



Proceedings

PAK-US STANDARDS AND CONFORMITY ASSESSMENT WORKSHOP

24-25 MAY, 2007 LAHORE PAKISTAN

**Compiled & Edited by: Dr. Shahzad Afzal
Director, PSQCA**

Address:
Pakistan Standards & Quality Control Authority
Ministry of Science & Technology, Government of Pakistan
Block-77, Pak Secretariat., Karachi.
Tel: 92-21-9206260 Fax: 92-21-9206263
Email: psqcadg@super.net.pk
Website: www.psqca.com.pk
Toll Free No. 0800 80000

Sessions	Proceedings (Pak-US-US Standard and Conformity Assessment Workshop)	Page
	Preface	4
	Welcome Address by Shehryar Khan, Joint Technological Advisor, Ministry of science & Technology	5
	Inauguration by Mr. Parvez Butt Hilal –i- imitaz , Sitara-i-imita, Secretary Ministry of Science and Technology, Government of Pakistan	6
	Keynote Address by Dr. Hratch Semerjian, Director National Institute of Standards & Technology (20 minutes)	7
Plenary Session-I	Standards, Metrology and Accreditation: Implications for Trade <i>(Chaired by Dr. Syeda Tanvir Kousar Naim, Consultant, Committee for Scientific & Technological Cooperation (COMSTECH))</i>	9
Breakout Group-II	Textile Standards and Conformity Assessment Procedures: <i>(Chaired by Engr Akbar Shiekh, All Pakistan Textile Manufacture Association)</i>	13
Breakout Group-III	Electro-technical/Electronic Products Standards and Conformity Assessment Procedures. <i>(Chaired by Javed Arshad Mirza, Hilal –i- imitaz , Tamgha-i- Baqa, Sitara-i- imitiaz Chairman Pakistan Council for Science & Industrial Research)</i>	17
Breakout Group-IV	Food Standards and Conformity Assessment Procedures <i>(Chaired by Mr. Zawdu Felleke, United Nation Industrial Development Organization (U NIDO) Islamabad</i>	22
Breakout Group-I	Surgical and Steel Products Standards and Conformity Assessment Procedures. <i>(Chaired by Mr. Rizwan Qadri, CE Qadri Group of Companies, LHR)</i>	28
Plenary Session- II	Certification, Testing and Calibration Procedures: Implications for Trade <i>(Chaired by Dr. Shaukat Hameed Khan. Member, Planning Commission)</i>	32
Breakout Group-V	Do Standards and Conformity Assessment Procedures matter to export success? & Standards and Conformity Assessment- General Group <i>(Mr. M. A. Jabbar, Former Vice President, Federation of Pakistan Chamber Commerce & industry (FPCCI)</i>	35
Closing Session	Concluding Session <i>(Chaired by Dr. Shaukat Hameed Khan. Member, Planning Commission S&T Government of Pakistan)</i>	39
	Presentation of the Recommendations of Plenary Session and Breakout groups by Mr. Abdul Ghaffar Soomro, Director General, PSQCA	39
	Closing Statement by Dr. Shaukat Hameed Khan. Member, Planning Commission S& T Government of Pakistan	40
	Vote of Thanks by the Mr. Abdul Ghaffar Soomro, Director General, PSQCA	41
	Souvenir Distribution	
	Workshop Evaluation	42
Appendix-I	National Standards Strategy and Action Plan (Draft)	44
Table-1	Gap analysis or issues identified by Breakout groups	53
Table-2	Textile Sector Specific Strategy (SSS) for Pak-US Collaboration	56
Table-3	Electrical Safety SSS for Pak-US Collaboration	57
Table-4	Consumer Safety SSS for Pak-US Collaboration	58
Table-5	Surgical Products SSS for Pak-US Collaboration	59
Table-6	Steel Products SSS for Pak-US Collaboration	60
Table-7	Food Safety SSS for Pak-US Collaboration	61
Table-8	Information and Communication Technology SSS for Pak-US Collaboration	62
Table-9	Energy Efficiency SSS for Pak-US Collaboration	63
Table-10	Gas Appliances SSS for Pak-US Collaboration	64
	Photographs of Pak-US Workshop on Standards and Conformity Assessment	65

Abbreviations

ANSI	American National Standards Institute
APEC	Asia Pacific Economic Cooperation
APLAC	Asia Pacific Laboratory Accreditation Cooperation
ASEAN	Association of India and the South East Asian Nations
BIPM	International Bureau of Weights and Measures
CAC	Codex Alimentarius Commission
CASCO	Committee on Conformity Assessment
EMS	Environmental Management Standards
GAP	Good Agriculture Practices
IAF	International Accreditation Forum
IEC	International Electrotechnical Commission
ILAC	International Laboratory Accreditation Cooperation
IAF	International Accreditation Forum
ISO	International Organization for Standardization
ITU	International Telecommunications Union
MSTQ	Metrology Standards Testing and Quality
MLA	Multilateral Recognition Arrangement
MOU	Memorandum of Understanding
MRA	Mutual Recognition Agreement
MoST	Ministry of Science and Technology
MINFAL	Ministry of Food, Agriculture and Livestock
NIST	National Institute of Standards & Technology, US
NPSL	National Physical and Standards Laboratory
NTBs	Non Tariff Barriers
NTU	National Textile University
OIML	International Organization of Legal Metrology
PSQCA	Pakistan Standards and Quality Control Authority
PNAC	Pakistan National Accreditation Council
PCSIR	<i>Pakistan Council for Science & Industrial Research,</i>
PSS	<i>Pakistan Standards Strategy</i>
SDC-PSQCA	<i>Standards Development Center, PSQCA</i>
SPS	Sanitary and Phyto-Sanitary (SPS) Measures
SSC	Sector Specific Strategy
TBT	Technical Barriers to Trade
UNIDO	<i>United Nation Industrial Development Organization UNIDO</i>
WTO	World Trade Organization

2007 Pak-US Standards and Conformity Assessment Workshop Proceedings (24-25 May, 2007, Lahore, Pakistan)

Preface:

Trade liberalization under the General Agreement on Tariffs and Trade (GATT), and triggered by the World Trade Organization (WTO), and bilateral/multilateral Free Trade Agreements (FTAs) have opened vistas manufacturers to globalize their production processes and explore supplier networks to remain competitive. Manufacturers are driven to maximize revenue and increase addition value, minimize cost and time to market. How manufacturers balance these commercial drivers with ensuring that the products are safe and of good quality is the key to a safe environment for all of us.

Standards and conformity assessment systems are designed to ensure performance, interoperability, as well as safety and integrity of products in the marketplace and these systems affect a significant portion of trade of developing countries. The economic impact on manufacturers of meeting requirements in global markets is staggering. The trade and safety requirement compliance demands harmonization of standards and conformity assessment (testing, certification, accreditation) procedures. Manufacturers desire to test the product once to one standard, get certification once, and ultimately have the product accepted in multiple markets.

In this perspective the Workshop was hosted by the Pakistan Standards & Quality Control Authority with the collaboration of NIST US which focused on sharing knowledge of the standards and conformity assessment procedures to minimize trade barriers and how to overcome technical regulations. The Workshop brought together about 250 participants (i.e., policymakers, regulators and representatives of standards, accreditation and conformity assessment bodies of Pakistan, as well as representatives of business and consumer groups and other stakeholders) in an open and constructive atmosphere. Participants had an opportunity to share their experiences regarding standards and conformity requirements and exchange views on issues of good practice that ensure access to the world markets. The Workshop addressed specific standards and conformity assessment issues affecting a range of sectors i.e., textile, electrical/electronic, steel/surgical, Food, IT/ICT, Autos being faced by Pakistan.

The workshop proved a great success in so far as exchanging experience and it helped to identify elements of best practice and gaps in the Standards and Conformity assessment institutions of Pakistan. The National Standards Strategy and Action Plan draft was circulated to develop consensus on the basic mechanism of successful export projects strategy in the global trading environment in the presence of WTO agreements, and how to adopt these action plans for future policies and targets.

This volume contains brief summary of the workshop participants' presentations which has been compiled by Dr. Shahzad Afzal, who acted as focal point for the workshop.

Abdul Ghaffar Soomro
Director General PSQCA

Welcome Address by Shehryar Khan, Joint Technical Advisor, Ministry of Science & Technology, Government of Pakistan

He welcomed all the participants on behalf of PSQCA and MoST. He said that Pakistan Standards & Quality Control Authority in collaboration with Ministry of Science & Technology (MoST) and National Institute of Standards & Technology have organized this workshop.

He said that keeping in view the articles of World Trade Organization (WTO) and new developments in the world, it is naturally hard to concentrate on a technical - although important - topic such as "Standards and Conformity Assessment." He quoted the World Trade Organization stating i.e., "we live in a world profoundly reliant on standards that have far-reaching implications for trade". Now we should realize that the technical norms, standards, and assessment procedures are of enormous significance for trade policy of Pakistan. They have a crucial influence - both positive and negative - on the involved countries' worldwide commerce and economic relations. The removal of non-tariff barriers to trade (NTBs) remains a high target in trade liberalization programmes, and this workshop is organized in order to take stock of policies and practices in one category of NTB –barriers created by technical regulations, standards and conformity assessment – and to explore possibilities for new action. All three issues are relevant to the simple goal of *one product, one test, accepted everywhere*, a widely recognized target of trade liberalization, and all three are covered by the TBT (Technical Barriers to Trade) Agreement of the WTO (World Trade Organization), although conformity assessment has so far received less attention in the studies of trade effects.

He said that now we believe that standards and conformity assessment procedures are emerging as the leading solution for harmonizing requirements across the borders. Sometimes it is better to adopt methods already tested by others and then tailor them to the special needs of one's country, rather than independently working out complicated procedures. Standards and conformity assessment procedures are of immense importance for the Pakistani exporter who wants to export his product to the markets of the industrialised world such as US, EU. In Pakistan, Standards and conformity assessment programs may be viewed as the principal nontariff trade barriers in markets around the globe, but our intent is to remove those barriers and to better facilitate the free flow of goods and services.

He said the workshop addresses standards and conformity assessment procedures affecting a range of sectors i.e., textile, food, electrical, surgical and steel, Auto, Information communication technology etc. Formally, the topics were covered in two days: Day 1 started with Plenary session-Standards, Metrology and Accreditation: Implication for Trade. Then there are 4 breakout sessions for textile, Food, electrical and steel-surgical standards and conformity assessment procedures. Day 2 started with plenary session i.e., Certification, Testing and Calibration Procedures: Implication for Trade. Then there are two breakout sessions in separate rooms i.e., Do standards and conformity assessment procedures matter to export success; Standards and conformity assessment general, which covered Auto and ICT standards and conformity assessment procedures.

He said in his concluding remarks that I am sure we have identified the right topics, and the right people to discuss them. However, I don't want to conclude my remarks because its only the beginning. This is a good sign. In my opinion, the participants of this workshop in Lahore must send a clear message of coordination for US Standards and conformity assessment Institutions.

