



TWINNING PROJECT FICHE

Building the Capacity of the Egyptian National Institute of Standards in the Field of Metrology

Under the

**Support to the Implementation of the Action Plan
and Association Agreement Programme (SAAP III)**

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LIST OF ACRONYMS

AA	Association Agreement
AA&W	Administration of Assay and Weights
AFM	Atomic Force Microscopes
AFRIMETS	The Intra-Africa Metrology System
BIPM	Bureau International de Poids et de Mesures
CMC's	Calibration Measurement Capabilities CMC's
EGAC	The Egyptian Accreditation Council
EOS	The Egyptian Organisation for Standards and Quality
EU	European Union
EURAMET	European Association of National Metrology Institutes
NEWMETS	Regional Metrology Organization of Non French North African Countries chaired By NIS
NIS	National Institute of Standards
NLF	EU New Legislative Framework
OIML	Organisation Internationale de Métrologie Légale
PhD	Doctoral program
PT	Proficiency Testing
RM	Reference Material
RMOs	Regional Metrology Organizations
PL	Project Leader
RTA	Residential Twinning Adviser
SEM	Scanning Electron Microscopy
SI	Système international d'unités
STDF	Science & Technology Development Fund
STE	Short term expert
TBT	Technical Barriers to Trade
WELMEC	European Cooperation in Legal Metrology
WTO	World Trade Organisation

Twining Project Fiche

1. Basic Information

1.1. Programme: Support to the Implementation of the Action Plan and Association Agreement Programme (SAAP III)

1.2. Twining Reference Number: EG/13/ENP/TR/22

1.3. Title: Building the Capacity of the Egyptian National Institute of Standards in the Field of Metrology

1.4. Sector: Trade and Industry

1.5 Beneficiary country: Arab Republic of Egypt

2. Objectives

2.1 Overall Objective

Supporting the performance of the Egyptian Quality infrastructure within the context of the national reform priorities and in line with the EU and international best practices.

2.2 Project Purpose

Contributing to legislative reform in the field of metrology and to the strengthening of the institutional and technical capacity of the National Institute for Standards (NIS) as the primary holder of metrology in line with the relevant European best practices in standards, norms and processes in the field.

2.3 Contribution to the Association Agreement and ENP Action Plan

The Association Agreement (AA) between the European Commission and Egypt entered into force in June 2004, with the aim of intensifying cooperation on a very wide spectrum of fields. The AA reflects the comprehensive approach of the Barcelona Process and thus contains provisions covering the three pillars of the Euro-Mediterranean partnership: economic, political and socio-cultural dimensions. Trade and Economic cooperation within the context of the AA includes the liberalisation of trade in goods, services and capital movement. It also involves the completion of a Free Trade Area by 2015 (2018 for a limited number of industrial goods). Specifically, Article 47 of the AA stipulates that cooperation between Egypt and the EU will focus on: *Rules in the field of standardization, metrology, quality standards, and recognition of conformity.*

While the AA serves as the legal basis of relations between the two parties, the European Neighbourhood Policy (ENP) Action Plan was adopted by Egypt and the EU in March 2007 to introduce specific and detailed mechanisms to support Egypt's national development strategies and plans with a special focus on areas identified within the framework of the Association Agreement (AA). The ENP Action Plan also seeks to improve Egypt's access to the European Single Market. It also stipulates that joint cooperation could take place in the area of standards and conformity assessment in addition to continuing assistance, and enabling the opening of EU-Egypt negotiations on the Agreement on Conformity Assessment and Acceptance (ACAA)".

On an equally important basis, and as a part of its endeavours to implement the Egypt-EU Action plan, Egypt has embarked on a five-year initiative for the upgrading of its quality infrastructure in four areas: standardization, testing, conformity assessment and certification, and market surveillance. *In this context, Metrology is considered an essential element in the upgrade of this quality infrastructure process.*

Therefore this twinning project is designed specifically for metrology.

This Twinning project should contribute favourably to the above Action Plan priority actions and objectives through specific and measurable results. The project aims at building upon previous technical assistance activities. Through the support of well-established Member State Institutions, National Institute of Standards (NIS) will, inter alia, be able: 1. perform as a modern and effective institution in metrology; 2. participate in international work of international and regional standardisation and metrology organisations; and 3. improve business environment in Egypt strengthening export capacities.

3. Description

3.1 Background and justification:

Since 2004 Egypt has expanded the scope of its overall trade reforms to include trade liberalization and industrial modernization. New tariff schemes were implemented in 2010 reducing the weighted average tariff from 14% to 5.5%. In terms of EU-Egypt trade relations, the EU-Egypt agreement on the trade of agricultural products, processed agricultural products and fishery products entered into force in June 2010, accounting for the bilateral trade liberalization of some 90% of these goods. In order to achieve further liberalization Egypt needs to strengthen its position as regards trade remedy application and utilization. Egypt's first law to comply with WTO trade remedy provisions was Law No. 161 *Concerning the Protection of the National Economy from the Effects of Injurious Practices in International Trade* that was passed in 1998.

As regards industrial policy Egypt's priorities include strengthening the quality infrastructure according to international norms and standards for key industrial sectors. In this context, Egypt is working to open negotiations with the EU on the Agreement of Conformity Assessment and Acceptance of Industrial Products (ACAA), a tool that is expected to favour Egypt's access to the EU internal market and further allow the free movement of goods between the two sides. Signing the ACAA will also be instrumental in promoting EU-Egypt industrial cooperation.

Vertical legislation is being aligned for some priority ACAA sectors - including toys, gas appliances, construction products, electrical appliances, pressure equipment, medical devices, machinery and vehicles and their parts. The horizontal legislation concerning standardization, conformity assessment and accreditation, is also being aligned, but Egypt still lacks a fully-fledged national quality policy as well as a market surveillance strategy. Independence of quality infrastructure institutions needs to be achieved in order to avoid conflict of interests. Conformity assessment bodies are accredited according to international standards, but not in all chosen sectors and they are not yet fully operational to become notified bodies (both at level of competences and equipment). Reliability of test results needs to be enhanced through implementing regular proficiency testing schemes.

The Egyptian Revolution of 25 January 2011 creates a new policy environment as it has introduced many changes in the institutional environment as well as in the socio-political-economic perspectives. It may be expected that governmental policy will focus on economic growth and increasing international trade, for example by ACAA's with the EU.

Metrology is a key component of the quality infrastructure, and even more importantly, it is a fundamental instrument for the implementation of the ACAA's, because of its transparent and indisputable character, since it allows secure transactions, secure fair and effectively grants its role in consumer protection as has been since the onset of trade. Also, metrology, "measurement science", is a factor of progress for society, economy, trade and research. It is the cornerstone of the quality infrastructure, trade facilitation tool and a vehicle for sustainable development that affects various economic, technological and societal needs.

The present legislation in the field of Scientific and Industrial Metrology, Legal Metrology, and Standardization in Egypt is as follows:

- **Metrology:** The presidential Decree No. 433 of 1986 was updated and amended by Presidential Decree No.64 of 2009. These decrees lay down the organizational structure and the tasks of NIS. The National Institute of Standards (NIS) was established in 1963 just after Egypt adhered to the Meter Convention in June 1962. NIS is defined as the scientific organization, which is responsible for establishing the Egyptian Measurement Standards according to the SI units (Système international d'unités).
NIS is signatory to the CIPM MRA (International Committee of Weights and Measures) since October 2000 and has the Calibration and Measurement Capabilities (CMCs) and comparisons published on the BIPM website (Bureau International des poids et mesures).
- **Legal Metrology:** The Law No.1 of 1994 elaborated in further detail in a Ministerial Decree No. 382 of 1998 with an explanatory memorandum. This Law and Ministerial Decree lay down the units of measurement in Egypt (meter, kilogram, second, degree Kelvin, amps, and candle, which are basic SI units). Furthermore, the following measuring instruments such as weights, weighing instruments, length measures, capacity serving measures, and surface measures as well as legal units of measurement are regulated by the Law. The organization, tasks, and personnel competence requirements of AA&W are defined. The standards used by AA&W are declared to be legal standards. The applicable fees, penalties, and marks for the legal verifications and re-verifications are mentioned and moreover, the units for goods sold in transactions are also defined. The criteria used for licensing maintenance and repairpersons by AA&W are also addressed in the Law. The law also covers hallmarking. However, utility meters are not in the scope of legal metrology.
- **Standardization, industrial calibrations and conformity assessment:** The Presidential Decree in the Law No.2 of 1957 concerning standardization is further detailed by the Presidential Decree No.29 of 1957 concerning the establishment of the General Egyptian Authority of Standardization and updated by Presidential Decree No.392 of 1979 concerning the organization of the General Egyptian Authority for Standardization and Production Quality. This regulation gives the organization and tasks of EOS. According to this legislation in Egypt, standards are mandatory... EOS is the Egyptian inquiry point for the WTO and represents Egypt in the international platforms for standardization.

Measuring instruments are used in fields as diverse as transactions in a broad sense (business transactions, tax and postal operations, determination of wages, determining the value of an object, determining the quality of products, product pricing, distribution of goods), official use (judicial expertise, official control, criminal, or administrative sanction decision, regulatory applications), Environmental Protection (air quality, noise pollution), Health Protection (weighing patients, drug manufacturing, analysis labs in biomedical and pharmaceutical), public safety (road safety, control of the police, transport road). Also, daily use of prepackaged products requires their quantity to be controlled. Recognizing the value of metrology and within the context of the establishment of Egypt-European free trade, Egypt has already undertaken actions to strengthen the international recognition of the Egyptian metrology institute NIS by establishing 28 CMCs on the BIPM website. Nevertheless, in the framework of the ACAA priorities this process of international recognition of NIS needs to be accelerated. The ACAA priorities of Egypt are summarized in Annex 3.

