



REPUBLIC OF MACEDONIA
MINISTRY FOR ECONOMY
BUREAU OF METROLOGY

**NATIONAL MIDDLE TERM PROGRAM FOR DEVELOPMENT
OF METROLOGY INFRASTRUCTURE**
2006 - 2009

Skopje, Oct. 2006

Introduction

The Law on Metrology defines national metrology infrastructure and the Bureau of Metrology as a specialized responsible institution - carrier of national metrology infrastructure

The Law is source for defining primary functions of BoM – realization and providing traceability and of measuring physical standards of SI. Conservation and maintenance of the national measurement standards and certified reference materials, calibration of standards and instruments. Participation in the procedure for the accreditation of the laboratories for calibration and testing on the base of the Law on Accreditation; and supervision over the work of the legal persons designated for execution of particular activities in the field of metrology, on the base of this Law, conformity assessment of the type (pattern) of measuring instruments; verification of the measuring instruments; procedures of registration and recognition the validity of the marks and the certificates for the conformity assessment of the type of the measuring instruments and the marks and the seals or the certificates for verification of the measuring instruments of foreign origin, metrological supervision of marks on the prepackages and proposal of draft metrological regulation to the ministry.

Reasons

Continuation of strengthening of the BoM especially after operacionalization of its new premises and successful end of EU funded project CARDS/SMAQVa (Technical Assistance to the Institutes for Standardisation, Metrology, Accreditation and Quality Validation), managed by the European Agency for Reconstruction as to improve the overall capacities of BOM as a solely condition for integration of BoM in European organisation of metrology (Metro convention CGPM, EUROMET and WELMEC)

Introducing and presented to the Government the need of planned development of Macedonian institution for metrology and the importance of adequately operating national metrology system, as well as quicker implementation of European praxis shall help to domestic users of BoM services and promotion of BoM as independent, competent and specialised highly professional institution before domestic and outside metrological infrastructure as to utilise potentials from the Law on Metrology

Fulfilment of given positive answers to the question by EU "Is there a national programmed for development of metrological structure?"

Objectives

Continuity with Government plan for EU partnership 2004, according to witch Government support strengthening the institution of Republic of Macedonia for Quality Infrastructure, among which is BoM, process begin with EU help program CARDS/SMAQVA, and will continue with World Bank project BERIS – MSTQ (Metrology, Standardization, Testing and Quality) component

The priority of BOM fulfilment the requirements for adequate membership in EUROMET. Realisation of associate member of CGPM and BIPM, the general conference of weights and measures, signing the MRA – Multilateral

arrangement for acceptance of national standards of other signatories and certificates for calibrations and measurements issued and associate member of WELMEC. Need for realization of national standards providing its traceability through interoperation in active co-operation in relevant EU and bilateral projects to assure adequate traceability of metrological equipment is urgent.

Implementation of European praxis for promotion of BoM as independent, competent and specialised highly professional institution before domestic and outside metrological infrastructure with maximal utilisation of potentialities of the Law on Metrology. Gained confidence among domestic users of BoM services from which are good solid source of income will support realization of planned development of this programme.

Present the request to the government to assure additional employment of the most urgent and highly educated technical staff in the area of national standards and training for operation of expensive sophisticated equipment are some of the most important activities. The needs for laboratory staff BoM expressed explicitly in several documents since 2003, because obligation for adequate equipped and financed institution is from point 3.1. of CARDS/SMAQVA ToR

Providing continuation of development of BoM started through World Bank project BERIS and overcome its preconditions for starting MSTQ component - employment of sufficient laboratory staff and starting the work on calibration of measuring instruments

Preconditions

Founding the Metrology Council of BoM consist of competent experts from domestic infrastructure firstly contribute to BoM development as to drafting the Policy for development of Metrology Infrastructure and this Middle term development program.

Operationalisation of art. 4 from Law on Metrology, where BoM is defined as a legal entity (with its own bank account) in the past and now has income from provided services to the its clients determined by government Decision on the amount and the manner for compensation for the services of BoM and designated legal entity. Implementation of this legal obligation will facilitate BoM increasing responsibility and solving on time all its legal obligations especially these derives from primary tasks.

Increase BoM from administrative body to impartial specialized scientific responsible for its own employment politics to suit development.