Inauguration Address by Parvaz Butt (*Hilal –i- imitaz , Sitara-i-imita*), Secretary, Ministry of Science and Technology, Government of Pakistan

Mr. Parvez Butt, Secretary, Ministry of Science and Technology in his inauguration Note pointed workshop relevance with trade facilitation and economic development. Mr. Pervez Butt said that the Ministry is promoting metrology, standards, testing, accreditation and certification activities to support industry to produce quality products and services. Recently a high level delegation visited US and seek help from NIST US to upgrade the quality infrastructure of Pakistan to be able to overcome technical barriers to trade. To help out Pakistan in the field of Standards and Conformity Assessment, NIST US requested to hold a workshop where Dr. Semerjian, Chief Scientist NIST will come for the identification of gaps or weaknesses in the system. But due to recent unrest in the country he was not come and delivered his key note address through Video conference where he defined the road map of future collaboration and wished for the success of this workshop and further collaboration.

He said, “we must ask ourselves some questions that may be uncomfortable: Will the Standards setting models that we use today be relevant in the future? Are we prepared to address standardization needs in areas that are critical to the nation? Do we have the experience, or the resources, to address these matters in a responsible way?”

He said, “the issue of standards and conformity assessment and the impact that their adoption and use may have on economic development and trade flows has not been a major concern of policy makers in Pakistan until recently. This is due to the fact that more traditional forms of market imperfections and trade barriers have played a predominant role in the economy.” Industrial policy has been concentrated on the provision of differential taxes and subsidies to chosen sectors of industry rather than focusing on the impact of harmonizing and/or making compatible differing product standards. Other forms of potential non-tariff measures, including in particular differing national standards and conformity assessment procedures, have begun to surface as barriers to trade as the more obvious layers of trade barriers have been peeled off. Relatively little attention has been given, until very recently, to the establishment of credible and modern infrastructure for laboratory testing and calibration facilities, or to the development of certification methods and accreditation bodies (internationally recognized) or the provision of systems of quality management control in Pakistan. Therefore the question of what role standards and technical regulations may play in promoting or slowing down economic development in Pakistan or in facilitating or hampering their participation in international markets has not yet been examined in a serious way, partly due to the lack of interest on the part of policy-makers and partly due to the difficulties in identifying the technical barriers to trade created by incompatible national standards, along with the lack of available information on their sectoral importance and consequent uncertainty over their impact on trade flows and economic welfare.

He said, “our future market success depends upon cooperation and collaboration. We must foster positive relationships with partner organizations of developed world such as NIST US if we are to be successful in our efforts to establish standards, testing programs and marks that are suitable for implementation across national boundaries. Our ultimate goal is to achieve a level playing field in the international standards arena, and an assurance that the needs of all nations are taken into account when developing standards and conformity assessment programs that support free and fair trade.”

He concluded, “I hope that this workshop will addresses the problem of standards and conformity assessment procedures in Pakistan and the policy options for its solution. I work to commit beside the whole to achieve the goals.”

Keynote Address by Dr. Hratch G. Semerjian, Chief Scientist, National Institute of Standards & Technology (NIST), (Through Video Conference)

Dr. Hratch G. Semerjian, NIST Chief Scientist delivered keynote address, “**NIST - Promoting Innovation, Competitiveness and Trade**” through video conference. He sent high regards for the success of Pak-US workshop. In his keynote address he gave historical perspective about standards, NIST Capabilities, NIST and Innovation, Economic impact of Metrology Programs, NIST Role in Conformity Assessment and opportunities for Cooperation between US and Pakistan. He said that the international trade is based on: Internationally recognized documentary standards, Mutually recognized measurement methods and standards, Mutually recognized accreditation, and Conformity assessment. NIST mission is to promote U.S. innovation and industrial competitiveness by advancing measurement science, standards, and technology in ways that enhance economic security and improve our quality of life.

The National Institute of Standards and Technology (NIST), an agency of the U.S. Department of Commerce, promotes U.S. economic growth by working with industry to develop and apply technology, measurements, and standards. The NIST organization includes eight measurement and standards laboratories that work in technology areas including chemistry, physics, electrical engineering, materials sciences, building science, manufacturing engineering, and information technology. The NIST laboratories carry out research, services and standards-related activities to provide essential reference data and measurement capabilities that are needed by U.S. industry to continually improve its products and services. *NIST laboratories* planned and implemented research in cooperation with industry that anticipates and addresses the most important measurement and standards needs in a timely fashion.

The NIST National Measurement System strengthens the national system of standards, measurement, measurement traceability, and conformity assurance. Moreover, NIST provides leadership in harmonizing international measurements and standards to facilitate trade. He also highlighted that NIST published *2,200 publications/year*, *65 types available Standard Reference Data (virtually all available free online)*, *more than >1,300 types available and >30,000 units sold/year of Standard Reference Materials*, *>3,000 items were calibrated/year and 826 laboratories were accredited and 400 NIST staff on 900 committees*. He elaborated with example regarding NIST contributions to innovative technologies.

US regulatory philosophy relies heavily on manufacturer’s declaration of conformity wherever possible but

- U.S. legal system imposes severe penalties on defective or hazardous products
- U.S. consumers have broad access to information about products
- Dissatisfied customers can easily switch to a competing product
- U.S. laws and regulations on truth in labeling and advertising

Government intervention if necessary

- by law and regulations covering specific products for health and safety
- for procurement purposes
- to provide a uniform basis for trade by assessing quality and condition of products

Congress has given Federal agencies overriding responsibility for most health and safety regulation while State and local governments are involved in: regulation of buildings and construction, agricultural products, workplace safety enforcement, environmental safety enforcement. Types of Government Agency Programmes are Direct Approval (i.e., US Department of Agriculture, Environmental Protection

Agency, Food & Drug Administration), Accreditation/qualification of private sector programs (i.e., Occupational Safety and Health Administration) and Recognition of accredited private sector programs (i.e., Federal Communications Commission, Department of Energy). Then he briefly defined the NIST role in conformity assessment i.e.,

- To participate in development of standards
- To provide measurement standards underpinning for testing and certification activities
- To accredit testing and calibration laboratories and Support U.S. system and international accreditation cooperations
- Responsible to coordinate federal agency conformity assessment activities with those of the private sector
- To evaluate the competence of private sector accreditors, in support of trade agreement and/or at the request of another federal agency
 - To recognize ANSI and A2LA programs to accredit telecommunications certification bodies
 - To recognize International Organic Accreditation Service

He also highlighted NIST priorities in international activities i.e.,

- To assure that the measurement capability needed to support commerce in U.S. goods and services exists around the world.
- To assure that U.S. manufacturers can have access to whatever accreditation or conformity assessment system is required by any country in the world for importation of goods or services.
- To conduct scientific, technological, and metrological activities to further U.S. foreign policy.
- To assure that international standards reflect U.S. measurement capabilities to the extent possible.
- To provide education and training in measurements, standards and measurement and standards systems.

Finally, he said that the Mechanism for information sharing with NIST US is based on International Agreements, Joint Research Projects, Guest Researchers, International Visitors Program, Workshops and Training (e.g. SABIT, SIT), and Participation in International Conferences (e.g.ISO). He suggested to explore the mutual areas of interest through this workshop and to establish cooperative programs with Pakistan's S&T institutions.

Standards, Metrology and Accreditation: Implications for Trade (Plenary Session)

Dr. S.T.K Naim, Consultant, *Committee for Scientific & Technological Cooperation (COMSTECH)*, chaired the session. She said, “Standards and conformity assessment in trade have remained the vital issues for Pakistani exporters for many years. As Pakistan is both producer for local and export markets, as well as importer of products (such as textile, surgical etc.), the standardization of product standards and conformity assessment for market access (domestic and international) will require more and more cooperation from all the stakeholders to facilitate growth in trade and economic development.” Then Plenary session was proceeded according to the schedule.

Mr. Abdul Ghaffar Soomro, Director General, PSQCA spoke about the **Pakistan Standards Strategy and Action Plan**. He said, “The Pakistan Standards and Quality Control Authority, under the Ministry of Science and Technology, is the national standardization body and performing its duties and functions in accordance with PSQCA Act No. VI of 1996. PSQCA came into operation in Ist December 2000, working with 81 scientists/engineers and 254 supporting staff as self-finance organization, has been given the task of not only formulation of Pakistan Standards, but is also responsible for promulgation thereof. PSQCA was established to advise the Government on standardization policies, programmes and activities to promote industrial efficiency and development, as well as for consumer protection. The main function of the Department is to foster and promote standards and conformity assessment as a means of advancing the national economy, promoting industrial efficiency and development, ensuring the health and safety of the public, protecting the consumers, facilitating domestic and international trade and furthering international co-operation in relation to standards and conformity assessment.”

He said, “The formulation of national standards is carried out in Sectional Technical Committees which include PSQCA experts, intellectuals from related scientific institutions, technical experts from relevant production units and consumers. Effort is made to make sure national standards safeguard national interests, public tendencies, and the views of all stakeholders such as producers, consumers, businessmen, specialized centers as well as government organizations are satisfied. The drafts of national standards are distributed among all interested parties and the relevant Sectional Technical Committee for review. The drafts are then finalized and approved on a consensus basis in their respective divisional councils and published as national standards. So far PSQCA has published 4800 Pakistan Standards covering various products, codes of practices, terminology, etc for various industrial and economic sectors. PSQCA is formulating, adopting and revising the national standards with the help of eight divisional councils (Agriculture & Food, Chemical, Civil Engineering, Electronics, Electrotechnical, Mechanical, Textile, Weight and Measure) under which 147 Sectional Technical Committees are operating. The standards are priced publications and are available from all the offices of the PSQCA. Apart from formulation, emphasis is laid also on regular review of the standards to keep them in line with modern technological developments, as also to harmonise them with international standards or their equivalents. PSQCA is the Pakistan member body to ISO, IEC, and OIML.”

He said, “The Standards and technical regulations are an increasingly prominent part of international trade policy debate. In particular, there has been considerable discussion of whether standards and regulations affect trade costs and export prospects for developing countries. Conformity assessment (CA) can provide benefits for manufacturers, consumers, government regulators, and trade in general, but it can also act as a technical barrier to trade. The primary aim of CA is to prove that products are fit and safe (or not safe) for humans, animals or the environment. They give regulators a means for preventing unsafe, unhealthy or environmentally harmful products from entering the market place. Furthermore, as they

convey information on the characteristics of a product and its performance, CA procedures provide much needed data to regulators in the domestic and foreign market, thus facilitating trade and contributing to consumer/user confidence. For manufacturers, CA provides a competitive advantage which allows them to distinguish themselves from competitors whose products do not ‘measure up’ to certain levels of safety, quality or reliability. The major constraints that have been faced are: lack of awareness and understanding of the Importance of Standards and Conformity Assessment Procedures (testing, calibration, inspection, product certification, accreditation): need to have financial incentives to attract the users of conformity assessment services; lack of trained and qualified technical personnel.”

He said, “to facilitate future inter-trade growth, accelerate the harmonization process of standards and related conformity elements (procedure), minimize barriers and maximize benefits for all stakeholders involved in the standard and conformity assessment issue, more cooperation and assistance in competency and capacity building on the local level is needed. Keeping in view, PSQCA provides a forum for developing national standardization policy and action plan. PSQCA’s role domestically is to facilitate Pakistan standardization policy development, then promote those policies globally. PSQCA has undertaken to develop Pakistan Standards Strategy & Action Plan in order to incorporate issues international and regional trade, surrounding the environment, sustainable development, social responsibility, healthcare, food safety, new technologies and businesses (SME) which focuses on following five major goals: Identifying Pakistan needs for domestic, regional and international standardization to facilitate trade, support the competitiveness of Pakistan business; Meet the needs of an evolving regulatory and policy objectives by wider adoption of PS standards in technical regulations to safeguard our quality of life, safety, health and the environment; Enhancing participation of the public and private sectors in standardization activities through incentives; Strengthening the national standardization infrastructure, including capacity building of human resource; Improve awareness of key stakeholders regarding the role of standardization in economic growth, global trade and sustainable development.”

