IPA 2008 National Programme for Albania
Centralised National Programme in support to Metrology

1. Basic information

1.**1 CRIS Number:** 2008/020-116

1.2 Title: Strengthening of national metrology infrastructure and achievement of international recognition

1.**3 Sector: 03.01**

1.**4 Location**: Tirana, Albania

Implementing arrangements:

1.5 Contracting Authority: Delegation of the European Commission to Albania

1.6 Implementing Agency: Delegation of the European Commission in Tirana on behalf of the Albanian Government

1.7 Beneficiary (including details of project manager):

- The General Directorate of Metrology (DPM) in the Ministry of Economy, Trade and Energy will be the main beneficiary.
- 4 DPM Regional Centres in Fieri, Tirana, Korca and Lezha will benefit from this project
- Other potential institutions to be part of the National Metrology System (Metrology in chemistry, Polytechnic University of Tirana)

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Financing:

1.8 Overall cost (VAT excluded)[1]:

The overall cost for the implementation of this project is estimated at 3 400 000 EUR

Twinning contract: 1 000 000 EUR
Supply contract: 2 400 000 EUR

[1] The total cost of the project should be net of VAT and/or other taxes. Should this not be the case, the amount of VAT and the reasons why it should be considered eligible should be clearly indicated (see Section 7.6)

1.9 EU contribution:

The EU contribution shall be 3 000 000 EUR

The national contribution shall be 400 000 EUR

1.10 Final date for contracting:

No later than three years following the date of the conclusion of the financing agreement

1.11 Final date for execution of contracts:

Two years following the end date of contracting. These dates apply also to national co-financing

1.12 Final date for disbursements:

One year following the end date for the execution of contracts

2. Overall Objective and Project Purpose

2.1 Overall Objective:

The overall objective is to contribute to the reduction of the technical barriers to trade and to facilitate international trade through the increased quality of products produced in Albania, thus increasing her export capacities.

2.2 Project purpose:

To reinforce the metrology system in Albania, thus fulfilling the conditions for full membership of EURAMET, through strengthening and upgrading of metrological infrastructure and aligning Albanian metrology practices with those of EU members; thus increasing the technical competence of DPM;

2.3 Link with AP/NPAA/EP/SAA

- **The European Partnership Document of 2007 defines as priorities to** the improved functioning of the body responsible for metrology and calibration, taking into account EU practices, to ensure the necessary administrative capacities for implementing SAA requirements in this area, and to progress in transposing New and Global Approach and Old Approach directives.
  - **Article 75 of the SAA**
- **SAA article 75** specifically refers to the need to provide assistance for institutional strengthening of metrology, eventually leading to membership to EU agencies (EURAMET, WELMEC)
- **EC Progress Report 2007:** The 2007 EC Progress Report noticed some progress in the area of metrology, mentioning the fact that the new law on metrology sets up a decentralized metrology system and deregulates some metrological activities such as calibration. At this point the Commission notes that the preparations in this field are at an early stage. This highlights the need for a continuity of the community assistance.

2.4 Link with MIPD

- **MIPD 2007-2009** objectives includes European Standards - trade: it defines the need to support the establishment and capacity building of agencies and institutions required for the implementation and enforcement of sectoral policies, including

mechanisms for verification of EU compatibility of government policies and draft laws.

2.5 Link with National Development Plan (where applicable)

The National Strategy for Integration and Development (2007-2013), which is under public consultation emphasizes that the Government will continue to work towards fulfilling the obligations deriving from the SAA chapter on Internal market and free movement of goods (metrology, standardization, certification, and accreditation).

2.6 Link with national/ sectoral investment plans (where applicable)

The implementation of the National Strategy on metrology prepared within CARDS 2003 project and World Bank project "Business Environment reform and Institutional Strengthening"; and of the sectoral strategy on Quality Infrastructure adopted by the Albanian Government requires the necessary means and financial support to be implemented.
The metrology (measurement) system is the most costly component of the Quality infrastructure system. It consists of national reference measurement standards, calibration and testing laboratories, infrastructure for inspection and supervision. An adequate metrology institute covering most of the measurement areas would cost more than €40 million and require about 150 qualified staff to operate and would take 15-25 years to develop even with very strong government commitment. The main problem is the time required for the development of the metrology system. Normally it would take around 15 years, but this would place significant constraints on the development of the internal market in Albania and fulfilment of commitments at national level with regard to the EU accession.

3. Description of project

3.1 Background and justification:

Most of the implementation of the Acquis Communautaire is linked to an operational measurement infrastructure (e.g. food, environment monitoring, health care, hygiene, technical safety, consumer protection, etc) which require traceable and reliable measurements to the institution responsible for metrology (General Directorate of Metrology). In providing reliable and accurate measurement for industry and testing of products produced in Albania for export, it is necessary that the Albanian metrology infrastructure is well established and recognized at international level (EURAMET membership).

Around 40% of the European Union directives are related to measurements by establishing essential requirements for measuring instruments, measurement methods or various materials in almost all sectors. A weak metrology system in Albania will lead to delays in the maturity and integration of other stakeholders as standardization, accreditation, inspection, etc), knowing that establishing or upgrading a metrological system takes a lot of effort in terms of financial and human resources. During the period 2004-2007 the DPM was supported by the National programme CARDS 2003 under the project CARDS 2003 "Albania Metrology", with a budget of €1.3 million, of which €0.9 million was spent in technical assistance which included legislative development, consultancy, training and public awareness, with the remaining €0.4 million invested in measurement equipment. Within the CARDS 2003 "Albania metrology", measuring equipment for the establishment of national standards in mass, pressure, temperature voltage and resistance for limited ranges was supplied and related trainings of the technical staff was delivered. Nevertheless, the needs of industry and enforcement bodies are constantly increasing and cannot be covered by the limited funds from the CARDS 2003 project. For example, no equipment for calibration of humidity, volume and flow, density, acoustic, frequency, chemistry is presently available at the General Directorate of Metrology. The investments in measurement equipment should also be coordinated with

the training of the technical staff (approximately 22 new staff are expected to join DPM and 12 is the number of staff currently employed in the department of scientific and industrial metrology). Due to the unique and complex nature of national measurement standards laboratories, there are no local providers for such training. Thus, Albanian experts could be trained at national metrology institutes of Member States.

During the drafting of this project fiche, the key recommendations given in the final report of CARDS 2003 project have been closely taken into account as follows:

1. Development of secondary legislation
2. Establishment of a decentralized metrology system
3. Consolidation of calibrations vs verifications
4. Metrology in chemistry

Within the completed CARDS 2003 "Albania Metrology" project, a national strategy on establishing and developing the Albanian metrology system towards the EU integration was adopted. Therefore, this new phase addresses the implementation of this strategy, something which has also been provided for in SAA article 75. The implementation of the national strategy on metrology has received the support of the Albanian Government to benefit from financial support within the World Bank project BERIS, which will be executed within 2007-2011. The project budget is €5.05 million.

The BERIS project component "Strengthening Enterprise Sector's Capability to Export" will support the upgrading of the national metrology infrastructure by financing the design and construction of a modern metrology laboratory/facility with proper environmental devices. It will also assist in (i) strengthening staff skills at headquarters and regional centres, (ii) design, supervision and construction of new metrological centre, (iii) training programs in EU-based metrology services and requirements, including study tours for selected staff of the DPM to metrology institutes of EU and accession countries, and (iv) measurement equipment. Support could also be provided for the DPM's efforts to join selected EU organizations in the areas of calibration laboratories and legal metrology, including verification and type of approvals such as EURAMET and WELMEC. So far under this component, support is provided for preparation of a national metrology strategy, including an action plan for consolidation of provincial and district metrology laboratories. The procedures for the design and supervision of new buildings have started.

Alongside the support given through the CARDS 2003 project and World Bank project, there is still a need for financial support in order to fulfil the basic requirements for a metrological infrastructure compatible with EU practices and recognised at regional and international level.

Besides the national strategy, a new law on metrology, compatible with EU requirements and practices has been elaborated with EU assistance. Although legal metrology is reasonably set up, scientific metrology is developing slowly, and industrial metrology is only slowly becoming market orientated. Drafting national regulations on non-automatic weighing instruments (NAWI directive), regulations on the control of pre-packages and bottles as measuring containers began in 2005. A number of public and private institutions were involved in this process. There is still need for expertise, training and equipment supply in order to fully adopt and implement the prepared regulations.

The Albanian National Plan on fulfilling of SAA obligations has determined as priorities the adoption and implementation of all new and old approach Directives on metrology. Therefore further assistance is required in terms of preparing and adopting secondary legislation which includes adoption of EU directives on measuring instruments (22/2004 EC), and provisions of

(71/316/EEC) on the approximation of the laws of the Member States relating to common provisions for both measuring instruments and methods of metrological control, etc.

One of the most important existing international agreements in the field of metrology is a Multilateral Recognition Arrangement on national standards and calibration and measurement certificates issued by national metrology institutes, and signed by more than fifty countries all around the world (CIPM MRA). Although Albania signed the Arrangement on 15 October 2007, it is still far from achieving international recognition of national standards and calibration certificates. The basic requirements for full membership of EURAMET (European Association of National Metrology Institutes) and for international recognition are:

- Traceability routes to the SI should have been identified and been in operation for at least three years;
- The National Metrology Institute (DPM) must show evidence of appropriate participation in international comparisons
- A metrology infrastructure must be implemented in the country, and a quality system in use at the National Metrology Institute of the country

Therefore, urgent support is sought to develop legislation/regulations, to support the implementation of quality management system (ISO 17025) in the General Directorate of Metrology and Calibration, the training of personnel and increasing the technical competence of the staff that operates with national measurement standards, and investment in measurement standards and equipment.

To cope with the highly demanding tasks to be performed by DPM as Albanian National Metrology Institute (i.e. EURAMET full membership), change in the structure of DPM staff are also required. It is important to increase the qualifications and the number of staff that are working on the most demanding tasks, and is crucial for the overall performance of DPM as a national metrology institution. This relates to the most demanding calibrations, participation in EURAMET inter-comparisons and in Quality system presentation, participation in other international research and other projects and activities as well as implementation of different international documents, including EU directives, WELMEC and OIML guides, ISO and other international standards. Seminars for industry, test and measurement laboratories, inspectors and other interested parties will also be organised to increase the quality of measurements in the country. This does not necessarily mean an increase in the overall number of DPM personnel which are part of the implementing institution of this project. More detailed information on institution capacity is given in the annex 3.