As a means, training of Egyptian experts both in Egypt and in Member State or States' institutions should be seen as an important step into the European Union work methods. To cope with highly demanding tasks to be performed by NIS as Egyptian National Metrology Institute (i.e. recognition of its calibrations and measurement capabilities), an involvement of its staff in the project activities shall be made to the widest possible extent. This relates to the calibrations and measurements, testing, participation in international and bilateral inter-comparisons, development of its quality management

system. Seminars for stakeholders such as ministries, industry, calibration and testing laboratories, public institutions interested in metrology issues, accreditation body and other interested parties are seen as an excellent means of contributing to increasing the quality of measurements in the country. Nevertheless, this does not necessarily mean to increase the overall number of NIS personnel, but is mostly aimed at ensuring sustainability of the results of the project.

There is no need to transpose the directives repealed by Dir 2011/17/EU (directive for measuring instruments).

Justifications:

Legal

In the framework of the ACAA's priorities the Egyptian Law on Metrology, including regulation of pre-packaged products, needs to be harmonised with the EU Acquis corresponding to the requirements of international and European Organisations like OIML recommendations and WELMEC Guides.

The laws and decrees in the field of metrology are not fully consistent. The units of measurement as stated in the Law of Metrology do not refer to the relevant CGPM resolutions, although Egypt is a member of the Meter Convention. The Law also lacks reference to NIS as the Egyptian institute that has the task to establish the Egyptian Primary Standards and their international traceability and the task to provide traceability in Egypt. The Law of Metrology does not address the aspect of traceability; in fact, this Law just declares the standards of AA&W as legal standards.

NIS and AA&W Presidents signed an agreement for cooperation in December 2011, and consequently one committee from each institute was established for this purpose. The Law of Metrology addresses only the verification and re-verification of weights, measures of lengths and surface, and capacity serving measures; i.e. it lacks the utility measuring instruments that are regulated in Europe such as water meters, gas meters, electricity meters and heat meters. The non-water measuring instruments (fuel dispensers) are (re-) verified by AA&W by means of capacity serving standards. Moreover, the EU regulated taximeters and exhaust gas analyzers, dimensional measures and automatic-weighing instruments are missing. The EU regulations regarding Metrology and Measuring Instruments are listed in Annex 4.

The Law on Metrology also lacks the justification of the regulation of Measuring Instruments referring to health, safety, environment, taxation, and transparency in trade transactions as for example formulated in the EU Measuring Instruments Directive, MID.

The European approach with type examination of measuring instruments, the application of quality systems, and harmonized standards are absent.

As mentioned above, there is no need to transpose the directives repealed by Dir 2011/17/EU (directive for measuring instruments).

Metrology infrastructure development

NIS and AA&W have the intention to merge, which is in line with the practice in most EU Member States and it will smoothen the process of adoption of EU Metrology Directives. The National Institute of Standards NIS is under the jurisdiction of The Ministry of Scientific Research while the legal metrology organization known as the Administration of Assay & Weights AA&W became under the Ministry of Solidarity & Social Justice one year ago after having been under the Ministry of Industry and External Trade as per article (1) in the decree of the President of the Supreme Council of the Armed Forces No.19/2011. Around 5 months ago the name of the Ministry of Solidarity & Social Justice was changed to the Ministry of Supply & Home Trade.

Presently NIS does not represent the Legal Metrology Organization in Egypt; however, standards of AA&W are sent to NIS for calibration. AA&W follows LAW 1/1994 after the cancelling of LAW 69/1976. Although the role of the Weights and Measurements Department at AA&W is to secure the accuracy, precision and perfection of weight measure and volume measure instruments. Also, testing, calibrating, repairing instruments, and checking specifications, in addition to repairing and maintaining balances. The Assay Department's role is to check, analyse, and stamp Gold, silver, Platinum, wares, articles etc. and also to prohibit cheating, counterfeiting and to secure the public benefits & rights.

Management capacity

Many personnel restraints are identified at NIS. The governmental salary structure prevents the deployment of technical personnel. Only personnel of the highest academic level, using scientific salary structures, can be employed for a longer term. Due to the same academic salary structures it is difficult to attract young scientists, while senior academics are not stimulated to perform on the highest level. In addition, it is noticed that the administration is overstaffed, and this creates an imbalance between high-level senior academic staff, young scientists, technical staff and administrative staff. This is a disadvantage for an Institute like NIS that has to provide technical services when it is not able to compete on the labour market for qualified technical personnel. Provision of EU examples of flexible staff solutions for institutes under civil servant regulation is needed. Moreover the level of implementation of Quality Systems needs improvement. Some NIS laboratories still need to implement ISO 17025 quality system, while some other laboratories just need to improve the implementation of certain requirements. This process can be boosted by providing examples from implementations at EU sister institutes. (Refer to Annex 3 on the proposed institutional and management capacity improvements)

NIS technical competences

Related to the present staff situation at NIS, the team identified a need for internships, study visits, liaisons to international platforms and training in for example CMC-procedures, uncertainty analyses, measurement methods, environmental lab conditions, equipment specifications and hands-on training and quality system implementation. Moreover, the scope of measurement and testing activities needs to be extended and the establishment of CMC's on the BIPM website improved.

The ACAA priorities for Egypt as provided by DG Enterprise are listed in annex 3 based on these priorities the metrology priorities are as follows: Mass, Electricity (with a special attention to high resistance measurements), thermometry, length (surface and roundness, CMM), pressure, volume, flow, RM's of gasses, RM's metals and organic pollutants, flammability, polyethylene and polypropylene, textile colour scale, gas flowmetry, dosimetry, acoustics, ultrasonic, photometry and radiometry.

NIS ready to be Notified Body for Metrology

In an attempt to allow NIS to act as an efficient and functioning notified body for metrology, the legal and scientific metrology should be intertwined. For this purpose, the possible merger between both the NIS and AA&W would eventually allow NIS to act as a notified body for metrology with both the legal and scientific functions. Weighing and volume will be focal areas of co-operation between NIS and AA&W in their efforts to merge.

Training in the implementation of ISO 17020 systems, (re-) establishment of traceability and training in verification procedures is needed. In the framework of the NIS-AA&W co-operation many of these knowledge transfer needs maybe addressed. Support is needed in train-the-trainer approach so that NIS can guide AA&W in these issues.

3.2 Linked activities

In the recent years, a number of projects financed by different donors have been contributing for development and strengthening of the Egypt quality infrastructure institutions (standardisation, metrology, and accreditation). Below is a summary of the main interventions.

In the past projects were executed to support the quality infrastructure in Egypt. In March 2011 a two and a half year twinning project *Building the Capacity of the Egyptian Accreditation Council (EGAC) to Deliver Accreditation Services* was completed. The twinning member state partner of EGAC was a consortium of the United Kingdom and Sweden more specifically BSI, SWEDAC & UKAS .

The overall purpose of this project was to contribute to the improvement of the Egyptian Accreditation Council's (EGAC) role in the area of conformity assessment; paving the way for the Agreement on Conformity Assessment and Acceptance (ACAA) being negotiated between Egypt and the EU.

On the national level, EGAC capacities has been enabled to carry out a wide range of additional assessment activities that will be beneficial to the Egyptian economy in the coming years.

On the international scene, EGAC achieved full recognition by both the International Laboratory Accreditation Cooperation (ILAC) and the International Accreditation Forum (IAF) and has been accepted in an associate capacity by the European Cooperation for Accreditation (EA). Finally, EGAC has been invited to enter into a Cooperation Agreement with the United Kingdom Accreditation Service (UKAS) for Northern Africa and the Middle East. This is a considerable accolade.

EGAC, as a result of this project, is now slightly ahead of the Egyptian market in that it is now aligned with European practices. This may result in some delays in up-take, while other sectors of the Quality Infrastructure catch up.

In particular, the upcoming Agreement on Conformity Assessment and Acceptance of Industrial Products (ACAA) between the EU and Egypt will require the Egyptian quality institutions (including but not limited to EGAC) to gain a number of additional skills and capabilities.

A separate programme to improve the quality infrastructure is being planned. A Financing Agreement for the "Trade and Domestic Market Enhancement Programme" (TDMEP) was signed in November 2012 and implementation of the programme is due to commence in the 2nd quarter of 2013. This EUR 20 million programme for the Ministry of Industry and Trade is structured around two components i) **foreign trade and trade agreements** and ii) **industrial policy and quality infrastructure**. The first component aims at improving rules and procedures relating to foreign trade (import/export law, IPR law, trade remedies, etc), as well as at reinforcing the capacity of the Ministry to negotiate trade agreements and to analyze implications of international agreements. The second component will focus on the establishment of a proper regulatory environment for the initiation of negotiation on ACAA including National Quality Policy, horizontal and sector legislation, and supporting the alignment of quality infrastructure bodies.

Some activities for the Technical Assistance for Information Exchange (TAIEX) instrument has been conducted in the field of quality as follows:

- The National Institute for Standards (NIS) benefited from a seminar on Legal and Scientific Metrology & Conformity Assessment on the first and second of March 2010.
- 2 Seminars on the New legislations in the internal market were organized for the Egyptian Council for Accreditation (EGAC), the National Quality Institute (NQI) and the Egyptian Organization for Standardization and Quality (EOS) on April and November 2010.
- A seminar entitled "From REACH to global product strategy (GPS) - Product stewardship (PS) - Classification, labelling and packaging of hazardous substances and mixtures (CLP)/Globally harmonized system (GHS)" was held on September 2010 for the Egyptian Organization for Standardization (EOS) and The Chamber of Chemical Industries at the Federation of Egyptian Industries.

