

Standard Summary Project Fiche – IPA centralised project under TR National Programme

1.1 CRIS Number: TR080209

1.2 Title: Improving chemical and ionizing radiations metrology

1.3 Sector: 1 - “Free Movement of Goods”

1.4 Location: TURKEY and DG JRC-IRMM site in Geel, Belgium

Implementing arrangements:

1.5 Contracting Authority:

The Delegation of the European Commission to Turkey
Ugur Mumcu cad. No: 88/4
Gaziosmanpaşa 06700
Ankara Turkey

The EC Delegation Ankara will entrust the execution of the project to the EC JRC-IRMM which will implement it through an administrative arrangement.

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Joint Research Centre
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B-2440 Geel, Belgium.

1.6 Beneficiary (including details of SPO):

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Participation in various project activities will be open to laboratories, universities, research institutes, public institutions and industrial operators. TUBITAK UME and TAEK will benefit from the competence existing in the country collaborating with leading institutes such as TUBITAK Marmara Research Centre institutes; Food Institute, and Chemistry and Environment Institute and the national reference laboratories.

1.7 Overall cost: €3,930,000

1.8 EU contribution: €3,930,000

1.9 Final date for contracting: 2 years after the signature of the FA

1.10 Final date for execution of contracts: 2 years following the end date for contracting

1.11 Final date for disbursements: 3 years following the end date for contracting

2 Overall Objective and Project Purpose

2.1 Overall Objective: The overall objective is to contribute to the better functioning of the EU-Turkey Customs Union Agreement regarding the free movement of goods as well as to facilitate the implementation of *acquis communautaire* in quality of life related areas such as environmental, health and consumer protection and food safety

2.2 Project purpose: The main purpose is to enhance institutional and measurement capacity in chemical and ionizing radiation metrology to ensure that Turkish laboratories are able to produce traceable and comparable measurement results, leading to improvements in quality of life, and facilitating the adoption of *acquis* related to free movement of goods.

2.3 Link with AP/NPAA/EP/SAA

AP

In the Accession Partnership (AP) document for 2006 on *Chapter 1: Free movement of goods*, the development of an effective legal metrology infrastructure and facilitation of the wider application of scientific and industrial metrology are indicated as short-term priority that complements completion of the removal of technical barriers to trade and the establishment of effective in-market control.

Other AP 2006 relevant priorities, which are related to *Chapter 12: Food safety, veterinary and phytosanitary policy* and *Chapter 27: Environment*, consist of the following:

- Build up the necessary administrative-capacity to implement the veterinary, phytosanitary and food legislation,
- Implement food safety control systems,

- Continue alignment on the *acquis* and strengthen the institutional, administrative and monitoring capacity to ensure environmental protection, including data-collection.

Short-term Priority

- Adopt the National Waste Management Plan.

In AP 2007 document, regarding **Chapter 1: Free movement of goods**, the below is listed as a short-term priority:

- Abolish import permits or licence requirements, as well as disproportionate requirements for certificates in respect of products other than used motor vehicles.

The project will contribute to mutual recognition of certificates for product groups, the testing of which relies on measurements on chemical and ionizing radiation metrology and elimination of technical barriers to trade in these areas.

In the same AP document regarding the **Chapter 12: Food safety, veterinary and phytosanitary policy** and the **Chapter 27: Environment**, the following issues are indicated as the medium-term priorities:

- Enhance laboratory and control capacities in the food safety, veterinary and phytosanitary domain in particular as regards reference laboratories, residue testing (including control plans) and sampling procedures,
- Continue to transpose and implement the *acquis* related to the framework legislation, international environmental conventions and legislation on nature protection, water quality, chemicals, industrial pollution and risk management and waste management,
- Pursue integration of environmental requirements into other sectoral policies.

NPAA

Chemical metrology and ionizing radiation can be linked to the *acquis* based on the following NPAA priorities:

- “Establishment of Food Safety Coordination Unit and strengthening the necessary infrastructure for food control” (Priority 3 of 2003 NPAA-Chapter 1); effective food safety control and removal of technical barriers to trade: 2001/22/EC under Task 1.3.5,
- NPAA-2003, and NPAA 2007-2013 (12.2007.2.06, 12.2007.2.10, 12.2007.2.11, 12.2008.2.04): analysis of foodstuff in terms of their harmful chemical content,
- 01.2008.2.06, 01.2008.2.07 of NPAA 2006: establishment of national authorities for the implementation of EU directives on GLPs, determination of hazardous effects of goods, presentation of safe products in order to save public health and environment,
- NPAA 2007-2013 (01.2008.2.08, 01.2008.2.09): regulations on the supply detergents and surface active substances used in detergents, and procedures and principles that should be applied in order to protect environment and human health.

2.4 Link with MIPD

It is stated in Multi-annual Indicative Planning Document (MIPD) 2007-2009 for Turkey that in addition to the priorities in the fields of agriculture and environment, Institution Building support may also be provided in the Free Movement of Goods (support for quality assurance at testing and calibration laboratories) for the transposition and implementation of the acquis.

