

STANDARD SUMMARY PROJECT FICHE

Project Number 2003.004-341.03.03

1. Basic Information

Objective 3 - Education, Training and Research

1.1 CRIS Number 2003.004-341.03.03

1.2 Title Improving measurement infrastructure in mass, length and temperature fields in Lithuania with regard to the EU requirements and preparation for the smooth transposition of the forthcoming EU legislation in legal metrology field

1.3 Sector Internal Market

1.4 Location State metrology service under the Ministry of Environment, Algirdo str. 31, 2006 Vilnius, Lithuania

2. Objectives

2.1 Overall objectives:

The overall objective of this **1.60 MEUR** project, of which **0.23 MEUR** is provided from national co-financing is to transpose and implement existing EU legislation and improve measurement infrastructure in Lithuania with regard to the relevant *Acquis* requirements in the fields of mass, length and temperature measurements, as well as to submit proposals regarding the forth-coming EU legislation in legal metrology field.

2.2 Project purposes

- Completion of the process of legal approximation by preparation of secondary legislation, enforcement guidelines and calibration procedures covering Sectoral Approach Directives (i.e. 71/317/EEC and 74/148 on weights, 75/410/EEC on totalising weighing machines, 78/1031/EEC on automatic check-weighing and weight grading machines, 90/384/EC on non-automatic weighing instruments, 73/362/EEC on material measures of length and related Commission Recommendation of 20 Dec 2001 on the protection of the public against exposure to radon in drinking water supplies, Commission Directive 2002/69/EC and others).
- Traceability of measurements improved
- Calibration laboratories for weights OIML class E1 and OIML class E2 and material length measures established and accredited
- Calibration laboratory for calibration of non automatic weighing instruments of class I established and accredited
- Testing and calibration infrastructure improved to achieve the existing requirements
- Strengthened co-operation between public and private sector actors and research institutes.

2.3 Accession Partnership and NPAA priority

The Accession Partnership 2001 defines the need for the following action: *reinforce the State Metrology Service and improve operational capacities and know-how of the*

accredited calibration laboratories; strengthen co-operation between the institutions involved in market surveillance activities.

The NPAA refers to the following priorities in metrology field:

3.1-S18 Strengthen State metrology service: develop and maintain state measurement standards, ensure calibration of measuring instruments, ensure implementation of pre-package control directives and regular monitoring of notified bodies.

3.1-D9 Develop new and update the already existing general verification methods of measuring instruments.

3. Description

3.1 Background and justification

Around 40% of the European Union directives are related to measurements by establishing essential requirements for measuring instruments, measurement methods or various materials in practically every sector (ref.: 98/83/EC on Drinking Water, Commission Directive 2001/79/EC on assessment of additives in animal nutrition, Commission Recommendation of 20 Dec 2001 on the protection of the public against exposure to radon in drinking water supplies etc.). The Commission recognised that value of the products traded by use of measurements could amount to 10% of GDP.

As a part of it, weighing, volume and length measurements are very widespread in imposing tariffs, tax collection, commercial transactions by weight and volume (determination of density), production of reference materials in chemistry, dosage of medicinal products, fertilizers and so on. Direct application of weighing is a primary measure in measuring exports-imports in the places like Klaipeda harbour, border control posts equipped with weighing instruments, railway stations (according to statistical data, transportation of all goods in Lithuania increased by 6 mln. tons in 2001 comparing to 2000), or postage services that calculate service fees basing on the weight of the parcel. As related to law enforcement sector, there are minimum requirements set for the separation of administrative and legal cases basing on the weight of illegal drugs. In customs, checking of the actual weight of a lorry and comparing it to the calculated one according to the documents is one of the indicators in fight against smuggling. The only method of calculating taxes in trade of LPG gases or other flammable gases is based solely on weighing, as well as the calibration of railroad and road tanks for transportation of oil and oil products. Furthermore, in cases of production of medicinal products (pills, mixtures etc.) as well as prescribing treatment to patients, weighing is crucial. Despite the all said, the widest application of mass, length and other measurements is in production of construction materials, the use of which has recently increased. As well, length measurements are important in construction sector (height or width of building may differ in different parts of it if measurements performed by different unchecked instruments), geodetic measurements, agriculture (by establishing property rights over one or another piece of land), and even in law enforcement (calibration of speed measuring devices is based on the known length). Non-contact temperature measurements (mostly IR-infrared) are widely applied in medical diagnostics equipment, burning of waste,

industry using high temperatures and direct flames, when contact thermometers would melt or break down due to high temperatures and direct impact of gaseous corrosive materials. There is already a number of laws, secondary legislation acts, measurement procedures existing that rely upon correct measuring and even more is expected to be adopted in future (like the New Approach directive on measuring instruments).

