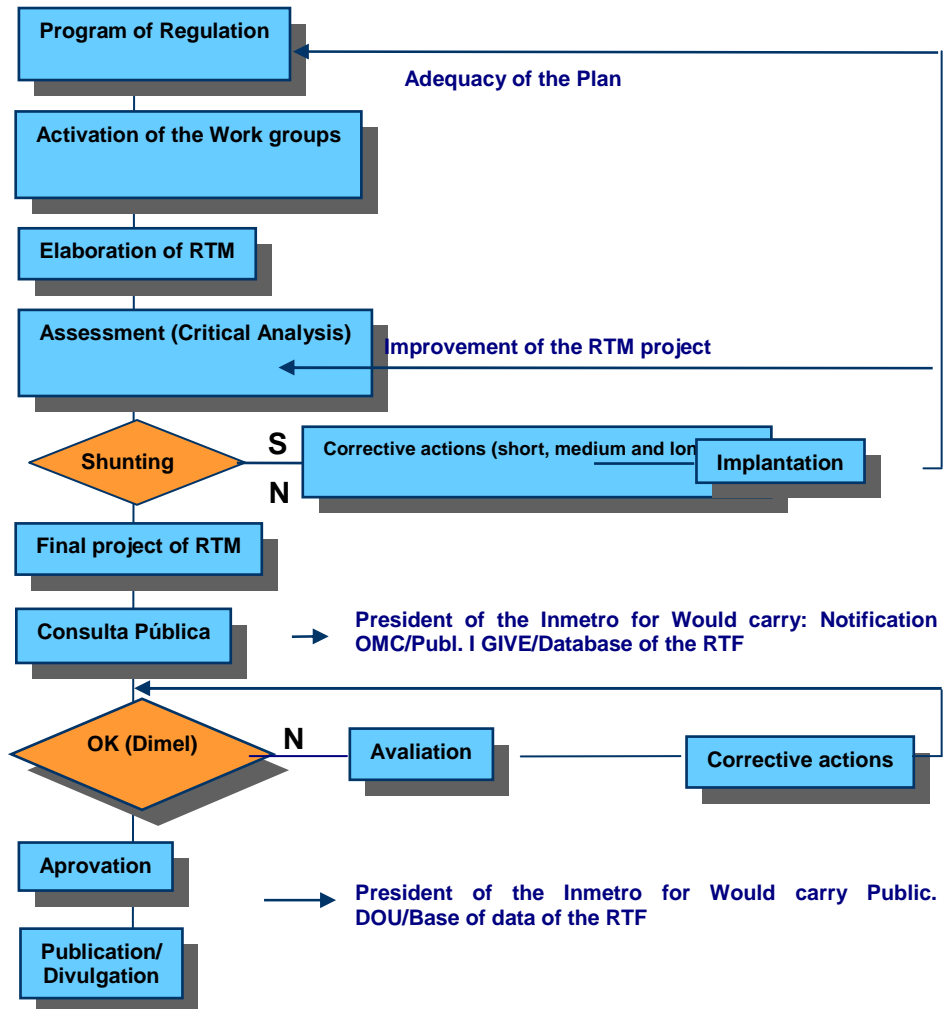


Fig 6. Process of metrological regulation

### 3. SPECIALIZED BRAZILIAN LEGISLATION

#### 3.1 Generic legislation

For didactic effect it can be considered two levels of normative acts that say respect to the activities of the Inmetro, how much to the metrology, those of generic character, in this in case that we can cite the Laws, Decrees, Resolutions of the Conmetro and the Mercosul and Portarias of general matrix lowered by the president of the Inmetro, and others of specific character, where if they include you would carry them of the Inmetro that they deal with the relative regulation metrological technician to the measurement instruments and the materialized measures, as well as the merchandises daily pay-measure, and you would carry of approval of model and the specific standards Inmetro edited by the Direction of Legal Metrology. It enters the normative acts of generic character are included:

- Law n.º 5966/1973 - creation of the Inmetro, Conmetro and Sinmetro;
- Law n.º 9933/1999 - on metrology and assessment of conformity duties, abilities, delegation, fines, metrological tax;
- Law n.º 9784/1999 - It establishes basic standards on the administrative proceeding in the scope of the direct and indirect Federal Administration, aiming at, in special, to the protection of the rights of the managed ones and to the best fulfilment of the ends of the Administration;
- Conmetro resolution n.º 11/1988 - Instruments of measurement (ATM, verification); merchandises pre-medidas;fiscalização;
- Conmetro resolution n.º 12/1988 - Legal Units: International System.