3.2 Assessment of project impact, catalytic effect, sustainability and cross border impact (where applicable)

The project implementation will have a direct impact to the free movement of goods, and an increase in the level of exports. Furthermore, the project will positively affect all measurement infrastructures in the country that perform various measurement, tests and analyses in the sectors of food, health, environment etc. All agreements on free movement of goods (bilateral and multilateral) require that products must be tested once according to internationally accepted requirements. Having a strengthened and internationally accepted metrology system will directly affect in minimization of technical barriers for domestic products, and enhance the quality of life.

In many countries advance measurement systems are one of the driving forces for manufacturing industries and many testing facilities are used to develop new products. Measurement related services make up roughly 8% of GDP in many developed or developing countries. In order to create a favourable environment in which entrepreneurs and public administration would wish to reach excellence in the quality of products, promotion of

European quality practices is necessary. This can be achieved by developing technical and human instruments and resources, in partnership with industry and other stakeholders. The long term continuity and sustainability of the project will be guaranteed by the financial and administrative capacity of the Albanian Government, which has adopted the National Strategy Document on Quality Infrastructure and national policy and strategy in supporting the metrology system. As the main beneficiary of the project, the General Directorate of Metrology and Calibration will establish the necessary mechanisms in order to disseminate the experience and knowledge gained to the regional centres and industry sectors.

The implementation of this project will firstly have a positive impact on the bodies which have a need for an established measurement infrastructure due to the inspection, market surveillance, market control, accreditation, health, environment, crime control, etc.). Relations between DPM and private sector are based on the demand from the industry and services supplied by DPM in order to fulfil that demand. In all industrialized countries MSTQ systems are the main drivers for industry and one of the essential elements of trade. Currently almost all the customers of DPM are defined by the Government Regulations and the mandatory nature of the standards. There is no assessment of demand and potential customers.

The catalytic effect will be the enhancement of the quality of Albanian products, thus improving the potential of exports. The cross border impact will be seen in implementation of Free Trade Agreements (CEFTA) within the region and harmonise quality infrastructure with that of the EU in line with the accession and Stabilization and Association process.

3.3 Results and measurable indicators

3.3.1 Adoption of legal approximation of MID, NAWI directives into the national regulations – secondary legislation developed/revised, approved and validated.

3.3.2 Regulations on technical and metrological requirements of measuring instruments subject of legal control; on national reference measurement standards developed and adopted

3.3.3 Training needs analyzed, material developed, training performed, certificates issued.

3.3.4 New measurement areas are established and operational, providing services to industry and testing laboratories (CAB), humidity, acoustics, time and frequency, AC current, electrical power.

3.3.5 Expanded technical capacities of calibration laboratories in the field of mass, temperature, electrical quantities, volume & flow, pressure, dimensional measurements (speed radar, tachometers) etc.

3.3.6 The national network of metrology in chemistry is established, and fully functioning according to EU requirements and practices.

3.3.7 Four fully operational regional Centres with adequate and appropriate capacities.

3.3.8 Fully operational metrological supervision structure (market surveillance in metrology) established.

3.3.9 Training of technical staff in laboratories and in situ carried out (in Albania and in Member States' national metrology institutes).

3.3.10 Quality management system according to ISO 17025:2005, implemented and the documentation ready for presentation at the EURAMET Technical Committee of Quality.

3.3.11 Action plan for the traceability routes of measurement areas prepared and implemented.

3.3.12 International recognition achieved at least by three measurement areas i.e. mass, temperature, pressure, electrical quantities, etc, (EURAMET membership).

3.3.13 Development of technical specifications for measurement equipment and IT software.

3.3.14 Measurement equipment for reference measurement standards laboratories and IT facilities are installed and operational.

3.3.15 Internal/external auditors and technical assessors according to ISO 17025 and ISO 17020 are trained and certified

3.3.16 The national network of national reference measurements standards is established and holders of reference measurements standards are designated (inside and outside the DPM, such as Universities, research institutions, etc).

3.4 Activities:

3.4.1 Contract 1. Twinning (24 months, TF €1 000 000)

Component 1 – Technical Assistance for Legislation Development and Capacity Building

Legislation development

- Revision and development of secondary legislation with special focus on the adoption of MID directive 22/2004 EC, NAWI Directive 90/384 EEC, internal procedures and verification procedures etc.;
- Evaluating and verifying the detailed plan of implementation of the measures for meeting the requirements and reaching the EURAMET membership, including investment plan and preparing specifications of necessary measurement equipment and related software.
- Evaluating and verifying the action plan for implementation of the *Acquis,* revision/development and proposals for the secondary legislation, including the WELMEC guides.

Capacity building

- Ensuring the traceability of measurements in thermometry, electricity, volume, length and, mass and related quantities (force, pressure) down to the service sector, industry and other customers and participation in proficiency testing schemes and inter laboratory comparisons (bilateral and regional) at least with three measurement areas.
- Assessment of needs/developing a policy and establishing of traceability chain in the field of chemical measurements (organic and inorganic, pH meter, etc)
- Expansion of existing measuring areas and development of metrological infrastructure for new measurement areas: acoustic and vibration, humidity, density, etc
- Supporting the institutional development of the DPM, especially with respect to the establishment of Albanian Metrology institute within DPM, its leading and coordinating role within the national metrology infrastructure, verifying conformity with the standards requirement.
- Development of metrological inspection structure (regulation and procedures) in line with EU requirements, training on risk analysis, pre-assessment, evaluation of internal procedures. Introduction of the QMS according to ISO 17020.
- Pre-assessment of the existing quality system of DPM and DPM laboratories according to ISO 17025: 2005 requirements; implementation of the quality system in DPM aiming at its presentation and taking of the confidence by the Technical Committee of EURAMET (European Association of National Metrology Institutes).
- Establishment of the IT network for communication of DPM with regional centres (software, development of a database, computers and relevant accessories)

- Hands-on support for preparation of calibration and measurement capabilities (CMCs) and their submission to the EURAMET Technical Committee for revision.
- Preparation of detailed technical specifications for the necessary measurement standards, auxiliary equipments and related software, for DPM laboratories

Component 2 - Training

- Development and delivery of training to the new staff of General Directorate of Metrology and Regional Centres, Universities, research institutes, covering, but not limited to, uncertainty calculation, application of quality systems; delivery of trainings on development of calibration procedures and measurement methods for the new measurement areas, etc
- Delivery of training to the higher level of technical expertise for the measurement areas of mass, temperature, pressure, electrical quantities, in order to achieve the international recognition (EURAMET membership).
- Development and implementation of training programmes with a special focus on training of trainers and technical assessors for calibration/testing laboratories according ISO 17025 in Albania and abroad; 20 internal and external auditors according to the ISO 9001 and ISO 17025 trained.
- Organisation of study tours in Member States National metrology institutes to get overview.

Component 3 - Public awareness

Informing local industry and trade as well as other interested bodies on newly introduced metrological requirements; Preparation and participation in the seminar addressed to industry, public bodies and semi-private organizations as well as NGOs as regards checking the net quantity in pre-packages and utility meters (electricity meters, water meters, and taximeter and measurement systems for liquids other than water).

Component 1 – Technical Assistance

It is planned that under the twinning arrangement, support will be provided by one Resident Twining Adviser (RTA), and 13 short term experts:

3.4.1.1. **Resident Twining Adviser (RTA) for 24 consecutive working months (TF €360 000)**

Profile of the expert:

- Very good knowledge of and demonstrable working experience in the establishment and operation of a metrology laboratory in a National Metrology Institute, member of EURAMET and signatory of CIPM MRA, knowledge of other countries of the region, and/or EU countries, including EU accession countries;
- thorough knowledge about International and regional metrology infrastructure;
- strong communication, report writing and presentation skills;
- fluent written and spoken English;
- capacity to establish efficient working relations and good communication with the key project beneficiaries and counterpart institutions;
- excellent technical capabilities in metrology;
- demonstrable experience in adoption of New and Old Approach directives on metrology into national legislation.

The RTA will be located at The General Directorate of Metrology and Calibration and over the 24 month period will be responsible for providing support in the following key areas of activities:

- Meeting with all institutions to ensure their awareness, commitment and participation in the project
- Liaison with CARDS 2003 project staff in order to ensure the handover of tasks and responsibilities as well as a proper follow up of activities
- Analysis of the current situation and problems;
- Assess the needs of the beneficiary and other project partners and decide how the project intends to meet them;
- Evaluation and verification of the detailed plan of implementation of the measures for meeting the requirements and reaching the EURAMET membership, including investment plan and preparing specifications of necessary measurement equipment and related software.
- Evaluating and verifying the action plan for implementation of *Acquis,* revision/development and proposals for the secondary legislation, including the WELMEC guides.
- Evaluate the risks associated with the project and define the project activities accordingly;
- Development and implementation of training programmes with a special focus on training of trainers and technical assessors for calibration/testing laboratories according to ISO 17025 in Albania and abroad;
- Supporting the institutional development of the DPM, especially with respect to the establishment of Albanian Metrology institute within DPM, its leading and coordinating role with the national metrology infrastructure, verifying the conformity with the standards requirement.
- Developing an appropriate PR action, including the preparation of publications, brochures and other information materials for industry, institutions, businesses and consumers.

3.4.1.2 RTA assistant (24 working months, TF €36 000)

Profile:

- Strong organisational skills
- Very good Computer skills and proficiency
- Experience in CARDS/Twinning project (management would be an advantage)
- Very good knowledge of English
- Very good knowledge of Albanian

Tasks:

- Assisting of RTA
- Arranging of training events
- Organization of translation

3.**4.1.3. Member States project leader (24 months, TF €30 000)**

Tasks:

- Assist the RTA with project management;
- Monitoring and guidance of the whole project
- Provision of legal and technical advice and analysis

- Development of a project work plan, with timetable for project implementation, encompassing all project components and activities, plus the provision of related skills development activities.