Abdul Ghaffar Soomro recommended the following strategies and their plan of action (detail is given at appendix-1) and requested NIST US to review the draft strategy and provide necessary help for its implementation

- *Wider adoption of Pakistan standards in technical regulations*
- *Development of sector-specific strategies responding to market and social needs.*
- *Ensuring stakeholders participation and support for standardization at regional, International country level.*
- *International standardization strategy*
- *Timely delivery of Pakistan Standards that meet the current and future needs of stakeholders.*
- *Greater awareness and usage of Pakistan standards by the Government, private sector and the consumers in procurement, trade, production, manufacturing and provision of services*

Mr. Khalid Islam, Director NPSL discussed role of **“SI-Unit & Traceability SI-Units in the Measurements”**. The NPSL is responsible for maintenance of national reference-standards of measurements in metrology. Presently, NPSL is providing accredited calibration (traceability) facilities such as Time and Frequency, Length and Dimension, Mass, Electrical, Temperature, Pressure, Viscosity, Conductivity and pH to cover industrial calibration and measurement services. Many important decisions are based on measurement: the results can be used for example to assess the conformity of a product, to check a material against a specification or statutory limits, etc. Nowadays we all take metrological traceability seriously because decisions are based on measurement, it is important to have some indication of the quality of the results. In NPSL, this discipline is strictly devoted to so-called “physical” quantities. The second edition of the International Vocabulary of Basic and General Terms in Metrology, (the “VIM”), defines traceability as: property of the result of a measurement or the value of a standard whereby it can be related to stated references, usually national or international standards, through an unbroken sequence of comparisons all having stated uncertainties.[VIM2-6.10] The ‘stated reference’ includes a definition of a measurement unit through its practical realization, or a measurement standard. For a working laboratory, a CRM used as a calibrator with documented traceability fulfils the definition by filling in the chain all the way up to the definition of the unit. There have been too many examples of results not being comparable over time and space, arising from either a complete lack of traceability or incomplete estimation of measurement uncertainty (which also invalidates the traceability). It is often asked whether “traceability to the SI” is the only option. The definition of metrological traceability has never included reference to the SI, and indeed asking the question implies less than a full understanding of the subject. In a cyclic (and not very useful) truism, results are traceable to what they are traceable to. At worst, this may be only to the value of a quantity in whatever material was used to effect the calibration of the instrumental response, but at best metrological traceability might be assured to a definition of an SI unit. The point about metrological traceability to the definition of an SI unit is that it does provide an ultimate reference that, should measurements be made in proper SI units around the world, and at different times, they will all be mutually comparable through that traceability. It also goes without saying that should a measurement be made of a quantity that precludes traceability to the SI, for example a hardness measurement on the Rockwell scale, then there is no question that the result will not, and cannot, be traceable to the SI. On the other hand, if a measurement is made that could be in SI units, i.e., a mass or amount of substance or length or volume, then it would not be sensible or advisable to trace to some arbitrary standard. We may compare results only when they are expressed in the same units, otherwise we are comparing ‘apples with oranges’. Comparability is necessary in space, between laboratories making measurements on a material, perhaps for trade between countries, but also in time.

Mr. Khalid Islam recommended:

An understanding of the existence of multi-stranded traceability chains means we must always pay attention to the metrological traceability of results. NPSL would like to upgrade its system (training of staff, upgradation of equipment and scientific realization of SI units) with the help of NIST Labs.

Mr. Najmuddin, Deputy Director General, Pakistan National Accreditation Council, MoST spoke about the Accreditation Activities in Pakistan. He said the Pakistan National Accreditation Council (PNAC) has been established under the administrative control of the Ministry of Science and Technology, Government of Pakistan as the national apex agency to accredit conformity assessment bodies such as laboratories and certification bodies. The accreditation services of PNAC were launched during the year 2001. Main activities of PNAC are: Accreditation of testing and calibration labs in accordance with ISO/IEC 17025, Quality and Environmental Management System Certifiers in accordance with ISO Guides 62 and 66,

respectively; Formulation and Implementation of National Quality Policy and Plan (NQP&P); Awareness raising & training on conformity assessment, quality & productivity (ARTCAQP). He said that in order to face the new challenges of trade under the WTO regime and ensure health and safety of the consumers, a comprehensive policy initiative was considered essential to rebuild a strong national regulatory and quality infrastructure in the country. Accreditation is necessary to: Reduce Technical Barriers to Trade (TBT); Improve quality of products and services; Build confidence of consumers, importers & exporters; Broaden the export base of the country. He said PNAC is committed to obtain international recognition through bilateral and multilateral recognition agreements. Such recognition will enable accredited Certification Bodies to meet obligations under the World Trade Organization (WTO) agreement on Technical Barriers to Trade (TBT).

Mr. Najmuddin recommended:

PNAC would like to upgrade its system with the help of US accreditation bodies i.e., NVLAP, A2LA through NIST US and exchange of expertise between US and Pakistan will enhance confidence of accreditation services.

Finally the session was concluded by the remarks of Dr. S.T. K Naim in which she appreciated the contribution of PSQCA, NPSL and PNAC in the National Quality Infrastructure. She emphasized on the upgradation/harmonization of present Quality infrastructure in the line with the developed world to fulfill the demands of market and consumers with the assistance of NIST US.

Breakout Group I- Textile Standards and Conformity Assessment Procedures

Session was chaired by Eng. Akbar Shiek, Chairman, All Pakistan Textile Manufacturing Association. In his introductory remarks he said “ Although Pakistan produces 8.9% of the world’s Cotton but the share of Pakistan in the Global Clothing Trade is significantly low i.e., 2.4% which may be due to non compliance with market oriented standards and conformity assessment procedures. He briefly highlighted the role of standards and conformity assessment procedures in the exports of textile goods. The session was then proceeded by six presentations covering all aspects of standards and conformity assessment procedures related to textile sector. The summary of these presentations is given below

Mr. Hamid K. Latif, Textile Testing International, Pakistan Pvt. Ltd. gave presentation on “Conformity Assessment of AATCC Standards in Pakistan”. He discussed some of the definitions used in the Standards. PSQCA has developed 816 textile standards in which less then 5% are harmonized with ASTM. In his presentation he emphasized on the need of textile related sector committees and division council of PSQCA which are comprised of textile experts from all sectors of textile industry and textile technical educational institution to adopt or harmonize PS textile standards with AATCC (American Association of Textile Chemists and Colorists) standards because 70% foreign market demands conformity assessment against AATCC standards. The objectives of AATCC are

- ◆ American Association of Textile Chemists and Colorists is an international consensus standards developer that specializes in the area of auxiliary textile chemistry standards.
- ◆ AATCC is a world leading not-for-profit professional association.
- ◆ For more than 85 years, AATCC has worked with dyers, finishers, educators, students, chemists, mills, laboratory technicians, management executives and others who are involved in the application of chemistry to textiles.
- ◆ AATCC has published more than 200 test methods addressing such topics as: Biological Properties, Colorfastness, Dyeing Properties, Evaluation Procedures, Identification & Analysis Procedures and Physical Properties.

Mr. Hamid concluded that Pakistan can enhance the share in global textile export with the help of internationally recognized conformity assessment infrastructure i.e, internationally recognized National Accreditation Bodies, Accreditation of Laboratories and certification bodies by Multi-recognition arrangement (MRA) signatory (ILAC, IAF, APLAC, PAC) Accreditation Body. He also emphasized on the restructuring of Standard Developing Organization i.e., PSQCA so that it can become Service-oriented Standard Institution to: Promote local organizations to participate in standardization, Encourage & facilitate internationally recognized standards developing organizations in Pakistan e.g. AATCC, ASTM and the signing of Multilateral Recognition Agreements with the Standards Developing Organizations of the developed world.

Mr. Razaq Paracha gave presentation on the “Standardization history of readymade garments”. History showed that in 90’s, 56% exports were Yarn & Grieg Fabric and in 2000’s 57% of Garments & Textiles. Major exports regions are USA & EU i.e., 60-70% and remaining occupied by Non-traditional Markets. Presently, 98 textile industrial units are certified (system certification) against 363. About 70% were not certified, the reason may be mostly fall under the category of SMEs are facing lack of Awareness, Compliance Capacity, Managerial Capability, Technical Know How, social compliance and Financial Resources. The history showed that the Pakistan is facing the following limitations regarding textile sector i.e., Shortage of Skilled Staff, Lack of Certified Testing Labs, Inadequate Physical Infrastructure, Lack of Awareness, Poor Dissemination of Information, Poly Bags, Azo Dyes, Nickel and Copy Right.

Mr. Razaq emphasized on the harmonization of standards, and evolving the Textile Sector Specific Standardization National Strategy keeping in view the development of textile industrial sectors in accordance with the foreign market demands.

Professor Dr. Mumtaz Hasan Malik, National Textile University, Faisalabad gave presentation on Conformity Assessment of Textile Standards in Pakistan. Suppliers test and analyze their products during development; tests are also conducted by users, by third party testing laboratories and by industry sponsored events. Testing promotes objective assessments of features, functions and capabilities of products. Testing helps to establish benchmarks, enables defects of products to be identified, and identifies areas for improvement. Suppliers need testing and certification of their products to gain access to markets and to distribution channels, and to increase market penetration. Testing and certification helps to prevent litigation, and avoid government regulation.

Dr. Mumtaz reasoned the difficulties conformity assessment of standards with Low awareness about standards, Lack of standard equipments, Shortage of qualified personnel, Lack of textile calibration labs and Lack of accredited laboratories.

Professor Dr. Muhammad Zuber, Dean, National Textile University, Faisalabad gave presentation on Role of NTU in Standardization of Textile Products. He told NTU is an Institution in Country preparing graduates with specialization having special focus on export oriented segment of textiles. The curriculum of B.Sc. engineering covers Social Sciences & Management, Basic Textile, Core Textile, Textile Testing and Quality control, Applied Sciences and Allied Engineering.

Dr. Zuber concluded that new technologies are required to upgrade the skills required for better understanding the quality aspects and helping in improving them. NTU would like to develop National Centre of Textile Research with the help of Ministry of Science and Technology.