Presently, nearly 18000 customers have approached accredited calibration laboratories per year for services in mass field only, and this is an increase comparing to 2001 with 16800 services provided. Similar situation is in the other fields and every year there are new types of measuring instruments that are used in health care, safety, banking, telecommunications, construction materials and other sectors introduced in Lithuania and, therefore, new services have to be developed.

The European Commission positively evaluated the progress Lithuania made in the area of free movement of goods in the Regular Report 2002. Nevertheless, the Commission noted “In order to complete preparations for membership, Lithuania's efforts now need to focus on completing alignment in the fields of motor vehicles, pre-packaging, electro-medical equipment in human/veterinary medicine, pressure vessels including aerosols dispensers, methods of inspection, seamless gas cylinders, and with regard to certain directives related to legal metrology and cableway installations.”

Regarding legal metrology field, the Commission particularly emphasized that some progress has been made in transposing EU directives, improving calibration equipment and in strengthening operational capacities and know-how.

Unfortunately, in 1999 several Lithuanian laboratories participated in international interlaboratory comparisons in mass and length with rather negative results. Due to the fact that the data have been published only in 2000, there was little possibility to take appropriate measures immediately. Nevertheless, in 2001-2002 in mass, length and other related metrology fields nearly 200,000 EUR were invested.

Presently, there is a number of laboratories working in chemistry, ionising radiation, biochemistry, medical, food and veterinary fields that are the main users of the top level calibration and certification services of calibration and testing laboratories in Lithuania. The main challenge these laboratories face is that the need for far more accurate than the previous measurements in mass field is continuously increasing due to

- A) imposition of stricter requirements (like $40 \mu\text{g}/\text{m}^3$ of ozone in ambient air no minimum requirement for certain hazardous substances in foodstuff) in relation to transposition of EU legislation,
- B) recent improvements especially in mass measuring equipment (the up-to-date mass comparators now have built-in reference E2 class weights that is presently the top level in Lithuanian calibration laboratories),
- C) lack of modern equipment in accredited calibration laboratories, especially for the calibration of measuring instruments for remote use due to safety reasons (explosive atmospheres) or practical reasons (built-in instruments-autoclaves),

- D) lack of experienced staff in Lithuanian calibration laboratories who could transfer certain know how to the recently refurbished laboratories in industry, conformity assessment and research sectors,
- E) non-transportability of high quality laboratory measuring equipment – very often once installed it cannot be moved,
- F) costly and time-consuming services if contracted from distant laboratories (transportation, insurance, fees, expensive equipment, communication problems etc.),
- G) facilitated application of quality management systems according to ISO 9000, ISO 17025, ISO 14000 series of international standards, principles of good laboratory practice (GLP) and other documents.

Strengthening of measurement infrastructure in the selected fields will ensure sustainability of the LI 9615 project (Technical Assistance, ref.: 3.2 Linked activities) and LI 9701 project (Supply of equipment, ref.: 3.2 Linked activities) on the development of metrological infrastructure and the laboratories will be capable of coping with the sophisticated requirements of the industry that works to high quality standards. Furthermore, it will have a positive effect on all the other previous and future projects aimed at strengthening measurement capabilities as related to mass, volume, length and temperature measurements.

In 2002 Lithuania has already acquired some equipment (one mass comparator for a range from 1 to 6 g was bought from EU located manufacturer at amount of 30 kEUR) and two laboratories in Lithuania invested in improving environment conditions. The mass measuring facility established during the project will also serve as a national standard, as indicated in the resolution of the Government of Lithuania as of 27 May 1997.

