

Middle East North Africa Quality Infrastructure Stakeholder's Meeting

Notes and Proceedings

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Organized & Hosted By:



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Executive Summary

Quality Infrastructure (QI) is a term which denotes the fields of metrology, standards, conformity assessment, and accreditation taken as a whole, and plays an important role in the protection of health, public safety, the environment, and facilitates international trade and economic development.

NIST, through its Standards in Trade workshop program, and the Jordan Institution of Standards and Metrology (JISM) co-sponsored a stakeholders meeting in June 2010 to gather information from Middle East North Africa stakeholders to discuss the status of the current regional QI infrastructure, regional capabilities, and training needs.

The principal goal of the workshop was to explore ways to establish a Regional Quality Infrastructure Training/Development Program. The training program would provide basic and advanced training courses in the fields of metrology, standards, conformity assessment, and accreditation. Eleven countries from the MENA region sent representatives from their standards and metrology bodies, and each country provided an overview of their QI facilities, expertise, training needs, and current challenges.

Representatives of the U.S. government (NIST, USTR, CLDP) and private sector (ANSI, UL, and Standards Associates) provided overviews of their QI training programs, and participated in a robust discussion with MENA organizations at a closing plenary session to discuss how best to move the concept of a regional training program forward.

Findings

In plenary discussions and facilitated working groups, workshop participants identified a number of regional training needs and priority sectors, which included: energy security and sustainability, metrology and legal metrology, building technologies, and environmental protection and water security.

Energy – Solar energy standards are priority for the MENA region. There is a willingness to work together through existing bodies, a need for MENA region countries to become more involved in international committees, and a need for training in existing equipment.

Metrology/Legal Metrology – Needs in legal metrology are higher than science metrology since it has a direct effect on ensuring that buyers and sellers get what they pay for throughout commercial transactions. Critical areas included:

- Fundamental courses in legal metrology needed
- Other needs include metrology for medical equipment and all base units
- Certification for inspection
- Accreditation of verification officers

Building Technologies – Focus was on new concepts in building technology and green buildings

- Personnel certification training – for example LEED certifications, building inspectors
- Train the trainers
- Train the people who issue the codes; readapting and harmonizing codes
- Training of assessors
- Application of codes

Key performance indicators

Environment and Water – The priority issues identified were solid waste disposal, water scarcity and water distribution infrastructure leakages. There is a considerable need for technologies to monitor water leakages, waste and usage. Desalination was also noted as a big challenge for the region.

Currently, some training capabilities and facilities do exist in the MENA region that could be leveraged for a regional training program. For example, Jordan already offers training modules and has existing training facilities. Tunisia and Morocco have classrooms and facilities that can be used. Other facilities may exist that were not brought up in the meeting as not all organizations were present from the region (such as the GCC Standardization Organization). NIST has web-based training for legal metrology that could be leveraged for the region along with two courses on CDs.

Workshop participants also identified many challenges they encounter to receiving quality training and developing their country's quality infrastructure. The primary challenges highlighted include:

Financial - Training budgets tend to be extremely small . Some countries have USAID sponsored programs that may be leveraged. Countries with no USAID programs may have other avenues, such as MEPI

Geographic - MENA region is large and travel can be prohibitively expensive, both within the region and to training programs in Europe, the USA, etc.

Awareness - Advance notice of training opportunities need to coincide with budget cycle

The closing plenary discussion included a brief panel discussion followed by an open forum to discuss how to best move the training program forward and highlight outcomes of the stakeholders meeting.

- One of the major takeaways is that the program would not be designed based upon a physical infrastructure (buildings), but would be a type of virtual training program with physical resources that can be tapped into when hands on training and classrooms are needed.
- It would be useful if the training center could have offices for QI Training Program in MENA centers, such as Jordan, North Africa, and the Gulf.
- Several projects have been funded by organizations such as USAID, but very few were sustainable as the projects stopped when the funding stopped. There needs to be a sustainable solution; it is necessary to have a follow up and monitoring by the funding organization.
- Jordan reiterated that they are eager to host such training, but the biggest problem lies in financing the participants. European quality program started funding workshops, etc. that funded all participants – the drawback is that the meetings were held in Europe.
- If the workshops were held in region, it is much more cost effective and easier for participants to travel.
- The main problem that needs to be solved is the funding for participation. It might be easier for participants from the Gulf to come to Jordan, but it is not the case for those in North Africa.