Dr. Muhammad Ilyas Tariq, Environmentalist gave presentation on “Impact of International environmental regulations on the textile sector of Pakistan”. The processing industry in the textile value chain holds an important position as far as value addition is concerned. Garments and made-ups comprising the downstream industry rely heavily on the processing sector for the provision of value added fabrics and materials. Unfortunately the processing segment also is the most susceptible area that can be effected by global environmental regulations regime. More than 650 units are in operations majority of which operate at a small and medium sized scale. The major area of concern for the textile processing sector is wastewater. Textile processing is a water intensive process. Almost 08-0.15 cubic meters of water is consumed to produce one kilogram of finished fabric, translating into 1,000-3,000 cubic meters of wastewater generation per day against a production of 12-20 ton/day of finished fabrics. Currently the wastewater generated by the industry is discharged into the drainage system/open system/storm water cum seepage drainage network without any treatment that causes serious negative effect on the environment. A wide range of chemicals are used by the processing industry for dyeing and printing operations. These include bleaching agents, vat dyes, azo dyes, sulphur dyes, disperse dyes and colour pigments, which are manufactured by using chemicals such as formaldehydes, hydrochloric acid, ammonia, chromium salt, soda ash, caustic soda, sodium sulphate, sulphuric acid, etc. Extensive usage of these chemicals by the processing industry results in discharge of toxic elements as effluents, which if not treated properly have the potential to cause significant environmental degradation. The prevalent ranges

of almost all the parameters, of existing effluents, exceed the limits prescribed in the National Environment Quality Standards (NEQS). In certain cases the minimum prevalent limits, such as BOD and COD, are much higher than the maximum limits prescribed in the NEQS. The industry mostly exists as SMEs and is likely to face difficulties in complying with social and environment regulations. These SMEs are not in a position to comply with any of the present local Social Environmental Laws, because of their existing contractual system of production to achieve productivity levels. Similarly the processing industry also is unable to meet the high cost of water treatment plants. The Provincial Government and City Govt. should take initiative to develop Wastewater Treatment Plants on cooperative basis or alternatively can recover the cost over a certain period of time from the industry. The treated water should not be used for agriculture and not thrown in the usual disposal drains.

Dr. Ilyas recommended that the Standard development Sectional Committees of PSQCA dealing with the Environmental Standards should coordinate with regulators i.e., PEPA (Pakistan Environmental Protection Agency) to incorporate their guidelines/limits accordingly. Moreover, close coordination and regular consultations between PSQCA, Ministry of Environment and stakeholders for the adoption of applicable Pakistan standards for the protection of environment is needed.

At last Eng Akbar Shiekh briefly reiterated the major recommendations from the presentations of resources persons and emphasized to incorporate these in the Standards Specific Strategy of Textile products which should be focused on product development. The presentations provided overviews of Textile testing activities, and explored the inter-relationships of standards, testing, measurements, conformity assessments and international trade.

- *Customer priority towards standards are: American Association of Textile Chemists and Colorists (AATCC) > ASTM International on Textiles> National Fire Protection Association (NFPA), US. Sale of PS standard is significantly low which showed lack of awareness and harmonization with the developed world standards.*
- *Non-accredited testing labs are available in public Sector i.e., Pakistan Standards and Quality Control Authority (PSQCA), Pakistan Council for Science & Industrial Research (PCSIR) and National Textile University (NTU).*
- *Accredited testing labs which were accredited by non-signatory Multi-recognition arrangement (ILAC, IAF, APLAC, PAC) Accreditation Body are only available in private sector such as Textile testing International, SGS.*
- *ECO labeling testing facilities are not available.*
- *Accredited calibration facilities for textile sector are not available in Pakistan*
- *Certification i.e., system and product facilities are available with Public (PSQCA) and Private Sectors.*
- *Review the work of PSQCA Textile Sectional Committees and Divisional Council to assure consistency, relevance, and soundness of work that advances/enhances exports through Standards and Conformity Assessment Workshops.*
- *Internationally recognized Accreditation Body is not available in Pakistan so duplicative conformity assessment activities cannot be avoided in the Multi-recognition arrangement (MRA) signatory (ILAC, IAF, APLAC, PAC) Accreditation Body exporting country.*
- *Weak participation of industries in the Standards development Sectional committees of PSQCA.*
- *Shortage of qualified personnel in the field of standard development and conformity assessment.*

- *The conformity of social and environmental standards is weak.*
- *Sector Specific strategies or mechanism for major export sectors i.e., Textile should be developed to get maximum benefits from US institutions to overcome the TBTs.*

Break out Group II- Electro-technical/Electronic Products Standards and Conformity Assessment Procedures

The session was chaired by Dr. Javed Arshad Mirza, Chairman PCSIR. He said that in Pakistan, various provisions and implementation of the WTO Agreement related to TBT would be of significant impact on our exports especially from the year 2005 onwards and would definitely need greater role of R&D institutions in enhancing export competitiveness. Also, there is not adequate awareness in Pakistan, about the provision of TBT Agreement, the implementation mechanism and the notifications issued by the WTO from time to time, among our exporting community and related organizations. The Electrical Breakout group discussed the present status and implications of the various standards and conformity assessment procedures on our exports. The Workshop also focused on the experiences of our exporters and related issues to improve existing standards and conformity assessment infrastructure in Pakistan.

Mian Nazim, Syed Bhais and Dr. Shahzad Afzal, Director, PSQCA, discussed the “Electrical Product Certification in US and Pakistan”. Initially, he described the Model demonstrating the overlapping activities of the three bodies’ i.e., testing laboratory, inspection body and product certification body in relation to the determination of conformity with the requirements. He discussed in detail the Electrical Product Certification Process (US System) of Underwriters Laboratories. Then he described the electrical product certification model for Pakistan in lines with Underwriters laboratories process which is also in compliance with the IECEE CB scheme. The IECEE is the System of the **IEC** for tests and certification of the **conformity** of electric equipments, and the **CB Scheme** is the scheme of the **IECEE** for the Mutual Recognition of Test Certifications for Electric Equipments which involves the mutual recognition of the results obtained in the testing by its members to acquire the certification or approval on a national level. The main objective of the Scheme, is to facilitate trade by promoting harmonization of the national standards with international Standards and cooperation among accepted NCBs (National Certification Bodies) worldwide in order to bring product manufacturers a step closer to the ideal concept of "one product, one test, one mark, where applicable". The participant’s of the workshop highly appreciated the model.

Mr. Nazim gave the following recommendation:

The PSQCA shall introduce electrical product certification scheme (IEC EE CB scheme) in Pakistan with collaboration with Underwriters Laboratories of US.

Eng. Attaur Rehman Arain, Chairman Amber Capacitor, gave presentation on “Availability of Electrical/Electronic Testing Labs for conformity assessment of IEC, EU and US standards”. He briefly described the accreditation steps of electrical labs in accordance with ISO/IEC 17025. Then he described the process of IEC Electrical Equipment Certification Body Scheme and emphasized its importance globally. Membership of IECEE CB scheme is of utmost importance. Currently, there are 45 Member Bodies in the IECEE. There are 58 participating NCBs and some 200 CB Testing Laboratories at the time of this publication. A **National Certification Body (Product Certification Wing of PSQCA)** is a certification organization that grants nationally recognized conformity certificates to electrical products. To be accepted as a member of the CB Scheme, an NCB must meet specified requirements with regard to its internal quality system and

technical competence and is assessed against ISO/IEC Guide 65 and the IECEE Rules of Procedure. An NCB can qualify either as a **Recognizing NCB**, or as an **Issuing and Recognizing NCB**. A **CB Testing Laboratory (CBTL)** is a laboratory recognized in the CB Scheme to conduct testing and issue CB Test Reports in one or more product categories under the responsibility of its associated NCB(s). CBTLs may operate in the Scheme for different NCBs with which they are associated however when employed by multiple NCBs a determined category, i.e. OFF, can only be operated with one NCB. Depending on the scope of recognition in the CB Scheme, and the specific situation in each country, an NCB may carry out any of the following activities:

- Testing of products to the applicable IEC Standards.
- Testing to the national differences of destination countries.
- Issuing CB Test Certificates and CB Test Reports.
- Issuing CB Test Report Supplements on national differences of other countries.
- Recognizing CB Test Certificates issued by other NCBs.
- Issuing its own certification and authorizing the use of its mark(s).

The CB Scheme may provide significant benefits to those manufacturers who wish to export their products to countries that participate in the Scheme. Such manufacturers can:

- Select and deal with one NCB of their choice.
- Have their products tested only by that NCB, including testing to the national differences, special national conditions and regulatory requirements of the product's destination countries.
- Use the CB Test Report and Certificate obtained from one NCB to obtain national approvals in many other member countries through their participating NCBs.

Although the manufacturer is required to submit an Application and may also be required to submit a product sample in the country of destination, no additional testing is needed, and only administrative work should be involved in processing such Applications. Applications for obtaining certifications based on CB Test Certificates and CB Test Reports are given priority over other Applications as no testing is involved.

He told the participants that PSQCA, being a National Certification Body (NCB) can introduce IECEE CB scheme with the help of IECEE CB scheme member NCBs because PSQCA is a full Member of IEC, although is not on any Technical Committee. He also identified electrical labs in Pakistan which become IEC EE CB notified lab i.e., HV & SC Laboratory in Rawat has the capability of becoming National Testing Laboratory, but it lags ISO/IEC 17025 accreditation. The Electrical Measurement Test Laboratory, Rawat, WAPDA is likely to be accredited in a few months, but it has limited scope of accreditation.

Mr. Arain identified the following issues and challenges:

- *So far there is no Accredited Electrical Testing Laboratory in Pakistan.*
- *In absence of any Electrical Testing Laboratories accredited by an internationally recognized accreditation body that is MRA signatory with the appellant body (ILAC/IAF) for product certification in Pakistan, positive steps need to be taken to develop one.*
- *PNAC has accredited HV&SC Laboratory, Rawat, but that has to be confirmed. Besides, PNAC accreditation is not internationally accepted.*
- *Restructuring of PSQCA and PNAC is strongly recommended to make them useful organizations. Accountability needs to be introduced with measurable criteria.*
- *HV&SC Laboratory, Rawat, needs to be restructured and made independent of*

WAPDA bureaucracy. Furthermore, it needs to upgrade its testing facilities with proper calibration and traceability, and comply with ISO/IEC 17025 requirements.

- *More interaction with Trade Related Technical Assistance (TRTA) program of UNIDO is required in getting assistance for doing gap analysis of Testing Laboratories and bringing them at par with International level.*
- *Efforts are also required in creating a data base of Manufacturer's Testing Laboratories, specially of those who are engaged in exports, and already have set ups and products approved by International Testing Laboratories and Certification Bodies, such as UL, KEMA, TÜV, VDE, etc.*

Eng Asim Ayaz, Engineering Development Board gave presentation on “Importance of Certification in Electrical Capital Goods”. He gave the overview of electrical product exports and highlighted that most of the clients (8-10 serious queries per company) agreed with Quality & price is acceptable but demanded 90 % ask for certification. So to boost up the export in electrical sector PSQCA should introduce IECEE CB scheme in collaboration with NIST US.

Mr. Asim identified the following issue:

PSQCA being a National Certification Body (Product Certification Wing of PSQCA) should introduce IECEE CB scheme for the compliance of IEC standards.

Eng. Roald D'Souza, Consulting Engineers gave presentation on “Electrical Installation Codes and Standards”. He discussed the problem regarding implementation of safety codes i.e.,_Poor level of general education prevalent in the country, Lack of knowledge /understanding of electrical & safety engineering standards & codes, Rampant corruption in code/standard enforcement & electrical inspection agencies of government. He briefly discussed the country safety codes (Electricity Act, 1910: Electricity Regulations, 1973: NEPRA Act, 1997: PSQCA's PS:3632 ‘Pakistan Wiring Regulations for Electrical Installations’ (16th edition adopted from IEE/UK's) and its harmonization with developed world.