- An expert visit was conducted in January 2011 for The Egyptian Organization for Standardization (EOS) on Standards and Conformity Assessment on Vehicle Industry. An expert visit on the Accreditation of forensic laboratories in was held for The Egyptian Accreditation Council. (EGAC) in February 2012
- An expert visit for the Egyptian Organization for Standardization (EOS) on Assessment of the Egyptian Market Surveillance System was held in July 2011.
- A seminar was held for The International Electro technical Commission(IEC) National Committee of Egypt and the Egyptian Organization for Standardization (EOS) for Better Understanding of European Electro technical Standardization on May 2012
- A workshop for The Egyptian Organization for Standardisation (EOS) was held on the European Standardization and Certification Systems - Key aspects of Operations. (CEN-CENELEC) in June 2012.

It should be highlighted that the Twinning Project must as well be fully coordinated with the European Commission's activities and the other donors' initiatives.

3.3 Results

3.3.1 Result 1: New legislation and technical regulations harmonized with the EU Acquis.

The following results are foreseen:

- New and Old Approach EU directives in legal metrology and pre-packaging fields transposed.
- Egyptian legal experts familiarized with a methodology for transposition of EU Acquis for metrology and pre-packaging into national legislation.
- Legislation drafts developed and ready to be proposed to the legislator. On the primary legislation level, an amended law on metrology Law 1 / 1994 produced.
- Secondary legislation drafts (decrees and / or decisions) developed.
- An information campaign conducted and facilitated by NIS for relevant stakeholders to familiarize them with EU harmonization, at least two seminars organized

3.3.2 Result 2: Promotion of European approach on a national metrology infrastructure.

The following results are foreseen:

- Information on the institutional integration of Scientific, Industrial Metrology and Legal Metrology and a model for the intended merging of NIS and AA&W provided.
- Examples provided of relations between scientific, industrial, legal metrology, and hallmarking in the EU Member States
- Provide a model for efficient co-operation between NIS and AA&W in line with the new metrology legislation

3.3.3 Result 3: Alignment of national metrology system with internationally recognized best practices through implementation of international standards in quality management.

The following results are foreseen:

- Implementation of the quality system improved
- Support provided for the establishment of a quality system network
- Implementation of the quality systems in the laboratories boosted
- Marketing & PR capacity strengthened
- PT department strengthened
- Support NIS in AFRIMETS and NEWMET, at least two international Conferences of NEWMET at NIS provided
- Calibration activities supported and feasibility studies conducted on what calibration facilities are needed.
- As regards CMC procedures related to ACCA priorities, at least 6 priority areas for CMC's addressed in the project.
- As regards knowledge in RM's, trainings performed.

3.4. Activities

The Twinning will allow for the development of a close relationship with a Metrology and Conformity Assessment bodies of an EU Member state¹. The listed activities and the proposed means for achieving the activities are indicative and can be revised in the framework of the preparation of the contract between the twinned institutions.

A.0 General Activities

A.0.1 Kick-off Workshop

Method

The first month of the project will be used to allow the installation of the Resident Twinning Adviser (RTA) in Egypt. The RTA will have to be installed in his/her office at the NIS. S/he will be introduced to the BC stakeholders of the project and to his counterparts and staff. S/he will also hire an Assistant (RTA Assistant) through an appropriate selection procedure.

¹ Several MS, in case of a consortium

A one-day kick-off meeting will be organised in the first month aiming at launching and presenting the project to the stakeholders, the media and the public at large, attended by the PL and heads of components. In order to guarantee large public information about the start of the project, the meeting will be concluded with a press conference and a press release.

Benchmarks: Stakeholders, media and public informed about the start and content of the project by start of month 2

A.0.2 Final Closing Conference

Method

During the last two months of the project, a closing conference will be organised at which the results of the project will be presented to the general audience. The state of play in the areas of the project's interventions will be discussed with the beneficiary, the Government, the civil society and other donors and stakeholders. The ceremony will be attended by the PL and heads of components. The conference will be concluded with relevant recommendations for possible follow-up and lessons learnt for similar projects.

Benchmarks: Closing Conference organised,
Recommendations and Lessons learnt formulated and discussed
Stakeholders, media and public informed about the results of the project at its end.

Component 1: "New legislation and technical regulations harmonized with the EU Acquis"

1.1. Seminars on the Transposition of the EU requirements into national legislation

Method

EU expert will develop necessary material and carry out seminar on how EU directives are being transposed in several EU member states. At least 6 relevant EU directives including (2009/23/EC on NAWI, 2004/22/EC + 2009/137/EC on MID, 2009/34/EC (codified 71/316/EEC), 76/211/EEC with the latest amendments, 75/107/EEC on measuring container bottles, and 80/181/EEC with the latest amendments made by 2009/3/EC on units of measurement will be covered. The seminars are primarily intended to the Egyptian legal experts, and are open to the other relevant experts. The beneficiary should establish a working group of experts for development of necessary regulations with the EU expert providing guidelines and explanations. In addition, OIML D 1 should also be discussed in detail among the participants.

Benchmarks: 2 seminars carried out, material distributed

1.2 Support in drafting amendments to the Law on Metrology

Method

Taking into account information provided in activity 1.1, the EU expert will perform careful analysis of the law in force and will develop necessary reports in writing. The reports shall be discussed (e.g. by the means of round-tables) with the high ranking civil servants and legal experts (refer to activity 1.1), other regulatory bodies and enforcement executives (e.g. market surveillance authorities), and representatives of industry and sectors (Business Associations, etc.). Drafts will be produced by

Egyptian experts and discussed with the EU expert on regular basis. The draft Law should be submitted for adoption.

Benchmarks: Law revised, recommendations submitted, draft submitted for adoption

1.3. Support in drafting secondary legislation on tasks and responsibilities of CABs

Method

Taking into account information provided in activity 1.1, the EU expert will perform careful analysis of the secondary legislation in force in metrology and pre-packaging fields and will develop reports containing gap analysis and recommendations in writing. These will include: a) Elaborate the details of units of measurements; b) Define the tasks and responsibilities of the national laboratory; c) Elaborate the conformity assessment procedures; d) Elaborate the designation procedure including tasks and responsibilities of conformity assessment bodies; e) List the regulated instruments; f) Elaborate regulation for Pre-packaged products; g) List the tasks and responsibilities of the administration responsible for re-verification and market surveillance; h) Set the tariffs for the legal metrology services. The reports shall be discussed (e.g. by the means of round-tables) with the high ranking civil servants and legal experts (refer to activity 1.1), other regulatory bodies and enforcement executives (e.g. market surveillance authorities) and representatives of industry and sectors (Business Associations, etc.). Drafts will be produced by Egyptian experts and discussed with the EU expert on regular basis. The draft legislation should be submitted for adoption by the BC authorities together with the transposition tables.

Benchmarks: 2 roundtables carried out, material distributed, drafts produced

1.4. Carrying out information campaign on the EU harmonisation

Method

EU experts will support development of training material to the general audience, local industry, market surveillance and consumer protection agencies on the EU harmonisation in metrology and pre-packaging fields. Relevant information should be published on websites of NIS and other public authorities and 2 seminars for major stakeholders (including industry) should be organised. Egyptian experts should lead the seminars and the EU experts will support them.

Benchmarks: 2 seminars carried out, material disseminated

1.5. Study visits to member state (s) administration (s) for Egyptian specialists

Method

During the technical regulation drafting period six specialists will be given an opportunity of a study visit to a similar institution of the EU. They will use this period to discuss the draft laws and technical regulations and discuss enforcement issues, organisation and management of conformity assessment, market surveillance, accreditation, testing fields. As a part of a mission, due attention and exchange of information shall take on experience in preparation of legal metrology experts. RTA and MS PL will contribute to organisation of the visit.

Benchmarks: Study visit report (to be submitted in two weeks after the visit)

Component 2: Promotion of European approach on a national metrology infrastructure

2.1 Round tables on relations among scientific, industrial, legal metrology and hallmarking in selected EU Member States

Method

EU experts will discuss the existing needs with the beneficiary; develop necessary training material on relevant issues, such as setting up, interaction of scientific metrology organisations, industrial metrology laboratories and legal metrology authorities. The round tables will be organised with practical examples from at least five EU Member States and discussed with the experts of the beneficiary in order to define the most suitable elements for Egypt's metrology infrastructure. Results of discussion will be recorded and delivered in a presentation. NIS, MoE, other interested ministries and bodies along with selected private and public regional laboratories' staff will participate in the final event.

Benchmarks: 2 Round-tables, training, mapping completed, presentation produced

2.2. Study visit concerning metrology and hallmarking infrastructures in the EU Member States.

Method

After completion of activity 2.1, selected 6 Egypt's specialists will be given an opportunity of a study visit to a selected institution(s) of an EU Member State. They will use this period to discuss the present and future trends in the operation and improvement of metrology and hallmarking infrastructures, discuss enforcement issues, organisation and management of calibration, conformity assessment, market surveillance, accreditation fields, as well as training of specialists. As a part of a mission, due attention and exchange of information shall take on experience in preparation of legal metrology experts.