2.5 Link with National Development Plan (where applicable)

Improvement in food is included in 9th National Development Plan 2007-2013 as a major priority under the EU Accession Process heading. It has been reported that implementation of EU norms and standards for food safety will increase the life quality of Turkish people (Please refer to list number 458 - Development of integrated and accurate information systems related to Environment and improvement of surveillance, control and reporting infrastructure).

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

N/A

3. Description of project

3.1 Background and justification:

Turkey as a candidate for the membership to European Union has to adopt and implement the acquis communautaire. In the field of free movement of goods, the process relies on the capacity of Turkish quality infrastructure for which metrology is of importance. Metrological activities enable laboratories and economic operators to carry out traceable and comparable measurements. Thus metrology has a horizontal impact on the process of alignment of national legislation and the development of institutional infrastructures.

The implementation of the Turkey - EU Customs Agreement of 1995 is facilitated by mutual recognition of testing and conformity assessment certificates for industrial goods. Similarly, free trade of agricultural products within the EU-Turkey Agricultural Agreement is possible under the condition of acceptance of measurements and certificates.

Metrology situation in Turkey has been assessed during the screening process under the Chapter 1 "Free movement of goods". The implementing capacity has been found sufficient to a large extent. However, further alignment in the area of horizontal measures is recommended and set up as a benchmark for opening of the negotiations. Therefore, Turkey must enhance its capacity in metrology as recommended for the implementation of the EU acquis.

Metrology system in Turkey comprises the fundamental, industrial and legal metrology. TUBITAK UME is the national metrology institute of Turkey. It maintains the national measurement standards, provides metrological services to laboratories and industrial operators and supports testing, conformity assessment and accreditation activities in the country. TUBITAK UME is well advanced in the area of classical physical measurements where TUBITAK UME is in a position to provide a wide range of traceable and internationally recognized calibration and measurement services. Unfortunately, metrological capacity in the field of chemical metrology lags behind, weakening the potential of testing laboratories, and by extension, handicapping export-oriented industries that require internationally recognized

measurement and testing services in the fields of food safety and environmental control. TUBITAK UME is a member of the European Association of National Metrology Institutes, EURAMET, and a representative of Turkey in the European analytical chemistry network (EURACHEM). TUBITAK UME has achieved recognition of 351 calibration and measurements capabilities (CMCs) under the terms of the Mutual Recognition Arrangement of the International Committee for Weights and Measures (CIPM MRA) in all fields of physical measurements however CMC entries for chemical measurements are still under preparation.

TAEK has been designated in 2007 by TUBITAK UME as a national laboratory for ionising radiations metrology. It is a governmental organization under the direct supervision of the Prime Minister which is responsible for monitoring and research activities in the ionizing radiation field. TAEK research centres are specialised for services with nuclear applications which have to be extended and improved to a metrological level suitable to satisfy country needs and international requirements. TAEK has a long cooperation with the International Atomic Energy Agency (IAEA). It has recently started to participate in EURAMET activities; therefore, it needs support to better integration into the metrology community. In addition, TUBITAK UME and TAEK shall operate in coordination and extend their relationships to other metrology stakeholders.

Deficiencies in national capacity in chemical and ionising radiations metrology limit the ability of testing laboratories to produce traceable and comparable results needed for the implementation of the acquis. Thus, inadequate quality control systems and lack of acceptable certificates result in technical barriers to trade of industrial and agricultural products.

For example, Turkey is an important exporter of foodstuff of non-animal origin, such as fruits and vegetables, to the EU. The quality compliance of country specific export food (e.g. dried vegetables, hazelnut, pistachio, etc.) should be proved in respect to relevant EU legislation. Since 2002, due to a number of problems being encountered especially to prove food quality and safety, figs, hazelnuts, pistachios and certain derived products originated in or consigned from Turkey have been subjected to safeguard control when imported into the EU.

Another example linked to the ionizing radiations metrology is the need of measurement compatibility experienced after Chernobyl. It is not only important to measure the radioactivity in food and in environment precisely, it is also to produce continuous and comparable data in a standard systematic and easily reached on line when needed and to feed data to the same system periodically. Therefore strengthening the radionuclide metrology infrastructure in Europe and all neighbouring countries is an inevitable need in terms of radiation safety in addition to being able to remove technical barriers to trade when radiological emergency is present at any time.

There is a strong demand in enhancing quality control systems in Turkey. The availability of institutional and measurement capacity in chemical and ionising radiation metrology will respond to testing laboratories' needs. TUBITAK UME and TAEK research centres could provide certified reference materials (CRM) and reference measurements to secondary level laboratories which on their term make available quality assurance tools for field laboratories. In order to satisfy quality requirements for method validation and internal and external quality control, individual laboratories need reference materials, CRMs and PT schemes. For some tests, CRMs are available from other countries. However, it is not possible to find CRMs for a number of food samples of products produced in Turkey and exported to the EU. Other

environmental samples such as soils and sediments have specific matrices and shall be locally developed.