Mr. Roald D'Souza identified following issues and challenges;

- *Make consumers aware of right to safe electrical installations*
- *Have regular training & continuing education courses for engineers & technicians.*
- *Impose strict standards on the licensing or personnel certification of electrical professionals & contractors for low voltage and high voltage in line with KEMA personnel certification scheme.*
- *Tackle corruption in electrical inspection & equipment standards enforcing government agencies*
- *Prosecute manufacturers/suppliers of sub-standard electrical equipment & materials*

Eng. Saiful Islam Qureshi, Principal Research Officer, National Institute of Electronics, Islamabad gave presentation on “Quality Testing of Electronic Products”. He discussed various tools used during the conformity assessment of electronic products. Pakistani exporters have been faced by the challenges i.e., Existence of Diverse Conformity Assessment Practices & Requirements in Different Countries, Non-Recognition of CA Results. He also discussed the existing facilities of testing in Public Sector i.e., AWC: EMC/EMI Test and Training, CTRL: Telecommunication & Telephone Equipment, PCSIR: Some Electrical Products, PSQCA: Electrical Products. He said that the Government should invest on the development of internationally recognized conformity assessment system for the provision of safer electrical/electronic products to the consumers.

Mr. Qureshi emphasized:

Public and Private Sector jointly develop internationally recognized conformity assessment system (certification body, testing lab) in accordance with the demand of export/import sectors.

Engr. Irfan Ahmad Rabbani, PCSIR Laboratories Complex, Lahore gave presentation on “Electrical Safety Testing of Consumer Products”. The main focus of this presentation was on electrical safety requirements for consumer products and an overview of testing facilities available at EMTL – PCSIR for conformity assessment of quality. He told the participants, PCSIR can play a vital role in effective implementation of internationally harmonized standards for testing and certification of consumer electrical products as its Electrical Testing Lab. has competency for providing necessary technical guidance in upgrading the products along with testing facilities for finished goods. EMTL is also an approved SASO Laboratory in Pakistan and providing testing services to manufacturers for their exports to Saudi Arabia, Kuwait, Nigeria, Kenya etc. We are observing positive impact on the quality of electrical products under export to various countries.

Eng. Irfan identified the issue/challenge:

To promote quality culture, the product standards are required to be implemented in to the system of product development – standardization phase.

Dr. Muhammad Akbar, General Manager, High Voltage & Short Circuit Laboratory, WAPDA gave presentation about the testing activities of its labs. Power Transformers, Distribution Transformers, Current Transformers, Potential Transformers, Circuit Breakers, 11 kV, MCCB (LV), Lightning Arresters, Dropout/Cutouts, Fuse Elements, Disconnecting Switches, Space Dampers, High Voltage Bushings, High voltage capacitors, High Voltage Cables, High voltage Insulators, Energy Meters, Cable Terminators, T/F Oil Testing, and Grounding Rods. He told the participants that Rawat Lab has been declared by Government of Pakistan through Board of Directors as a testing and certification body for electrical power sector in Pakistan. Rawat Lab is ISO 9001:2000 certified and accepted by WAPDA and KESC as at par with KEMA. He told the participants that the accreditation process of lab is under process in accordance with ISO 17025.

Dr. Akbar gave the following recommendation:

*Rawat Lab WAPDA will provide its testing facilities to exporter to become a **CB Testing Laboratory (CBTL)** i.e., a laboratory recognized in the CB Scheme to conduct testing and issue CB Test Reports in one or more product categories under the responsibility of its associated National Certification Body (i.e., Product Certification Section of PSQCA).*

Dr. Javed Ashraf Mirza, Chairman PCSIR chaired the session, appreciated all the speakers for their valuable contribution towards the identification of issues and challenges faced by Electrical/electronic sector regarding standards and conformity assessment procedures. He said that the Sector Specific Strategy should be developed for electrical and electronic equipments to enhance export and ensure safety aspects in line with IEC standards and IECEE CB scheme keeping in view the recommendations given by the resource persons. Furthermore, the reforms should be in line with international trends. They will enhance the competitiveness of Pakistan electrical/electronic exports on international markets and maintain parity with other countries whose products are promoted as being produced safely using IECEE CB scheme.

Break Out Group III- Food Standards and Conformity Assessment Procedures

The session was chaired by Mr. Zawadu Felleke, Chief Technical Officer, UNIDO. He said the food standards, policy and regulatory arrangements aimed at providing a broad-based approach to ensure that public health outcomes are achieved, while catering for consumer expectations and encouraging industry innovation. It will also look at recent international trends and experiences in managing food safety. This will help to develop a vibrant food industry that is responsive to consumers' demands, while delivering food that is among the safest in the world. Then breakout session was proceeded according to the programme.

Dr. Wajid Peerzada, Chief WTO cell, Ministry of Food, Agriculture and Dairy Development discussed Food safety and quality requirements, International trade rules and the role of supply chain requirements such as EureGAP. In Pakistan, food borne illness is a growing public health problem – a problem that current food safety management systems do not totally address. He said the emerging food safety and quality requirements will be applied in a discriminatory manner against developing countries and also lack in the administrative, technical, and other capacities to comply with new and more stringent requirements. Moreover, adjustment and compliance costs will undermine the comparative advantage of Developing Countries in high-value food trade. His presentation was based on the following points i.e., Escalation of food safety and food quality requirements, Key problems of the current adjustment approach, Elements of a strategic and proactive response, Standards and international trade rules and Activities under UNCTAD's new Consultative Task Force (CTF) on Environmental Requirements and Market Access for Developing Countries.

He briefly discussed five pillars of food safety and quality requirements i.e., Food safety, Plant and animal health, product quality, environment and social aspects. He pointed out that domestically no stringent food safety requirements, social issues and animal welfare considerations are prevailed. He further added that we are applying **Reactive/fire-fighting approach (delaying compliance until after a crisis has occurred) and which is costly due to high ad-hoc adjustment costs, resulting from mostly uncoordinated and rushed adjustment, benefits or catalytic role of new standards cannot be fully used, and costs of re-establishing reputation and market access.** Pakistan is facing the following problems due to present strategy (fire-fighting approach) i.e.,

- Weak regulatory system relating to the import, production and sale of pesticides.
- Lack of capacity to undertake pest-risk analyses.
- Weak controls relating to plant pests and diseases at borders.
- Low capacity to implement quarantine measures and enforce pest-free areas.
- Limited farmer knowledge of alternative pest-management approaches and appropriate use of pesticides (e.g. Integrated Pest Management).
- Limited application of HACCP principles by fresh vegetable packers/exporters (especially SMEs).
- Limited/lack of systems for fresh-produce traceability (especially from smallholders).
- Often lack of storage rooms for pesticides and fertilizers and appropriate changing and washing facilities for farm workers.

Wajid Peerzada finally recommended EUROGAP as Standard and Benchmark for Pakistan. Need for developing a national GAP should be judged against: structure of the industry and its relative stage of development; importance of exports and their

destination; and availability of supporting infra-structure.

Mr. Tariq Qamar, Food Manager, Beuru Veritas, Pakistan gave presentation on the “Promotion of Export through implementation of Food Safety Standards. He discussed the Food exports sectors of Pakistan i.e., Fish, Meat and Livestock, Fruits, Vegetables, Agricultural crops like rice etc. and its conformity assessment procedures imposed by exporting countries. He said the Pakistan food export consignments were rejected from Africa, Asia, Latin America, Caribbean, Russia, US and EU rejected due to poor hygiene i.e., Infection/bacterial contamination, Intoxication, Contamination and Adulteration. He said the Pakistan Pure Food Laws (1965) fail to address potential hazards in food supply chain and in process contamination (i.e., Biological, Chemical, Physical) and these regulations are not proactive (risk based) but reactive in nature. Similarly labeling requirements are limited to information such as list of ingredients, label terminology and name of producer or manufacturer and traceability. Importing countries as well as buyers demand that exporting companies should carry certification marks in area of food safety, food hygiene. In USA fresh or processed meat products are considered adulterated if total bacterial count exceeds 5 million per gram. There is also limit on coliforms. Such standards need to be adopted.

Mr. Tariq gave the following recommendations:

- *To meet the requirements of WTO Pakistan need to harmonize quality of its products to internationally accepted standards.*
- *Update food law to bring them in line with Codex Alimentarius Commission guidelines or HACCP principles which are widely accepted and are risk based (preventive) instead of reactive standards.*
- *With emphasis on supply chain management i.e., the new approach to food safety, with its through-chain attitude, will include consideration of the introduction of management interventions at the primary end of the food-production process to reduce possible hazards later in the chain.*
- *Quality testing and referral laboratories need to be established.*

Dr. Faqir Muhammad Anjum, Director, Food Science and Technology, University of Agriculture Faisalabad gave presentation on “Primary Products and Processing Standards for Dairy Products (Comparison Pak./ USA)”. The dairy industry in Pakistan is a partially regulated sector and needs a high level of food safety management. Currently, these arrangements are implemented through district governments under Provincial Food Ordinance, 1960 and Pure Food Rules 1965. Industry and Government should work together in the development of a single set of national requirements within a single standard. The objective of the Primary Production and Processing Standard for Dairy Products is to provide nationally consistent regulatory requirements that protect public health and safety and are cost effective. As part of the standard for Primary Products and Processing Standards for Dairy Products development framework, a scientific assessment, *A Risk Profile of Dairy Products in Pakistan* (Risk Profile) is needed within the context of the current regulatory framework and practices. The Risk Profile determines that the current management practices in place within the Pakistan dairy industry support the production of dairy products with a high standard of public health and safety. The outputs from the Risk Profile will be used in development of the Primary Production and Processing Standard for Dairy Products. The Risk Profile examines both microbiological and chemical risks for the dairy sector.

With regard to microbiological hazards, the Risk Profile considers the:

- identification and description of micro-organisms that may be associated with dairy products including key attributes of each organism and its public health impact;
- examination of epidemiological data (domestic and international) related to the consumption of dairy products;
- examination of prevalence and concentration data on potential hazards from products along the entire dairy food chain; and
- description of the dairy production, processing, distribution and consumption chain and current knowledge of the impact of each of these on public health and safety risks.

The examination of chemical hazards considers:

- agricultural and veterinary chemicals used in primary production;
- environmental contaminants, including heavy metals, organic contaminants and micronutrients;
- natural chemicals found in plants, fungi or bacteria associated with plants;
- food processing by-products;
- food additives, processing aids and those chemicals that may migrate from packaging.

Dr. Faqir identified the following issues/challenges:

The existing regulatory arrangements and industry initiatives that have been implemented are not effective in protecting the public health and safety of consumers. The present food regulations should be upgraded keeping in view the findings of the Risk assessment studies in Pakistan related to dairy product. The harmonization of Pakistan standards is not possible with US standards due to specific local conditions in Dairy sector. PSQCA should seek help from NIST US, Codex or any other organization where these risks are best managed and incorporate in Dairy standard development

Dr. Riffat Aysha Anis, Chief Nutrition Division, National Institute of Health Islamabad and Mr. Abdul Hayee Tonio, Deputy Director, Agriculture & Food Division, Standard Development Center PSQCA – Karachi have given presentation on “History of Food Standardization in Pakistan”. Dr. Rifat discussed the history of food legislation in Pakistan and described the food standards development process of PSQCA. She highlighted that PSQCA developed 834 food standards in which 408 were directly adopted from ISO. She also discussed the food standards under the compulsory list of product certification. Dr. Riffat reviewed Pakistan’s participation in international standardization in the SPS area: Codex, OIE and IPPC. He described the three organizations and their working methods. Scientific backing is required in order to participate effectively in international standardization, since risk analysis is a basic principle of work. Other challenges include: Complying with the SPS requirements for exports to developed countries; Developing a strong national standardization structure for generation of scientific data; Supportive national policies; Regional consultation and co-ordination; Fragmented and weak national organizations.