Upon the explanation that was given on the preparatory meeting convoked by the Vice Prime minister of the Government, Mrs. Radmila Sekerinska with the work team that was engaged for the preparation of the answers on the EU Questions, the need for urgent support by the Government was stressed in order to adopt the necessary acts and give positive answers to the questions, Mr. Pendovski Danco, as coordinator of the work team by the Bureau of Metrology has prepared this draft Policy for development of the metrological infrastructure and Short term Programmed for development of the metrological infrastructure. These recommendations have been submitted to the Ministry of Economy on the third session of the Council of Metrology of the Bureau of Metrology, founded by decision of the Minister for Economy, no.02-3047/2 dating 10.05.2004 in accordance to article 8 of the Law for metrology and have been adopted.

Proposal

1. To the Government to adopt the information on the Policy for development of the metrological infrastructure and Middle term Programmed for development of the metrological infrastructure 2006-2009 and Action Plan and to acknowledge it as national.
2. Ministry of Economy – BoM is obliged for implementation of the Policy for development of the metrological infrastructure and Middle term Programmed for development of the metrological infrastructure 2006-2009 and Action Plan. Ministry of Economy – BoM shall submit a report to the Government of the Republic of Macedonia at least twice a year
3. Ministry of Economy with approval from Ministry of Finance to project in budget of 2007 support for 8 new post of BSc. As necessary preconditions for implementation of Middle term Programmed for development of the metrological infrastructure 2006-2009 according to Action Plan.

Annexes:

- Profile of BOM
- Policy for development of the national metrological infrastructure
- Midterm program for development of the metrological infrastructure 2006-2009
- Action Plan for the implementation of the development program of the national metrology infrastructure
- Chart of the Strategic Plan for the implementation of the development program of the national infrastructure

ID OF THE MACEDONIAN BUREAU OF METROLOGY

1. Legal frame

The Bureau of Metrology – BoM as a legal entity is responsible institution for implementation of:

- Law on Metrology (“Official Bulletin of the Republic of Macedonia” No.55/2002)
- Law on control the goods of precious metals (“Official Bulletin of the Republic of Macedonia” No.23/92)
- International agreement of UN / Economic Commission for Europe (from year 1958 to 1995) for accepting of the uniform technical regulations for vehicles on wheels, equipment and parts which can be installed and/or to be used in vehicles on wheels and the reciprocity recognising condition of the permissions which are issued in the basis of these regulations and accomplish the technical regulations which are approved in the basis of this agreement like nominated administrative body of the Republic of Macedonia.

BoM is successor of the former Service for standardization and metrology as legal entity within the Ministry of Economy.

The Macedonian Law on Metrology as a harmonized law with the European practice defined technical regulations for operationalisation and management of the metrological infrastructure.

The Ministry of Economy, by ministerial Decision, on proposal of BoM, April 2004 was founded the Metrological Council composed of scientists and professional members in the fields of metrology acting as professional and advisory body of the Bureau of Metrology and work like technical comity for preparing the technical regulations, as BoM has limiting capacity of its own in drafting regulations.

2. Mission

Mission of the BoM is to provide maintain and development of metrological system in the Republic of Macedonia.

Maintain of the metrological system we comprehend as well as realising and providing the traceability of the SI measurement units and their dissemination to all users in our country, mostly in the fields defined by the Law as to:

- Protecting of the environment and nature
- General technical safety
- Free transfer of custody and services
- Procedures before administrative and judicial institutions.

By realisation of the mission it would be achieved and maintain development of the Macedonian economy and industry in the global world trends.

3. Vision

Recognized from the citizens, specialized and competent independent institution with the applied science, which lead international recognising of the national metrological infrastructure like important regulator for the technical barriers in trading, apropos free movement of the stocks and services.

Bureau of metrology rely on the started cooperation with the corresponding scientific and education institutions from the Universities from the Republic of Macedonia in order to realize common scientific and educational projects for graduate subjects, post-graduate and doctor of scientific subjects realize in the

metrological laboratories of the Bureau of metrology and the metrological laboratories of the scientific institutions.

The National metrological institution through its continuous activities in the International cooperation, fulfilling international and bilateral agreements provides recognition of the Macedonian metrological infrastructure up to international level with active membership in the European and International metrological institutions.