TAEK issues radiation free export certificates and carries out calibration of dosimetry equipment. However confidence in measurements goes through linking TAEK services to the national and international metrology systems and further developing secondary and primary standardisation. Existing capacity in dosimetry calibrations shall be enhanced to a level to anticipate increasing needs in development of nuclear sector. Another aspect is the improvement of the radionuclide metrology infrastructure of TAEK laboratories, which will have very important consequences both in terms of food radioactivity measurements and environmental radioactivity monitoring (in relevance to 1621/2001/EC export certificate for agricultural products; 2000/473/Euratom for environmental radioactivity monitoring).

Setting up good education and training systems in metrology not only has a positive effect on current priorities but enables sustainability of activities. Therefore, training of end users and education of students are indispensable activities within the project. TUBITAK UME is experienced in providing chemical metrology training for laboratory practitioners. The institute is part of the TrainMiC® network established by the European Commission's JRC-IRMM. Together with a leading university in Turkey, TUBITAK UME has supported the Rogaska Declaration of 2005 signed by the representatives of 21 countries and 3 international organisations which aims at incorporating metrology in chemistry and quality assurance topics in bachelor and master level analytical chemistry courses was organized in 2005. Unfortunately, significant deficiencies in current metrology curriculum Turkey was not able to join the group of universities applying for a Euromaster Joint Degree Programme in chemical measurement science. Therefore, it is important that these courses as part of the university education and the life-long learning will provide an efficient way to synchronise the metrology knowledge between policy-makers, academic society and employers.

Chemical and ionising radiation metrology are extensive subjects that entail active networking at national and European levels, and ideally, a knowledge transfer from a leading EU institute would enable TUBITAK UME and TAEK to strengthen their capabilities in a near term. Therefore, this project targets the enhancement of institutional and measurement capacity of both organizations by an effective collaboration with the European Commission's Joint Research Centre - Institute for Reference Materials and Measurements (JRC-IRMM) as an EU partner. JRC and TUBITAK agreement of 5 July 2007 lays down foundations for closer scientific and technical collaboration between JRC institutes and research establishments of Turkey referring to the support provided to the policy making process. The proposed project will bring this collaboration closer to the pre-accession priorities.

The aim of the project is to facilitate the better functioning of the EU-Turkey Customs Union Agreement and implementation of the *acquis* under the chapters “Free Movement of Goods” as well as “Food Safety, Veterinary and Phytosanitary”, “Environment” and “Consumer and Health Protection” by developing new metrological activities carried out in the country. The proposal will have a horizontal impact on both the free movement of goods and quality of life, enabling improvements in quality and safety control and consumer protection in general. It will enable to overcome the above mentioned difficulties that Turkish testing laboratories and economic operators face with.

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

a) Project Impact:

The proposed project will establish new capabilities of TUBITAK UME and TAEK enabling them to provide metrological services not available in the country. For example, food CRMs and the improved radioactivity traceability will support national food laboratories to overcome difficulties that they are facing now when they issue export oriented testing certificates. Similarly, the environmental control system will benefit by the development of Turkey specific materials (starting with soils) which will be never included in the production list of foreign producers.

The project will raise the awareness about metrology in Turkey, making TUBITAK UME and TAEK networking actively and more visible to public institutions, universities, research community and industrial operators.

Finally, the project will raise the awareness about TUBITAK UME and TAEK capabilities among the international metrology community.

b) Catalytic effect:

Direct users of these services are Turkish laboratories and economic operators which are concerned by the implementation of the harmonised legislation. Many practitioners will be trained and the knowledge will be transferred. Moreover, the project will contribute to the improvement of university metrology education.

The project will help metrology stakeholders to cooperate and contribute to TUBITAK UME and TAEK strategic orientation.

The project will have a catalytic effect on the accreditation. It will increase the number of available PT schemes and extend the scope of test parameters. Turkish Accreditation Agency TURKAK will be in a position to organise/request more interlaboratory comparisons for accredited laboratories.

Finally, the project will facilitate the removal of technical barriers to trade to EU countries. Confidence in Turkish certificates will increase when the quality of measurement results is improved. If it is proven that Turkish test results are comparable with results produced in the EU, additional control and safeguard clauses shall be withdrawn.

c) Sustainability:

Sustainability of the project results is ensured by:

- Increasing demand for metrological services due to harmonisation of legislation, higher laboratories' interest in accreditation, export requirements to the EU,
- Large number of customers and end users (laboratories, universities, research institutes, industrial operators). The number of national test and analysis laboratories serving in the field of quality of life excluding universities and clinical analysis laboratories is 781 (Ref. Consultative Document, Regulations on the framework of governmental laboratories in Turkey),
- Availability of university education and life-long training in the field of chemical and ionising radiations metrology in the country,

- The networking while making the best use of various competencies that exist in the country.

d) Cross Border Impact:

N/A.

3.3 Results and measurable indicators:

Component 1: Institutional Capacity Building for TUBITAK-UME

- 1.1 New metrological capabilities/services in the field of chemical metrology developed and supported by documented and implemented strategies
- 1.2 TUBITAK UME quality system integrated with a management system developed according to ISO Guides 30-35
- 1.3 TUBITAK UME chemistry laboratories prepared for accreditation as producer and supplier of CRMs to the PT providers
- 1.4 New calibration and measurement capabilities to support the implementation of the acquis are ready for submission to the CIPM MRA CMC database.