Benchmarks: Study visit report (to be submitted in two weeks after the visit)

Component 3: Alignment of national metrology system with internationally recognised best practices through implementation of international standards in quality management

3.1 Support in quality management system development and implementation

Method

A team of EU experts will discuss the existing needs relevant to implementation of ISO 9001, ISO 14001, ISO 18000, ISO 15189, ISO Guide 34, ISO 17025, and ISO 17043 with the beneficiary. The EU experts will develop necessary training material and preparation for implementation of quality management system on relevant issues, such as combination of various requirements in one quality management system, training of internal auditors and assessors, carrying out assessments etc. and carry out trainings for staff of the beneficiary. The EU experts will provide NIS with a full set of quality system documentation based on each of the above mentioned ISO standards. Map for further development of QMS should be made.

Benchmarks: Training carried out, certificates issued, mapping exercise done, and quality system documentation

3.2. Support in development QMS documentation

Method

Following activity 3.1, the EU experts will discuss the existing needs with the beneficiary, and provide support to the team of the beneficiary's experts working on development of quality management system according to the standards listed in 3.1. Support will be summarised in a report.

Benchmarks: Report produced and submitted to the beneficiary

3.3. Support in implementation of the quality management system in NIS

Method

EU experts will discuss the existing needs with the beneficiary, review needs for training personnel of the beneficiary, in particular, internal auditors and technical assessor. The expert will also support the boosting the implementation of quality system in the laboratories. Training materials should be produced and training delivered to the staff of the beneficiary. At the end of planned implementation of a QMS, a joint peer-assessment should be carried and results reported in writing.

Benchmarks: Training performed, peer assessment made, report produced

3.4. Support strengthening of marketing and PR capacity

Method

EU expert will discuss the existing needs with the beneficiary, design leaflets and brochures for NIS services, prepare a study for marketing the NIS services in the Arab region and in Africa, prepare a feasibility study model, carry out training for NIS marketing officers on implementation of the study. RTA will supervise implementation of the study. Finally, RTA and STE will provide a report on the results and further recommendations.

Benchmarks: Leaflets, brochures and reports produced, disseminated, staff trained, feasibility study model

3.5. Strengthening proficiency testing department

Method

EU expert will discuss the existing needs with the beneficiary, prepare training programme for the staff of the department and carry on detailed training on ISO 17043, including conducting PT schemes. After the training, the team of appointed Egyptian experts will be guided by the EU expert to development of relevant quality management system documentation, such as policy, procedures, templates and forms enabling to act NIS as a PT provider. The experts will also support the estimation of uncertainty of measurements in clinical analysis.

Benchmarks: Training performed, certificates issued, QMS and reports produced

3.6. Support NIS in AFRIMETS and NEWMET

Method

EU experts will support NIS in AFRIMETS and NEWMET through contribution to organisation of two NEWMET conferences.

Benchmarks: Presentations delivered

3.7. Feasibility studies on calibration activities and training on calibration issues

Method

EU experts will assess the existing situation in the NIS and provide training and relevant services in the following areas (a) Flux meters - Calibration of flux meters (flammability); (b) Medical devices - detailed study to establish calibration laboratory for medical devices; prepare calibration methods for medical devices; make estimation of the uncertainty budget of calibration for medical devices; make estimation of uncertainty budget in clinical tests; (c) Nano–Metrology - detailed study to establish Nano-Metrology activity at NIS; calibration of Atomic Force Microscopes (AFM); calibration of solar cells; calibration of SEM; (d) Time and Frequency - Time interval and frequency measurements; Microwave measurements; (e) Temperature and Humidity - Humidity measurements and dew point; training on preparation and assembly of the eutectic fixed points, on thermal conductivity and permeability measurements, (f) in Ionizing Radiation - Primary standard estimation of Airkerma Medium x-ray using free air ion chamber; neutron calibration using the international codes of practice; (g) in mass - calibration of density hydrometers using the method of hydrostatic weighing; establishing the mercuric barometer which is used for laser system in measurements; (h) in flow - calibration of liquids' flow measuring equipment; calibration of gas and liquid petroleum measuring equipment.

Benchmarks: Training performed, calibration procedures drafted, certificates issued

3.8. Training on CMC procedures related to ACAA priorities and peer-review of draft CMCs.

Method

EU experts will discuss needs of the beneficiary. After identification exercise the STEs will carry out training on CMC procedures and will carry out of the draft CMCs of the NIS. These will include: a) Performing primary calibration and preparation of primary calibration methods; b) Estimation of uncertainty of measurements of primary calibration; c) Validation of in-house calibration methods; d) Preparation of key comparison protocols; e) Analysis and evaluation of the comparison results; f) Preparation of the comparisons final reports.

The experts and staff of the beneficiary will discuss findings in a round-table.

Benchmarks: Training material, reports and recommendations

3.9. Training on metrology in chemistry

Method

EU expert will review current and future needs of NIS in the field of metrology in chemistry and provide training material. An EU RM specialist will stay in laboratory with each NIS team to implement a full protocol of certification of RM. (refer to Annex 3 on the proposed training with regards to the preparation and certification of reference materials)

Benchmarks: Training material, reports.

3.5 Means

3.5.1 Profile and tasks of the Project Leader (PL)

The PL will be responsible for the overall planning and implementation of the trust f member states' inputs in this Twinning project. The PL will be expected to devote a minimum of 3 days per month to the project, in addition to one visit to the beneficiary every 3 month. In addition, he will coordinate, from the Member state side, the Project steering Committee (PSC), which will meet in Egypt every three months.

Profile:

- A university degree relevant to the field of Metrology and sound experience in the field of metrology with good understanding of other subjects and, during that period, he/she must have been in an active senior/medium management position in the Member State institution for at least 3 years;
- Have experience in the field of project management, institutional issues and organisation of national quality infrastructures to the European requirements;
- excellent command of English
- PL should have excellent inter-personal and leadership skills
- Knowledge of EU legislative and operational activities, and BIPM and EURAMET activities, related to the various components of the project.

Tasks:

- Overall co-ordination, guidance and monitoring of the project;
- Preparation of project progress reports with support of RTA;
- Timely achievement of the project results;
- Co-chairing of project steering committee meetings;
- Provision of legal and technical advice and analysis whenever needed.

3.5.2 Profile and tasks of the RTA

One **Resident Twinning Adviser** (RTA) over a period of 24 months as well as medium/short term experts will implement the above-listed components. The RTA has the responsibility to guide the work of the team and provide support in elaboration, implementation, auditing and peer-evaluation of QMS of NIS as well as in liaising with regional metrology organisations on participation of Egypt's experts in international events.

The RTA is expected to fill the following profile:

- A university degree and sound experience in the field of metrology or conformity assessment;
- At least 5 years of experience in management position;
- Sound comparative knowledge of relevant EU legislative and institutional requirements related to the various components of this project;
- Wide knowledge of related good practice/EU legislation and demonstrated experience on transposition of New and Old Approach directives and relevant EU regulations on metrology and conformity assessment into national legislation;
- Solid knowledge of metrology, standardisation and conformity assessment legislation, work methods and procedures;
- Previous experience in project management would be an asset;
- Experience in working on similar projects would be an asset;
- Good training, public speaking, diplomatic and written communication skills;
- Excellent computer literacy (Word, Excel, Power Point);
- Excellent command of spoken and written English;
- Experience in implementation of QMS according to ISO/IEC 17025, ISO/IEC 17020 or EN 45011 would be an asset;

Tasks:

- Overall supervision of the project implementation and coordination of all activities, as well as management of the project administration;
- Coordination of the activities of the team members in line with the agreed work programmes to enable timely completion of project outputs;
- Provide technical input to the project whenever needed and provision of advice in his/her field of expertise;
- Liaise with MS and BC Project Leaders and daily contacts with BC RTA counterpart;
- Co-preparation of project progress reports with Project Leader;
- Liaison with EUD/ SAAP-PAO Project Manager;
- Arranging internships and study tours in the EU for staff of the NIS,
- In cooperation with NIS shall undertake an assessment for the infrastructure and supplies needed for NIS (if deemed necessary) with a possibility of reflecting this as an activity at a later stage,
- Liaison with other relevant projects and Egyptian institutions.

The RTA will have a full-time assistant (RTA Assistant) for the entire duration of the project and for the purposes of translation, interpretation and with regards to general project duties assigned by the RTA as required.