- A good first step would be to launch a website that announces regional training programs and schedule for upcoming training where participants could see upcoming programs; start on e-learning modules, to be followed up by more in-person
- Another good first step could be to collect a list or database concerning MENA experts in fields of Quality Infrastructure. Tunisia has such a database, established in a francophone network.
- We have to start thinking of training programs as a fee-for-service in order to make it sustainable. Could also open it up to the private sector with companies who want to pay for part of the expenses in exchange for getting recognition; donor funding is not sustainable and reliable.
- Consider forming a steering committee to keep the ball rolling. Without a champion (or champions), the ball may not keep rolling. Would be important to have representatives from each subgroup (Gulf, North Africa, etc.)
- Appoint points of contact in each country
- Develop a business plan

Next Steps

In the short term, it was agreed that the following action items would be useful to consider:

1. Develop an interactive website where stakeholders can view upcoming training opportunities, post training opportunities and submit requests for training courses.
2. Form steering committee
3. Identify points of contact for each country
4. Jordan and Tunisia have offered locations for physical training
5. Training in base units of metrology and all aspects and levels of legal metrology is a priority
6. Meeting Report will be distributed to all workshop participants and published on NIST website

More long term ideas for sustaining a meaningful training program include:

1. Develop a business plan
2. Subcommittee for creative funding
3. Creating a Web-based training for fundamental topics – JISM has modules in place
4. Solid technical infrastructure grounded in metrology and legal metrology and then apply it to national and regional problems - such as water, renewable energy, conservation)

Middle East North Africa Country Presentations

At the plenary session of the meeting, the standards and metrology organizations from the MENA region provided a brief overview of their organization, QI capabilities, training needs, and current challenges. The following is a summary of those presentations.

Egypt

Presenter: Egyptian Organization for Standardization (EOS)

Organizational Overview

- EOS is the competent and official body responsible for standardization activities, quality and industrial metrology aiming at increasing the competitiveness of the Egyptian products in the international and regional markets along with consumer's and environment protection
- The presidential decree no. 29/1957 stipulated the establishment of EOS under the name of "Egyptian Organization for Standardization", and in the same year EOS became an ISO member. It has now been changed to the "Egyptian Organization for Standards and Quality" according to the presidential decree no. 83/2005.
- Representing Egypt in the international and regional organizations concerned with standards, quality, measurements and metrology
- Develops and issues Egyptian standards
- Granting license for quality mark and conformity certificate for the Egyptian products
- Calibrates measurement and testing equipment for companies and industrial establishments
- Tests and inspects products
- Provides training courses for technicians working in competent authorities and other concerned bodies relevant to standardization, quality, inspection, testing, measuring and calibration activities
- Qualifies establishments for applying quality, environment and safety systems
- Manages the enquiry point relevant to Technical Barriers to Trade Agreement (TBT) Participating in the activities of international standards issued by ISO
- Implementing the activities of quality management systems and environmental management systems and consumers' issues corresponding to ISO committees.

Capabilities

- Human resources – staff who are able to absorb training

Training Needs

- Compatibility and compliance
- Calibration laboratories
- Accreditation and evaluation of compliance

Challenges

- Financial – most important challenges

Iraq

Presenter: Central Organization for Standardization and Quality Control (COSQC)

Organizational Overview

- Established in 1979 under Law No. 54 of 1979
- Activities are to prepare standards/metrology for Iraq & compliance in the private sector and public sector
- Issues patent certificates

Capabilities

- Contracted with Tatweer (USAID) through an assistance framework
- Tatweer has provided consultation through team of experts in quality assurance, IT, communication, HR, etc.
- Needs assessment of physical infrastructure (computers, etc)
- Designed a webpage to connect national and international institutions

Training needs

Metrology & Hallmarking

- Quality assurance in Measurements and calibration
- Quality Manual Requirement for national calibration laboratories
- Fundamentals of Reliability
- Uncertainty and confidence in measurement and calibration
- Inter-comparison between national Laboratories
- Certification of Reference standards
- Authorization & metrological supervision of calibration laboratories
- Accreditation of calibration system
- Calibration and maintenance for references and measuring instrument in industries
- Training in reference standards and measuring instruments
- Medical Equipment Calibration
- Chemical metrology calibration
- Pattern Approval for measuring instrument
- Calibration of high power instruments
- Verification & Calibration of measuring instrument
- Weight and measures officer
- Calibration and maintenance of primary temperature
- Calibration and maintenance of primary and secondary electrical standards
- Calibration and maintenance of high power instruments
- Training on technical methods for testing and evaluation gemstones
- The technical methods for refining precious metals
- Training on the analyzing precious metals methods