Indicators for the results under Component 1:

- Validation of 5 new measurement methods developed in TUBITAK UME chemistry laboratories
- Increased number of TUBITAK UME services and CMCs
- New or revised quality management procedures
- Submitted to EURAMET minimum 5 CMC entries for inclusion into the CIPM MRA CMC database
- At least two candidate CRMs from the identified production scope released by UME
- Submitted application for TUBITAK UME's accreditation according to ISO Guides 30-35.

Component 2: Institutional Capacity Building for TAEK

- 2.1 New metrological capabilities/services in the field of ionizing radiation metrology developed and supported by documented and implemented plans and programmes
- 2.2 Secondary level standardisation procedures developed or improved
- 2.3 TAEK institutes quality management systems extended and covers the new metrological services
- 2.4 New calibration and measurement capabilities to support the implementation of the acquis are ready to submission to the CIPM MRA CMC database
- 2.5 Preparation on the development of primary standardisation initiated and foreseen in TAEK institutes' strategies.

Indicators for the results under Component 2:

- Validation of minimum two new radioactivity measurement methods at TAEK radioactivity measurement laboratories

- Validation of minimum two dosimetric measurement methods at TAEK SANAEM dosimetry laboratories
- Developed/Increased number of TAEK radioactivity measurement services
- Improving two radioactivity measurement methods to secondary standard level
- Improving two dosimetric measurement methods to secondary standard level
- Submitted applications for the extension of accreditation of TAEK laboratories according to ISO 17025
- Submitted to EURAMET minimum 4 CMC entries for inclusion into the CIPM MRA CMC database.

Component 3: Knowledge transfer and human resources development

- 3.1 TUBITAK UME and TAEK researchers familiar with functioning of metrology systems in EU Member States with similar economic needs
- 3.2 TUBITAK UME and TAEK researchers skilled and ready to carry out the new metrological services
- 3.3 Turkish laboratories' experts knowledgeable how to consider metrological aspects in their activities
- 3.4 Turkish universities familiar with the alignment of EU university programmes in measurement science with Bologna requirements
- 3.5 Turkish universities interested in joining Euromaster Joint Degree Programme in measurement science conform to requirements.

Indicators for the results under Component 3:

- 9 study visits to at least 2 EU Member States and prepared mission reports and presentations for each visit
- 51 short-term trainings and consultations for TUBITAK-UME and TAEK and for each training, a training feedback or mission reports prepared
- 6 experts from TUBITAK-UME and TAEK annually on a long-term training at JRC-IRMM and for dosimetry field, at an EU national metrology institute (NMI)
- 18 seminars/workshops for the end-users and published proceedings
- 10 workshops for the universities and published proceedings
- Invitations to at least 20 universities on consultation of their curriculum programmes.

Component 4: Networking and Raising Awareness

- 4.1 European NMIs familiarized with the development of TUBITAK UME and TAEK's capabilities
- 4.2 Network of contacts in the field of metrology established, strengthened and operational
- 4.3 Network of contacts with universities established and strengthened
- 4.4 Chemical and ionizing radiation metrology topics discussed with national experts and stakeholders
- 4.5 International metrology community informed about TUBITAK UME and TAEK capabilities.

Indicators for the results under Component 4:

- Information about the development of TUBITAK-UME and TAEK's capabilities presented to EURAMET at TC meetings
- 2 proposed joint research projects with partner organisations (other NMIs) in the field of chemical metrology
- 8 coordination meetings with stakeholders in chemical and ionizing radiations metrology
- Number of partner universities
- 4 national conferences in chemical and ionizing radiations metrology organised
- At least 10 participations of Turkish experts in international conferences and events.

3.4 Activities:

The means by which the activities of the project will be performed is Technical Assistance (TA) contract. In the first year, refining needs assessment and strategies in chemical and ionising radiations metrology in Turkey will be the focal of point of the assistance. Long term and short term trainings will be started, networks will be established and stakeholders will be involved in more active collaboration. In the second year, the project will focus on the capacity building at beneficiary institutions. The development of new measurement methods and services will start and beneficiaries' quality management systems will evolve. Universities will be working on the harmonisation of their programmes and curricula. In the third year, new services will be assessed via the quality systems means and improved where needed. Applications for accreditations and international recognition of measurement capabilities will be prepared and submitted. Similarly, some universities will be prepared to join the existing Euromaster programmes. Project results will be communicated to stakeholders as well as international metrology community. These activities will facilitate the improvement in the quality of life in Turkey and finally the adoption of the acquis related to the free movement of the goods. Some of the activities will be carried out in cooperation with TUBITAK Marmara Research Centre Food Institute and TUBITAK Marmara Research Centre Chemistry and Environment Institute. The existing infrastructure of Marmara Research Centre Institutes will be used for both production and certification of CRMs to be produced, which will be carried out as a separate and complementary supply project.

The following activities will be carried out for the achievement of project purpose within the period of project.