Dr. Riffat identified the following issues/challenges:

- *The current food legislation and regulations do not meet the present day requirements and therefore must be harmonized with codex standards and some other international standards. Pakistan being a signatory of WTO has to apply the agreements on SPS and TBT to develop modern food control and safety programs, in order to assure consumer protection, facilitate international food trade and promote economic growth.*

- *Proposed four possible solutions: Review of national policy and legislative framework related to food; Close the scientific gap; Arrest the technology divide and Support the Codex Trust Fund and implementation of the Codex Strategic Plan for Asia.*

Dr. Quratulain, PRO, PCSIR, Complex Lahore discussed the benefits of “Accreditation of Food Testing Labs by MRA member Accreditation Body i.e., Norwegian Accreditation”. The implementation of a quality system in analytical laboratories, based on 17025, is now a reality. The requirements of this standard deeply modified the organization of the laboratories, whereas it also improved the quality of the analytical results. Laboratories need to undergo comparative trials to ensure that the test results they produce are repeatable and reproducible so that the community may have confidence in those results. Laboratory accreditation provides provision of reliable information in support of a wide range of technical/regulatory decisions and market transactions to reduce disputation and minimise transaction costs; and establishment of acceptable requirements for protection of health safety and the environment.

Dr. Quratulain identified the following issues/challenges:

The implementation of a quality system on ISO 17025 and accreditation are completely achievable, and are helpful activities to put PCSIR in touch with the real world and broaden their minds, which in the end has a positive impact to generate technically valid results that could be interpreted globally for formal and international recognition.

Eng Zafar Ch. Gave presentation on “Regulation, Co and self-regulation approaches to consumer protection”. He discussed that the role of standards and technical regulations which play in promoting or slowing down economic development in Pakistan or in facilitating or hampering their participation in international markets has not yet been examined in a serious way, partly due to the lack of interest on the part of policy-makers and partly due to the difficulties in identifying the technical barriers to trade created by incompatible national standards, along with the lack of available information on their sectoral importance and consequent uncertainty over their impact on trade flows and economic welfare.

Eng. Zafar identified the following issues/challenges:

The lacks in consumer protection are due to weak regulation, Weak enforcement and monitoring, lack of confidence in conformity assessment system, negligible contribution in standards setting by Consumers/Trade & Industry, industry collusion (to ignore standards), and weak consumer associations.

Abdul Waheed Memon, Consumer Liaison Officer, SDC/PSQCA and Dr. Shahzad Afzal, Director, PSQCA gave presentation on “Role of consumer organizations in the standards development process of SDC, PSQCA. Reducing the incidence of foodborne illness by using the consumers’ voice in sectional committees of PSQCA will have a positive impact on the food industry which will far outweigh the costs. In addition, the participation of consumer organizations in standards development will enhance Pakistan’s reputation as both a supplier of safe food and as a safe tourist destination. **He** highlighted the importance of recently formed consumer liaison office in PSQCA to ensure effective participation of the representatives of

Consumer associations in formulation of Pakistan Standards (i.e. at Technical Committees/ Divisional Councils level) of SDC. Moreover, Consumer Liaison Officer being a regular member of Surveillance committee of banaspati/edible oil strives to ensure participation of all stakeholders in the conformity assessment committees. PSQCA promoted consumer awareness regarding PSQCA activities by conducting consumer awareness programmes and by participation in seminars/workshop/conferences and exhibitions organized by consumer organizations through its network of regional and branch offices. During these programmes, participants were informed about various quality control orders, consumer protection act, consumer grievances redressing mechanism, etc. PSQCA also published brochures on the subjects of consumer interest in English, Urdu and regional languages. Complaints regarding PSQCA certified products received from consumers are being reviewed and monitored regularly to provide speedy redressing to the complainants.

They concluded:

Dissemination of information for consumer awareness on quality, standardization, health and safety is the main activity of Consumer Liaison Office, with due inputs through Toll Free Number, mass media, seminars and symposiums.

Mr. Zawadu Felleke, UNIDO in his concluding remarks appreciated the efforts done the speakers to highlight the issues related to Food Standards and Conformity Assessment Procedures. He said that the workshop has drawn on both domestic and international experience, highlighting the emerging issues, the challenges and the directions for the future. The speakers have brought together expertise from in different sectors of food standards and conformity assessment. They set the scene for lively panel discussions that provided insights for industry, consumers and governments alike. The presenters covered food Standards (Pakistan Standards, Codex, OIE and IPPC), regulations, , conformity assessment procedures (i.e., testing, calibration, certification and accreditation), food safety, WTO/SPS agreement, Risk analysis and the food chain approach, Organisation model for the food safety/SPS infrastructure, The role of stakeholders (politicians, private sector and consumers) and Regional aspects.

The following issues/challenges were highlighted by the speakers/participants of the Workshop:

- *The PSQCA sectional committees and division Council on food standards should focus on the technical complexities of developing workable standards that focus on protecting public health and safety. Policy issues currently available for public consultation are advertised through the PSQCA website.*
- *These discussions have resulted in a whole-of-food chain and nationally focused food regulatory system for Pakistan that enhances public health and safety. They proposed Sector Specific Strategy which includes: an increased emphasis on consumer requirements, emerging food safety issues, appropriate and effective regulatory arrangements at various government levels, and strengthening of the Standards and Conformity Assessment Institutions of Pakistan with the help of NIST US.*
- *The PSQCA and MINFAL should jointly adopt a uniform Sector Specific Strategy for Food Standards and Conformity Assessment Procedures to ensure that consumers continue to have the highest confidence in the safety of the food they eat. PS standards should be mandatory national regulations, enforced by all Federal and Provincial Authorities. Industry also benefits through removal of prescriptive, out-of-date, inconsistent and complex food hygiene regulations. Fewer legislative boundaries will*

exist and thus experimentation in developing and applying new approaches to food safety is not inhibited. The proposed reforms encourage innovation by industry.

- *Primary Production and Processing Standards should be enforced to ensure that food businesses in the primary industries are clear about their obligations to produce safe food and the need to regard food safety as an essential part of their business practice.*
- *The PSQCA creates a food standards system with the help of NIST US. The food standards system will allow for free trade (that is, any food that may be legally sold in one country may be sold in the other).*
- *In Sector Specific Strategy PSQCA and MINAL should jointly integrate food regulatory system in the country for the whole of the food supply chain, sometimes referred to as the “paddock to plate” approach. This means that policy decisions and standards are integrated across the agricultural, food processing, distribution and retailing sectors. In this way, safety is ensured not only by regulating food packaging, distribution and retailing, but equal attention is paid to what is happening to our food at the farming end. The Pakistan regulatory agencies should adopt this system from US because US now has a world best practice system that recognises that to ensure safe food, responsibility must be taken at all points across the food chain.*
- *For consumer associations, environmental protection associations and trade unions, standardization provides a means of having their aspirations taken into account and enabling them to exercise influence over future rules. A way must be found to make it easier for them to participate. They need clear information to determine their priorities and prepare their contributions. Support mechanisms for such participation must be found amongst other stakeholders wishing to demonstrate their commitment to sustainable development by taking the points of view of all concerned parties into account when developing standards.*

Break out Group IV- Surgical and Steel Products Standards and Conformity Assessment Procedures

The session was chaired by Mr. Rizwan Qadri, Chief Executive, Qadri Group of Companies, Lahore. He briefly highlighted the importance of surgical and steel product standards and conformity assessment procedures. He emphasized the implementation of the breakout group recommendations by PSQCA, conformity assessment organizations (i.e., NPSL, PCSIR etc.) and industries to sustain the growth of industries and protection of consumers. The brief of breakout group presentations are given below.

Eng. Munir Ahmad, TSC, PSQCA gave presentation on “Gap analysis of standardization of steel products”. He explained that till to date PSQCA, has developed / Adopted 430 Standards related to Steel & its Products. Pakistan standards mainly covered un-Alloyed Grey & Malleable Iron, Plain Carbon Structural Steels, for Long & flat Products, High Alloyed Steels mainly Stainless Steels. PS, Standards for Cast Iron do not cover: Alloyed Cast Iron & S.G Iron. So the whole ranges of Such Standards are yet to be developed / adopted. Automotive & Agri. Industry is the main user of low alloy steels and Most of the Standards related to Low alloy steels are yet to be developed / adopted. Leaving aside Martensitic & Austenitic Stainless Steels, standards related to other Categories of Stainless Steel, (Ferritic – precipitation hardening etc). Die & Tool Steels are yet to be adopted/developed. He also discussed the harmonization of PS standards with ASTM i.e.,

- Standards related to Plain Carbon Constructional & Structural Steel, mainly conform to prevailing ASTM Grades. e.g; PS 1879-1987 conforms to ASTM A615/A615-M. PS 231-1962 conforms to ASTM –A15-58T.
- Standard related to Cold Worked/twisted deformed Bars (PS 1612/1988), was based on BS 4482/1985, 4449/97. This standard is being with drawn. New standard will be based on BS 4449/20005, AS/NZ4671-2001. Required physical properties of this grade are not covered by any of the ASTM standard.
- Surgical Industry in Pakistan mainly uses two types of Stainless Steel i.e., Martensitic Stainless Steels, Austenitic Stainless Steels. Martensitic Stainless Steels conform to AISI-410, 420, 420B, 440, 440B, 440C, 431, 630,, ASTM F899/1995 & ISO 7153/1, are used in Orthopedic & Dental Surgery. Pakistan has adopted ISO 7153/1, which covers the whole range of Martensitic & Austenitic Steel implants. Austenitic Stainless Steels conforming to AISI 301, 302, 303,304, 316, 316L & 317. ASTM F-138, ASTM F-899/1995, ISO 7153/1, are used for surgical implants & implements. For implants Pakistan mainly follows AISI 316L/ ASTM F-138. These materials have certain limitations with regard to UTS, Corrosion Resistance & fatigue properties.
- ISO 5832-9: 1992 (E)/ ASTM F-1314 & F-1586 specifies materials with enhanced UTS, corrosion resistance & fatigue properties. These are Nitrogen Strengthened Manganese bearing Austenitic Stainless Steels. Although Pakistan has adopted ISO 5832-9: 1992, however negligible work regarding the development & use of Nitrogen Strengthened Manganese bearing Stainless Steel has been done.

Eng. Munir identified the following issue/challenge:

Although Pakistan has adopted/developed sizeable number of standards, however lot of work is yet to be done, in order to cover the Standards for whole range of Plain Carbon, Low Alloy & High Alloy Steels.