Quality Control

- Practical training in spectrophotometer analyzing for food and chemical materials as using HPLC.G.C and G.C mass equipment
- Applying HACCP system in the field of food analyzing

- Food safety of the chemical and microbial test (rapid techniques methods to discovering bacterial)
- Hypbromide oxide in pegging water
- Applying ISO 26000
- Conformity Assessment
- Bitumen felts water proofing and damp proofing & polymer bitumen felt; training on all kinds of testing
- Instrumental & chemical food analysis
- Toxin (aflutoxin in food)
- Residual of radioactivity
- Genetically modified food testing
- Residual of pesticides
- Food safety and quick test
- Determination of food microorganisms by instruments
- Rapid method of microbiological test in food, especially pathogens
- Bacterial detection using serological test

Challenges

- Technical expertise in calibration, accreditation, certification and inspection; had been isolated from outside technical developments for many years
- Lack of equipment and instruments for calibration and testing
- Received some equipment from Korea
- Have received training, but was insufficient
- Budget is not sufficient for training and equipment

Jordan

Presenter: Jordan Institution of Standards and Metrology (JISM)

Organizational Overview

- Established in 1995 as a public institution with financial and administrative autonomy according the Standards and Metrology Law No. 22/2000
- Has a special department for issuing technical regulations
- Also have market surveillance, standardization, metrology and legal metrology functions
- Accreditation Law will give the Accreditation system its independence; JISM is already technically fulfilling this requirement, but is hoping to have the law passed through the new Parliament
- JNMI (under the RSS) was established in 2006

Capabilities

- Labs are accredited by the German Accreditation System for Testing (DAP) in accordance to ISO/IEC 17025, in the scope of food and chemical testing and for olive oil sensory testing
- Certification system is accredited by DAP for the quality mark, Global Gap and certificates of conformity against ISO/IEC Guide 65

- Market surveillance strategy and plan are prepared based on risk assessment of products, and procedures are according requirements of ISO/IEC 17020
- Member of AIDMO, ISO/IEC, OIML, CEN (affiliate member), APMP, ILAC; Chair of Euro Mediterranean Legal Metrology Forum (EMLMF); Contact Point of Codex Alimentarius and member of the Executive Committee
- Active training programs that are offered to MENA countries interested in participating. Training services include:
 - Quality Management systems: ISO 9000, ISO 14000 and ISO 22000
 - Auditing techniques according to ISO 19011
 - Accreditation requirements and practices (ISO/IEC 17011)
 - Testing and calibration requirements (ISO/IEC 17025)
 - Certification requirements and practices (ISO/IEC Guide 65 and ISO/IEC 17021)
 - Inspection requirements and practices (ISO/IEC 17020)
 - Standardization procedures and practices (ISO Guide 21)
 - Code of good standardization practices (ISO/IEC guide 59)
 - E-balloting on draft standards
 - Information requirements (ISONET requirements)
 - Information documentation: Indexing, classification and abstracting
 - TBT and SPS principles and obligations
 - Organization of TBT inquiry Points and notifications
 - Measurement of uncertainty
 - Verification and calibration of measuring instruments
 - IPR issues and anti counterfeiting

Challenges

- Arab world does not have a regional metrology organization
- Concept of market surveillance is new, and is still weak in the MENA region including Jordan – only began the discussion in 2005

Kuwait

Presenter: Public Commission for Industry (PCI)

Organizational Overview

- Established Feb, 1997 – independent entity, supervised by Ministry of commerce and Industry

Capabilities

- Labs for calibration and metrology
- 5 labs for testing and training
- Evaluate the effectiveness of the training
- Commission is about to endorse a law for weights and measurements (legal metrology)
- Public institution for industry
- Control metrology activities in the gulf states

Training Needs

- Lack of field study of needs of quality assurance

- Lack of sufficient expertise
- Metrology and calibration compliance
- Accreditation

Lebanon

Presenter: Lebanese Standards Institution (LIBNOR)

Organizational Overview

- LIBNOR is a public institution attached to the Ministry of Industry, Established in 1962 by a law
- The main mission is to issue, publish, and amend National Standards for all products and services (construction, chemical, electrical, agro food, mechanical, etc...), grant the Lebanese Conformity Mark, represent Lebanon Internationally in the field of standardization, and provide training activities for the public and private sectors.
- Located in Beirut
- QI priority areas are harmonization of standards with international standards, applying code of good practice, and issuing standards for test methods and conformity assessment procedures.