3.2 Linked activities

Within Phare project LIT 9615 “Support to the establishment of a national metrology system in conformity with EC requirements” a gaps and needs analysis was performed, and a laboratory for calibration of F1 class of weights accredited. Within the Phare LI 9701.01.04 “Standards Translation/Information Facilities” certain measuring equipment in electricity, temperature, frequency, length, volume and mass fields was supplied. The project proposed is a continuation of these projects and is intended to improve their sustainability.

Within the Phare LI 0003-01 “Strengthening administrative and technical capacities to promote the free movement of goods”, measuring equipment for establishment of national standards in flowrate, voltage, resistance and extension of capabilities of national standards of temperature (by contact method) and time/frequency is going to be supplied. Nevertheless, the needs of industry and enforcement bodies are constantly increasing and could not be covered by the supply during through the LI 0003-01 project. For example, no equipment for calibration of temperature measuring instruments by non-contact method was acquired.

As it was aforementioned, it 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 for various institutions and companies and it has no overlapping components with other projects as it is aimed at proper maintenance of lower accuracy measurement infrastructures irrespectively of their status (governmental, semi public or private bodies).

3.3 Results

- Process of legal approximation in legal metrology field completed– secondary legislation and verification procedures developed/revised and adopted.
- Recommendations and plans for the transposition and implementation of the forthcoming legislation developed.
- Traceability of measurements in mass, length and temperature fields down to the service sector, industry and other customers ensured.
- Supported and facilitated application of quality systems in industry and service sectors.
- Scope of accreditation in the laboratories widened.
- Recommendations and plans for an improved organisation of national metrology institute developed.
- Recommendations on the training programmes of metrologists submitted, new subjects introduced if necessary.
- Internal and external auditors according to the ISO 17025, EN 45004 in respective fields trained.
- Computer/information system for the record and control of environment conditions as well as for calibration of weights designed and developed,
- Staff of laboratories trained (approximately 60 persons in Lithuania and 12 in European Union national metrology institutes or accredited calibration laboratories),
- Study on training needs performed, training scheme designed, material prepared, training performed, information disseminated, industry, research institutes and other interested bodies aware of improved or developed calibration capacities
- 2 interlaboratory comparisons run,
- Necessary measurement equipment supplied, installed and operational.

3.4 Activities

The Project will be implemented through one Twinning Arrangement, one Service and one Supply components.

3.4.1 Twining:

Guaranteed results/expected outputs

- State metrology service reinforced and capable of carrying supervision of notified bodies in line with the EU approach.
- Recommendations and plans for an improved organisation of national metrology institute developed.

- Secondary legislation acts prepared or revised, proposals regarding new legislation developed.
- Requirements of international standards and other documents in the sector implemented and calibration laboratories ready to be accredited.
- Analysis of training and education systems, development of training schemes and provision of training for the staff of relevant laboratories, control bodies and other related institutions, including industry and enforcement agencies.
- Guide on uncertainty of measurements in Lithuanian developed and printed.
- Traceability of measurements in the selected fields improved.
- Interlaboratory comparisons' plans established and operational.
- Detailed technical specifications for the Service and Supply component prepared.

Scope of the twinning (tasks of the PAA)

- An 18-months PAA, having 5 years experience in metrology field, providing general management and institutional support in metrology, plus responsibility for overall management of the Project. The expert will be located at the State metrology service. PAA and short and medium term experts will contribute on the following matters on the following items in particular:
 - Revision of existing legislation in the sector (gap analysis) and development of proposals regarding development of new calibration and testing methods,
 - Revision of existing measurement capabilities in Lithuania and proposals on improvement of existing or establishment of new fields of measurements (magnetic fields, torque etc.)
 - Elaboration of an action plan for the enhancement of public awareness on the running of the project and its implementation
 - Promotion of traceability of measurements in the selected fields within the public and private sectors, especially through the national conferences on measurements,
 - Development and implementation of a training programme, with a particular focus on the training of the future trainers and experts for accreditation, auditors of ISO 17025 with relevance to high level of measurements and EN 45004 as well as notified bodies, the training of professional and social partners, ensuring close relations with European partners.
 - Informing the local industry and trade as well as other interested bodies on the new requirements to be established by the New Approach directive on measuring instruments, which should be adopted in the end of 2003,
 - Development of training material, preparation, translation and provision of documentation.
 - Preparation and implementation of interlaboratory comparisons in relevant fields.