For agreement easiness Figure 6 reveals to it to follow a general vision of the normative acts.

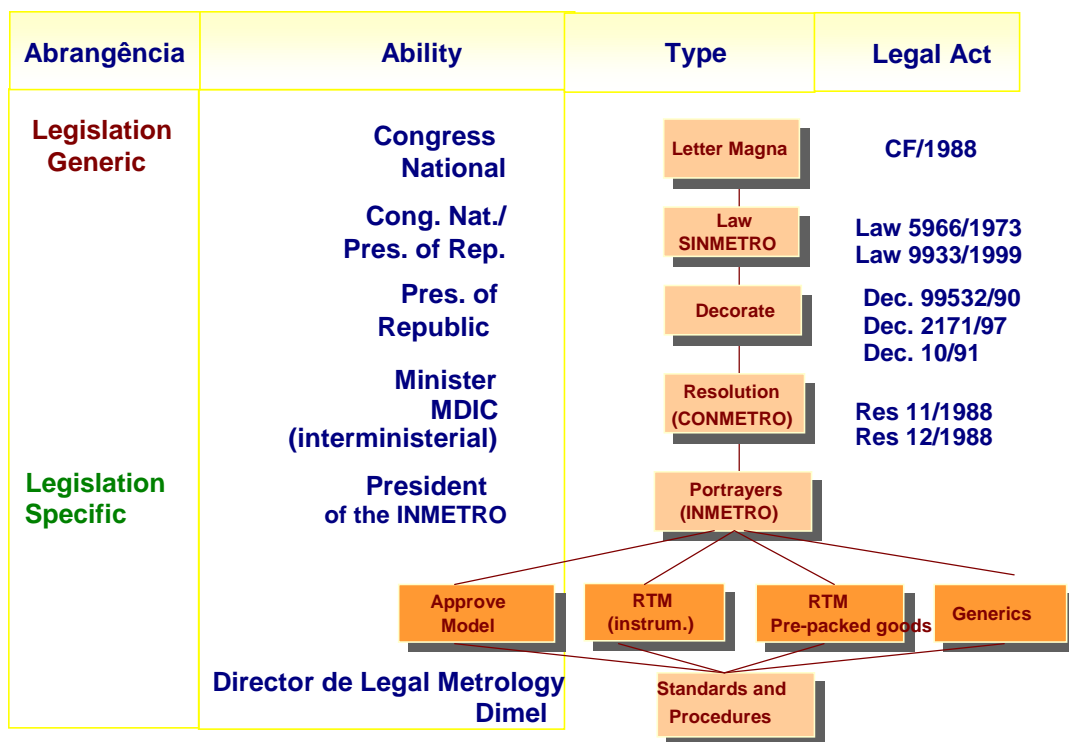


Fig. 6: Normative acts

### 3.2 Specific legislation of character

Types of normative acts, specific character, lowered for the Inmetro:

- Metrologicals regulations technician;
- You would carry of approval of models;
- Standards of procedures (Standards Inmetro/Dimel).

## 4 RELATIVE BASIC ASPECTS TO THE MODEL OF THE LEGAL METROLOGY IN BRAZIL

Picture 3 to follow synthecizes relative the basic aspects to the brazilian legal metrology and its model of performance.