4. Users

The Bureau of metrology perform its activities on professional basis for all users, direct users such as laboratories for calibration and testing, inspection bodies for verification of the measuring instruments, citizens – general users of the measuring instruments (flow meters, measuring instruments of the electrical and heat power etc.), means everywhere where there is a conflict of interests during the exploitation period of the measuring instruments and indirect users like the scientific institutions, industry and public agencies.

Until now and in the future, the Bureau makes effort to provide efficient services in the shortest period for a reasonable price, which will be concurrent on the International market especially in the region and EU.

By transparent working and implementation of technical regulatives, which is according to the legislation of the EU, BOM provides competent and confidence among domestic users and foreign investors, contributed by a simple procedure for acceptance of the certificates evaluated according to EU.

5. Goals

Primal goal of the Bureau of metrology is to realise the national standards for as many SI units as possible and this will provide traceability chain in the country and abroad and in connection with this goal to continue assignment for their keeping and maintains.

The globalisation process and the international connection the most important is mutual confident between the national metrology institutions and acceptance of certificates, issued from them. (Calibration, testing and conformity assessment of the type of measuring instruments). That can be achieve by implementation of quality systems like ISO 17025 for calibrating laboratories using “peer assessment” mechanism and active membership in the technical working bodies of the international CGPM and regional organizations for metrology as it is EUROMET and evaluation of the quality system before signing of appropriate contracts and arrangement.

That one of the most important goal is implementation of the certain systems of quality in the Bureau of metrology starting with ISO 17025, along with realization of the national standards is an important step forward in the international recognition of our national standards, calibration reports and results from the measurement, together with domestic infrastructure based on the dispersion model.

Secondary goal (traditional and important) is to provide implementation of the inspection activities in a high grade (verification of the measuring instruments, metrological and experts review) and certification activities (evaluation of the measuring instrument and certification of the referent materials), derived from its legal frame.

Building partnership based on contracts with the subjects of the metrological infrastructure, define on non-discriminatory ground rights and obligations.

6. Principles

As an administrative state body, Bureau of metrology follow principals of the state institutions defined by Law on organization and tasks of government institutions and Law on public servants. Introducing the system of quality and its systematic transformation from administrative body into a scientific institution will apply principals defined by national, European and international standards as fallow.

- Expert opinion, professional and high competence of performing the task
- Non-commerciality and accessibility of the scientific knowledge in metrology
- Representing public interests and transparency
- Free basis of the partnership and contracting
- Provide independence in working and decision making
- Impartiality in procedure for designation of legal entities
- Harmonization and equivalency of the calibration and conformity assessment procedure to European and international ones
- Providing non-discrimination
- Working and decision making free from commercial or political interests.

7. Potentials of BOM

a. Working area

BOM has new offices situated in building address: Bul. Jane Sandanski 109 divides in two parts:

- Administrative area on first floor of 450 m² enough for performing its administrative functions
- Laboratories are situated in two underground levels of 2 x 600 m² which are not completed but enough for its future development

b. Equipment

BOM has appropriate computer equipment and metrology equipment for seven national laboratories, provided by EU help project CARDS/SMAQVa as excellent base for starting its primary function – calibration of standards in BOM.

c. Employee

Base core of BOM are 18 public servants. Only four of them have BSc technical engenders. Take over from the former Service for standardization and metrology and there is no change in this number yet. Some of the employees were transfer in the new public Institutions for accreditation and standardization (IARM and ISRM).

It is evident that besides BOM several proposals addressed to the Ministry of Economy for certain change, means enlargement of men power and employment of vacancy posts in BOM in past years initiated by the need of proper follow EU program for help, there is no success until today. There is an appendix

for 7 BSc. engineering positions-laboratory technicians in the laboratory centre, which is still not enough.

In this stage, the situation in BOM is alarming because the system for quality in the laboratory centre cannot be implemented without adopting new systematization and organization suggested by BOM. Using the EU project for support CARDS/SMAQVa, BOM succeeded through four months training course to educate a group of 25 young engineers interested for metrology. BOM expects this people to be the carriers of the calibration activities in the laboratory centre.

Without this trained persons for the laboratories of BOM, WORLD BANK project BERIS cannot start because of its control mechanism.