Capabilities

- Standardization
 - Implement of the code of good practice according to WTO/TBT Agreement
 - Harmonization of national standards to international standards
 - Implement of ISO/Guide 21
 - Create of national mirror committees to international and European TC's, and putting in place relevant procedures for voting and balloting
- Metrology
 - Industrial Research Institute (IRI) - Industrial metrology; Inspection
 - Ministry of Agriculture (Fonar lab) – food products
 - Labs in universities (ABU, etc) – food products
- Conformity Assessment
 - IRI is the only notified CA body in Lebanon
 - Training on conformity assessment procedures/certification
- Market Surveillance
 - 5 inspectors as of last year; this year it has gone up to 70 inspectors

Training Needs

- Establishment of WTO/TBT enquiry point at LIBNOR (hands on in Lebanon)
- Market surveillance techniques (hands on, onsite visits and study tours, training modules)
- Legal metrology
- Public lab training on industrial testing methods-for personnel (on site visits and study tours)

Challenges

- Adequate legislation for QI (under procedure and discussion)

- Draft laws and decrees are elaborated
- New equipment for some public labs (donation from EU, training of human resources)
- Process of appointing experienced staff (market surveillance/COLIBAC)

Libya

Presenter: Libyan National Center for Standardization and Metrology (LNCSM)

Organizational Overview

- Established in 1990 under Law No. 5 of 1990
- Activities are as national responsible for standardization and metrology and accreditation.

Capabilities

- National metrology laboratories in the process of construction

Training Needs

Metrology

- Qualifying the staff to operate the intended new national metrology laboratories (mass, volume, flow, length, electricity, temperature, pressure, force, time & frequency, acoustics, viscosity, density)
- Uncertainty
- Long-term expert
- Gap analysis
- Establishment of a national measurement system (legislations, technical specification for national standards, traceability)

Accreditation

- qualifying assessors in:
 - laboratories (ISO 17025)
 - medical laboratories (ISO 15189)
 - inspection bodies (ISO 17020)
 - accreditation bodies (ISO 17011)
 - (ISO 18000)
 - (ISO 22000)
 - proficiency testing
- Gap analysis
- Prepare LNCSM to become a certifying body (in management systems)
- Laboratory accreditation (qualifying and accreditation)

Standardization

- Development of specification
- Management of technical committees.
- Participate in ASTM technical committees
- Log in to ASTM technical committees (by internet)
- Download of American different standards

Morocco

Presenter: Ministry of Industry, Commerce and New Technologies

Organizational Overview

- Mission is to protect the consumer's health and interests, support economic and social development

Capabilities

- National system of standardization w/ more than 100 technical committees – chemical and para-chemical; agro-food; textile and leather; mechanical and metallurgical; electrical and electronic; building and public works; Quality, health, security and environment; services, handicraft and documentation
- Certification of management systems – ISO 9001, 14001, health and safety, food safety, social conformity
- Certification of products – building materials, electrical appliances, packaging
- 40 Accredited laboratories
- Market Surveillance (non-agriculture)
- Metrology - Mass, Force, volume, pressure, temperature, electricity
- 8 accredited calibration laboratories
- National Quality Week; National Quality Award

Training Needs

Standards and Certification

- New requirements for certification bodies (ISO /CEI 17021, ISO/TS 22003 and the future ISO/CEI 17065)
- ISO 27001 standard on information systems security management (requirements and audit)
- ISO 26000 standard
- Techniques for putting into action the standards related to carbon footprint of products
- Management of products; Halal certification activities
- Development and management of an environmental marking and declaration on the basis of product category rules (PCR)

Quality Management Systems

- Standards on Sustainable Development Management at enterprise level (ISO /CEI 17021, ISO/TS 22003 and the future ISO/CEI 17065)
- Workplace health and safety management system

Metrology

- Assistance in developing technical regulations in legal metrology
- Knowledge transfer in the field of metrological verification delegation
- Training the personnel of metrology on how to carry out metrology verifications
- Participation in inter-laboratories comparisons
- Assistance to set up the traceability system
- Calibration