Picture 3: Aspects you base to the brazilian legal metrology

Basic and Complementary aspects	Model of performance	Commentaries
<ul style="list-style-type: none"> <li>• Ability of the government sphere</li> </ul>	<ul style="list-style-type: none"> <li>• Federal</li> </ul>	<ul style="list-style-type: none"> <li>• According to great letter, Laws 5966/1973 and 9933/1999, Resolution CONMETRO n° 11/1988</li> </ul>
<ul style="list-style-type: none"> <li>• Governmental politics</li> </ul>	<ul style="list-style-type: none"> <li>• Strategical centralization (Inmetro)</li> <li>• Operational decentralization (RBMLQ-I)</li> </ul>	<ul style="list-style-type: none"> <li>• Resolution CONMETRO 01/2003</li> <li>• Use of not governmental agents</li> </ul>
<ul style="list-style-type: none"> <li>• Objective and field of application</li> </ul>	<ul style="list-style-type: none"> <li>• Economic activities, inspector, health, environment, security</li> </ul>	<ul style="list-style-type: none"> <li>• According to Resolution CONMETRO n° 11/1988</li> </ul>
<ul style="list-style-type: none"> <li>• Types of metrological control</li> </ul>	<ul style="list-style-type: none"> <li>• ATM</li> <li>• Verification subsequente</li> <li>• Inspection</li> <li>• Supervision</li> <li>• Initial verification</li> <li>• Ranks of Ensaaios Autorizados (PEA) and Autoverification for the manufacturer</li> </ul>	<ul style="list-style-type: none"> <li>• Traditional</li> <li>• Would carry Inmetro n° 66/2005</li> <li>• New context, for intermediary of auditorships in the plants and the laboratories of the concessionaires. New type of metrological control, through request of the interested party, attendance to the requirements of ABNT NBR ISO/IEC 17025:2005 and/or ABNT NBR ISO 9001:2000</li> </ul>

<ul style="list-style-type: none"> <li>• Execution of CM</li> </ul>	<ul style="list-style-type: none"> <li>• ATM</li> <li>• Initial verification</li> <li>• Verification subsequente</li> <li>• Inspection</li> <li>• Supervision</li> <li>• Ranks of authorized assays and autoverification for the manufacturer</li> </ul>	<ul style="list-style-type: none"> <li>• Inmetro, with use of the installed, when in case of necessity identified capacity</li> <li>• Executed directly for the Rbmlq-i, when it does not have option for the manufacturer</li> <li>• Executed directly for the Rbmlq-i, being able to use the PEA</li> <li>• New profile of the metrologista to execute auditorships in plants and concessionaires of measurement instruments</li> <li>• Use of the laboratories of the concessionaires, with supervision of the Inmetro, through the RBMLQ-I</li> <li>• Assays carried through for the foreseen manufacturer as in the regulation, with supervision of the Inmetro, througher RBMLQ-I</li> </ul>
<ul style="list-style-type: none"> <li>• Tools for assessment of the ranks of authorized assays and auto verification</li> </ul>	<ul style="list-style-type: none"> <li>• Requirements of the metrological regulation and Inmetro standards</li> <li>• Metrologicals assays</li> <li>• Use of ABNT NBR ISO/IEC 17025:2005</li> <li>• Use of series ABNT NBR ISO 9000:2000</li> </ul>	<ul style="list-style-type: none"> <li>• N/A</li> </ul>
<ul style="list-style-type: none"> <li>• Qualification of the RH of the Dimel e RBMLQ-I</li> </ul>	<ul style="list-style-type: none"> <li>• Specific courses on the regulated instruments of measurement</li> <li>• Courses on ABNT NBR ISO/IEC 17025:2005</li> <li>• Use of series ABNT NBR ISO 9000:2000</li> <li>• Courses on Auditorship (internal auditor and leader auditor) and Appraisers</li> </ul>	<ul style="list-style-type: none"> <li>• N/A</li> </ul>
<ul style="list-style-type: none"> <li>• Tools for execution of the activities of regulation and operational procedures of legal metrology</li> </ul>	<ul style="list-style-type: none"> <li>• Committees technician of the RBMLQ-I</li> <li>• Work groups of the Dimel</li> <li>• Group of the Quality of the Dimel</li> </ul>	<ul style="list-style-type: none"> <li>• Administrative order of the Dimel</li> </ul>