Profile:

- at least 8 years experience in either a national metrology institute or an European metrology organization and, during that period, he/she must have held a senior management position for at least 5 years;
- excellent English both spoken and written

3.4.1.4 Short term expert 1 (STE1), legal expert (1 working month, TF €20 800).

Profile:

- at least 5 years professional experience on developing legislation on metrology
- demonstrated experience in drafting and implementing secondary legislation on metrology
- excellent English both spoken and written

Tasks:

- Analysis, assessment/revision of the legal framework on metrology in Albania
- Inputs on development of secondary legislation and related rules and procedures
- Support to develop the necessary measures for implementation of legislation

3.4.1.5 Short term expert 2 (STE 2) Quality management system (1 working month, TF €20 800)

Profile:

- At least 5 years professional experience on development and implementation of quality management system (according to ISO 17025) in national metrology institute;
- Excellent English both spoken and written

Tasks:

- Assessment of the existing status of quality management system at DPM ,
- Developing an plan of corrective/ preventive actions,
- Supporting the implementation of corrective/preventive actions and continual improvement
- Supporting the preparation of documentation for presentation of quality system at EURAMET Technical Committee of Quality.
- If necessary provide trainings for DPM laboratories staff

3.4.1.6 Short term expert 3 (STE 3) mass measurements (1 working month, TF €20 800)

Profile:

- At least 5 years professional experience working at a national metrology institute
- at least 5 years experience in participating in inter-laboratory comparisons in a regional metrology organization;

- detailed knowledge of the requirements for full (national) membership of Meter Convention (CIPM Mutual Recognition Agreement), EURAMET (European Association of National Metrology Institutes);
- excellent English both spoken and written

Tasks:

- Re-assessment and follow up of the mass measurement laboratory capacities and capabilities at DPM, including of equipment, working conditions, working procedures, measurements methods, evaluation of measurement uncertainty, since the CARDS 2003 project.
- Supporting the organization/participation in laboratory inter comparison/proficiency schemes
- Supporting to develop the necessary measures for preparation of calibration and measurement capabilities (CMCs) and their submission to the EURAMET Technical Committee for revision.
- Preparation of detailed technical specifications for the necessary additional measurement standards, auxiliary equipments and related software for DPM mass measurement laboratory, under contract 2. (Lot x)

3.4.1.7 Short term expert 4(STE 4) thermometry (including humidity) measurement laboratory (15 working days, TF €10 400)

Profile:

- At least 5 years professional experience working at a national metrology institute
- at least 5 years experience in participating in inter-laboratory comparisons in a regional metrology organization;
- detailed knowledge of the requirements for full (national) membership of Meter Convention (CIPM Mutual Recognition Agreement), EURAMET (European Association of National Metrology Institutes);
- excellent English both spoken and written

Tasks:

- Re-assessment and follow up of the Temperature Laboratory capacities and its measurement capabilities at DPM. , established under CARDS 2003 project. Written inputs in establishing of humidity measurement laboratory (measurement equipment, working conditions, traceability chain, working procedures, measurements methods, evaluation of measurement uncertainty)
- Supporting the organization/participation in laboratory inter comparison/proficiency schemes
- Hands-on support for preparation of calibration and measurement capabilities (CMCs) and their submission to the EURAMET Technical Committee for revision.
- Preparation of detailed technical specifications for the necessary measurement standards, auxiliary equipments and related software, for DPM thermometry and humidity laboratory, under contract 2 (Lot x)

3.4.1.8 Short term expert 5 (STE 5) Electrical quantities measurement (15 working days, TF €10 400)

Profile:

- At least 5 years professional experience working at a national metrology institute

- at least 5 years experience in participating in inter-laboratory comparisons in a regional metrology organization;
- detailed knowledge of the requirements for full (national) membership of Meter Convention (CIPM Mutual Recognition Agreement), EURAMET (European Association of National Metrology Institutes);
- excellent English both spoken and written

Tasks:

- Re-assessment and follow up of the electrical quantities measurement laboratory (DC/AC voltage, DC/AC resistance, at DPM and Polytechnic University of Tirana, since the CARDS 2003 project.
- Supporting the organization/participation in laboratory inter comparison/proficiency schemes
- Support and developing of electrical power subfield, (measurement standards, working conditions, traceability chain, working procedures, measurements methods, etc).
- Hands-on support for preparation of calibration and measurement capabilities (CMC's) and their submission to the EURAMET Technical Committee for revision.
- Preparation of detailed technical specifications for the necessary measurement standards, auxiliary equipments and related software, for DPM Electrical quantities laboratories, under contract 2 (Lot x)

3.4.1.9 Short term expert 6 (STE 6) Volume and Flow measurement expert (1 working month, TF €20 800)

- At least 5 years professional experience working at a national metrology institute
- at least 5 years experience in participating in inter - laboratory comparisons in a regional metrology organization;
- detailed knowledge of the requirements for full (national) membership of Meter Convention (CIPM Mutual Recognition Agreement), EURAMET (European Association of National Metrology Institutes);
- excellent English both spoken and written

Tasks:

- Re-assessment and follow up of the volume measurement laboratory at DPM, including of measurement standards, working conditions, traceability chain, working procedures, measurements methods, measurement uncertainty, since the CARDS 2003 project
- Supporting the organization/participation in laboratory inter comparison/proficiency schemes
- Support to development of the appropriate traceability routes, calibration procedures, validation of measurement methods, improve quality management system in the laboratory; and the necessary measures
- Hands-on support for preparation of calibration and measurement capabilities (CMC's) and their submission to the EURAMET Technical Committee for revision.
- Preparation of detailed technical specifications for the necessary measurement standards, auxiliary equipments and related software, for DPM volume and flow quantities laboratories, under contract 2 (Lot x)

3.4.1.10 Short term expert 7 (STE 7) Pressure measurement expert (1 working month, TF €20 800)

- At least 5 years professional experience working at a national metrology institute
- at least 5 years experience in participating in inter–laboratory comparisons in a regional metrology organization;
- detailed knowledge of the requirements for full (national) membership of Meter Convention (CIPM Mutual Recognition Agreement), EURAMET (European Association of National Metrology Institutes);
- excellent English both spoken and written

Tasks:

- Re-assessment and follow up of the pressure measurement laboratory at DPM including of measurement standards, working conditions, traceability chain, working procedures, measurements methods, measurement uncertainty
- Supporting the organization/participation in laboratory inter comparison / proficiency schemes
- Supporting to develop the appropriate traceability routs, calibration procedures, validation of measurement methods, improve quality management system in the laboratory; and the necessary measures.
- Hands-on support for preparation of calibration and measurement capabilities (CMCs) and their submission to the EURAMET Technical Committee for revision.
- Preparation of detailed technical specifications for the necessary measurement standards, auxiliary equipments and related software, for DPM pressure measurement laboratory, under contract 2 (Lot x)

3.4.1.11 Short term expert 8 (STE 8) length measurement expert (1 working month, TF €20 800)

- At least 5 years professional experience working at a national metrology institute
- at least 5 years experience in participating in inter - laboratory comparisons in a regional metrology organization;
- detailed knowledge of the requirements for full (national) membership of Meter Convention (CIPM Mutual Recognition Agreement), EURAMET (European Association of National Metrology Institutes);
- excellent English both spoken and written

Tasks:

- Re-assessment and follow up of the length measurement laboratory at DPM including of measurement standards, working conditions, traceability chain, working procedures, measurements methods, measurement uncertainty
- Supporting the organization/participation in laboratory inter comparison/proficiency schemes
- Support for development of the appropriate traceability routes, calibration procedures, validation of measurement methods, improve quality management system in the laboratory; and the necessary measures
- Hands-on support for preparation of calibration and measurement capabilities (CMC's) and their submission to the EURAMET Technical Committee for revision.
- Preparation of detailed technical specifications for the necessary additional measurement standards, auxiliary equipments and related software, for DPM length measurement laboratory, under contract 2 (Lot x)

3.4.1.12 Short term expert 9 (STE 9 force measurement expert (15 working days, TF €20 800)

- At least 5 years professional experience working at a national metrology institute
- at least 5 years experience in participating in inter-laboratory comparisons in a regional metrology organization;
- detailed knowledge of the requirements for full (national) membership of Meter Convention (CIPM Mutual Recognition Agreement), EURAMET (European Association of National Metrology Institutes);
- excellent English both spoken and written

Tasks:

- Assessment of the force measurement laboratory at DPM including measurement standards, working conditions, traceability chain, working procedures, measurement methods, measurement uncertainty
- Supporting the organization/participation in laboratory inter comparison/proficiency schemes
- Supporting to develop the appropriate traceability routes, calibration procedures, validation of measurement methods, improve quality management systems in the laboratory; and the necessary measures
- Hands-on support for preparation of calibration and measurement capabilities (CMC's) and their submission to the EURAMET Technical Committee for revision.
- Preparation of detailed technical specifications for the necessary additional measurement standards, auxiliary equipments and related software, for DPM force measurement laboratory, under contract 2 (Lot x)

3.4.1.13 Short term expert 10 (STE 10) chemistry measurement expert (1 working month, TF €20 800)

Profile:

- At least 5 years professional experience working at a national metrology institute /or designated institute for the metrology in chemistry (according to CIPM MRA)
- at least 5 years experience in participating in inter-laboratory comparisons in a regional metrology organization;
- detailed knowledge of the requirements for full (national) membership of Meter Convention (CIPM Mutual Recognition Agreement), EURAMET (European Association of National Metrology Institutes), EURACHEM ;
- excellent English both spoken and written

Tasks:

- Analysis of the existing situation of metrology in chemistry in Albania
- Coordination with the reference institutes in the field of health, hygiene, environment, food etc) in Albania
- Supporting the determination of the medium term strategy for establishing metrology in chemistry in Albania
- Drafting of expert recommendation for the efficient set up of Metrology in chemistry (including an action plan for immediate implementation)
- Support to develop the appropriate traceability routes for metrology chemistry, validation of measurement methods, introducing of quality management system in the selected laboratories (according to the developed strategy document)

3.4.1.14 Short term expert 11 (STE 11) acoustics measurement expert (15 working days, TF €20 800)

Profile:

- At least 5 years professional experience working at a national metrology institute
- at least 5 years experience in participating in inter-laboratory comparisons in a regional metrology organization;
- detailed knowledge of the requirements for full (national) membership of Meter Convention (CIPM Mutual Recognition Agreement), EURAMET (European Association of National Metrology Institutes);
- good knowledge of English

Tasks:

- Supporting the establishment of acoustics measurement laboratory at DPM
- Preparation of detailed technical specifications for measurement standards, auxiliary equipments and related software, for acoustics measurement laboratory at DPM, under contract 2 (Lot x)

3.4.1.15 Short term expert 12 (STE 12) Time and frequency measurement expert (15 working days, TF €10 400)

Profile:

- At least 5 years professional experience working at a national metrology institute
- at least 5 years experience in participating in inter-laboratory comparisons in a regional metrology organization;
- detailed knowledge of the requirements for full (national) membership of Meter Convention (CIPM Mutual Recognition Agreement), EURAMET (European Association of National Metrology Institutes);
- good knowledge of English

Tasks:

- Supporting the establishment of time and frequency measurement laboratory at DPM
- Preparation of detailed technical specifications for measurement standards, auxiliary equipments and related software, for time and frequency measurement laboratory at DPM, under contract 2 (Lot x)

3.4.1.16 Short term expert 13 (STE 13) IT development (15 working days, TF €10 400)

Profile

- At least 5 years professional experience on developing the metrology area and structural funds related IT
- Good knowledge of English and computer literacy required
- Demonstrable experience in developing IT for metrology institutes or metrology laboratories

Tasks:

- Preparation of detailed technical specifications and tender documents for the IT equipment auxiliary equipments and related software, for establishment of a network of DPM central laboratories with regional centres of DPM, under contract 2 (Lot x)

Short-term experts operating will be assigned based upon the detailed plan of units, and on the request of and along with the ad hoc needs identified by the RTA. The short term experts will concentrate on providing assistance tailor made to address issues as they relate to the preparation and implementation of specific requirements for EURAMET membership and international recognition (claiming of calibration and measurement capabilities at BIPM data base , International Bureau on Weights and Measures); drafting, adoption and implementation of secondary legislation in line with metrology EU directives.

3.4.1.17 Preparation of the Twinning Covenant (TF €15 000)

RTA will be responsible for the preparation of a twinning covenant

3.4.1.18 Contingencies (TF €15 000)

Component 2

3.4.1.19 Training component (TF €30 000)

- Training of beneficiary institution staff according to the training plans elaborated by the RTA. STEs will be used for carrying out training if necessary.

The training module will involve three specific components:

- Strengthening of the technical and organizational skills of the metrology experts (4 seminars for 30 participants)

The reinforcement of the technical and organisational skills of metrology, as supported under this project will also involve the training of new staff in the central laboratories, regional centres and reference institutions outside DPM structure. The exact number of seminars will be fixed by the RTA in the training plan elaborated.

- Training for other partners (industry, consumer protection agencies, inspection bodies, etc) - 2 information days for 20 participants

The training programme will involve seminars with awareness building elements, introduction of new metrological requirements at national level, etc.

3.4.1.20 Study tours (TF €30 000)

Study tours are foreseen for 7 persons involved in metrology administration to get practical overview of administration in Member States. Those study tours will be focused on the structural policy of metrology and management needed to implement EU practices and regulations. After the study tours persons who have participated will disseminate the knowledge and experience in Albania.

2 study tours are foreseen for the management staff of General Directorate of Metrology and Calibration. The RTA will elaborate the training plan.

3.4.1.21 Short-term and long-term training of Albanian experts abroad (TF €261 000)

Training of Albanian experts working at reference measurement standards laboratories in order to get the practical overview and necessary knowledge at similar laboratories of National metrology institutes. Taking into account the specific and unique nature of such laboratories the hands-on trainings is expected to take place abroad. These training courses

will include establishment of a reference standard laboratory, development of traceability schemes, hands-on development of measurement procedures, measurement methods, quality management issues, evaluation of measurement uncertainty, etc. The education costs of the hosting institutions are included in this component.
The final training programme will be elaborated by the STEs for the specific measurement areas.

Component 3

3.4.1.22 Publication of informative materials (leaflets, newsletter, brochures) and translation of materials (TF €30 000)

Materials will be used in seminars and informative events addressed to metrology structures, reference institutions, business community, consumer protection associations etc. The translation of materials is considered important due to the working language with project partners. The translations will include legislation developed, the quality management system documentation, manual, management procedures technical procedures etc.

3.4.2 Contract 2: Supply contract for procurement of measurement standard equipment, auxiliary and related software, for the laboratories of national measurement standards in DPM (TF €2 000 000)

At present the measurement laboratories have very limited measurement capabilities due to the lack of appropriate standards and equipment. The financial calculations are based on the national strategy document and business plan attached to this fiche.

3.4.3 Contract 3. Supply contract for development and supply of necessary IT systems and equipment: servers, licenses (TF €400 000; €400 000 co-financing)

It will be necessary to develop IT systems to administer the measurement and measuring instruments related data (including data related to the implementation of metrology legislation according to EU requirements, including establishment of secure network connection between relevant regional centres. The IT system will link together the regional centres databases and enable selected access to the data related to national measurement standards.

The financial calculations are based on the National Strategy on metrology/Cost and benefits attached to this fiche.

3.5 Conditionality and sequencing:

It is assumed that the Government will remain committed to the EU reform process. It is also assumed that the DPM and other stakeholders remain fully committed and available for the implementation of project activities. The business community in particular must remain committed to increasing the quality and safety of products.

Sequencing:

Activities start in 1st quarter 2010
Preparing of drafts of secondary legislation ends in the 2nd quarter 2010;
Assessment and quality system and all standard measurement laboratories carried out at DPM ends in 2nd quarter 2010;
Implementation of corrective/preventive actions performed by the end of 3rd quarter 2010.
Training of the Albanian key experts on counterpart institutions of Member States ends in 2nd quarter 2011.

Preparation of publication, brochures and other materials, translations ends in 3rd quarter 2010.
Measuring standards and auxiliary devices and software supplied and installed by the 1st quarter 2011.

3.6 Linked activities

Within the CARDS 2003 project "Albania Metrology" (EUROPAID/85154/C/SV/AL) measuring equipment for establishment of national standards in mass, voltage, pressure and temperature was supplied. Nevertheless, the needs of industry and enforcement bodies are constantly increasing and could not be covered by the limited supply available through the EUROPAID/85154/C/SV/AL project.

The proposed activities are a continuity of CARDS 2003 due to the new requirements stemming from the new law on metrology, which requires meeting new standards accordingly. The new equipment will be distributed and improve the infrastructure for the all technical areas as mentioned in the project fiche;

Regarding the legal approximation process, CARDS 2003 project has assisted DPM in drafting the new law "On Metrology", as well as provided support in drafting the first draft of the Council of Ministers Decision "Recognition of National Measurement Standards" which is still in the consultation process in the Line Ministries. A key recommendation given in the final Report of CARDS 2003 was the further transposition and adoption of the secondary legislation; drawing upon the recommendations this project shall provide assistance for the proper implementation of the new law and the relevant by-laws focusing on MID, NAWI directives.

Other key recommendations given in the final report of CARDS 2003 are the establishment of a decentralized metrology system, consolidation of calibrations versus verification and development of metrology in chemistry. Following the National Strategy and Business Plan prepared under CARDS 2003 and the new Law on metrology, Albania shall have a decentralized system which needs to be strengthen and upgraded accordingly. Development of metrology in chemistry, by involving all stakeholders in the country is one of the examples that the national standards holder system will be developed through IPA 2008 in that direction. The activities and results planed for this area and electrical measurement area will not be delivered only to DPM, but to other institutions (Universities, research institutions, etc), part of the national metrology system.

Acknowledging the fact that the training activities undertaken by CARDS 2003 project were very useful especially in the field of mass, volume, length, electrical and temperature measurements, as well as gambling machines, these trainings were specifically related to a general introduction and to limited parts of the measurements areas. According to the new strategy, the staff of DPM will be increased which leads to the need that under IPA 2008 project, relevant trainings should be provided. Besides, building upon the experience of CARDS 2003 project, trainings need to be extended to more specific sub-fields of the measurement areas, and to a higher level of the technical expertise for these areas that already had trainings under CARDS 2003 project.

The World Bank project "Business Environment Reform and Institutional Strengthening", component **"**Strengthening the MSTQ system in Albania"**,** aims at strengthening the capacity of the General Directorate of Metrology and Calibration (DPM), including modernizing the metrology infrastructure and, in particular, construction of a modern metrology centre, to perform basic measurements and calibrations services.

As previously mentioned, the project will have a positive effect on all the other previous and future projects aimed at strengthening measurement capabilities as related to measurements by provision of recognised traceable measurements and it has no overlapping components with other projects.

The project proposed is a continuation of CARDS 2003 project and it is intended to improve its sustainability.

3.7 Lessons learned

The previous CARDS 2003 project in the metrology field, during which certain measurement equipment and training were supplied, showed a very positive effect of specialists trained both locally and abroad. A national strategy document and a new draft law on metrology are the key outcomes of that project, taking into account that CARDS 2003 project was designed without a proper strategy for the development of the sector.
In addition, the experience gained on the project EUROPAID/85154/C/SV/AL emphasized the need for further assistance in developing legislation, technical know how and good communication between stakeholders at national level. The experience of other institutions and countries has shown that implementation of training, and development of quality systems according to international standards and best practices in the sector laboratories should be closely linked to the supply of equipment, a link which was limited during the previous project. Good communication among the various partners is also a necessity for the smooth implementation of the project.

The final Report of CARDS 2003 project EUROPAID/85154/C/SV/AL noted that besides preparing a new law on metrology, there is still a need for expertise in order to develop the secondary legislation compatible with EU regulations. Due to a long tradition in legal metrology, there is still need for consultancy for consolidation of calibrations versus verifications. Establishing the metrology in chemistry according to the internationally accepted rules is another challenge for the Albanian metrology system.