Component 1: Institutional Capacity Building for TUBITAK-UME

- 1.1 Clear identification of production capabilities, evaluation methods and parameters to be measured for the production and certification of reference materials to be produced by TUBITAK UME for country specific products
- 1.2 Development of procedures and management system according to ISO Guides 30-35 and their integration into TUBITAK UME quality system
- 1.3 Preparation of TUBITAK UME chemistry laboratories as CRM producer and international comparisons provider in selected areas
- 1.4 Providing recommendations on the necessary improvement of clean and climatic rooms at TUBITAK UME

- 1.5 Consultations on the design of the needed non-commercial equipment and drafting the technical specifications for the equipment for the production of CRMs to be supplied under an IPA 2009 supply project.

Component 2: Institutional Capacity Building for TAEK

- 2.1 Clear identification of the scope and targeted capabilities for secondary standardisation at TAEK institutes
- 2.2 Consultation on the development/improvement of secondary level standardisation procedures
- 2.3 Consultation on the extension of the current quality management systems at TAEK institutes to the secondary level standardisation activities and support for preparation for participation in the CIPM MRA
- 2.4 Providing written recommendations on development of primary standardisation.

Component 3: Knowledge transfer and human resources development

- 3.1 Familiarizing TUBITAK UME and TAEK researchers with functioning of metrology systems in EU member states with similar economic needs
- 3.2 Organization of consultations and short term and long term trainings for TUBITAK UME and TAEK researchers
- 3.3 Organization of seminars and workshops for the end users
- 3.4 Familiarizing Turkish universities providing education in chemical and ionizing radiations metrology with the status of alignment of EU university programmes in measurement science with the Bologna requirements
- 3.5 Providing consultations to Turkish universities interested in joining Euromaster Joint Degree Programme in measurement science.

Component 4: Networking and Raising Awareness

- 4.1 Promotion of TUBITAK UME and TAEK among scientific and metrological community at European level
- 4.2 Establishment and improvement of relationships with direct and indirect users of CRMs and metrology services
- 4.3 Establishment and improvement of relationships with universities providing (or interested in providing) a master level university education in chemical and ionizing radiations metrology
- 4.3 Organization of national conferences and events
- 4.4 Support of participation of TUBITAK UME and TAEK experts in international ones.

3.5 Conditionality and sequencing

This project which includes the technical assistance aiming at strengthening the institutional capacity for chemical and ionizing metrology should be complemented by a separate IPA project called “Supply of chemical metrology equipment to TUBITAK UME” by which materials processing and analytical equipment will be supplied to TUBITAK UME. The supply project should be planned as part of the IPA 2009 Programme and ideally start one year after the TA contract. However, the activities of supply project will be completed before the TA project finishes. Thus, the infrastructure of TUBITAK UME laboratories will be improved

for the preparation and certification of CRMs which are specific for Turkey. Finally the reference materials will serve for the development of standard methods and thus comparable and acceptable test results which are crucial for the free movement of goods between Turkey and EU countries as well as within the country for the safety of people.

3.6 Linked activities

There are two projects related to the one proposed here. The first one, “Support to the Strengthening of Quality Infrastructure in Turkey” should begin in 2008 with the aim of strengthening the institutional and infrastructural framework in Turkey to enable better implementation of the acquis regarding the free movement of goods. This project is mainly focused on the training activities in order to increase the awareness. TUBITAK UME is also partially included in this project to supply experts in the workshops and will participate in relevant activities.

The second project was initiated in 2004 and is entitled “Restructuring and Strengthening of the Food Safety and Control System in Turkey/Establishment of National Food Reference Laboratory” (Project No: TR 0403.03). It concerns the establishment of a reference laboratory for measurements in the field of food safety control. The laboratory will serve as the reference laboratory for MARA food control laboratories. There is also another laboratory being established in the field of environment and will serve as the reference as in food reference laboratory. Such projects are compulsory for transferring the metrological activities/knowledge to other laboratories. The abovementioned projects will be supported by the project proposed. Differing from the NFRL project, in the present project, the main purpose is to increase the awareness of people and enhance the institutional capacity in the field of both chemical and ionizing radiation metrology. The CRM will increase the quality of chemical measurement. One of the main purposes of the present project is also to provide test materials to the PT providers acting in the field of environment and life quality. TUBITAK UME will be the material supplier for the PT providers.

TAEK is in process of establishment of a Secondary Standard Dosimetry Laboratory (SSDL) in Ankara at the premises of Saraykoy Nuclear Research and Training Centre which have to be finalised in parallel with this project. TAEK already has a fully functioning SSDL at Çekmece Nuclear Research and Training Centre.

3.7 Lessons learned

TUBITAK UME has been involved in several projects which aimed at improving and strengthening the metrology infrastructure in Turkey. The foundation of the chemical metrology department in TUBITAK UME is the outcome of a 6-years long World Bank project to develop Turkey’s industrial technology infrastructure. The project, implemented between years 1999 and 2006, allocated approximately 45 million USD in funds for the development of metrology services in Turkey through TUBITAK UME. The funds were used for civil works, equipment procurement, technical assistance and staff training. The chemical metrology laboratories were purpose-built as part of the civil works component, and approximately 4 million USD were invested to equip the laboratories. The proposed project represents the next stage in the development of the chemical metrology infrastructure that Turkey requires in order to ensure full compliance with EU acquis. The execution of the World

Bank project, with its size and complexity, has endowed TUBITAK UME with significant experience and expertise in project management, including appropriate procurement mechanisms, correct identification of needs and the strategies to meet them, compliance with strict financial and reporting guidelines, and effective communication strategies to ensure information flow between all parties involved. In this project, some difficulties had been encountered with:

- the definition of the work packages
- the design of the time table,
- the arrangement of activities' duration,
- the selection of experts and trainers.