3.5.3 Profile and tasks of the medium/ short-term experts

Act. N ^o	Task	Profile of the Experts
1.1	Seminars on the Transposition of the EU requirements into national legislation.	STE1: Legal Expert University degree in Law or equivalent professional experience in the field of metrology Sound experience in harmonization of legislation and technical regulation with the EU Acquis and experience in awareness raising campaigns

Act. N ^o	Task	Profile of the Experts
1.2	Support in drafting amendments to the Law on Metrology.	<p>STE2: Legal Metrology Expert</p> <p>University degree in Law or equivalent sound experience in the field of metrology legislation</p> <p>At least 5 years' experience with State Metrology or working in a National Metrology Institute</p> <p>At least 5 years' experience in support in drafting metrology legislation harmonized with EU Acquis and transposition of NAWI, MID, units of measurement Directives and experience in awareness raising campaigns in this field</p>
1.3	Support in drafting secondary legislation on tasks and responsibilities of CABs.	<p>STE2: Legal Metrology Expert</p> <p>University degree in Law or equivalent sound experience in the field of metrology legislation</p> <p>At least 5 years' experience with State Metrology or working in a National Metrology Institute</p> <p>At least 5 years' experience in support in drafting metrology legislation harmonized with EU Acquis and transposition of NAWI, MID, units of measurement Directives and experience in awareness raising campaigns in this field</p> <p>STE3: Expert in pre-packaged products regulation</p> <p>University degree in Law or equivalent sound experience in the field of metrology legislation</p> <p>At least 5 years' experience with State Metrology or working in a National Metrology Institute</p> <p>At least 5 years' experience in support in drafting metrology regulation and transposition of pre-packaged products regulation according to the EU Directive EC/76/211 and experience in awareness raising campaigns in this field</p>
1.4	Carrying out information campaign on the EU harmonisation	<p>STE1: Legal Expert</p> <p>and</p> <p>STE2: Legal Metrology Expert</p> <p>and</p> <p>STE3: Expert pre-packaged products regulation</p> <p>As per activities 1.1 to 1.3</p>
1.5	Study visits to at least 2 member state administrations for Egyptian specialists	RTA, MS PL
2.1	Round tables on relations among scientific, industrial, legal metrology and hallmarking in selected EU Member States.	<p>STE4: Institutional Metrology Expert</p> <p>University degree in public administration or equivalent sound experience in the field of institutional building in the field of metrology</p> <p>Sound experience with State Metrology or working in a National Metrology Institute on high managerial level</p> <p>Experience in at least 2 projects in support in institutional strengthening of State Metrology Institutes</p>

Act. N ^o	Task	Profile of the Experts
		<p>and experience in support in the relations with Ministries in this field.</p> <p>STE5: Institutional building Expert</p> <p>University degree in public administration or equivalent sound experience in the field of institutional building in the field of metrology and hallmarking.</p> <p>Sound experience with State Metrology or working in a National Metrology Institute on managerial level.</p>
2.2	Study visit concerning metrology and hallmarking infrastructures in the EU Member States.	RTA, MS PL
3.1	<p>Support in quality system development and implementation:</p> <ul style="list-style-type: none"> • Training on the content of the relevant standards (ISO 17025, ISO 34, ISO 15189, ISO 17043, ISO 9000, ISO 14000, ISO 18000) • Provision of a complete set of quality documentation including the quality manual, the technical procedures and the management procedures • Training on uncertainty calculation when relevant • Training on internal audit 	<p>STE6: Quality Management Expert</p> <p>University degree in Quality Management or equivalent sound experience in the field of Quality management System Implementation in the field of metrology</p> <p>Sound working experience in a State Metrology Institute and at least 8 years' experience as Quality Manager working in a National Metrology Institute with an implemented quality System network</p> <p>Preferably at least 8 years' experience in support in Quality System implementation in State Metrology Institutes</p> <p>Preferably member of relevant EURAMET TC</p>
3.2	Support in establishing a quality system network at NIS.	<p>STE6: Quality Management Expert</p> <p>University degree in Quality Management or equivalent sound experience in the field of Quality System Implementation in the field of metrology</p> <p>At least 5 years' working experience in a State Metrology Institute and at least 5 years' experience as Quality Manager working in a National Metrology Institute with an implemented quality System network</p> <p>Preferably at least 5 years' experience in support in Quality System implementation in State Metrology Institutes</p> <p>Preferably member of relevant EURAMET TC</p>
3.3	Support in boosting the implementation of quality management system in NIS.	<p>STE6: Quality Expert</p> <p>As per activity 3.1 and 3.2</p> <p>STE7: Quality Expert in the field of Metrology</p> <p>University degree in Quality Management or equivalent</p>

Act. N ^o	Task	Profile of the Experts
		<p>professional experience of a minimum of 15 years' in the field of Quality Management System Implementation in the field of metrology</p> <p>At least 5 years' experience in a State Metrology Institution and at least 5 years' experience as Lab Quality Coordinator in the selected field</p> <p>Preferably at least 8 years' experience in support in Quality Management System implementation in State Metrology Institutes on Laboratory level</p>
3.4	Support the strengthening of the marketing, feasibility studies and PR capacity.	<p>STE8: PR and Awareness Raising Expert</p> <p>University degree in PR or equivalent professional experience of a minimum of 8 years' in the field of PR in the field of metrology</p> <p>Working experience of at least 8 years in a National Metrology Institute.</p> <p>Preferably at least 5 years experience in PR and awareness campaigns and raising awareness groups</p>
3.5	Strengthening proficiency testing department.	<p>STE9: PT Expert</p> <p>University degree in Quality Management or equivalent sound experience in the field of Implementation of PT Schemes</p> <p>Working at least 5 years in a Metrology Institution with an accreditation for PT Schemes and at least 8 years' practical experience in PT Schemes</p> <p>Preferably at least 5 years experience in supporting and training for PT activities.</p>
3.6	Support NIS in AFRIMETS and NEWMET,	<p>STE10: International Metrology Expert</p> <p>University degree in Physics, Chemistry or Metrology or equivalent sound experience in the field of Metrology</p> <p>Sound experience in working in a State Metrology Institute on managerial level</p> <p>Preferably at least 5 years' experience in Metre Convention and/or EURAMET platforms</p>
3.7	Feasibility studies on calibration activities and training on calibration issues	<p>STE10, STE 11, 12, STE 13, STE 14, STE 15: Metrology Experts</p> <p>University degree in Physics, Medicine, Chemistry or Metrology or equivalent professional experience of a minimum of 8 years in the field of Metrology</p> <p>Working at least for 8 years in a Metrology Institute in selected calibration activities</p> <p>Sound experience in working in a State Metrology Institute in selected CMC's fields</p> <p>Preferably participating in relevant EURAMET TC</p>
3.8	Training on CMC procedures related to ACAA priorities and peer-review of draft CMCs.	<p>STE10, 11, 12, 13, 14, 15: Metrology Experts</p>

Act. N ^o	Task	Profile of the Experts
3.9	Training on metrology in chemistry: <ul style="list-style-type: none"> • Polymers CRM • Textile Colours • pH and conductivity • Flammability – Gases • Isotope RM 	STE16: Metrology Expert University degree in Chemistry or Metrology or equivalent sound experience in the field of RM's Sound experience in working in a Metrology Institute in selected RM's fields Preferably member of CCQM and/or relevant EURAMET TC

In addition to their missions in Egypt, the short-term experts are expected to contribute actively to elaborating the programmes of the foreseen study visits and internships.

4. Institutional Framework

The Egyptian Quality Infrastructure System is divided among two Ministries and three main Institutions. These are the Ministry of Trade and Industry and the Ministry of Scientific Research. The Institutions are as follows:

- **The National Institute of Standards (NIS)**, holder of all of the Egyptian Metrology National Standards or Etalons,
- **The Egyptian Organisation for Standards and Quality (EOS)**, holder of the National and agreed International manufacturing and quality standards
- **The Egyptian Accreditation Council (EGAC)**, the internationally recognised accreditation body for Egypt.

Legal Metrology executed by AA&W although separate from NIS may obtain its traceability from NIS and is a part of the Ministry of Social Solidarity. NIS and AA&W have the intention to merge, which is in line with the practice in most EU Member States and it will smoothen the process of adoption of EU Metrology Directives. The National Institute of Standards NIS is under the jurisdiction of The Ministry of Scientific Research, while the legal metrology organization known as the Administration of Assay & Weights AA&W became under the Ministry of Supply & Home Trade.

Furthermore, the other stakeholders such as the Ministries, public agencies and private or semi-private organisations, testing and calibration laboratories will be involved in the execution of the project activities. Universities should also be invited to take part in certain meetings and trainings.

Many personnel restrains exist at NIS. The governmental salary structure prevents the deployment of technical personnel. Only personnel of the highest academic level, using scientific salary structures, can be employed for a longer term. It is difficult to attract young scientists, while senior academics are not stimulated to perform on the highest level. In addition, it is noticed that the administration is overstaffed, and this creates an imbalance between high-level senior academic staff, young scientists, technical staff and administrative staff. Provision of EU examples of flexible staff solutions for institutes under civil servant regulation is needed. Quality management system to ISO/IEC 17025 has not yet been fully implemented.

5. Budget

The maximum total budget available for the Twining project is € **1.100.000** million.

6. Implementation Arrangements

It will be necessary for the beneficiary to provide the project team with suitable office accommodation within its building and close to the beneficiary's Project Leader for the RTA, RTA counterpart, RTA Assistant and STEs.

6.1. Implementing Agency

The Programme Administration Office (PAO) is in charge of the coordination of all the activities and the administrative management of the Support to the Association Agreement Programme. The PAO will be the responsible institution for the management of this twinning project. It manages the tenders, contracts and payments and this, in accordance with the procedures of ex-ante control defined in the Practical Guide to contract procedures financed from the General Budget of the EC in the context of external actions.

Contact details of the contracting authority responsible of the contract:

Ambassador Gamal Bayoumi - Programme Director

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Fax: +202 2 792 05 83

Email: gbayoumi@ee-aa.net

6.2 Main counterpart in the Beneficiary Country

National Institute of Standards, NIS

BC Project Leader

Name: Prof. Dr. Adel B. Shehata – NIS President

Address: 63 Tersa Street, El Haram, Giza, Cairo Egypt

Tel.: +202 33 889 760

Fax: +202 33 867 451

Email: ashehata@nis.sci.eg / OR Adelshehata63@yahoo.com

RTA counterpart

Name: Prof. Dr. Mohamed Ali M. Hassan

Title: Vice President

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A new Financial Regulation applicable to the general budget of the European Union entered into force on 1st January 2013¹. This implies several changes to the Twinning contract templates. An updated version of the Twinning Manual and of its Annexes, incorporating these changes, is in preparation and shall be published soon

¹ Financial Regulation: Regulation (EC, Euratom) No 966/2012 of the European Parliament and of the Council of 25 October 2012 on the financial rules applicable to the general budget of the Union and repealing Council Regulation (EC, Euratom) No 1605/2002. <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2012:298:0001:0096:EN:PDF>

Rules of Application: Commission Delegated Regulation (EU) No 1268/2012 of 29 October 2012 on the rules of application of Regulation (EU, Euratom) No 966/2012 of the European Parliament and of the Council on the financial rules applicable to the general budget of the Union.