4. Indicative Budget (amounts in €)

				SOURCES OF FUNDING								
			TOTAL EXP.RE	IPA COMMUNITY CONTRIBUTION		NATIONAL CONTRIBUTION					PRIVATE CONTRIBUTION	
ACTIVITIES	IB (1)	INV (1)	EUR (a)=(b)+(c)+(d)	EUR (b)	%(2)	Total EUR (c)=(x)+(y)+(z)	% (2)	Central EUR (x)	Regional/ Local EUR (y)	IFIs EUR (z)	EUR (d)	% (2)
Contract 1 Delivery of Twinning Programme			1.000.000	1.000.000	*100 %*							
Component 1.1 Technical Assistance (ST and LT Experts)	649.000	–	649.000	649.000	*64.9%*							
Component 1.2 Training and study tours	321.000	–	321.000	321.000	*32.1%*							
Component 1.3 Publications and translations	30.000	–	30.000	30.000	*3%*							
Contract 2 Supply of Measurement, Auxiliary and IT Equipment			2.000.000	2.000.000	*100%*							
Component 2.1 Supply of IT Equipment	-	2.000.000	2.000.000	2.000.000	*100%*							
Contract 3 Supply contract for development and supply of IT equipment including licenses			0			400.000	*100%*	*400.000*				
Component 3.1 Upgrade of IT database and equipment at 4 regional centres	–	400.000	400.000			400.000	100%					
TOTAL IB			1.000.000	1.000.000	*90%*							
TOTAL INV			2.000.000	2.000.000	*10%*							
TOTAL PROJECT			**3.400.000**	**3.000.000**	***100%***	**400.000**	**100%**	**400.000**				

NOTE: DO NOT MIX IB AND INV IN THE SAME ACTIVITY ROW. USE SEPARATE ROW

Amounts net of VAT

(1) In the Activity row use "X" to identify whether IB or INV

(2) Expressed in % of the **Total** Expenditure (column (a))

5. Indicative Implementation Schedule (periods broken down per quarter)

Contracts	Start of Tendering	Signature of contract	Project Completion
Contract 1.1 (Twinning Programme)	1st Quarter 2009	4th Quarter 2009	2nd Quarter 2011
Contract 1.2 (Supply of measuring equipment)	3rd Quarter 2010	4th Quarter 2010	2nd Quarter 2011
Contract 3 (Service contract for supply and delivery of IT equipment)	3rd Quarter 2010	4th Quarter 2010	2nd Quarter 2011

All projects should in principle be ready for tendering in the 1st quarter following the signature of the FA

6. Cross cutting issues (where applicable)

6.1 Equal Opportunities

The institution involved in the project execution will observe equal opportunity of men and women in its recruitment and human resources development. The beneficiary will also ensure equal access of men and women to the project activities and results.

6.2 Environment

NA.

6.3 Minorities

During the implementation of the project respect for minority rights within the Ministry of Justice will be guaranteed.

ANNEXES – to be divided in separate pages each of them (this is already done!)

1- **Log frame in Standard Format**
2- **Amounts contracted and Disbursed per Quarter over the full duration of Programme**
3- **Description of Institutional Framework**
4- **Reference to laws, regulations and strategic documents**
5- **Details per EU funded contract**

ANNEX 1: Logical framework matrix in standard format

LOGFRAME PLANNING MATRIX FOR Project Fiche	Programme name and number	
Upgrading and strengthening of national metrology infrastructure and achieving of international recognition	Contracting period expires Q1 2012	Disbursement period expires Q1 2013
	Total budget :	IPA budget: Total cost: 3.4 million Euro Technical assistance:1 000 000EUR Equipment Supply: 2 000 000 EUR Co fin: 400 000 EUR

Overall objective	**Objectively verifiable indicators**	**Sources of Verification**	
The overall objective is to facilitate the international trade through the increased quality of products produced in Albania, thus increasing of the export capacities.	Quality management system fully implemented and application for presentation submitted to EURAMET TC-Q, Number of accredited laboratories Number of regulations/legal acts adopted Number of calibration services provided to industry Number of testing and calibration laboratories traceable to DPM	• National macroeconomic figures , periodical and annual report from the Institute of Statistics • SAP report (trade sector) • EC annual progress report Reports of ministries responsible for trade, agriculture and finance Project reports Conference reports	
Project purpose	**Objectively verifiable indicators**	**Sources of Verification**	**Assumptions**
The purpose of this project is to fulfilling of the conditions for full membership in EURAMET, through strengthening and upgrading of metrological infrastructure and aligning of the Albanian metrology practices with these of EU members; increasing of technical competence of DPM;	Gaps in legislation eliminated. Progress report to present the quality management system at EURAMET TC Q submitted in 2010, 3 laboratories accredited by the end of	• EC annual progress report • Reports of ministry responsible for metrology • Project reports	Political support from the Government continued. Construction of the new metrological centre progresses

	2010 •	Conference reports Annual report of EURAMET Technical Committee for Quality Annual reports, Accreditation reports Official bulletin of Chamber of Commerce and Industry. Reports from certification bodies	accordingly Commitment of the business society to increase the quality of the products Commitment to align with the *acquis communautaire*
Results	**Objectively verifiable indicators**	**Sources of Verification**	**Assumptions**
• Process of legal approximation of MID, NAWI directives into the national regulations, completed – secondary legislation developed/revised, approved and validated. • Regulations on technical and metrological requirements of measuring instruments subject of legal control; on national reference measurement standards developed and adopted • Recommendations / proposals on organization of national metrology institute (Albanian NMI) developed • Training needs analyzed, material developed, training performed, certificates issued. • Metrology in chemistry established and functioning • Expanded technical capacities of calibration laboratories in the field of mass, temperature, electrical quantities, volume & flow, pressure, dimensional measurements (speed radar, tachometers) etc. • New measurement laboratories in the field of	National regulation published in OF (Official gazette) Number of secondary legal acts adopted and/or implemented. Number of calibrations per year Number of types of calibrations performed in that year Number of customers that used calibration services % coverage by DPM/ of metrology services in Albania Market share of DPM in calibrations in Albania Number of publications per year Average time per calibration (min, mean, max)	• Reports of ministry responsible for trade • Project reports • events reports • Interim reports, • DPM newsletter • DPM annual report • Official Journal • EC annual progress report • Official Annual reports, Accreditation reports Official bulletin of Chamber of Commerce and Industry. Reports from certification bodies	Necessary legal acts adopted by the relevant institutions

acoustics, humidity, time and frequency, electrical quantities, density, etc) are established and operational • Four regional Centres are having adequate capacities and are fully operational. • Metrological supervision structure (market surveillance in metrology) established and runs properly. • Training of technical staff in laboratories and in situ carried out (in Albania and in Member States' national metrology institutes). • Quality management system according to ISO 17025:2005, implemented and the documentation ready for presentation at the EURAMET Technical Committee of Quality. • Internal/external auditors and technical assessors according to ISO 17025 and ISO 17020 are trained • Action plan for the traceability routs of measurement areas prepared and implemented. • The International recognition achieved at least by three measurement areas. • Technical specifications for measurement equipment and IT software are developed. • Measurement standards, auxiliary equipment and related software for reference measurement standards laboratories and IT facilities are installed and operational.	Number of tests performed Number of types of products tested Number of customers that used DPM testing and analysis services % coverage by DPM of testing services in Albania Market share of DPM in testing and analysis in Albania Average time per test or analysis (min, mean, max)		
• **Activities**	**Means**	**Costs**	**Assumptions**
Contract 1. Twinning	Contract 1 Twining package 24 months	1 000 000 EUR	Staff available, committed and devoted to training The DPM is committed to the reform

1. MS Project Leader (Member States project leader (24 months, TF 30 000 EUR) Tasks: - Assists the RTA with project management; - Monitoring and guidance of the whole project - Provision of legal and technical advise and analysis - Development a project work plan, with a timetable for project implementation, encompassing all project components and activities, plus the provision of related skills development activities. **2. Resident Twinning Adviser (RTA)** **Tasks of RTA:** • Meetings with all institutions to ensure their awareness, commitment and participation in the project • Liaise with CARDS 2003 project staff in order to ensure the handover of tasks and responsibilities as well as a proper follow up of activities • Analyse the current situation and problems; • Assess the needs of the beneficiary and other project partners and decide how the project intends to meet them; • Evaluating and verifying the detailed plan of implementation of the measures for meeting the requirements and reaching the EURAMET membership, including investment plan and preparing specifications of necessary measurement equipment and related software. • Evaluating and verifying the action plan for implementation of *Aquis,* revision/development and proposals for the secondary legislation, including the WELMEC guides. • Evaluate the risks associated with the project and define the project activities accordingly; • Development and implementation of training programs with a special focus on training of trainers and technical assessors for calibration/testing laboratories according	MS Project leader : 2 working months over 24 consecutive months Resident Twining adviser: 24 consecutive months	TF 30 000 EUR TF 360 000 EUR	and to improve its capacities in order to respect the SAA requirements.

ISO 17025 in Albania and abroad; • Supporting the institutional building development of the DPM, especially with respect to the establishment of Albanian Metrology institute within DPM, its leading and coordinator role with the national metrology infrastructure, verifying the conformity with the standards requirement. • Developing an appropriate PR action, including the preparation of publications, brochures and other information materials for industry, institutions, businesses and consumers. **3. RTA assistant :** o Assisting of RTA o Arranging of training events o Organization of translation **4. Expert 1. (legislation development)** **Tasks:** **Legislation development** • Analysis, assessment/revision of the legal framework on metrology in Albania • Inputs on development of secondary legislation with special focus to adoption of MID and NAWI directives, internal procedures and verification procedures etc.; • Support to develop the necessary measures for implementation of legislation **Institutional and technical capacity building** **5. 13 short term experts : (results 1-12)** **Tasks:** • Assessment of the existing status of quality management system at DPM , • Developing an plan of corrective/ preventive actions, • Supporting the implementation of corrective/preventive actions and continual improvement • Supporting the preparation of documentation for	**RTA assistant:** 24 consecutive months **Expert 1** (legal expert): 21 working days over 24 consecutive months **Expert 2** (mass & density measurement area): 21 working days over 24 consecutive months **Expert 3** (thermometry & humidity measurement area) 10 working days over 24 consecutive months **Expert 4** (force measurement area) :	TF 36 000 EUR TF 20 800 EUR TF 20 800 EUR TF 10 400 EUR TF 10 400 EUR	