Thus, the description of training activities and also the selection of the most appropriate experts in terms of both qualification and the experience in the area of interest are crucial as well as planning the trainings and study visits in terms of both timetable and duration.

TUBITAK UME has been involved in the activities of "Support to the quality infrastructure in Turkey" project. A number of TUBITAK UME staff participated and shared their experiences with the trainers. The training course has provided the opportunity to contact with potential customers of CRMs to be produced. The major difficulties were:

- poor communication with stakeholders,
- identification of customer's needs and expectations,
- determination of customers' background in the field of metrology.

It was realized that the effective communication between the stakeholders/customers is very important for the successful implementation of the proposed project. Customers' needs have been identified in this training course. It has been clearly stressed that the metrological activities including PT schemes are crucially important in order to enhance the measurement capabilities.

TAEK is carrying out studies for accreditation of seven methods and has already applied to TURKAK. The accreditation shall be finalised by the end of 2008. This will provide quite an important infrastructure for metrological activities. TAEK has been designated as competent institution in the field of ionising radiation metrology by UME which brings responsibilities to participate in key and supplementary comparisons, register CMC tables to the CIPM MRA date base and ensure efficiently working quality management system at its laboratories. With the valuable outcome of the accreditation project being carried out by TAEK, the tasks listed above will be undertaken more easily.

4. Indicative Budget (amounts in €)

	TOTAL PUBLIC COST	SOURCES OF FUNDING									
		EU CONTRIBUTION				NATIONAL PUBLIC CONTRIBUTION					PRIVATE
		Total	% *	IB	INV	Total	Type of cofinancing (J / P) **	% *	Central	Regional	IFIs
<u>Activities</u>											
<u>Activity 1</u>											
<u>Contract 1.1 Service</u>	€ 3,930,000	€ 3,930,000	100	€ 3,930,000							
TOTAL	€ 3,930,000	€ 3,930,000		€ 3,930,000							

** compulsory for INV (**including INV related services/TA contracts**): minimum of 25 % of total EU + national public contribution; **and for IB: for IB services/TA contracts** minimum of 10% and for twinning a minimum of 5% of total EU + national public contribution. Joint cofinancing (J) as the rule, parallel co financing (P) per exception.

* expressed in % of the Total Public Cost

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

Contracts	Start of Negotiations	Signature of contract	Contract Completion
Administrative arrangement	2008/IV	2009/I	2012/I

Duration of the project: 36 months

6. Cross cutting issues (where applicable)

6.1 Equal Opportunity

Equal participation of women and men will be secured through appropriate information and publicity material, in the design of projects and access to the opportunities they offer. An appropriate men/women balance will be sought on all the managing bodies and activities of the programme and its projects.

6.2 Environment

The project does not have any potential negative effect to environment as well as to any living bodies. Furthermore, it will assist the environmental protection via producing CRMs which will be used in environmental control laboratories.

6.3 Minority and vulnerable groups

According to the Turkish Constitutional System, the word minorities encompass only groups of persons defined and recognized as such on the basis of multilateral or bilateral instruments to which Turkey is a party.

This project has no negative impact on minority and vulnerable groups. Training programs and workshops will be held in buildings where access to buildings for handicapped people is possible.

ANNEX 1 - Log frame in Standard Format

LOGFRAME PLANNING MATRIX For The Project Fiche		Programme name and number	Improving chemical and ionizing radiations metrology
		Contracting period expires : FA + 2 years	Disbursement period expires: 3 years following the end date for contracting
		Total Budget: EUR € 3,930,000	IPA Budget: €3,930,000
Overall objective	Objectively verifiable indicators	Sources of verifications	
The overall objective is to contribute to the better functioning of the EU-Turkey Customs Union Agreement regarding the free movement of goods as well as to facilitate the implementation of acquis communautaire in quality of life related areas such as environmental, health and consumer protection and food safety	<ul style="list-style-type: none"> - Improved implementation of harmonized legislation in the field of free movement of goods, food safety and environmental, health and consumer protection - The number of measurements linked problems related to export of products to EU countries decreased to one third of that encountered now - The number of measurements related problems reported for the domestic market decreased by one half 	<ul style="list-style-type: none"> - European Commission Country Progress Reports - Publications of Rapid Alert System for Food and Feed - Foreign Trade Secretariat Reports - Reports by both Governmental and Non-Governmental Organizations 	
Project Purpose	Objectively verifiable indicators	Sources of verifications	Assumptions
To enhance institutional and measurement capacity in chemical and ionizing radiation metrology to ensure that Turkish laboratories are able to produce traceable and comparable measurement results	<ul style="list-style-type: none"> - TUBITAK UME and TAEK metrological capabilities support the implementation of the acquis, are improved and internationally recognized - Turkish laboratories in chemical measurements and ionizing radiation fields and end users of CRMs better cope with measurement issues 	<ul style="list-style-type: none"> - CIPM MRA CMC database - EURAMET records - TURKAK records - Individual PT providers reports - Universities information and lecture notes 	<ul style="list-style-type: none"> - Increased demand for metrological services in the field of chemical metrology and ionizing radiation due to the implementation of EU regulations and directives - Dedication to the objectives of competent ministries and stakeholders indirectly involved in the project; - The project is supported by a