Profile of PAA

PAA should have the optimal combination of the following requirements:

Fluent written and spoken English, sound knowledge and at least 5 years experience in metrology, previous experience working in similar projects. Experience of technical assessor for an accreditation body would be an advantage.

PAA should be a good communicator and motivator, patient, and good organiser.
PAA will be supported by a team of short and medium term experts.

Short and medium term experts team

Short and medium term experts' team operating will provide expertise for a total of 11 man/months. The following activities are foreseen:

- Investigation of the existing legislation on metrology to produce a set of proposals to make necessary amendments or development of new legislation
- Proposals on adoption of the national legislation to correspond with the obligations under the community legislation
- Following the identified training needs, development and delivery of new training programs to staff of State metrology service and related calibration laboratories, universities, covering but not limited to uncertainty calculation, application of quality systems, organisation of interlaboratory comparisons and evaluation of their results, validation of measurement procedures, and validation of software.
- Evaluation of existing capabilities of calibration laboratories in the relevant fields
- Up-grading of calibration and testing methods used in laboratories
- Up-grading of laboratories
- Preparation of detailed technical specification for equipment

3.4.2 Services

State metrology service will require technical support for the development and implementation of controlling-computing software including provision of training and manuals in Lithuanian.

3.4.3 Supply

Based on the technical specifications prepared by the Twinning part of the project, equipment will be procured. Preliminary equipment list is provided in the Annex 4.

3.5 Lessons learned

Previous Phare projects in metrology field (respectively, LI 9615 and LI9701), during which certain measuring equipment and training were supplied showed a very positive effect of specialists to be trained both locally and abroad.

Besides, experience gained in the project LI 0003-01 emphasized on the need for good communication and exact planning to provide necessary documents or data timely. Therefore, basic technical characteristics on the equipment to be supplied was developed and attached in the annex 4. Development of a tender dossier will start well before the Twinning part starts.

The experience of other institutions and countries has shown that implementation of training, of quality systems according to international standards and best practice in the sector laboratories should be indivisible from the supply of equipment.

In addition, experience of Lithuania and other countries shows that unreasonable reduction or increasing of number of Lots is not an acceptable solution.

4 Institutional Framework

State metrology service (VMT) under the Ministry of Environment is authorised by the Government of Lithuania to carry out metrology policy, ensure uniformity of measurements, to carry out other scientific, legal and administrative activities. It is also a founder of 5 State Companies – Metrology Centres performing calibration and verification of measuring instruments with a personnel amounting to three hundred people. Furthermore, it supervises activities of 3 national standards laboratories (Lithuanian Energy Institute, Semiconductor Physics Institute and SC Vilnius metrology centre). As well, it supervises activities of the laboratories, authorised to perform verification of measuring instruments (presently 26 authorised laboratories). VMT has recently been strengthened and now together with Metrology centres and other directly related institutions, more than three hundred people are working in the national metrology infrastructure.

A number of institutions and economic operators (Association of Manufacturers, Association of Calibration Laboratories, Research Institutes etc.) are contributing directly to VMT or through Lithuanian metrology council, where various ministries, research institutes, public and private bodies are represented.

To facilitate smooth running of the project the Steering Committee chaired by the Director of State Metrology Service will be set up. It will involve representatives of interested bodies (mostly out of the listed above).

5 Detailed Budget (in M€)

Project Components	Investment Support	Institution Building	Total Phare (=I+IB)	National Cofinancing	IFI	TOTAL
Twinning		0.71	0.71			0.71
Supplies	0.57		0.57	0.20		0.77
TA	0.09		0.09	0.03		0.12
TOTAL	0.66	0.71	1.37	0.23		1.60

The Phare amount is binding as the maximum amount available for the project. The ratio between the Phare and national co-finance amounts is also binding and has to be applied to the final contract price.

The national co-financing commitment is a tax-excluded net amount.

6. Implementation Arrangements

6.1 Implementing Agency

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6.2 Twinning

The beneficiary institution is State Metrology Service and the following person is the responsible officer for the Project and the main contact point for the various aspects of the

6.3 Non-standard aspects

The Practical Guide for the Implementation of Phare, Ispa & Sapard and the Twinning Manual will be strictly followed.