Eng. Ahmad Saeed, TSC gave presentation on “Awareness of conformity assessment of structural steel products in Pakistan”. PSQCA needs to be strengthened both with respect to additional qualified trained manpower and accredited laboratory facilities to formulate new updated Pakistan Standards and to harmonize the existing Pakistan Standards with International Standards and get them implemented through testing in its accredited laboratories. There is acute need of establishment of accredited laboratories both in the public and private sectors in order to promote the process of standardization in the country. Steel producers should be made fully aware of the process of standardization and its effective implementation through quality testing of the products for conformity with any National and International Standard. Steel producers including melters and re-rollers need to be strengthened with qualified and trained manpower for research & development in order to produce quality products. The facilities of the steel manufacturing units particularly the small steel re-rollers and mini steel mills need to be appropriately modernized for conformance of their products to any National or International Standards.

Mr. Saeed gave the following recommendation:

A sector specific strategy should be developed for Surgical and Steel Products Standards and Conformity Assessment Procedures to control the sub-standards products for the safety of consumers.

Dr. Shahzad Alam, Pakistan Institute of Technology for Minerals and Advanced Engineering Materials, (PITMAEM), PCSIR Labs Lahore, Pakistan gave presentation on “Conformity Assessment of Steel and Surgical Standards”. He said more than 150 type of Stainless Steel exists and generally they are classified into 3 categories i.e., Austenitic Stainless Steel, Ferritic Stainless Steel and Martensitic Stainless Steel. The most important tests through which surgical materials have to go through are Chemical Analysis, Mechanical Testing and Passivation Testing. He told the participants that PIMAEM has the complete range of testing facilities to test all kind of steel products.

Dr. Shahzad Alam identified the following issues/challenges:

- *The Composition, Microstructure and Tensile Properties of Stainless Steel for implant fixation and for surgical products should be tested according to ISO and ASTM Specification.*
- *Awareness should be made to use proper surgical grade stainless steel instead of using ordinary steel.*
- *Surgical Grade Stainless Steel when compared to other metallic implant materials is the most favorable biomaterial because of its unique combination of mechanical properties, corrosion resistance and cost effectiveness.*

Eng. Waseem Ahmad Mirza, TSC, Lahore gave presentation on “Harmonization of Pakistan Standard with ASTM Standards for Steel and Surgical Products”. PSQCA has produced a total number of Pakistan Standards related to steel products is 430. Out of these, 40 Pakistan Standards (PS) are derived from ASTM Standards. If Pakistan harmonizes its standards with the ASTM

Standards, this would: Promote business globally; avoid duplication of effort where possible; use ASTM's international resources to strengthen our standardization system and give advantage of worldwide acceptance of ASTM standards. He concluded that the surgical instruments/implants; though exported to some developed countries; are not pre-certified and thus more resources are consumed to get clearances from abroad. The same trend is noted regarding Cutlery export by Pakistan also requires clearances from the importing countries with more time being consumed as pre-export certifications are missing. More Pakistan Standards are produced & harmonized with ASTM standards and its conformity assessment procedures keeping in view the demands of the local & international market. More participation of the manufacturers, supplier & importers during the preparation of these standards.

Eng. Waseem gave the following recommendation:

Harmonization of PS standards with ASTM standards should be done with the help of standard developing organizations of US i.e., ASTM.

Eng. Muhammad Musadiq Iqbal, TSC gave presentation on "Present status of Pakistan regarding Standards of Surgical Instruments and the needs to match the latest International Standards". He said PSQCA has only developed 8 standards for surgical equipments (i.e., PS 237:1963 Specification for Surgical Instruments and Appliances, PS 452:1964 Specification for Cheatele's Strerilizer Forceps, PS 453:1964 Specification for Sinus Forceps, PS 454:1964 Specification for Dissecting Forceps, PS 455:1964 Specification for Halsted's Mosquito Forceps, PS 457:1964 Specification for Spencer Wells Artery Forceps with Box Joint, PS 879:1972 Specification for Surgical Scalpels, PS 1385:1976 Specification for Dental Hypodermic Needles). At the moment no PS related to surgical instruments is included in the compulsory list for conformance. This means that there is no compulsion upon the manufacturer / supplier to follow a specific standard regarding the manufacturing process and performance of finished product. The only restrictions are in case of exports where the exporting parties have to get chemical analysis done and at times some very basic level of material testing (mechanical & metallurgical) for the purpose of getting clearances from the foreign importers. Although most of the manufacturers are ISO-9001 certified but that would never guarantee quality productions. There are about 1900 small and medium Surgical Units with labour force ranging from (10-500). The number of workers in the Surgical Industry is about 100,000 – 150,000. The industry manufactures about 100 Million instruments annually. We are manufacturing two types of Surgical Instruments i.e., a) Disposable instruments, which constitutes 60% of our exports b) Reusable instruments, which is 40% of our exports. Almost 74% of our production is sold to following ten countries of the world: United States (29%), Germany (14%), United Kingdom (9%), Italy (5%), UAE (4.74%), France (4.12%), Rep. of Korea (2.27%), Japan (2.24%), Mexico (2.20%), Australia (1.63%) and the remaining 26% is sold to the rest of the world. Luckily we enjoy monopolistic position globally. No other country can produce surgical instruments in the price range and variety that we offer and the kind of quality we are able to manufacture at most economical rates. There are four handsome reasons to buy surgical instruments from Pakistan:

- Pakistani Surgical Instruments are the most economical in the world coupled with unconditional guarantee of finest quality.
- Our delivery time is the shortest in the world. Big sized orders are executed within specified time period.
- In Sialkot over ten thousand different medical Instruments covering all the sections of surgery & basics, are being manufactured. You can equip your hospitals from a single source. This type of assortment of instruments is not available any where else in the world.

- World renowned companies of Surgical Instruments are entering into Joint Ventures with Pakistani Companies, reflecting the confidence of Multinationals in the abilities of Pakistani Surgical Manufacturers. Sialkot is the largest hub of Medical Devices Manufacturing.

He said that the surgical cluster's cumulative growth was 5.9% rate over the period 1998-2002 but lags well behind that of the recently emerged competitors i.e., China's surgical instruments & medical devices sector is growing at an annual rate of 23%, Malaysia's surgical sector at 13% and Korea's surgical sector at 13% which are providing conformity assessment in accordance with the demand of exporting countries. And that is due to non availability of conformity assessment procedures (testing, certification and accreditation).

Eng. Musaddiq gave the following recommendation:

There is need to develop a sector specific strategy for surgical goods standards and conformity assessment procedures to sustain/enhance the exports at the growth rate (6 to 10 %) in line with the conformity assessment procedures of exporting economies (i.e., EU, US, UAE etc..).

Eng. Khuram Mateen, TSC, PSQCA gave presentation on Implementation of Laboratory Management System (ISO/IEC 17025) in Metallurgical Labs. He told the participants that a single accredited metallurgical testing lab is not available in Pakistan due to which exporters of surgical good bear a higher cost of conformity assessment (i.e., testing, accreditation, CE marking) in foreign markets. Accreditation of laboratories against ISO/IEC 17025 promotes the trade due to better acceptability of testing/calibration results by using the harmonized conformity assessment procedures.

Eng. Khuram identified the following issue/challenge:

There is an urgent need to develop accredited metallurgical labs by multi-recognition arrangement Accreditation Body to facilitate the testing of exporters' samples in accordance with the relevant standards.

Finally, Mr. Rizwan Qadri, concluded the session and highly appreciated the efforts of speakers to identify the issues/challenges regarding Steel/Surgical Standards and Conformity Assessment Procedures. He said that the Sector Specific Strategy should be developed keeping in view the issues/challenges identified by the breakout group to upgrade the present surgical and steel standards and conformity assessment infrastructure of Pakistan in accordance with the demand of exporters with the help of NIST US.

Plenary Session II- Certification, Testing and Calibration Procedures: Implications for Trade

The session was chaired by *Dr. Shaukat Hameed Khan, Member, Planning Commission for Science and Technology, Government of Pakistan*. He said that with the advent of the World Trade Organisation (WTO), the new rules governing trade have brought about a gradual phasing out of the quotas and subsidies and with a fall in the tariffs barriers, market access is becoming more and more dependent on technical requirements. Technical requirements are made up of the following three elements: technical regulations, standards and conformity assessment. Developed countries have a long experience and history in the implementation of technical regulations through various systems of Technical Regulatory Frameworks. On the other side, many developing countries, including Pakistan, do not have an effective technical regulation framework and have instead a fragmented approach, which makes it difficult for the local suppliers and importers to comply with technical regulations. He said the Harmonized Standards and Conformity Assessment Procedures allow for the interfacing of products and the ability of the consumer to mix and match components of a given system (for example, stereo equipment or computer installation) which is especially important in industries that are organized into networks. This process raises productivity and industrial competitiveness through increasing efficiency as firms are able to adopt standardized approaches rather than reinventing a similar technology.

Mr. Zawadu Felleke, Chief Technical Officer, UNIDO presented UNIDO's contribution to export capacity building in the quality, standards and conformity assessment area in Pakistan. His presentation was focused on the *European commission (EC) Trade Related Technical Assistance (TRTA) Programme for Pakistan*, which includes: Food safety, productivity and quality promotion; Capacity building of public sector labs to enhance the exports; Trainings on Conformity assessment procedures; Harmonization of testing procedures, database on laboratories; Upgradation and accreditation of public sector labs for export purpose; Accreditation of public sector labs by MRA member Accreditation Body of EU and Training of auditors for laboratory management system. He further referred to the complicated system of trade areas within Asia and the need this created for continent-wide harmonization. *The Reference to Standards Principle* and use of international **standards** may solve many of these problems. Regional co-operation on conformity **assessment** services will also facilitate a more rapid development if each country acts on their own. On the world-wide level, it appears that participation in international standardization is a priority area. Codex, OIE and IPPC seems to be the organizations of most interest to Pakistan.

He concluded that Internationally recognized conformity assessment infrastructure was necessary to overcome the TBTs to promote SMEs in Pakistan”.

Eng. Zafar Ch., Chairman Pakistan Certification Bodies Association gave presentation on “ISO Scenario in Pakistan”. He stated that Ist ISO 9000 certification was issued in 1987 by foreign certification body. Ministry of Science and Technology established ISO Cell in year 1997 to moderate the ISO 9000 certification in Pakistan. Presently more than, 18 Certification Bodies, 1000 quality auditors, 100 Consultants and 2500 companies were certified. He pointed out that in year 1998 only 250 companies were certified but due to incentive scheme, serge of 3000 certified

companies were occurred in year 2001-02. It was observed that the significant downward (certification below 2000) trend was noted that showed the misuse of incentive scheme funds which given an artificial surge in year 2001-02. Now presently only 2500 companies are certified for system certifications. On the basis of 12 yrs trends he classified certified companies into four categories i.e., Who really wanted improvement, Who were forced by customer requirements, Who neither were interested in improvement nor were under any external pressure and Who took undue benefit of the Incentive Program. He observed about 10 % /year of the already certified companies are not going for surveillance, thus decreasing the number of certified companies, there has been no considerable change in the quality from consumers point of view and The companies have not been able to derive internal/external benefits. The most important reasons are: the lack of Top management's commitment, Measurable quality objectives, Grass root implementation, Customer complaint handling procedure, Continual improvement areas, measuring & monitoring of Knowledge on part of internal & external auditors.

He concluded that almost 98% business of system certification is in the hands of foreign certification bodies so there should be a system in place to monitor the malfunctioning of these system certification bodies.