8. Necessity for development

BoM for realization of its mission has necessity for sustainable development because:

- Contribute for the development of the technical infrastructure
- Contribute the increasing the quality of the products and services as a feedback of the control processes
- Improve and provide equal position and competition as supporting Quality Infrastructure and control mechanism take participation on prevention not getting dominant positions on the market
- It helps in globalization of the our economy because the potential of the metrology infrastructure influential with it is geometric progression in economical structures of the society

Metrology Policy for development National Metrology Infrastructure

Building up independent national competent metrological institution

Lean on domestic resources including available scientific and technological potential and support of international community within the frame of metrological infrastructure will be provide base for development particularly of BoM and its calibration capacities, as a carrier of metrological infrastructure

Establishing the national standards of SI unite and Lab's

Lead by necessity and requirements of government, economy and consumer protection of citizens and environment will be provided adequate national physical standards

Providing the basis for certificating and inspecting activities

Basis consist of adequate metrological equipment and know-how of BoM

International recognition of the national metrological infrastructure

Trough permanent activities, international agreements and collaborations to provide recognition of Macedonian metrological infrastructure on national level and wildly as well membership in international metrological institutions and organizations

On base of our specifics locate the fields of sustainable development in Globalization trend

Fields of sustainable development will be located according to specifics of our economy and industry in the frame of world globalization trends

Informational and promotional activities of metrology

Will be organized activities for build up and affirmation of national metrological infrastructure trough organizing workshops on metrological issues

Active participation in International Metrology Organizations

Middle term Programmed for development of the metrological infrastructure

A. The Bureau of Metrology – pillar of the metrological infrastructure

- Submission of the Policy for development of the metrological infrastructure and Middle term Program for development of the metrological infrastructure as information to the Government of Republic of Macedonia

International membership and collaboration

- Associate membership in CGPM of metro convention (General conference of weights and measures),
- Signing MRA
- Associate membership of WELMEC,
- Launch internet site offering its capabilities
- Signing bilateral memorandums for collaboration

Management of financial resources

- Establishment of the BoM as legal entity in accordance to the Law on Metrology in a line with European practice for presentation of the Bureau of Metrology as independent, competent and specialized institution before domestic and international metrological infrastructure
- Providing organizational structure and IT support for management of financial resources
- Implementation of realistic fit to purpose planning of financial resources, free from political influence suitable for necessary development programs

Management of Quality System

- Implementation of Quality System in accordance to MKS ISO 9001 for the whole BoM and MKS ISO 17025 for the Laboratory center of BoM by assistance of adequate consultant house
- Establishment of adequate quality systems as upgrade to MKS ISO 9001 in the separate parts of BoM and ISO 17020 for the legal metrology part
- Participation on the TC - Q of EUROMET – European Organization of Metrology with implemented and documented MKS ISO 17025 in the Laboratory center
- Search for possibilities for adequate assistance and subventions form the sources that BoM through introducing of quality systems to the metrological laboratories-partners of BoM and other bodies for testing /certification/ inspection of products as necessary step for proving their competency through accreditation

Management Human resources

- Urgent employment sufficient number of capable staff (BSc engineers) for the laboratories in accordance to the prioritization of activities and tasks of BoM
- Adequate deployment of the current personnel according to new organizational BOM structure clearly separation of scientific metrology from legal metrology part

- Realization of the training program and familiarization with the new metrological equipment, as soon as possible.
- Involving potentials of the institutions connected with the metrology for the assignment of education, training for the staff from the national laboratories of BoM and the staff on the laboratories of metrology from the infrastructure.

Management of technical resources

- Adaptation, equipping and putting in operation of 8 laboratories of the laboratory center of the BoM
- Recognition of the physical standard for Mass and related quantities (pressure, density) as National in the national Mass laboratory,
- Recognition of the physical standard for Temperature, Flow&volume and Length as National in the respective national laboratory
- Promotion and implementation of the dispersed model of metrological infrastructure especially for the units for which the interest exists to the others subjects of metrological infrastructure, e.g. the reference materials, metrology in the ionising and radioactive radiations, metrology in the clinical biochemistry etc
- Interlaboratory-comparison between the laboratories of BoM and the Laboratories of the EUROMET members in order to establish CMC tables in the national laboratories,