6.4 Contracts

There will be three contracting operations in this project:

1. Value of Twinning Covenant 0.71 MEUR.
2. Value of Supply component: 0.77 MEUR, of which 0.20 MEUR is national co-financing.
3. Value of Service component is 0.12 MEUR, of which 0.03 MEUR is national co-financing.

Supply component will be divided into two lots at least. Final decision will be taken after the needs assessment.

7. Implementation Schedule

Component	Start of Tendering	Start of Project Activity	Project Completion
Twinning	2Q/03	4Q/03	2Q/05
Supply	4Q/03	2Q/04	4Q/04
TA	4Q/03	2Q/04	4Q/04

8. Equal Opportunity

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.

9. Environment

The investment components of this Project all relate to Institution Building activities.

10. Rates of Return

The investment components of this Project all relate to Institution Building activities.

11. Investment Criteria

The investment components of this Project all relate to Institution Building activities.

12. Conditionality and sequencing

This project is conditional on

- National Co-financing being available;
- Equipment procurement is conditional and should be based on the Twinning adviser's approved needs assessment.

ANNEXES TO PROJECT FICHE

- 1. Logical framework matrix in standard format**
- 2. Detailed implementation chart**
- 3. Contracting and disbursement schedule**
- 4. Reference to Feasibility / pre-feasibility studies**

LOGFRAME PLANNING MATRIX FOR Project		Programme name and number	LI 2003-X-XX
Improving measurement infrastructure in mass, length and temperature fields in Lithuania with regard to the EU requirements and preparation for the smooth transposition of the forthcoming EU legislation in legal metrology field		Contracting period expires 2Q/2005	Disbursement period expires 2Q/2006
		Total budget : 1.60 MEUR	Phare budget :1.37 MEUR
Overall objective	Objectively verifiable indicators	Sources of Verification	
Transposition and implementation of existing EU legislation and improvement of measurement infrastructure in Lithuania with regard to the relevant <i>Acquis</i> requirements in the fields of mass, length and temperature measurements, as well as to submit proposals regarding the forth-coming EU legislation in legal metrology field	Acquis requirements in the relevant fields met by accession. At least 2 laboratories accredited by 2005. At least 3 laboratories participated in interlaboratory comparisons	Project reports Conference reports	
Project purpose	Objectively verifiable indicators	Sources of Verification	Assumptions
<ul style="list-style-type: none"> Completion of the process of legal approximation by preparation of secondary legislation, enforcement guidelines and calibration procedures covering Sectoral Approach Directives (i.e. 71/317/EEC and 74/148 on weights, 75/410/EEC on totalising weighing machines, 78/1031/EEC on automatic check-weighing and weight grading machines, 90/384/EC on non-automatic weighing instruments, 73/362/EEC on material measures of length and related Commission Recommendation of 20 Dec 2001 on the protection of the public against exposure to radon in drinking water supplies, Commission Directive 2002/69/EC and others). Traceability of measurements improved. Calibration laboratories for weights OIML class E1 and OIML class E2 and material length measures established and accredited. Calibration laboratory for calibration of non automatic weighing instruments of class I established and accredited. Testing and calibration infrastructure improved to achieve the existing requirements. Strengthened co-operation between public and private sector actors and research institutes. 	<ul style="list-style-type: none"> Gaps in legislation eliminated by accession. Progress report to join EUROMET in 2004. 1 laboratory approved by the Government by 2005. Min. 1 laboratory notified to the European Commission after the accession. 	<ul style="list-style-type: none"> Official newspaper of Lithuania Project reports Conference report 	Political support from the Government continued.
Results	Objectively verifiable indicators	Sources of Verification	Assumptions
<ul style="list-style-type: none"> Process of legal approximation completed – secondary legislation developed and adopted. Traceability of measurements down to industry and other customers ensured. Supported and facilitated application of quality systems in industry and other 	<ul style="list-style-type: none"> Necessary legislation adopted and implemented by the accession. Recommendations and plans developed and considered by 2005. 	<ul style="list-style-type: none"> Project progress report Reports on the results of interlaboratory 	Necessary legal acts adopted by the relevant institutions