Accreditation

- Organization of inter-comparison testing results

- ISO/CEI 17011; requirements to be a member of ILAC, IAF and EA
- ISO/CEI17021
- ISO/CEI 65

Challenges

- Disengagement of State from technical activities
- Lack of regulatory framework
- Priorities:
 - Structure national standardization system
 - Establish an Institute of Standardization (IMANOR)
 - Become a member of ILAC, EA

Palestinian Territories

Presenter: Palestinian Standards Institute (PSI)

Organizational Overview

- PSI established in 1994, but began operation in 1996
- Quality and certification – quality mark, supervision mark
- Do not have labs at PSI, but have testing services through accredited laboratories
- Industrial calibration services (funded/provided by UNIDO)
- 32 testing labs are accredited by PSI based on ISO 17025
- Located in Ramallah (70 employees); branch in Gaza (30 employees)

Capabilities

- Industrial calibration laboratory for calibration of weights, balances, temperature, dimensions, compression (limited range)
- Legal metrology – standard weight, standard volume
- Testing lab for olive oil
- Small library and full access to ISO, ASTM and Arab standards
- 115 staff, about 70% of which are technical
- Most staff trained through EU-MEDA Quality program in Europe – all courses related to quality infrastructure
- Staff received training in calibration and testing of Electrical Household Appliances through JICA at the Royal Scientific Society in Jordan
- Website
- Quality management system

Training Needs

Testing

- Material testing: steel bars, plastics, aluminum profiles, pipes, paints, mineral oils, paper and textile [hands on]
- Contaminants in products [hands on]
- Electrical house hold appliances [hands on]
- Testing of cement, ceramic tiles, aggregates, soil and bituminous mixtures

Inspection

- Lifts systems [hands on]
- Solar heating systems
- Inspection of fairgrounds [hands on]
- Inspection of gas stations [hands on]

Metrology

- How to establish the national reference standards [web-based]
- Verification of water, energy and taxi meters [hands on]
- Verification of road tankers [hands on]
- Verification of weighing bridge [hands on]
- Calibration of measuring radiations devices [hands on]
- Calibration of electrical measuring devices [hands on]
- Calibration of environmental measuring devices [hands on]
- Calibration of viscosity and humidity measuring devices [hands on]
- Calibration of medical devices (thermometers, blood pressure, etc.)

Certification – eco labeling

Accreditation

- Organizing Proficiency testing scheme [web-based]
- Participation in proficiency testing schemes
- Estimating uncertainty in measurements [web-based]

Challenges

- Political situation – difficult to be a member of international bodies (most critical factor limiting planning and implementation of QI elements)
- Market access; almost all products are inspected and tested by Israel. Inspection procedures are most difficult. Much damage is caused to export
- Resources – limited financial resources, etc
- Expertise – experts in certain fields are not available

Tunisia

Presenter: Institut National de la Normalisation et de la Propriété Industrielle (INNORPI)

Organizational Overview

- Public institution with financial independence
- National Agency for Metrology (new organization) is separate from INNORPI
- 60 accredited labs
- Inspection is done by the Ministries of Commerce, Health, and other public institutions
- Accreditation is done by the National Council for Accreditation
- National Institute of Standards – does standardization, certification of management systems and products, training
- Not much international presence supporting the field of standardization
- Certification of conformity to Tunisian standards
- Signed a MRA with Libya, and also have agreements with Morocco, SA, Egypt – they seek to be involved as an important member in agreements with other Arab countries

- Lack of organizations that apply for certification of conformity on environment, etc.

Training Needs

- Mentions working with DEVCO
- International and regional
- Training of the trainers in metrology/conformity certification
- INNORPI has hosted training programs for Tunisians
- Enhance training systems with online training
- Upgrade the number of labs, and bodies that monitor and inspect according to ISO 17025 – they have experts, but lack coordination of experts in this field; causes lack of efficiencies
- Would be good to have a network of metrology and certification experts so that they know as a region who has what expertise

Yemen

Presenter: Yemen Standardization, Metrology and Quality Control Organization (YSMO)