presentation of quality system at EURAMET Technical Committee of Quality. • If necessary provide trainings for DPM laboratories staff • Assessment of the length national measurement standards laboratories at DPM including of measurement standards, working conditions, traceability chain, working procedures, measurements methods, measurement uncertainty • Supporting the organization/participation in laboratory inter comparison / proficiency schemes • Supporting to develop the appropriate traceability routs, calibration procedures, validation of measurement methods, improve quality management system in the laboratory; and the necessary measures • Hands-on support for preparation of calibration and measurement capabilities (CMC's) and their submission to the EURAMET Technical Committee for revision. • Preparation of detailed technical specifications for the necessary additional measurement standards, auxiliary equipments and related software, for DPM national reference standards measurement laboratories, under the contract 2 (Lot X) • Analysis of the existing situation of metrology in chemistry in Albania • Coordination with the reference institutes in the field of health, hygiene, environment, food, etc) in Albania • Supporting the determination of the medium term strategy for establishing metrology in chemistry in Albania • Drafting of expert recommendation for the efficient set up of Metrology in Chemistry (including an action plan for immediate implementation) • Establishment of the IT network for communication of DPM with regional centres (software, development of a database, computers and relevant accessories) **6. Study tours**	10 working days over 24 consecutive months **Expert 5** (volume & flow measurement area): 21 working days over 24 consecutive months **Expert 6** (electrical quantities measurements): 10 working days over 24 consecutive months **Expert 7** (pressure measurement area) : 21 working days over 24 consecutive months **Expert 8** (length measurement area) : 21 working days over 24 consecutive months **Expert 9** (metrology in chemistry): 21 working days over 24 consecutive months **Expert 10** (acoustics): 10 working days over 24 consecutive months **Expert 11** (time and frequency) : 10 working days over 24 consecutive months **Expert 12** (quality management system) : 21 working days over 24 consecutive months **Expert 13 (IT development)** : 10 working days over 24 consecutive months Study tours	TF 20 800 EUR TF 10 400 EUR TF 20 800 EUR TF 20 800 EUR TF 20 800 EUR TF 10 400 EUR TF 10 400 EUR TF 20 800 EUR TF 10 400 EUR TF 30 000 EUR	

7. Trainings courses abroad	15 Albanian experts, Hosting institutions	TF 247 000 EUR	
8. Training events in Albania	Lecturers short term expert	TF 30 000 EUR	
9. Publication of leaflets, guides, translation of legal acts and quality documentation		TF 15 000 EUR	
10. Preparation of twining covenant		TF 15 000EUR	
11. Contingencies		TF 15 000 EUR\	
Contract nr. 2 Measurement standards, auxiliary equipment and related software and licenses supply. • Supply of measurement equipment for the laboratories of mass, pressure, humidity, thermometry, electricity, volume & flow, dimensional measurements, metrology in chemistry, mobile laboratory for legal metrology and inspection.	Supply	TF 2 000 000 EUR	
Contract nr.3 Service contract for Development and supply c necessary IT systems and equipment: servers, licenses (TF 40 000; 400 000 EUR co financing) •		TF 400 000 EUR	

Pre-conditions

ANNEX 2: Amounts (in €) Contracted and disbursed by quarter for the project

Contracted	**2010**				**2011**				**TOTAL**
	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	
Contract 1 Twining	200 000	200 000	200 000	100 000	100 000	100 000	100 000		1 000 000
Contract 2 Measurement equipment Supply					200 000	1 600 000	200 000		2 000 000
Cumulated	200 000	400 000	600 000	700 000	1 000 000	2 700 000	3 000 000		3 000 000
Disbursed									
Contract 1 Twining		100 000	100 000	200 000	200 000	200 000	100 000	100 000	1 000 000
Contract 2 Measurement equipment Supply						200 000	1 600 000	200 000	2 000 000
Cumulated		100 000	200 000	400 000	600 000	1 000 000	2 700 000	3 000 000	3 000 000

ANNEX 3

Description of Institutional Framework

Metrology is the science of measurements and is also an important state infrastructure at the same time. Three different forms of metrology exist:

- Scientific metrology (national measurement standards): provides reference values of SI measurement units at the highest technical level in the state and their dissemination to lower ranking standards. It is performed in the public interest and is therefore the responsibility of the Government;

- Legal metrology: provides traceability to SI and aims for accurate and reliable measurements in supporting quality of life (measuring instruments in consumer protection, health care, environmental protection, technical safety,…). It is performed in the public interest and is therefore the responsibility of the Government;
- Industrial metrology: provides traceability to SI for accurate measurements in industry and services (measuring instruments in technological processes, services). It is market oriented and is based on accreditation.

The national metrology system is the basis for adequate operation and development of all sectors of society (measurements in industrial production, measurements in trade, environmental monitoring, medical and technical diagnostic, testing activities, construction, navigation etc). In EU harmonisation processes, the national metrology system is the basis for implementation of almost 400 EU technical directives and more than 20,000 technical standards. The proposed project aims to support the General Directorate of Metrology and its structures at regional level.

The *General Directorate of Metrology* (DPM) operates under the Ministry of Economy, Trade and Energy and it carries out its functions pursuant to the Law no. 9875 date 14.02.2008 "On metrology" which replaces the Law no 8996 date 30.01.2003 "On legal units of measurements and control of measuring instruments (metrology)" and sub legal acts. DPM implements the metrology policy in Albania in all above mentioned categories of metrology.

Pursuant to the order of Prime Minister Nr. 167 date 2/10/2007 "On organisation and structure of DPM", DPM is organised as follows:

i) Department of Scientific and Industrial Metrology - ensuring traceability of measurements in the country to international levels via a system of national and reference standards; and providing technical support to the measurements of particular quantities carried out within the country.

The mission of the Scientific and Industrial metrology department is:

- to realize (create) the national measurement standards in accordance with national needs, making optimal use of the capacities and capabilities within the country
- To offer calibration services to producers and users of measuring instruments to be competitive in the internal and global market.

The following laboratories are established within DPM:

- Laboratory of dimensional measurements (1 expert);
- laboratory of Force, pressure, roughness (2 expert)
- laboratory of Mass measurements (2 experts)
- laboratory of Volume measurements (2 experts)
- laboratory of Temperature measurements (1 expert)
- Laboratory of Electrical measurement (2 experts).
- Laboratory for Testing of gambling machines (2 experts)

ii) Department of Legal metrology - Legal Metrology is an important and traditional function of the state. The main traditional activity of Legal Metrology in Albania is performed in the field of protecting consumers from incorrect measurements in the field of official and commercial transactions. The key activities are designing and building the national legal metrology system which provides for accurate and reliable measurements in the fields of:

- official and commercial transactions in goods and services
- health protection, environmental protection and general technical safety

Legal metrology is an important, horizontal, inter-sectoral and interdisciplinary activity. It involves various fields, such as protection of health, environmental protection, trade, agriculture and others activities of ministries or institutions.

In order to ensure a well-functioning legal metrology system, a close collaboration between individual ministries or institutions is required. The Albanian legal metrology system has to implement more than 15 EU Directives (new and old approach) and a considerable number of national regulations. With the new law on Metrology it is possible to set up (establish) and manage the national legal metrology system (infrastructure) in accordance with national needs and international (European) requirements.

The department of legal metrology is responsible for the operation and performance of four regional centres, in Tirana, Fieri, Korca and Lezha. The key activities of the regional centres are:

- verification of legally controlled measuring instruments;
- control of net quantity of pre-packaged products

To organize and to determine the locations of these regional centres it was necessary to take into consideration three main criteria

1-To have compact geographic extension

2 To have in general the same number of measuring instruments subject of legal control (as much as possible)

3- To have a appropriate road infrastructure

Also within the framework of the project with PTB an economic study was undertaken of these regions concerning the numbers and types of measuring instruments on legally controlled and prepacked products production

The study covers the current situation of economic development in these regions bearing in mind future development and especially the specialization of these regional centres according the different Module of New Approach Directives MID

This organisation was established in 2007; four regional centres were established following the reorganisation and transition of the legal metrology system from 12 branch offices. One of these four regional centres (Fieri) has been operational since 2006-07, and the second is likely (Korce) to be operational in 2008. Two others will be operational once the premises are established, measurement equipment is supplied and technical staff is trained.

iii) Department of Metrological Inspection – This is a newly established department with the responsibility to enforce the law on metrology and its related sub laws.

The new directorate of MS has started activities with 13 staff geographically distributed in Tirana, Fier, Korca and Lezha. This department closely cooperates with market surveillance authorities in the country, especially within the ministry of Economy, Trade and Energy.

iv) Department of administrative support: finance, administrative, human resources, public relations, services and maintenance.

The tasks and responsibilities of the General Directorate of Metrology and are defined by the law. It is responsible and has the ownership of national reference measurement standards. The measurement equipment that will be supplied under the project will be installed in the laboratories of General Directorate of Metrology which is responsible for ensuring the measurement traceability to the international measurement units (SI) international system of units.

These centres have to perform the duties of legal metrology but step by step have to offer calibration of equipment used by the directorate to perform verification of legally controlled measuring instruments and other subjects private or public which request a calibration service.

A number of institutions and economic operators (Chamber of Commerce, Research Institutes etc.) contribute directly to DPM or through the metrology council, where various ministries, research institutes, public and private bodies are represented.

DPM cooperates with other institutions to ensure the measurement traceability for specific measurement fields, where DPM has no capabilities.

Agreements with following institutions are currently active:

- Laboratory of electric measurements at the Faculty of Electrical Engineering at Tirana Polytechnic University ((AC/DC measurements);
- Electrical Power Corporation (Electrical energy);
- Institute of Nuclear Physics (dosimetry)

There are several institutions which perform various tests and chemical analysis in the field of food, water, environment, health hygiene etc. Such entities are designated as reference institutions by the law. Having an adequate infrastructure and technical competence these institutions have the laboratory potential to ensure measurement traceability in the field of metrology in chemistry according to internationally accepted standards.