<ul style="list-style-type: none"> bodies. Recommendations and plans for an improved organisation of national metrology institute developed. Computer/information system for the record and control of environment conditions as well as for calibration of weights designed and developed. Staff of laboratories trained (approximately 30 persons in Lithuania and 8 in European Union laboratories). Study on training needs performed, training scheme designed, material prepared, training performed, information disseminated. 2 interlaboratory comparisons run Necessary measurement equipment supplied, installed and operational. 	<ul style="list-style-type: none"> At least 60 people of laboratories' personnel trained locally. Course/training material developed, approved and disseminated. 12 persons trained in the European Union laboratories and other institutions. 2 interlaboratory comparisons run after equipment installed. 12 seminars and/or practical workshops run and certificates to participants issued. Equipment installed in selected laboratories and operational. 	<ul style="list-style-type: none"> comparisons Official newspaper of Lithuania Equipment supply documentation 	
Activities	Means		Assumptions
<ul style="list-style-type: none"> . Revision of the existing legislation and proposals for the new one. Development and/or revision of calibration and testing procedures. Strengthening the State Metrology Service. Evaluation of measurement capabilities of existing laboratories. Up-grading of primary and reference methods and of laboratories, including implementation of quality systems. Preparation of detailed technical specifications for the equipment to be supplied Training needs analysis, development and implementation of training program. Computer/information system for measurements designed and developed. Interlaboratory comparisons prepared and performed. 	PAA supported by a pool of short and medium term experts (11 m/m) TA component One supply tender		Successful start and smooth implementation of the project.
			Preconditions
			<ul style="list-style-type: none"> Co-financing available

Detailed Implementation Chart for the Project

Year	2003												2004												2005								
Month	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9
Twinning																																	
Supply																																	
TA																																	



Design

Tendering

Implementation

Cumulative Contracting and Disbursement Schedule for the Project – Phare Contribution (€Million)

	2003				2004				2005			
	31/03	30/06	30/09	31/12	31/03	30/06	30/09	31/12	31/03	30/06	30/09	31/12
Contracting												
• Twinning				0.71								
• TA						0.09						
• Supplies						0.57						
Total contracting (cumulative)				0.71	0.71	1.37						
Disbursement												
• Twinning				0.23	0.31	0.39	0.47	0.55	0.63	0.71		
• TA						0.07	0.07	0.07	0.09	0.09		
• Supplies						0.34	0.34	0.34	0.57	0.57		
Total disbursement (cumulative)				0.23	0.31	0.8	0.88	0.96	1.29	1.37		

Reference to Feasibility/Pre-feasibility studies

Pre-feasibility studies have been performed in the framework of the PRAQ III programme (before 2000) and bilateral Danish Lithuanian project FEU LIT 0127 (in 2001) on the present status of mass measurements and need for future assistance in development of calibration and measurement capabilities of national standards.

Furthermore, Danish experts have suggested the list of top priority equipment necessary to meet at least basic requirements of customers and participate in certain interlaboratory comparisons.

Lithuanian experts have also picked up considerations of their customers in this field with regard to the completed and on-going projects aimed at improvement of measurement capabilities of various non calibration laboratories and customers from industry.

INDICATIVE LIST AND BUDGET BREAKDOWN OF EQUIPMENT

No	Title of Activity	Indicative Budget (thousands EUR)
1	Automatic mass comparator to 1 kg	80
2	Automatic mass comparator to 10 kg	80
2	Automatic mass comparator to 20 kg	80
3	1 kg stainless steel weights, class E0, 3 units, calibrated	15
4	2 sets of class E1 weights from 1 mg to 20 kg and one set from 1 mg to 5 g, calibrated	25
5	Double set of E1 class weights mark H10 g to H 500 g inclusively	10
6	Weight volume calibration system with hydrostatic weighing	60
7	Air conditioning system and monitoring system	55
8	Weight maintenance cabinet, glass shades	12
9	Length (dimensional) calibration unit	110
10	Temperature (infra red) calibration unit	120
11	Other equipment (pycnometers, thermometers, hygrometers, barometers, indicators, gloves, special lifting equipment etc.)	95
12	Training equipment	28
	Total	770