Organizational Overview

- YSMO was established by Law #44 in 1999, Decree #52 in 2000
- Is the sole body in Yemen entrusted with the tasks of standardization, metrology, quality control and other standardization activities
- Performs Inspection, Testing & Certification (issues export certificates & the Yemeni quality mark [under development])
- Laboratory that analysis jewelry and precious metal
- Serves as the Enquiry Point and standards library

Training Needs

- Conformity assessment training
- Standards and technical regulation
- Certification (GMP) certification, registration of domestic and imported products, Yemeni quality mark
- Laboratory equipment need updating
- Capability to perform testing
- Technical training for employees to keep them up to date - training should involve language skills, standardization techniques, metrology, documentation, quality control and quality assurance, and laboratory techniques
- Inspection of imports and exports
- HACCP, Registration & GMP systems
- Establish a national Accreditation body according to international standards
- Special standardization for the local Yemeni products that have competitive features such as coffee, honey, fruits, vegetables, and requires collaboration between different bodies
- Technical areas which are most critical: water safety, GMOs, food additives, energy drinks

Capabilities

- Food, microbiology
- Water analysis
- Chemical/petrochemical

Challenges

- Absence of a national governmental policy on standardization
- Existence of some legislation that are not harmonized with International requirements.
- Lack of technical committees to prepare standards and technical regulation
- No inspection laboratories in YSMO branches, land and air ports
- Collaboration between the public and private sectors is unsatisfactory
- Absence of active participating with the international standardization bodies (Codex, ISO, IEC, ...etc) resulting in difficulty getting information
- Inactive R&D department
- Insufficient funding

Working Groups

Following the plenary discussion and presentations by MENA Regional bodies, the meeting broke off into two concurrent working group sessions to focus on critical regional issues. "Session A" comprised of **Working Group 1 (WG1)** on Energy and **Working Group 2 (WG2)** on Metrology and Legal Metrology; while "Session B" had **Working Group 3 (WG3)** on Building Technologies and **Working Group 4 (WG4)** on Environmental Protection and Water Security.

Working groups addressed and discussed such questions as:

- What are the current training needs in the MENA region?
- What topics are most critical?
- What training programs are currently in place?
- With what frequency do these courses need to be offered?
- What components should such a program include?
- What challenges do potential participants identify regarding such training opportunities?
- How would a regional QI training center help respond to these challenges?

WG1: Energy

Moderated by Krishna Kumar of Underwriter's Laboratories (UL), Working Group 1 focused on QI training needs for the energy sector, including renewable energy and energy efficiency in particular. Highlights from the discussion:

- As a region, Tunisia suggested focusing efforts on solar research because solar is most available resource
- Is there a push from government for energy efficiency or other specific technologies?
 - Tunisia – solar water heaters, government is sponsoring. When program started it had problem of raising awareness, also tax incentives for energy saving products/appliances/vehicles

- Tunisia – wind turbines to produce electricity, work with big companies interested in producing own energy to distribute nationally on grid
- Jordan has started a new small program for EE
- Also in Jordan, there is a national energy strategy with the goal of improving energy efficiency 20% by 2020; will be installing extra megawatts, utilizing solar water heaters, etc.
- Are any standards for solar energy being used?
 - JISM has some standards for solar collectives, developed unique standards
 - Also in Jordan there are tax incentives for solar water heaters
 - Jordan Royal scientific society has developed own method, now has been adopted by companies
 - There is need for new standards in this area
 - MENA technical committees should leverage standards, work and publications that have already been developed
 - An underlying problem is that MENA region standards bodies have weak participation in IEC/ISO and other international bodies

Recommendations for training:

- General needs for energy standardization
- Accreditation/calibration, both training and facilities for calibration
- Need personnel certification scheme for safety of energy (installers, welders, etc.)
- Training for testing facilities on new testing methods (some exist for performance, but needed for safety standards)
- Testing equipment for facilities
- Installers for wind turbines – Jordan has a lab, but needs technical staff for testing of safety standards, engineers for installation

WG2: Metrology/ Legal Metrology

Moderated by Osama Melhem of JISM, Working Group 2 focused on training needs for the fundamental QI components of metrology and legal metrology.

Highlights from the discussion:

- The need for legal metrology training is higher than focusing effort on science metrology since, as legal metrology affects the population and basic commerce
- See Appendix for more details

Recommendations for training:

- Fundamental course in legal metrology
- Metrology for medical equipment
- Certification for inspection
- Accreditation of verification officers

WG3: Building Technologies

Moderated by Khaled Masri, President of Standards Associate, Working Group 3 focused on QI training needs for the field of building technologies, including green buildings, zero energy buildings, and issues associated with inspection and certification.