AQUIUS of technical regulations and transposition

- Drafting and adoption of the necessary technical regulations for operation of the Law on Metrology by technical bodies of Metrological Council
- Providing sources for support for drafting the technical regulations from Law on control of goods made of precious metals by technical bodies of Metrological Council
- Transition of MID directives for measuring instruments 2004/00/EC in the draft technical regulations

Project development

- Intensive collaboration with the World Bank on BERIS programmed for financing the further development of BoM after the completion of the EU for technical assistance under the CARDS programmed
- Active participation and leadership in MACAB (Macedonian Conformity Assessment Board) as a coordination governmental body for conformity assessment, together with other pillars of Infrastructure of Quality as IARM and ISRM.
- Participation in EUROMET projects as primarily intercomparison related

Communication and Collaboration on national level

- Internal and external flow of information's defined by procedures of Quality system and launch internet and intranet site
- Interactive information and enforcement of the public awareness for the metrology – multimedia, web page etc.
- Establishing of close collaboration with others technical scientific institutions (faculties of electro-technique, electronic, mechanic, nature science etc)

from the Universities of our country, with memorandums for cooperation in the mutual scientific and educative projects, with laboratories of BoM.

- Establishing of partner relations with the subjects of metrological infrastructure via contract with BoM implementing the Decision of the government (Official Gazette of Republic of Macedonia no.51/2004)
- Whole possible assistance to the educational/science institutions for realization and preservation the scale of SI units of national physical standards, for these which are not planed to be realized by BOM, as result from the application of the dispersed model into development of the metrological infrastructure
- Organization of at least 3 workshops per year, financed by the Ministry of Economy for the subjects of metrological infrastructure and transfer of information and raise of the knowledge of the personnel employed in the metrological laboratories
- Implementation of constructive dialogues and good coordination between all the users of the metrological equipment

For realization of this prime is adopted action plan

Action plan for fulfillment of development program for National metrological infrastructure

A. Ministry of Economy

- A.1. Submission of request to the Agency of public servants for quick launching announcement for the filling up empty posts in systematisation of working places in BoM with 7 BSc engineers in technical fields, trained by CARDS/SMAQVa II programme, as a laborants, in section for metrological development - time schedule for this action - without delay
and 10 BSc engineers in technical fields, trained byr CARDS/SMAQVA programme, as a laborants - time schedule for this action - 2007
- A.2. Allocation of existing personnel of BoM in suitable posts according to changed systematisation of working posts in the part for BoM - time schedule for this action - immediate
- A.3. Completing the arrangement of laboratory premises for BoM by lounching public procurement notices on time - time schedule for this action – during the 2006
- A.4. Creating BoM as a legal entity according to the Low on Metrology - time schedule for this action – during the 2006
- A.5. Adoption of basic technical regulative as to operate the Low onf Metrology - time schedule for this action – continual

B. Ministry of Foreign Affairs

Assistance in delivery through the diplomatic channel application from Ministry of Economy – BoM to BIPM International Bureau for weights and measures in Paris, for association membership in CGPM General Conference of Weights and Measures of Metre Convention- time schedule for this action -immediate

C. Bureau of Metrology

- C.1. Signing MRA – Mutual Recognition Arrangement for acceptance of national physical standards of National Metrological Institutions and Certificates for Calibrations and Measurements-time schedule for this action – at the begin of 2006
- C.2. Official opening the laboratory centre of BoM and starting with work – May 2006
- C.3. Editing Billetin of BoM and web page - time schedule for this action-during the 2006
- C.4. Singing the memorandums for understanding and cooperation with the scientific and high-degree institutions for mutual scientific and educational projects, between laboratories of BoM and laboratories for metrology at the others scientific institutions - time schedule for this action-continual
- C.5. Establishing the partnership relations with the subjects of metrological infrastructure via contract with BoM, implementing the Decision of the government (Official Gazette of Republic of Macedonia no.51/2004) - continual**
- C.6 Intensive collaboration with the Project Coordinational Unit of World Bank programme BERIS for choing consultants and preparation of the solid programme for IT equipment of BoM - time schedule for this action–at the beginning of 2006
- C.7. Adoption of base regulations for operacionalisation of Law of metrology - time schedule for this action – at the second part of 2006
- C.8. Intensive collaboration with PCU of BERIS in preparation the solid programme for metrological equipment of BoM - time schedule for this action -October 2006