<http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2012:362:FULL:EN:PDF>

6.3. Contracts

The project will be implemented through one twinning contract.

7. Implementation schedule (indicative)

7.1. Launching of the call for proposals (March 2013)

7.2. Start of the project activities (October 2013)

7.3. Project completion (October 2015)

7.4. Duration of the execution period (number of months) 27 months (24 implementation plus 3 closure).

8. Sustainability

The sustainability of the project will be achieved through a suitable implementation of the project activities and availability of trained personnel in the metrology and standardisation infrastructure. Transfer of know-how within the institutions involved (at both levels of NIS and relevant stakeholders) and liaison of NIS with international platforms will contribute to sustainability. All training materials elaborated under the Twinning Project will continue to be used by the NIS after the project's completion. All materials - Training Materials, Methods and Manuals elaborated within the project shall be submitted, both in English and in Arabic, where relevant, so as to ensure smooth dissemination of the project results and sustainability of results. The Egyptian Government, through the provision of relevant funding to NIS in order to implement its tasks, will ensure the financial sustainability of the outputs attained by the project. The institutional sustainability of the project results will also be guaranteed by the direct involvement of the NIS, which will ensure improved connections of staff with other relevant actors in the field of metrology.

In addition, the ENP-AP and the Association Agreement clearly indicate that a reform process in the quality infrastructure, focused on metrology, in line with the harmonization to the EU Acquis, represents a high priority for the cooperation between Egypt and the European Union in the next coming years; in this sense, the key role of the NIS in coordinating and facilitating the process of providing traceability is expected to become even more important in the future. Furthermore, needs of the local and international businesses in calibrations and measurements as well as needs of public authorities in technical issues and participation in (inter)national metrology activities are expected to contribute to maintaining high level services on a constant basis in NIS.

Finally, the firm commitment of Egyptian stakeholders involved in metrology at all levels (Relevant Ministries, State Universities, Metrology laborites and industry will guaranty the internal dissemination and communication of the results and output). The Egyptian – Europe program: Trade and Domestic Market Enhancement Programme (TDMEP) for the strengthening of the Egyptian quality infrastructure represents an important guarantee for the sustainability of the project results.

9. Cross cutting issues

9.1. Equal Opportunity

The principle of equal opportunity will be integrated into all stages of the project implementation. Practices in ensuring equitable gender participation in the project will be guaranteed. Male and female participation in the project will be based on the relevant standards of the EU. Accordingly, the project will seek to ensure that there is equal treatment accorded to male and female staff in NIS and the other stakeholders participating in the project activities and training programs.

The main criteria for staff recruitment will be appropriate qualifications and experience in similar projects, not sex or age. Both men and women will have equal opportunities and salaries.

9.2. Environment

Implementation of the project will have no adverse effect on the environment.

10. Conditionality and sequencing

There is no precondition set for this twinning project. Nevertheless, it is important that Egyptian authorities and NIS are committed to implement the recommendations agreed upon with the project team in order to achieve the targeted results, purposes and overall objective of the project bringing NIS and to the success of a process of continuing improvement towards increasing the operational efficiency and effectiveness in line with the EU and international standards and best practices. The NIS will ensure operational and logistical support to the RTA and the Twinning experts in terms of ensuring operational coordination with the other Egyptian Public institutions (aside the NIS) involved in the project, collecting and processing the information needed and to provide contacts and information concerning private entities that would be involved during the Twinning activities. Finally, it is also important that individual staff members at all levels understand that it is their responsibility to ensure the quality of their work. In this regard, the NIS needs to ensure that the staff pay structure is commensurate with the qualifications and skills required of the staff.

There are no other requirements on sequencing, except for those mentioned in relevant activities.

Risks & Assumptions

Risks are mostly associated to the political and institutional changes and also to the delays in the implementation that can be caused by the unstable situation in the country.

The NIS is an institute that depends directly on the Ministry of Scientific Research, however other Ministries are also partly involved in metrology. All these positions have been changed since the revolution of the 25th of January 2011 and further changes could arise from the political developments that are foreseen in 2012 following to the political and presidential elections. One basic assumption for the ensuring of the success of the project is that the future government will keep on investing in the implementation of the State Metrology in Egypt.

For the intended merging of NIS and AA&W more Ministries are involved and it is also related to the acceptance of new metrology legislation on the political level. It may be a long-term process that might not be fully completed at the end of the project. This context creates considerable risks. In case of delays in these Components (Legislation and metrology Infrastructure) the project should support the preparation of the intended results as much as possible and support NIS in its communication with others. As mentioned under the paragraph 10.2 Sequencing, timely organization of the related study visits may smoothen the realization.

11. Annexes to project Fiche

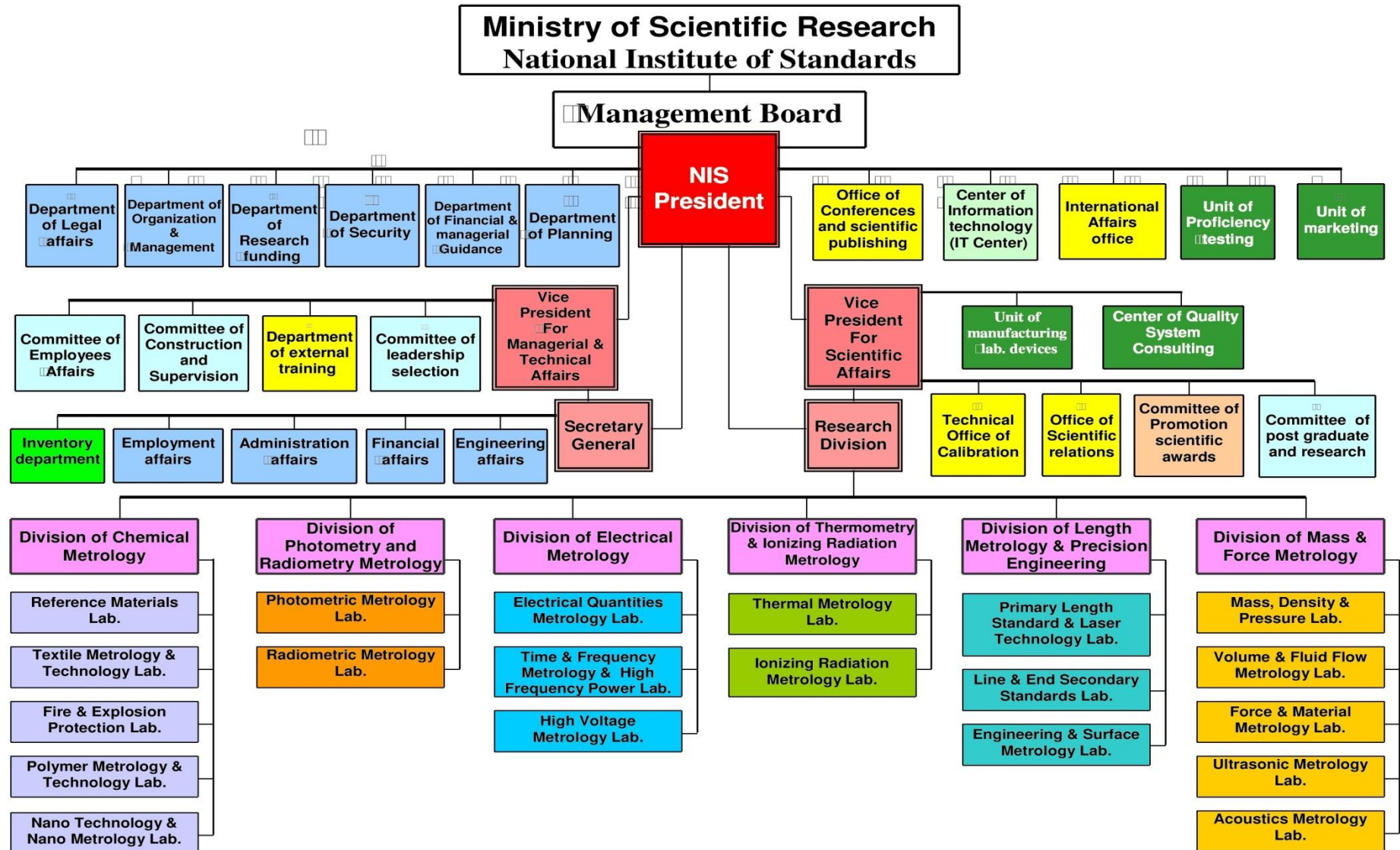
Annex I – Logframe

ANNEX I - LOGFRAME PLANNING MATRIX FOR twinning fiche Building the Capacity of the Egyptian National Institute of Standards in the Field of Metrology	Programme name and number EG/12/ENP/TP/22	
Overall objective Supporting the performance of the Egyptian Quality infrastructure within the context of the national reform priorities and in line with the European and international best practices	Assumptions Stable political environment Strong political commitment Elected Parliament	
Project purpose Contributing to legislative reform in the field of metrology and to the strengthening of the institutional and technical capacity of the National Institute for Standards (NIS) as the primary holder of metrology in line with the relevant European best practices in standards, norms and processes in the field.	Assumptions Government's commitment on adoption of EU legislation continued. Timely preparation and modification of legislation. successful results in undertaking international comparisons.	