ANNEX 4

Reference to laws, regulations and strategic documents:

Reference list of relevant laws and regulations:

- Law No.9875 date14.02.2008 " On metrology"
- Decision of Council of Ministers Nr.431,date 26.06.2003 "On legal units of measurements"
- Decision of Council of Ministers Nr.216,date 10.04.2004 "On organization and functioning of DPM"
- Order of Prime Minister "On approval of structure and organizational scheme of DPM
- Ordinance of Finance Ministry "On tariffs of permission and registration and payments of calibration and verification of measuring instruments and regulation of its application"
- Decision of Council of Ministers no. 410, date 21.06.2006 "On technical requirements and conformity assessment procedures of non-automatic weighting instruments", but not fully implemented

Reference to SAA, article 75:

The chapter on Approximation of Laws, Law Enforcement and Competition Rules includes the following section on standardization, metrology, accreditation and conformity assessment (article 75):

1. Albania shall take the necessary measures in order to gradually achieve conformity with Community technical regulations and European standardization, metrology, accreditation and conformity assessment procedures.
2. To this end, the Parties shall start at an early stage:
   - to promote the use of Community technical regulations, European standards and conformity assessment procedures
   - to provide assistance to fastening the development of quality infrastructure: standardization, metrology, accreditation and conformity assessment;
   - to promote Albania's participation in the work of organisations related to standards, conformity assessment, metrology and similar functions (e.g. CEN, CENELEC, ETSI, EA, WELMEC, EUROMET etc).
   - where appropriate, to the conclusion of European Conformity Assessment Protocols, once Albanian legislative framework and procedures area sufficiently aligned on that of the Community and appropriate expertise is available.

Reference to European Partnership 2007:

Under the European Standards – Internal market chapter, the medium term priorities are explicitly stated:

- Ensure administrative capacities to implement SAA and IA requirements in this area;
- Make further progress on transposing new and global approach and old approach directives;
- Ensure improved functioning of the bodies responsible for metrology and calibration taking into account EC best practices.

Reference to MIPD 2007-2009:

IPA will help Albania align with the Acquis in internal market. Emphasis will be placed on supporting the development of sectoral strategies and policies and a regulatory framework compatible with European Standards…

The following results are expected to be achieved by the end of the first IPA programming cycle:

- The legal framework for standards, metrology, accreditation will be in line with EU standards and best practices and the institutional capacity and professional expertise of the quality infrastructure institutions will be strengthened."

The ***EC Progress Report 2007*** noted limited progress on metrology. The national strategy on metrology for the period 2007-2015 has been drafted and need to be implemented. A new law on metrology has been prepared, but not yet adopted. Provisions of this new draft law should ensure division of the verification and certification functions of legal metrology from market surveillance activities.

Reference to National strategy on metrology system in Albania:

The existing Metrology System in Albania is not totally compatible with international and EU practices. However all the stakeholders realize this and there is a strong commitment to transform the existing system to one that is compliant with EU and WTO standards.

Since the current experience comes from old classical legal metrology, almost all staff needs coaching in industrial and scientific metrology. It may take some time to go from verification to calibration mentally. This is also mentioned in the CARDS Inception Report

Most of the existing equipment is old, and in some cases is missing. A major upgrade is necessary. Some new equipment was procured within the CARDS 2003 Programme and there will be some equipment to be purchased within the IPA Project. Many systems are used both for metrology and verification. This is allowable, provided that traceability is sustained according to metrological rules.

Traceability is established only in limited areas. Some laboratories use the traceability obtained from the manufacturer, some get their equipment calibrated by other metrology institutes, and rest have no traceability. The existing system is not up to international standards. Along with the investment and procurement programmes, the training of technical staff has to be addressed

Reference to Assessment Report carried out under the Regional CARDS 2006 Project "Quality Infrastructure":

To cope with highly demanding tasks to be performed by DPM as Albanian NMI in the future (i.e. EURAMET full membership), a change in the structure of DPM staff shall also be achieved. It is crucial for the overall performance of DPM as a national metrology institution to increase the qualifications of and the number of staff that are working on most demanding tasks. This relates to demanding calibrations, participation in EURAMET inter-comparisons and in quality system presentation, participation in other international research and other projects, as well as implementation of different international regulations, such as EU directives, WELMEC and OIML guides, ISO and other international standards. Seminars for industry, test and measurement laboratories, inspectors and other interested parties will also be organised to increase the quality of measurements in the country. This does not necessarily mean an increase in the overall number of DPM personnel.

The main development needs of Metrology in Albania in the immediate future are:

- Metrological equipment:

to upgrade measurement standards and other metrological equipment as needed to support calibration and verification activities of measuring instruments in Albania and successful implementation of EU directives;

- Training of personnel:

to prepare laboratories for accreditation;

- Measurement traceability:

to find solutions for self sustainable approach in assuring regular calibrations of Albanian national/reference measurement standards,

- Participation in international comparisons and/or proficiency testing by achieving good results;
- Transition from legal to industrial metrology (increase in industrial metrology calibrations).
- Preparation of EU harmonised secondary legislation.
- Introducing new important areas (metrology in chemistry etc);
- Developments in quality management system (scientific and industrial metrology,

legal metrology, metrological surveillance).

ANNEX 5- Details per EU funded contract:

It is planned that under the twinning arrangement support will be provided by one Resident Twining Adviser (RTA), and 13 short term experts. All activities and reporting will be carried out in English language. The translation cost of materials will be covered by the project budget.

Resident Twining Adviser (RTA) for 24 consecutive working months

Profile of the expert:

- Very good knowledge of and demonstrated working experience in the establishment and operation of metrology laboratory in a National Metrology Institute, member of EURAMET and signatory of CIPM MRA, matured in other countries of the region, and/or EU countries, including EU accession countries;
- thorough knowledge about the whole International and regional metrology infrastructure;
- University degree
- strong skills in communication, report writing and presentations;
- fluent written and spoken English;
- capacity to establish efficient working relations and good communication with the key project beneficiaries and counterpart institutions;
- excellent technical capabilities in metrology;
- demonstrable experience in adoption of New and Old Approach directives on metrology into national legislation.

The RTA will be located at The General Directorate of Metrology and Calibration and over the 24 month period will be responsible for providing support in the following key areas of activities:

- Meetings with all institutions to ensure their awareness, commitment and participation in the project

- Liaise with CARDS 2003 project staff in order to ensure the handover of tasks and responsibilities as well as a proper follow up of activities
- Analyse the current situation and problems;

Member States Team Leader :

Profile:

- at least 5 years experience in either a national metrology institute or an European metrology organization and, during that period, he/she must have held a senior management position for at least 5 years;
- university degree
- strong skills in communication, report writing and presentations;
- fluent written and spoken English;
- capacity to establish efficient working relations and good communication with the key project beneficiaries and counterpart institutions;
- excellent English (written and spoken)
- computer literacy

Tasks:

In consultation with the beneficiary and other stakeholders and in liaison with other donors, the Team Leader and key experts will be responsible of the above activities, divided into following components:

- legal expertise in transposition of EU directives and in their enforcement;
- capacity building for the General Directorate of Metrology and Calibration;
- technical training
- public awareness.
- measurement equipment supply

Short –term experts

It is planed to mobilise 13 short term experts of various fields of expertise in metrology area. The final number of short term experts will be decided by the RTA within the first quarter.

Profile:

- At least 5 years professional experience working at a national metrology institute
- at least 5 years experience in participating in inter - laboratory comparisons in a regional metrology organization;
- detailed knowledge of the requirements for full (national) membership of Meter Convention (CIPM Mutual Recognition Agreement), EURAMET (European Association of National Metrology Institutes);
- university degree
- good communication skills ;
- fluent written and spoken English;
- capacity to establish efficient working relations and good communication with the key project beneficiaries and counterpart institutions;
- computer literacy

Short-term experts' team operating will provide expertise and perform the following activities:

- Review of the draft legislation and submission of recommendations for the other (parts of) legislation
- Pre-assessment of the quality system of the DPM
- Following the identified training needs, development and delivery of training to staff of General Directorate of Metrology and Calibration and related laboratories, covering but not limited to uncertainty calculation, application of quality systems, organisation of inter laboratory comparisons and evaluation of their results, validation of measurement procedures/methods, etc.
- Performing training on site
- Upgrading of calibration and test methods used in laboratories
- Preparation of detailed technical specification for measurement equipment

The project implementation will be supervised by the Steering Committee (SC). Steering Committee will be chaired by the Deputy Minister of ministry in charge of metrology. The SC will meet each quarter.

The project SC shall consist of the following members:

- Project Leader of Member State
- RTA
- General Director of General Directorate of Metrology and Calibration
- Representative Of Ministry of Economy, Trade and Energetic, in charge of Quality infrastructure policy
- Representative of national accreditation body
- Representative of National Standardization body

- Representatives from reference designated institutions in the field of food, environment and health

The list of measurement standards to be supplied under the Contract 2 is attached. The final list of measurement standards, auxiliary equipment and related IT and software will be determined in cooperation with the short term experts of the specific measurement areas after the laboratory assessments.