	<ul style="list-style-type: none"> - Improved opportunities for academic education in chemical and ionizing radiation metrology - Chemical metrology topics included in the curriculum program or in the analytical chemistry courses of at least 2 universities included - Available trainers for training people in chemical metrology - The number of laboratories accredited for the chemical analysis in the field of environmental, food safety and life quality doubled - Increased metrological activities and number of PT providers as well as number of test materials - 		<p>separate follow-up project by which CRMs for country specific materials are produced</p>
Results	Objectively verifiable indicators	Sources of verifications	Assumptions
<p>Component 1: Institutional Capacity Building for TUBITAK UME:</p> <p>1.1 New metrological capabilities/services in the field of chemical metrology developed and supported by documented and implemented strategies.</p> <p>1.2 TUBITAK UME quality system integrated with a management system developed according to ISO Guides 30-35</p> <p>1.3 TUBITAK UME chemistry laboratories prepared for accreditation as producer and supplier of CRMs to the PT providers</p> <p>1.4 New calibration and measurement capabilities to</p>	<ul style="list-style-type: none"> - Validation of 5 new measurement methods developed in TUBITAK UME chemistry laboratories - Increased number of TUBITAK UME services and CMCs - New or revised quality management procedures - Submitted to EURAMET minimum 5 CMC entries for inclusion into the CIPM MRA CMC database - At least two candidate CRMs from the identified production scope released by UME - Submitted application for TUBITAK UME's accreditation according to ISO Guides 30-35 	<ul style="list-style-type: none"> - TUBITAK UME strategy, quality management system, list of services and reports - TURKAK database - EURAMET information and the CIPM MRA CMC database 	<ul style="list-style-type: none"> - Appropriate international comparisons will be timely organized - EURAMET will timely process TUBITAK UME's CMC entries submitted for inclusion into the CIPM MRA database - TURKAK will timely process TUBITAK UME's application for accreditation - Supply of equipment project is accepted and implemented

<p>support the implementation of the acquis are ready for submission to the CIPM MRA CMC database</p> <p>Component 2: Institutional Capacity Building for TAEK:</p> <p>2.1 New metrological capabilities/services in the field of ionizing radiation metrology developed and supported by documented and implemented plans and programmes</p> <p>2.2 Secondary level standardisation procedures developed or improved</p> <p>2.3 TAEK institutes quality management systems extended and cover the new metrological services</p> <p>2.4 New calibration and measurement capabilities to support the implementation of the acquis are ready to submission to the CIPM MRA CMC database</p> <p>2.5 Preparation on the development of primary standardisation available and foreseen in TAEK institutes' strategies.</p> <p>Component 3: Knowledge transfer and human resources development</p> <p>3.1 TUBITAK UME and TAEK researchers familiar with</p>	<ul style="list-style-type: none"> - Validation of minimum two new radioactivity measurement methods at TAEK radioactivity measurement laboratories. - Validation of minimum two dosimetric measurement methods at TAEK SANAEM dosimetry laboratories - Developed/Increased number of TAEK radioactivity measurement services - Improving two radioactivity measurement methods to secondary standard level. - Improving two dosimetric measurement methods to secondary standard level - Submitted applications for the extension of accreditation of TAEK laboratories according to ISO 17025 - Submitted to EURAMET minimum 4 CMC entries for inclusion into the CIPM MRA CMC database <p>- 9 study visits to at least 2 EU Member States and prepared</p>	<ul style="list-style-type: none"> - TAEK institutes' strategies, quality management systems, lists of services and reports - TURKAK database - EURAMET information and the CIPM MRA CMC database <p>- TUBITAK UME and TAEK reports and presentations</p> <p>- Reports from training providers</p>	<ul style="list-style-type: none"> - Appropriate international comparisons will be timely organized - EURAMET will timely process TAEK institutes' CMC entries submitted for inclusion into the CIPM MRA database - TURKAK will timely process TAEK institutes' application for accreditation <p>- Available and interested Turkish laboratories' experts</p> <p>- Interested Turkish universities</p>
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<p>functioning of metrology systems in EU member states with similar economic needs</p> <p>3.2 TUBITAK UME and TAEK researchers skilled and ready to carry out the new metrological services</p> <p>3.3 Turkish laboratories' experts knowledgeable how to consider metrological aspects in their activities</p> <p>3.4 Turkish universities familiar with the alignment of EU university programmes in measurement science with Bologna requirements</p> <p>3.5 Turkish universities interested in joining Euromaster Joint Degree Programme in measurement science conform to requirements</p>	<p>mission reports and presentations for each visit</p> <ul style="list-style-type: none"> - 51 short-term trainings and consultations for TUBITAK UME and TAEK and for each training, a training feedback or mission reports prepared - 6 experts from TUBITAK UME and TAEK annually on a long-term training at JRC-IRMM and for dosimetry field, at an EU NMI - 18 seminars/workshops for the end-users and published proceedings - 10 workshops for the universities and published proceedings - Invitations to at least 20 universities on consultation of their curriculum programmes 	<ul style="list-style-type: none"> - Workshop and seminar documents - TURKAK database - Universities' information database 	
<p>Component 4: Networking and Raising Awareness</p> <p>4.1 European NMIs familiarized with the development of TUBITAK UME and TAEK's capabilities</p> <p>4.2 Network of contacts in the field of metrology established, strengthened and operational</p> <p>4.3 Network of contacts with universities established and strengthened</p> <p>4.4 Chemical and ionizing radiation metrology topics discussed with national experts and stakeholders</p>	<ul style="list-style-type: none"> - Information about the development of TUBITAK UME and TAEK's capabilities presented to EURAMET at TC meetings - 2 proposed joint research projects with partner organisations (other NMIs) in the field of chemical metrology - 8 coordination meetings with stakeholders in chemical and ionizing radiations metrology - Number of partner universities - 4 national conferences in chemical and ionizing radiations metrology organised 	<ul style="list-style-type: none"> - EURAMET Technical Committees on Ionizing Radiations (TC-IR) and Metrology in Chemistry (TC-MC) - Minutes from the stakeholders' meetings - Minutes from meetings with universities - Conference materials - Symposiums and workshops 	<ul style="list-style-type: none"> - Key partnerships between existing institutions, laboratories and non-governmental organizations will be established - Awareness events will be well attended - Project teams of this and other EU financed projects in the fields of free movement of goods, food safety and environmental, health and consumer protection (if any) will cooperate and coordinate activities