- C.9. Implementation of Quality System MKS ISO 17025 in the laboratory centre of BoM – end of 2006
- C.10. Implementation of Quality System MKS ISO 9001 with aid of an adequate Consultant House - time schedule for this action – December 2007
- C.11. Intensive training of the laboratory staff at the equipment producers and at the metrological institutions based on the bilateral cooperation and participation in the work of the few technical committees of EUROMET with our experts from the Laboratory Centre of BoM - time schedule for this action – continual 2006-2007
- C.12. Strengthening of BoM with the new 7 BSc. staff (engineers) for the laboratories, which will be completed with the metrological equipment from BERIS programme - time schedule for this action – January 2007
- C.13. Intensive training for the laboratory staff at the equipment producers at the metrological institutions, based on the bilateral cooperation – during the 2007
- C.14. Recognition of the physical standard for mass as a national standard for mass in the national laboratory for mass - time schedule for this action – at the 2007
- C.15. Recognition of the physical standard for pressure as a national standard for pressure in the national laboratory for pressure- time schedule for this action – at the 2007
- C.16. Recognition of the physical standard for length as a national standard for length in the national laboratory for length- time schedule for this action – the second part of 2007
- C.17. Presentation of the introduced and documented system of MKS ISO 17025 in the Laboratory Centre of BoM in front of the technical committee for Quality (forum on Quality) of EUROMET - time schedule for this action – at the beginning of 2008
- C.18. Starting with inter-comparison of Macedonian national standards with other of members of EUROMET and forming CMC (calibration and measurement capabilities) tables of our national standards - time schedule for this action – continual 2007-2008
- C.19. Implementation of adequate Quality Systems as an upgrade MKS ISO 9001 in other parts of BoM - time schedule for this action – at the beginning of 2008
- C.20. Transposition of harmonised MID directive on measuring instruments 2004/22/EC into draft of technical regulations - time schedule for this action – the second part of 2008
- C.21. Organizing minimum 3 workshops yearly financed by Ministry of Economy intended for subjects of metrological infrastructure for transfer of information and rising the level of knowledge of the laboratory staff - time schedule for starting this action – at the beginning of 2007
- C.22. Promotion and implementation of disperse model of metrological infrastructure at least for those SI units for which are existing interest and possibilities among metrological infrastructure i.e. referent materials, radioactive exposition/emitting, clinical biochemistry time schedule for this action – continual
- C.23. Searching of forms and possibilities for help or subventions utilising the income of BoM through system for special evaluation as an economic operators for auditing the QS of metrological laboratories as a partners of BoM and other bodies for testing/certificating/inspection of products and necessary accreditation process as a step toward confirming their competency) time schedule for this action – continual
- C.24. Implementing of various forms of dialogue and good coordination among users of metrological infrastructure and interactivity in information process and public awareness about metrology importance – multimedia, launching BoM site etc. - time schedule for this action – continual
- C.25. Adoption of the physical standards for Temperature as Nationals in the national temperature laboratory - time schedule for this action – the second part of 2008
- C.26. Adoption of the physical standards for Voltage, Current and Resistance as Nationals in the national laboratory for the electrical measurements- time schedule for this action – at the beginning of 2008
- C.27. Adoption of the physical standards for Volume and Flow as Nationals in the national laboratory for volume and flow - time schedule for this action – the second part of 2008

- C.28. Adoption of the physical standards for Time and Frequency as Nationals in the national laboratory for time and frequency - time schedule for this action – at the beginning of 2009
- C.29. Adoption of the physical standards for density of liquids as Nationals in the national laboratory for density and reference materials - time schedule for this action – at the beginning of 2009
- C.30. Adoption of the physical standards for volume of the gases as Nationals in the national laboratory for volume and flow - time schedule for this action – at the beginning of 2009
- C.31. Inter-comparison of Macedonian national physical standards with other of members of EUROMET whose will take participation for forming CMC tables of our national laboratories - time schedule for this action – continual 2008-2009
- C.32. Implementation of adequate Quality Systems (ISO 17020) as an upgrade in the MKS ISO 9001 in a particular parts of BoM- time schedule for this action – end of 2009
- C.33. Study for continual development of the metrology infrastructure - time schedule for this action – the second part of 2009