ANNEX 5/b List of measurement standards, auxiliary equipment and related IT and software

Units	Concept	Main characteristics	Price per unit	total
	HARDWARE			
1	**Mass measurement laboratory**			**290 000**
1	Mass comparator, automated measurements (four plates)	10 kg d=1 mg	200 000	200 000
1	Set of weights	range: from 1 mg to 20 kg accuracy class : E1	40 000	40 000
	Measurement equipment for solid materials density			50 000
II	**Pressure measurement laboratory**			**80 000**
	Pneumatic deadweight tester, with a bell jar for absolute mode pressure generation (complete system with two or three piston cylinder assemblies, variable volume for adjustment of floating position, vacuum pump with pipework and valve system, vacuum gauge, spare parts and seals kit, adaptor kit for connection of DUT and calibration software	0.2 bar to 30 bar (absolute mode and gauge mode pressure) 0.015 % of generated value (in the range from 10% to 100% of individual piston measurement range)		

	Pneumatic deadweight tester, with a bell jar for absolute mode pressure generation (complete system with two or three piston cylinder assemblies, variable volume for adjustment of floating position, vacuum pump with pipework and valve system, vacuum gauge, spare parts and seals kit, adaptor kit for connection of DUT and calibration software	1bar to 70 bar (absolute mode and gauge mode pressure) 0.015 % of generated value (in the range from 10% to 100% of individual piston measurement range)		
	Pneumatic deadweight tester, with a bell jar for absolute mode pressure generation (complete system with two or three piston cylinder assemblies, variable volume for adjustment of floating position, vacuum pump with pipework and valve system, vacuum gauge, spare parts and seals kit, adaptor kit for connection of DUT and calibration software	1bar to 140 bar (absolute mode and gauge mode pressure) Accuarcy 0.015 % of generated value (in the range from 10% to 100% of individual piston measurement range)		
	Gas bottle with nitrogen gas 99.99% purity, 200 bar			
	pressure regulating valve, range to 100 bar, particle filter and flexible high pressure tubing (l=2m, 100 bar minimum working pressure)			
	two channel handheld thermometer with temperature probes	10 °C to 40 °C, uncertainty , 0.1 ^{o}C		
	Pneumatic portable pressure calibrator with built in pressure	-0.85 bar to 750 bar Four sensors to be		

	generator, fine pressure control device, rechargeable battery pack, energizing and measurement of pressure transducers with voltage or current electrical output, data storage ability and RS232 or USB computer interface, calibration management software, removable dirt/moisture trap, with G1/8 female pressure port set of accessories consisting of: high pressure flexible hose rated to100 bar minimum and 0.5m long, terminated with 1/4 BSP connections and adapters for1/8, 3/8, 1/4, 1/2 and metric M20, M14 NPT/BSP/male/female and metric M20, M14 connections, seals kit Liquid/liquid media separator range to 250 bar Liquid/liquid media separator range to 700 bar	connected; Accuracy ≤ 0.01 Uncertainty: 0.01 % of full scale		
III	**Thermometry laboratory**			**115 000**
1	liquid (oil DC 210H) bath, depth at least 40 cm, RS 232 or 485 interface	Measurement range 90 °C to 300 °C, uncertainty ±0,02 °C	10 000	10 000
1	liquid bath (water) with window, depth at least 40 cm, RS 232 or 485 interface	Range : 20 to 90^0C, uncertainty ±0,02 °C	10 000	10 000
1	high temperature furnace, length at least 30 cm, RS232 or 485 interface	Range: (range 300 ^{0}C – 600^0C, Uncertainty ±0,1 °C at 300 °C	15 000	15 000
1	zones furnace, RS232 or 485 interface (range 300 ^{0}C –to 1200 °C)	From 600^0C to 900 °C), uncertainty: ±0,1 °C	20 000	20 000
1	high temperature horizontal furnace	range 900^0C –1200^0C,	20 000	20 000

	, length at least 30 cm, RS232 or 485 interface	Uncertainty ±0,1 °C		
3	Apparatus for maintenance of water triple point		10 000	10 000
3	3 long stem platinum resistance thermometer (PRT) metal sheathed, calibrated by comparison	-80 °C to 420 °C Uncertainty: ±0,01 °C	2 000	6 000
2 **1**	thermocouples (type R or S), calibrated by comparison, length approx. 45 cm	0 °C to 1600 °C Uncertainty ±1 °C up to 1000 °C, ±2 °C above 1000 °C	2 000	6 000
1	loggers for monitoring temperature and humidity with USB interface and software	-20 °C to 70 °C; 2% r.h. to 98% r.h.	1 500	3 000
1	scanner for thermocouples and PRTs with GPIB interface		3 000	3 000
1	10-channel scanner card for thermocouples		2 000	2 000
2	10-channel scanner card for PRTs		2 000	2 000
	PC processor 4 GHz, hard disc 320 GB, RAM 2 GB, USB interface 4x, RS 232 interface, monitor 19', USB to GPIB interface card, GPIB cable		3 000	3 000
	licences for software which enables graphical programming, high-level			

	development tools, built-in measurement and analysis functions, multiplatform and embedded devices Laboratory stands (6 pcs.) and clamps (12 pcs		2 000 1000	4 000 1000
IV	**Humidity**			**40 000**
1	climatic chamber with window and side opening, RS232 or 485 interface	40 °C to 180 °C; 15% r.h. to 95% r.h. at 20 °C to 90 °C; from 30% r.h. to 95% r.h. at 5 °C	26 000	26 000
1	calibrated dew point meter, resolution at least 0,1 °C, GPIB interface	30 °C to 60 °C (dew point)	10 000	10 000
2	software for calibration compatible with all measuring instruments as specified for temperature and humidity, consisting of dedicated database, capabilities: generation of orders, data acquisition, data processing, generation of calibration certificates		2 000	4 000
V	**Electrical quantities**			**295 000**
1	Calibrated **Multimeter**, 8 ½ digit, ratio measurements, GPIB compatible	Measurement range: DC voltage: 0V to ±1000 AC voltage: 2mV to 1000V DC current: 0 to ±20A .AC current: 2μA to 20A . Resistance: 0Ω to 20GΩ Required uncertainty: ±7,5μΩ/Ω.	20 000	20 000
4	Calibrated set of standard Resistances (4 pieces) of range 1 ohm	Uncertainty : 1 ppm	2 500	10 000

1	Automatic direct current comparator bridge, calibrated with 20 channels scanner , 488 IOTech 488 interface card me iEE488, Connecting cables	Range : from 1 mohm to 10Mohms Error: 0.2 to 7 ppm	80 000	80 000
1	Oil bath, automated for the maintenance of standard resistors	Temp range: from 0^0C to 60^0C , with ±0.001^{o}C	10 000	10 000
1	Power supply	U= 0to 6.5 V ; I= 0 to 100 amp	5 000	5 000
11	Set of resistors	Range : from 0.001 ohm to 10 M Ohm	25 000	25 000
1	Reference Indicating thermometer	Range – 10 to 200^{0}C , res. 0.001	2 000	2 000
1	Air bath for resistance calibration with automatic temperature regulation	Temp range: from 0^0C to 60^0C , with ±0.001^{o}C	10 000	10 000
1	Null indicator, with 19 measurement ranges , connecting cables	Output uncertainty 0.2 ppm and 0.5 ppm	5 000	5 000
1	Reference divider, divider output 10:1 and 100:1		25 000	25 000
1	Automatic Test system with source, reference standard and software for testing of electricity meters of class 0.2; 0.5		100 000	100 000
1	PC processor 4 GHz, hard disc 320 GB, RAM 2 GB, USB interface 4x, RS 232 interface, monitor 19', USB		3 000	3000

	to GPIB interface card, GPIB cable			
VI	**Volume &Flow measurements laboratory**			**150 000**
1	**Set of volume standards (calibrated)** **Material: Stainless steel** **Measurement** range 5 l Measurement range: 10 l Measurement range: 100 l Measurement range: 200 l	Required uncertainty: 0,02%	50 000	50 000
1	**Set of volumetric working standards of :** Measurement range 5 l Measurement range: 10 l Measurement range: 20 l Measurement range: 50 l Measurement range: 100 l Measurement range: 200 l	Required uncertainty: 0,1%	30 000	45 000
1	Trailer for the set of working standards 5 l,10l, 20l, 50 l and 100 l and 200 l volume standard		5 000	5 000
1	2 Sets of standard volumetric vessels Made from borosilicate glass , Class A (according OIML R 14)	Range: 10 ml to 2 l	10 000	10 000
1	Measuring equipments for calibration of vertical cylindrical tanks by reference optical method (ISO 7507-2)		40 000	40 000

VII	**Length measurement laboratory**			**160 000**
1	Vertical short gage block comparator Short gage blocks (up to 100 mm)	Accuracy : class 0		100 000
1	Measurement system for verification of speed meters (radars)			60 000
VIII	**Force and related measurement laboratory**			**60 000**
1	**Set of ten weights** with hanging rod for calibration of force measuring instruments Measurement range: 20 N – 200 N Required uncertainty: 0,2 %		3000	3000
1	**Set of ten weights** with hanging rod for calibration of force measuring instruments Measurement range: 50 N – 500 N Required uncertainty: 0,2 %		3000	3000
1	Calibrated[1] **force transducer** with adoption parts for tension and compression loading; sensitivity 2mV/V Measurement range: 50 N – 500 N Required uncertainty: ± 0,10 % ; class 0.5 (EN ISO 376)		9000	9000
1	Calibrated[1] **force transducer** with adoption parts for tension and compression loading; sensitivity 2mV/V Measurement range: 100 N–1000 N Required uncertainty: 0,10 % ; class 0.5		9000	9000

	(EN ISO 376)			
1	Calibrated[1] **force transducer** with adoption parts for tension and compression loading; sensitivity 2mV/V Measurement range: 200 N–2000 N Required uncertainty: 0,10 % ; class 0.5 (EN ISO 376)		9000	9000
1	Calibrated **force transducer** with adoption parts for tension and compression loading; sensitivity 2mV/V Measurement range: 1 kN–10 kN Required uncertainty: 0,10 % ; class 0.5 (EN ISO 376)		9000	9000
1	Calibrated **force transducer** with adaption parts for tension and compression loading; sensitivity 2mV/V Measurement range: 2 kN – 20 kN Required uncertainty: 0,10 % ; class 0.5 (EN ISO 376)		9000	9000
1	Calibrated **force transducer** with adaption parts for tension and compression loading; sensitivity 2mV/V Measurement range: 20 kN–200 kN Required uncertainty: 0,10 % ; class 0.5 (EN ISO 376)		9000	9000
IX	**Acoustic measurement laboratory**			**70 000**

	Measurement equipment for calibration of Sound level meters			00 000
X	**Time and frequency measurement laboratory**			**70 000**
	Secondary frequency meter			70 000
XI	**Metrology in Chemistry**			**100 000**
	pH meter measurement Verification system of breath analysers			40 000 60 000
	Legal metrology			**570 000**
 1 **21** **1** **1**	Measurement system -Big track with crane for checking of dig balances up to 60 ton - set of reference weights of 5 kg, 10, kg, 20 kg, 100 kg , 200 kg, 250 kg, 500 kg and 1000 kg accuracy class M1, calibrated and traceable to SI. Stationary measurement system for verification of taximeters Mobile system for the verification of flow meters of mobile and storage tanks comprising: Volumetric reference standard , 1000 l with accuracy 0.02 % working standard flow meter, accuracy 0.1 % auxiliary connecting devices Transportation vehicle			90 000 60 000 350 000

2	Mobile laboratory equipped with measuring devices for the control of net quantity pre-packaged products		35 000	70 000