4.5 International metrology community informed about TUBITAK UME and TAEK capabilities	- At least 10 participations of Turkish experts in international conferences and events		
Activities	Means	Costs	Assumptions
<p>Component 1: Institutional Capacity Building for TUBITAK UME</p> <p>1.1 Clear identification of production capabilities, evaluation methods and parameters to be measured for the production and certification of reference materials to be produced by TUBITAK UME for country specific products</p> <p>1.2 Development of procedures and management system according to ISO Guides 30-35 and their integration into TUBITAK-UME quality system</p> <p>1.3 Preparation of TUBITAK UME chemistry laboratories as CRM producer and international comparisons provider in selected areas</p> <p>1.4 Providing recommendations on the necessary improvement of clean and climatic rooms at TUBITAK UME</p> <p>1.5 Consultations on the design of the needed non-commercial equipment and drafting the technical specifications for the equipment for the production of CRMs to be supplied under an IPA 2009 supply project.</p> <p>Component 2: Institutional Capacity Building for TAEK</p>	- Technical Assistance Contract	- EUR 4,300,000	<ul style="list-style-type: none"> - Stakeholders are ready to accept their responsibility and willing to cooperate - National Regulations and legislations are revised according to the EU directives for the laboratories to attend the PT schemes. - The reference laboratories for the control laboratories are established and PT schemes are provided by those laboratories. - Public and private organizations support their experts who will participate training programs - The laboratory infrastructure should be enhanced by supply of equipment under a separate complementary project. - Availability of results achieved under previous assistance in order to ensure proper follow-up

<p>2.1 Clear identification of the scope and targeted capabilities for secondary standardisation at TAEK institutes</p> <p>2.2 Consultation on the development/improvement of secondary level standardisation procedures</p> <p>2.3 Consultation on the extension of the current quality management systems at TAEK institutes to the secondary level standardisation activities and support for preparation for participation in the CIPM MRA Calibration and Measurement Capabilities (CMC)</p> <p>2.4 Providing written recommendations on development of primary standardisation.</p> <p>Component 3: Knowledge transfer and human resources development</p> <p>3.1 Familiarizing TUBITAK UME and TAEK researchers with functioning of metrology systems in EU member states with similar economic needs</p> <p>3.2 Organization of consultations and short term and long term trainings for TUBITAK UME and TAEK researchers</p> <p>3.3 Organization of seminars and workshops for the end users</p> <p>3.4 Familiarizing Turkish universities providing education in chemical and ionizing radiations metrology with the</p>			
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<p>status of alignment of EU university programmes in measurement science with the Bologna requirements</p> <p>3.5 Providing consultations to Turkish universities interested in joining Euromaster Joint Degree Programme in measurement science</p> <p>Component 4: Networking and Raising Awareness</p> <p>4.1 Promotion of TUBITAK UME and TAEK among scientific and metrological community at European level</p> <p>4.2 Establishment and improvement of relationships with direct and indirect users of CRMs and metrology services</p> <p>4.3 Establishment and improvement of relationships with universities providing (or interested in providing) a master level university education in chemical and ionizing radiations metrology</p> <p>4.4 Organization of national conferences and events</p> <p>4.5 Support of participation of TUBITAK UME and TAEK experts in international ones</p>			
			<p>Preconditions</p> <p>-</p>