Results By component	Objectively verifiable indicators	Sources of Verification	Assumptions
<p>Component 1: New legislation and technical regulations harmonised with the EU Acquis :</p> <ul style="list-style-type: none"> ▪ At least six New and Old Approach EU directives in legal metrology and pre-packaging field transposed. <p>Component 2: Promotion of European approach on a national metrology infrastructure:</p> <ul style="list-style-type: none"> ▪ EU approach on a national metrology infrastructure promoted. <p>Component 3: Alignment of national metrology system with internationally recognised best practices in quality management</p> <ul style="list-style-type: none"> ▪ National metrology system aligned with internationally recognised best practices through implementation of international standards in quality management. ▪ 	<p>Draft Law on Metrology and draft regulations transposing directives 75/107/EEC, 76/211, 80/181, 2004/22, 2009/23/EC, 2009/34/EC submitted for adoption.</p> <p>Information on EU MS approach in metrology and hallmarking disseminated, human resources trained.</p> <p>Quality management system in NIS based on relevant international standards in place.</p> <p>1 ILC/PT performed.</p> <p>100 staff members trained.</p> <p>5 CMCs developed and submitted for international assessment.</p> <p>Necessary reorganisations in NIS done.</p>	<p>Texts of the legal regulations.</p> <p>Project reports.</p> <p>Conference reports.</p> <p>Participants' reports and certificates of trainings.</p> <p>Peer assessment report or successful accreditation of certain services.</p> <p>EURAMET, NEWMET reports</p> <p>New organisational structure.</p> <p>Project reports.</p> <p>Certificates of training.</p> <p>Conference reports.</p> <p>Intermediate and final reports.</p> <p>Certificates of training.</p>	<ul style="list-style-type: none"> ▪ Availability of sufficient national financial resources for co-financing of the project activities by NIS, ▪ Excellent co-operation among relevant national public institutions and other stakeholders ▪ Availability of suitable premises for laboratories, training and conferences in the NIS.

Activities/Components or input By component		Assumptions
<ul style="list-style-type: none"> 0.1 Kick-off Workshop 0.2 Final Closing Conference 1.1. Seminars on the Transposition of the EU requirements into national legislation. 1.2. Support in drafting amendments to the Law on Metrology. 1.3. Support in drafting secondary legislation on tasks and responsibilities of CABs. 1.4. Carrying out information campaign on the EU harmonisation. 1.5. Study visits to at least 2 member state administrations for Egyptian specialists. 		
<ul style="list-style-type: none"> 2.1. Round tables on relations among scientific, industrial, legal metrology and hallmarking in selected EU Member States. 2.2. Study visit concerning metrology and hallmarking infrastructures in the EU Member States. 		<p>Political will on reorganisation of national infrastructure continues</p>
<ul style="list-style-type: none"> 3.1. Support in quality management system development and implementation. 3.2. Support in development QMS documentation. 3.3. Support in implementation of the quality management system in NIS. 3.4. Support strengthening of marketing and PR capacity. 3.5. Strengthening proficiency testing department. 3.6. Support NIS in AFRIMETS and NEWMET. 3.7. Feasibility studies on calibration activities and training on calibration issues. 3.8 Training on CMC procedures related to ACAA priorities and peer-review of draft CMCs. 3.9 Training on metrology in chemistry. 		

Annex 2 – NIS Organization Chart



NIS Structure based on a Decree issued by the Minister of Scientific Research

NIS is governed by a Board of Directors as stated in Article (5) in the Presidential Decree No.433/1986, NIS Board is formed based on a Decree issued by the President of the Academy of Scientific Research and Technology, as follows:

- NIS President (Chair person)
- NIS both Vice Presidents
- NIS four Heads of Divisions nominated by NIS President and selected by the President of the Academy
- President of the Egyptian Organization for Standardization EOS
- President of the Administration of Assay and Weights AA&W
- Representative from the Ministry of Economy – Developing Export Department
- Representative from the Ministry of Military Production – Military Manufacturing Department
- Representative from the Ministry of Health – X Ray Protection Department
- At most five well-experienced persons in the field of Metrology nominated by NIS President and selected by the President of the Academy for two years
- NIS General Secretary - will handle the General Secretariat of the Board

The President of the National Institute of Standards NIS chairs The Board of Directors that is responsible for managing and following up on all NIS operations. The president reports directly to the Minister of Scientific Research, and he has two Vice Presidents and a Secretary General reporting to him.

The first Vice President is for **Scientific Affairs**, he is in charge of the 'Technical Office of Calibration', the 'Office of Scientific Relations', the 'Centre of Quality System Consulting', the 'Unit of Manufacturing', the Head of the Research Division, and the six main divisions:

- 1 Division of Chemical Metrology
- 2 Division of Photometry & Radiometry Metrology
- 3 Division of Electrical Metrology
- 4 Division of Thermometry & Ionizing Radiation Metrology
- 5 Division of Length Metrology & Precision Engineering
- 6 Division of Mass & Force Metrology

The second Vice President is for **Managerial & Technical Affairs**, he is in charge of the 'External Training Department', the 'Inventory Department', the 'Employment, Administration, Financial, and Engineering Affairs'.

NIS Vision, Mission, Objectives, and Strategic Plan

Vision

National Institute of Standards (NIS) becomes an internationally recognized, reputable and distinct research institute.

Mission

To establish the necessary metrological infrastructure required for the Egyptian industry and society through the development of measurement standards and measurement technologies in a manner that supports the national economy and ensures the quality of life for all.

Objectives

Strategic objectives of the Institute:

- 1 Link scientific research with metrological applications in industry
- 2 Create distinct research cadres of youth in the field of Metrology
- 3 Increase the rate of international scientific publications
- 4 Maintain international recognition of national measurement standards and certificates
- 5 Spread Metrology Science in the Arab world and the countries of the Nile Basin
- 6 Raise the income of the Institute by 20% annually

NIS Strategic Plan

Axis 1: Research Human Resources

- Enhance the research skills of staff members and their assistants
- Improve writing skills for scientific papers, projects & thesis and scientific reports
- Proficiency in presenting and lecturing skills
- Proficiency in spoken and written English
- Proficiency in spoken and written French to support the 'African Cooperation'
- Increase research experience by interacting with international scientists in the field of metrology
- Maintain positive attitude among NIS members

Axis 2: Research and Development

- Intensify submission of research projects to local and international funding bodies, especially the STDF
- Plan research activities and formation of research groups for implementation of the plan and consistent evaluation of this experience
- Promote international publication of the research produced by the Institute
- Establishment of a Nano Metrology Laboratory (plant) to serve the research orientation of the Ministry in the field of Nanotechnology
- Complete required laboratory equipment and put in place a maintenance plan for equipment

Axis 3: International Recognition

- Achieve international recognition for the rest of measurement standards and calibration certificates, which are issued by NIS
- Maintain achieved international recognition
- Accreditation of testing laboratories

Axis 4: Cooperation with Egyptian Industry

- Direct research projects to serve the industry
- Intensify cooperation with the calibration and testing laboratories in private sector companies
- Activate the role of the unit (a unit of a private nature) of manufacturing calibration and testing equipment in various disciplines of the NIS
- Support the activity of the 'Center of Quality Systems Study and Consulting' in the institute (a unit of a private nature)

Axis 5: The Development of NIS Departments

- Raise administrative efficiency by training on planning, follow up, evaluation, and production of reports
- Operate various departments of the Institute on a management system based on ISO 9000
- Create an internal audit unit used for NIS departments and scientific divisions
- Follow monetary stimulus and moral encouragement

Axis 6: Infrastructure

- Complete the building of reference materials and fire protection that started some years ago
- Construct a new building for Mass, Density & Pressure Laboratory; Volume & Fluid Flow Metrology Laboratory since they are major laboratories that realize a significant annual income to the Institute
- Take care of Institute Landscaping
- Develop a plan for NIS preventive maintenance

Axis 7: International Relations

- Have technical advisory committees specialized in various calibration areas become members of BIPM and Regional Metrology Organizations (RMOs) TCs and attend annual meetings of these TCs to raise their experience
- Strengthen the relationship with corresponding international institutions
- Effective contribution and play a leading role in the African Organization AFRIMETs
- Enhance cooperation with Arab countries and benefit from the uniqueness of NIS international recognition
- Supply Arab countries and the countries of the Nile Basin with reference materials produced by the Institute to improve water quality and support the quality of industrial production
- Execute a number of research projects with African countries

Axis 8: Marketing research results and calibration services and training

- Establishment of a Unit for marketing the research and services of NIS
- Increase the number of specialized workshops to interact with NIS customers in industrial and service areas locally, in the Arab world, and in Africa and benefit from their opinions to improve policies and working methods

Axis 9: Increase NIS income

- Work to increase the income of the Institute by marketing the results of research related to applied nature
- Obtain funding through research projects from different funders who are interested in institute research
- Increase the income of NIS by providing calibration services, testing, training and consultancy

NIS Reporting System

Every Department within the National Institute of Standards NIS has a Board created to study all issues related to it in terms of research and administration. The reports and the results reached by this board are raised to a higher level called the Division Board. The Division Board is responsible to study received reports and approve them. The Division head then raises the Division report that includes relevant subjects from the Department

report to NIS Vice President for Science Affairs. In turn, the Vice President for Science Affairs will endorse the report in accordance with laws and regulations.