## 5. CONCLUSION

The Legal Metrology comes trying, in the whole world, changes in its estruturação, of form best to answer to the demand of the inherent services to its mission. The proper OIML considered small, however, important modification in the definition of legal metrology, considering proposal that, for consensus, is in approval for the countries members: part

of the metrology that establishes legislative, administrative procedures and technician for or reference to the authorities public, and implemented in name of these, with the intention to guarantee, in regulatorie or contractual way, the appropriate quality and the credibility them relative measurements to the official controls, the commerce, the health, the security and the environment, of form to incorporate new agents that not the proper state and the extension of the action for areas, then, still not considered. As if it denotes, the adoption of the metrological control for new areas where it has interest in guaranteeing trustworthy measurements to the citizens, imposed, on the other hand, to take care of to provide infrastructure that with it could occur.

A greater and always increasing awareness of the consumer and the consolidation and the recognition of the processes of conformity assessment, to guarantee the quality of products and services, had guided, in the developed countries more, the private use of organisms and laboratories, in complementation to the qualification technique of the state and under the supervision of this, in the execution of the typical activities of the legal metrology, exception to the that inherent power of administrative policy.

The activity of legal metrology comes presenting for the agencies executors in Brazil a natural, intense, permanent, instigante and challenging growth. In fact, the biggest awareness of the brazilian citizens, from the edition of the Code of Defense of the Consumer, the concern of all with the quality of life and the creation and implementation of the regulating, managing agencies of the public services exerted by third, represents a expressiva and, each bigger time, demand of the society for quality and credibility of the measurements.

Thus, the development of the activities, despite the indices absolutely great, is not to represent, accurate, efficient and efficient covering of the metrological control, in the diverse areas of interest. Of permanent form, diligent and careful attention, must be dedicated to the improvement and diversification of the activity, especially in the consolidation of an infrastructure, quantitative and qualitatively adjusted to the yearnings of the society.

Valley to emphasize that the legal metrology comes trying, in the whole world, changes in its estruturação, of form best to answer to the demand of the inherent services to its mission, of form to incorporate new agents who not it proper state and the extension of the action for areas, are, still, disrespected. As if it denotes, the adoption of the metrological control for new areas where it has interest in if guaranteeing trustworthy measurements to the citizens, imposed, on the other hand, to take care of to provide infrastructure that with it could occur.

The performance of the RBMLQ-I, in perfect tuning with the politics and the strategies dictated for the Inmetro for the activity of legal metrology, nelas enclosed the normative lapsings, the form of performance, the budget and the source of resources, is primordial factor for the best achievement of the mission of this autarchy, in the

metrological guarantee of the measurements of interest to the protection of the citizen and the consolidation of a free market of and joust competition.

The activity of legal metrology comes presenting, in Brazil, natural, intense, permanent e, for the agencies executors, instigante and challenger growth.

In fact, the biggest awareness of the brazilian citizens, from the edition of the Code of Defense of the Consumer, the concern of all with the quality of life and the creation of the regulating, managing agencies of the public services exerted by third, represents expressiva and, each bigger time, demand of the society for quality and credibility of the measurements can affect, of some form, its safety. Thus, the development of the activities observed in the period, in great, is not to represent, accurate, efficient and efficient covering of the metrological control, in the diverse areas of interest. Permanent, diligent and careful attention, must be dedicated to the improvement and diversification of the activity, especially in the consolidation of an infrastructure, quantitative and qualitatively adjusted to the yearnings of the society.

It is inexorable that, also in Brazil, let us walk in this direction. At the moment where the Been concept prevails less "better been", the accurate fulfilment of the mission attributed to the Inmetro, will only be reached, in the dimension that if in presents them, with the partnership of abilities techniques that, always under supervision of the state, they are to these aggregates, in the extension and under the target, that the ready reply to the demand for the Metrological Control demanding, and in the adequate limits guaranteeing the quality and the credibility of the metrologicals services placed the disposal and in the interest of the society.

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