Highlights from the discussion:

- Zero energy houses exist, but are expensive to build
- Kuwait has experience in reusing/recycling building materials; and have also been a leader in building insulation
- With ancient/traditional buildings they had the concept of saving energy without modern technology. Thick walls made for thermal insulation, windows with the opening at the top, and the shape of ceiling all affect energy loss
- The cost of developing and using these technologies is so expensive, which makes it cost-prohibitive to adopt new technologies
- At least 24 codes in Jordan are dealing with buildings; green building council exists in Jordan

Recommendations for training:

- Introduction to new concepts in building technology and green buildings
- Personnel certification training – for example: LEED certifications, building inspectors
- Quality assurance for buildings. For example, certain tests for concrete exist, but they are not quality assured by a certified inspector
- Train the trainer programs at the regional level
- Training of assessors
- Training for people who issue the codes; readapting and harmonizing codes
- Harmonization of building codes (Jordan is strong in the building codes; Gulf building code direction to become a regional code)
- Key performance indicators

WG4: Environmental Protection and Water Security

Moderated by Maria Uhle of NIST, Working Group 4 focused on QI training needs for environmental issues and water security. Highlights from the discussion:

The priority needs for water security included the following:

- Water leakage for drinking and waste water, environmental implications; water usage for industrial vs. domestic
- Desalinization is big problem for region – need techniques, energy used, standards
- Jordan has problem with ground water over pumping leading to brackish groundwater supply
- Palestine – Reusing treated water; water quality standard/specification
- Standard for gray water (water quality), test methods for the standards
- Textile and stone cutting industries – treatment of water waste, environmental impact.

The priority needs for environmental protection included the following Solid waste disposal

- Indoor air quality – no standards in place
- Medical waste disposal (test method)

- Lacking test method for noise pollution (indoor and outdoor) – law sets allowable limits, but need info on how to measure frequency
- hazardous waste disposal from industrial

Some resources already exist in the region:

- NERC have implemented 2 projects but results were not encouraging for solar run desalination project
- Tunisia has small experience, but technique is very expensive
- Qatar is very involved in technique, starting to put resources into desalinization using solar energy (coupling solar and water issues)
- Tunisia use geothermal process for irrigation in private agriculture projects
- Jordan Environmental Rangers, which is a Government mandate to inspect quarries. There is an inspection law, but need approval from new Parliament
- Tunisia pioneer in the hospitality sector, incorporates methods for water usage, environmental stewardship, etc.
- Existing Incentive programs include a tax incentive for water conservation in Jordan, and a price cut for families that use less water, level is set in legislation by government (look at average usage at end of year) in Tunisia

Recommendations for training:

- Software or small efficient device for leakage monitoring
- Desalinization is huge
- How to reuse water from industrial/agricultural use
- Improve behavior/practice in agriculture field to conserve water (better methods, stewardship)
- Need program for water efficiency certification (similar to EE labeling/certification)
- Look to other regions for best practices for regulations, standards, programs
- For selected body of standards or test methods – look at existing programs with EPA, etc.
- U.S. has test methods available, can work with EPA, USDA, FDA
- Solid waste
- Science Policy Center of Excellence – USAID has existing program for water
- Laws are needed that protect water and environment from risk and there exists expertise in the region for hazards and risk evaluation that could be used to inform law makers

Presentations by the United States

National Institute of Standards and Technology

Global Standards & Information Group

Problem we are trying to solve: MENA region has a number of QI programs and projects, but lacks regular and reliable access to training and the availability of regional cooperation

Goal: Bring high-quality training to the MENA region that is more accessible to the participants

- MENA countries all bring expertise to the table
- Travel and financial issues arise when training is in US or Europe
- Connect with “Centers of Scientific Excellence”

NIST has worked with the MENA region for many years, providing training through “Standards in Trade” workshops.