State of established NIS CMC's

The CMCs of concern are shown in below table:

No.	CMCs	ACAA Topic
1a	Surface & roundness calibration	Vehicles & their parts
1b	Optical and mechanical gauge block calibration	Vehicles & their parts
2	CMM calibration	Vehicles & their parts
3a	Thermometry calibration	For all topics
3b	Humidity	For all topics
4	Photometry & radiometry calibration	For lighting of vehicles
5	Electrical calibration	For all topics
6	Acoustics calibration	For vehicles
7	Ultrasonic calibration	For vehicles & construction products
8	Production of RM (Heavy Metals & organic Pollutants)	Toys
9	Production of RM (Reference gases)	Appliances burning gaseous fuels
10	Production of RM	For testing the flammability properties of Toys & construction products
11	Production of RM (textile colour scale)	For vehicles & Toys
12	Production of RM (polyethylene and polypropylene)	For vehicles, some polymeric construction products and Toys
13	Gas flow	Appliances burning gaseous fuels
14	Radiation dosimeter in the radiation protection levels	Toys, vehicles & their parts
15	Electrical power and energy	Vehicles & their parts
16	Microwave measurements	Vehicles & their parts

Quantities not presently covered by BIPM CMC's:

- Length:
 - Surface & roundness
 - CMM
- Density
- Flow (liquid and gas)
- Volume
- Radiometry
- Acoustics
- Ultrasonic
- Thermometry
- Humidity
- Reference Materials

- Dosimetry
- Photometry
- Electricity:
 - DC Voltage & Current
 - DC Resistance, including high resistance
 - Capacitance and inductance
 - AC/DC Transfer
 - High frequency Power and EM Fields
 - Electrical Energy
 - AC High Voltage
 - AC Current

The ACAA priorities as selected for Egypt are listed in Annex 3, which results in the following prioritization for establishing international traceability:

1. Mass (all topics and legal metrology)
2. Electricity (all topics and legal metrology)
3. Thermometry (all topics)
4. Length (CMM, Surface and roundness, legal metrology) Vehicles and parts, Machinery
5. Pressure (Safety and pressure)
6. Volume (Legal metrology)
7. Liquid flow (legal metrology)
8. Gas flow (Gaseous appliances, legal metrology)
9. RM's of gasses (Gas appliances, legal metrology)
10. Dosimetry (Health and toys)
11. Acoustics (Vehicles and environment)
12. Ultrasonic (vehicles, construction products)
13. Photometry and radiometry (Lighting of vehicles)

Annex 3– LIST of NIS Institutional and Technical Needs

On the institutional capacity aspect, the following are the list of proposed improvements that are envisaged by the project:

- The departments Radiometry and Electrical Quantities Metrology of NIS are still in the process of ISO 17025 implementation, while some labs report improvements needed in the Quality System already implemented:
- Mass Department: Improvement of General Requirement of the Quality System by improved documentation, automation and network access; Improvement of Technical Requirements by training personnel and better environmental control
- Volume and Flow Department: Improvement of General Requirement of the Quality System by improved documentation, automation and network access; Improvement of Technical Requirements by training personnel and better environmental control
- Time & Frequency and Microwave Department: Desired improvement of Technical requirements: Personnel Competence, Environmental Conditions, Methods validation, uncertainty analyses
- Acoustics: Improvement of Complaints procedure Quality System
- Ultrasonic: Equipment maintenance & Calibration
- Reference materials Department: Desired improvement of General Quality requirements Documentation and Internal Auditing; Desired improvement of personnel competence in the fields of certification of gasses and electrochemical
- Dosimetry: Completion of ISO17025 implementation, both general (control of records) and technical requirements, desired improvement of Personnel competence, Equipment maintenance and control of environmental conditions
- Force: Desired improvement of Quality technical requirements: Personnel competence, measurement standard, equipment maintenance, environmental conditions
- Photometry: Implementation ISO17025 Technical requirements
- High Frequency Power & High Voltage Department: ISO 17025-improvement Internal Auditing, Environmental Conditions and Equipment maintenance.

Support by the project is needed to boost the Quality System implementation and to provide practical solutions. Several NIS labs need support in the realisation of a Computer Network solution for the NIS Quality System.

NIS national and international position should receive wider recognition. Therefore, raising awareness of its available services especially in Automotive, Communication, Nano metrology and RM's is required and can be achieved through strengthening a dedicated marketing function, that can perform this task and create the necessary data base.

Moreover the PT department needs to be taken into account too, because PT is an important tool in the accreditation practices and an important element of the well functioning of the quality infrastructure.

The more NIS interacts with other metrology institutions and the more its staff networks with colleagues in other institutions, the more exposure NIS services will get and be better known. Support for NIS to participate in AFRIMETS and NEWMET that is presently chaired by NIS is needed.

On the technical capacity aspect, The proposed training needs for the NIS with regards to the preparation and certification of reference materials can be summarized as follows:;

RM's proposed training
Training on the preparation and certification of RM's for calibration of instruments used for testing of Heavy Metals and organic pollutants in Toys
Training on the preparation and certification of RM's for calibration of medical devices
Training on the preparation and certification of polyethylene and polypropylene RM's for calibration of GPC and melt flow index machines
Training on the preparation and certification of textile colour scale RM's
Training on the preparation and certification of flammability properties measurements Reference Materials

Annex 4 – ACAA Priorities for Egypt

ACAA Priorities for Egypt

Information Provided By EU DG Enterprise and Industry

Egypt has chosen 8 priority sectors in agreement with the EU.

Any EU project aiming at the upgrading of NIS should ideally cover all these sectors and the implementation of the horizontal legislation (GPSD and NLF + units of measurement) in the following priority order:

First the implementation of horizontal legislation:

- 80/181/EEC: Council Directive of 20 December 1979 on the approximation of the laws of the Member States relating to units of measurement;
- 2001/95/CE: General Product Safety Directive (GPSD);
- 85/374/EC: Defective Products Directive;
- New Legislative Framework (NLF): Directive 80/181 + Regulation 765/2008 and Decision 768/2008 when applicable)

And the chosen 8 priority sectors:

1. Toys (Directive 2009/48/EC)
2. Gas Appliances (Directive 2009/142/EC)
3. Electrical products: (Low voltage Directive 2006/95/EC and Electromagnetic Compatibility, Directive 2004/108/EC)
4. Machinery (Directive 2006/42/EC)
5. Pressure Equipment: Pressure Equipment Directive (PED) 97/23/EC and Simple Pressure Vessels Directive (SPVD) 2009/105/EC)
6. Construction Materials (Regulation 305/2001/EU)
7. Medical Appliances (Directive 93/42/EEC and its amendments)

8. Vehicles and their parts (For type approval Directive 2007/47/EC and related EU legislation)

DG Enterprise and Industry recommends usually as part of the ACAA preparations to seek closer cooperation with EURAMET (Egypt is already liaison member) and WELMEC.

Annex 4 – EU Metrology Directives and Regulated Measuring Instruments

Metrology Directives and Regulated Measuring Instruments

- 75/107/EEC: Council Directive of 19 December 1974 on the approximation of the laws of the Member States relating to bottles used as measuring containers
- 76/223/EEC: Commission Recommendation of 5 February 1976 to the Member States concerning units of measurement referred to in patent conventions
- 80/181/EEC: Council Directive of 20 December 1979 on the approximation of the laws of the Member States relating to units of measurement and on the repeal of Directive 71/354/EEC
- 97/39/EC: Directive of the Commission on 24 June 1997 adapting to technical progress Council Directive 75/443/EEC on the reverse and speedometer equipment of motor vehicles
- 2004/22/EC: Directive of the European Parliament and of the Council of 31 March 2004 on measuring instruments
- 2009/23/EC: Directive of the European Parliament and the Council of 23 April 2009 on non-automatic weighing instruments
- 2011/17/EU Directive, replacing 2009/34/EC: Directive of the European Parliament and of the Council of 23 April 2009, which is the codification replacing Council Directive 71/316/EEC of 26 July 1971, on the approximation of the laws of the Member States relating to common provisions for both measuring instruments and methods of metrological control.

Overview of EU regulated measuring instruments

2009/23/EC and 2004/22/EC (EU harmonized instruments)

Non-automatic weighing instruments

Water meters

Gas meters and volume conversion devices

Active electrical energy meters

Heat meters

Measuring systems for the continuous and dynamic measurement of quantities of liquids other than water

Automatic weighing instruments

- Automatic catchweighers
- Automatic gravimetric filling instruments
- Discontinuous totalisers
- Continuous totalisers
- Automatic Rail Weighing Bridges

Taximeters

Material measures

- Material measures of length
- Capacity serving measures

Dimensional measuring instruments

- Length measuring instruments
- Area measuring instruments
- Multidimensional measuring instruments

Exhaust gas analyzers

Instruments with measuring functions harmonized by the Medical Device Directive (93/42/EEC) - (Weighing instruments in medical area regulated by NAWi Directive (2009/23/EC, Art. 1, 2a, 4 and 5))

- Fever thermometers
- Blood pressure meters
- Audiometers
 - To be defined may-be more

EU Old Approach instruments:

Prepackaging and measuring container bottles (75/107/EEC)

Speedometers (97/39/EC)

Instruments with repealed technical requirements and only regulated for EU marking (2011/17/EU):

- Weights (71/317/EEC and 74/148/EEC)
- Standard mass of grain (71/347/EEC)
- Calibration of ship tanks (71/349/EEC)
- Cold water meters (75/33/EEC)
- Alcoholmeters and Alcohol hydrometers (76/765/EEC)
- Alcohol Tables (76/766/EEC)
- Tyre pressure gauges for motor vehicles (86/217/EEC)

National regulated non-harmonized measuring instruments: N.A.