Commercial Law Development Program

Overview of CLDP standards work – client countries include Egypt and Morocco, but work in related areas has been conducted in 15 countries of the MENA region

CLDP standards work has included elements of:

- Standards development
- Technical Committees
- WTO/TBT Enquiry Point training
- Accreditation and certification
- Testing capacities
- Metrology
- Food Safety
- Patents

American National Standards Institute

Introduction to ANSI and overview of International Development Programs

- StandardsPortal (www.standardsportal.org)
- International Guest Researcher Program
- Accreditation capacity development
- US-India Standards and Conformance Cooperation Program
- Vietnam Standards Training Program (VSTP)

Underwriters Laboratories (UL) International

Introduction and brief history of UL. Over 20 billion UL marks appear on products worldwide, and they strive to ensure that manufactures still follow same standards after initial products have been tested and certified.

UL Energy business includes:

- Solar
- Wind
- Inverters
- Large storage batteries & electric vehicles
- Gas & oil

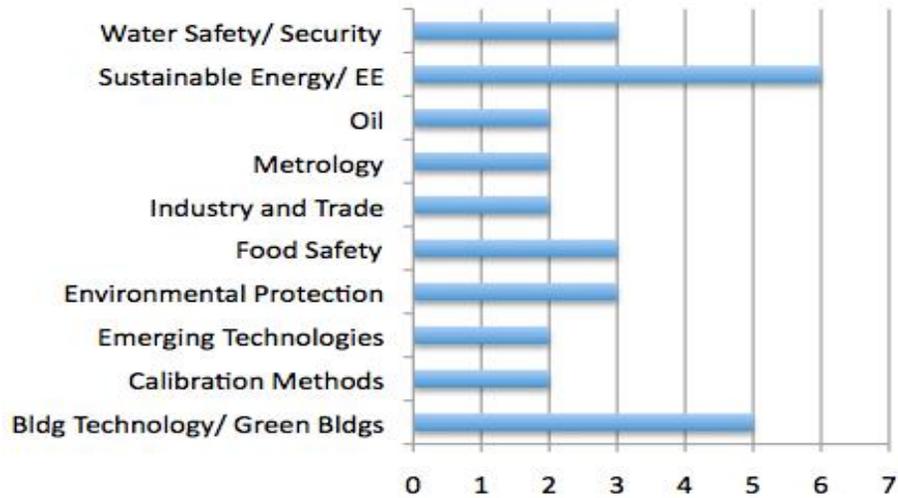
UL University and Advisory Services provide technical knowledge transfer. UL is looking for partner in the Middle East to be a center of excellence.

Standards Associates

- Introduction to Standards Associates
- QI training and technical assistance projects
- Works with USAID, USTDA, EU, World Bank, UNIDO
- Capabilities – overview of programs that SA offers
- Training Needs
- Training Challenges
- MENA Center of Excellence in Quality Infrastructure – pictorial representation of what would comprise the QI
- Training and Technical assistance in quality infrastructure
- [Global Standards Forum](#) (GSF)
 - Currently has 500 members
 - Online conferences/events
 - Modules are online, and it is a community

Appendix: Pre-Workshop Questionnaire Results

Table 1: What technical areas are most critical to your organization/region?



* **Other areas that received mention:** IT security, pharmaceuticals, GMO, services, test methods, energy drinks, metallurgy/ mechanics

Table 2: What components should training programs include?

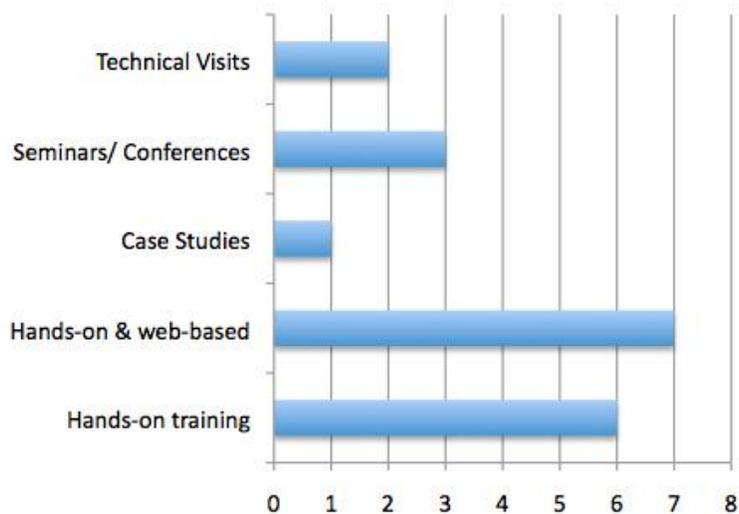


Table 3: What challenges exist for you to participate in such training opportunities?