Mr. Abdul Rauf K. Kirmani, Director, Standards Development Centre, Pakistan Standards & quality Control Authority gave presentation on "Certification Marks Activities in Pakistan". PSQCA operates a Product Certification Scheme, as one of the services to the manufacturing sector. Under this scheme, PSQCA certifies the quality of a product and grants the manufacturer a permit to affix the PS Mark either on the product itself or on the packaging. This mark gives an assurance to the customer that the product conforms to Pakistan Standards and is of good quality. He briefly described the *Procedures for Getting Your Product Certified by PSQCA*. It is mandatory as per PSQCA Act-VI, 1996 to manufacture 47 items to Pakistan Standard as announced by Government of Pakistan from time to time. Voluntary Certification in accordance with the related Pakistan Standard(s) or a standard of any other country recognized by the Authority. Measures taken to prevent manufacture & sale of sub-standard products includes Issuance of warning in all leading newspapers; Publication of list of Certification Marks Scheme licensed manufacturers; Publication of list of sub-standard brands / manufacturers; Issuance of Notices; and Meeting with manufacturers. He said the PS quality mark helps consumers and purchasers to identify quality products on the market and winning consumer confidence products resulting into increased market share and Consumer's ability to identify the products that conform to national standards thereby making quick decisions to buy quality products. The product is presented with a better image in both national and international markets resulting Consumer confidence in the certified products and: Easy acceptance and promotion of new products in the market; Promoting the image and reputation of the manufacturer favour of quality products; Safeguarding against unfair competition from inferior products on the market; Easy Identification of the products since they bear the Quality Mark. He said that through mutual recognition schemes, countries recognise each others products that are certified, thus easing entry into regional and foreign markets. Government and International bodies and NGOs are relying more on PS Certified products for their purchases. The Certification Scheme includes technical audit of product quality and process quality control procedures. This means that the Manufacturer gets free technical advice and information on quality improvement, which would otherwise be obtained expensively from consultants.

Mr. Kirmani gave the following recommendation:

Restructuring of PSQCA is needed with the assistance of NIST US to bring the present Standards and Conformity Assessment procedures in compliance with the WTO TBT Agreement and corresponding international Standards (ISO, IEC) and Conformity Assessment Institutions (ILAC, IAF, BIPM etc.,).

Ch. Jameel Ahmad, Member Science, Pakistan council for Science & Industrial Research gave presentation on “**Calibration and Testing facilities of PCSIR**”. PCSIR, with a network of laboratories spread all over the country, supports the product certification scheme by ascertaining the conformity of certified products against the relevant Pakistan standards. These are organized into four multifunctional research laboratories in **Karachi, Peshawar, Quetta, and Lahore** by far the larger and therefore set-up in the structures of laboratories complexes. A wide range of **S & T disciplines** are organized into quasi-independent Centers / Divisions such as applied chemistry, minerals & metallurgy, glass & ceramics, biotechnology & food, environmental protection, medicinal botanics, fine chemicals & pharmaceuticals, rural technologies, instrumentation & electronics, research industrialization, polymers & plastics, and marine & applied biology. PCSIR is capable of undertaking large number of tests of raw materials and industrial products and can provide physical, chemical, chromatographic and spectroscopic analytical services in the diversified fields. It has the necessary infrastructure in terms of quality control, equipment and analytical instruments and laboratories. PCSIR at present is serving over 4000 SME's / clients all over the country annually in quality control, analytical and testing area. The major exports of Pakistan are textile, leather, food, sports and surgical goods and products, which are based on locally available raw materials. The exports are essentially made to western European countries, America and Japan. These countries are becoming more quality conscious and introducing various parameters and checks to monitor the quality of the imported products. PCSIR is providing testing facilities to the exporters in accordance with the demand developed countries or economies standards. These textile and leather exportable items are examined for forbidden dyes, PCP, formaldehyde, heavy metals, pesticides and fungicides and most of other undesirable chemicals on the request of the exporters and issuing analytical reports / certificates which are being accepted in Europe and elsewhere.

Mr. Jamil identified the following issue/challenge:

PCSIR has reoriented its facilities to help the public and private industrial concerns to fulfill the requirements of internationally obligations imposed by Regulators of foreign countries particularly in the emerging fields to protect the consumers and environment.

Finally, Dr. Shaukat Hameed Khan appreciated the speakers for their thoughtful deliberations. He said, “the Standards and Conformity assessment procedures (i.e., testing, calibration, inspection, product certification, and accreditation), in turn, can lead both at the regional and international level to non- tariff barriers to trade of Pakistan. In order to overcome these technical barriers to trade, all the quality infrastructure play an active role to overcome these barriers so that standards and conformity assessment do not create unnecessary barriers to trade.”

Break out Group V- Standards and Conformity Assessment Procedures matter to export success? & Standards and Conformity Assessment- General Group

The breakout group was chaired by Mr. M. A. Jabbar, *Former Vice President, FPCCI*. He spoke about the role of standards and technical regulations may play in promoting or slowing down economic development in Pakistan or in facilitating or hampering their participation in international markets has not yet been examined in a serious way, partly due to the lack of interest on the part of policy-makers and partly due to the difficulties in identifying the technical barriers to trade created by incompatible national standards, along with the lack of available information on their sectoral importance and consequent uncertainty over their impact on trade flows and economic welfare.

Eng. Riasat Ali Changezi gave presentation on “Facilitation of Trade through International Standards and Conformity Assessment”. International trade is focused on trade driven standards i.e., one standard, one test and accepted every where. Global Standards i.e., ISO, IEC improves efficiency and provides consistency, reduces cost of product and services, interchangeability and interoperability, provides sustainable economic stability, enhances users confidence and reduces cost of transfer of technology. Through global standards, the consumer’s confidence is enhanced. We are here today to gain some insights on good practices relevant to the development and application of standards and technical regulations – practices which bolster open markets and minimize trade restrictions. The challenges of attaining global market access are compounded by divergences in product standards and technical regulations. In an ideal world, market access would be gained by meeting harmonized standards unimpeded by additional technical regulations imposed by governments. In the real world, consumer preferences vary and governments must sometimes interfere to address market failures. Decisions about whether and how to regulate are a reflection of a number of factors including the available infrastructure and societal priorities. Harmonization is viewed by some as a tool to enhance legitimate regulatory protections (e.g., protection of the environment), while others see it as a source of compromise and a race to the bottom. Nevertheless, international and regional trade rules have embraced the notions that technical requirements can be harmonized - and thereby remove or prevent unnecessary impediments to trade – and that reliance on international standards is recognized as good regulatory practice. The PSQCA should harmonize its standards with the developed world/International Standards. A wide gap between Pakistan and develop world exists regarding Harmonization of Standards, Human resource development Awareness programme education & trainings on standards/conformity assessment.

Eng. Changezi identified the following issue/challenge:

PSQCA should built strategic coordination with the Standards developing organizations of US and Increase standards adaptation awareness among decision makers in business and society through media.

Maqsood A. Basraa, Atlas Group gave presentation on the “Role of Standardization in the Development of Auto Industry and Customers Protection in Pakistan”. Mr. Basra of Honda, the motorcycle producer, reflected on his experiences over 30 years with Honda Motrocycle in Pakistan. He said the ultimate objective of any industrial standard is the safety of human being

from loss of life, health, environment and being ignorant. Politics and lack of enforcement of regulations have forced Honda to cut down its production facilities in Pakistan. The Pakistani consumer wants reliable and safe products, but he has to make choices regarding how to spend his income. The lack of income drives many purchase decisions to the low cost alternative, often resulting in substandard and even hazardous products. Counterfeit products are common. Slow acceptance of international **standards** adds to the problem. Mr. Basra feels that lack of experience in making decisions may be a root cause behind the slow progress. In order to relieve the situation, tri-partnerships between industry, government and business **standards** organisations is the way to go and should be developed and supported. Motorcycle industry alone has contributed Rs.100 million on account of marking fee upto 2007. The above amount should have been spent on capacity building of PSQCA in areas like: employees benefit/ compensation – “market compatible”; training of staff; infrastructure development i.e. labs, equipments; and hiring of more technical personnel.

Mr. Basra identified the following issues/challenges:

Role of Auto Standards/regulations and its conformity assessment results increase faith of customer and ultimately development of local Auto Industry. Meeting standards will open the door for export and product non conforming to the standards will not come into country – local product will grow.

Mr. David Monkman, CEO, Business Support Fund Pakistan gave presentation on the Role of Business Support Fund for SME regarding the conformance of Standards. He said unquestionably, SMEs value standards and conformity and challenge is overcoming the costs to secure certifications. SMEs are facing difficulties to comply with TBT/SPS measures due to Weak technology and Poor access to credit facilities. BSF can help support and strengthen export efforts by encouraging enterprises to use export-related business development services that have the potential to improve the firm’s competitiveness through (i) increased productivity and efficiency and (ii) effective market access and sales.

Mr. Monkman identified the following issues:

Quality is an essential competitive strategy, but of course not the only one but a good business plan is of paramount importance. There is no direction without a business plan, and focus is essential!

Mr. Atif Mumtaz, Cogilent Solutions spoke about IT Security and Risk Management Standards. Information technology now pervades many activities, and is critical to the economy and to our personal lives. Information technology systems have become increasingly complex and difficult to test. Yet measurements for information technology are less well developed than the measurements and measurement infrastructures developed for the physical and chemical fields.

Issues and challenges identified were:

- *requirements for component performance metrics and stress tests for software components and subsystems*
- *requirements for an analysis framework for modeling performance and*

- *requirements for industry standards for performance metrics.*

Mr. Khalid Asif, Engineering Manager, PTV gave presentation on ICT Standards and Conformity Assessment Procedures. He said ICT means any type of electronically enabled service that provides or transmits information, or enables communications between people using hardware, software or a combination of both. ICT standards raise the basic technical requirements for products covered. If the product is designed, constructed and manufactured according to the applicable ICT standards there is presumption that the product complies with the corresponding essential requirements of ICT. ICT standards can be used for “**presumption of conformity with essential requirements of ICT**”, when they are published. The basic distinction in between Pakistan and USA standards would be that it has to be implemented on national level without any changes and publicly announced. Application of these standards should be voluntary, and manufacturers be free to choose any technical solution that provides compliance with the essential requirements of New Approach Directives. However, the applications of requirements according to ICT standards give manufacturers presumption that their product is complied with the essential requirements. Use of PAK Vs USA conformed standards is the easiest way for the manufacturer to design products which are in compliance with requirements of the New Approach Directives.

Mr. Asif identified the following issue/challenge:

If standards conformity is achieved through mutual recognition agreement, then Logo of Pak US standard conformity should be issued to manufacturers on completion of the standardization process and the product bearing this logo should be provided free access in the market of USA.

Muhammad Arshad Khan, PSQCA and Inayatullah, Dy. Controller, Weights & Measures, NWFP gave presentation on *The Role of PSQCA in Legal Metrology*. SDC/PSQCA former PSI is a member of O.I.M.L for the last 27 years, since the functions of federal department of weights & measures have been all acted to it. Up till now SDC weights & measure division has prepared 268 Standards on metrological measures, based on different International Standards & as per local requirements. PSQCA is coordinating the Provincial Government which are responsible for the enforcement metrology in public & Private Sector. Section Committees on legal metrology include the representatives from manufactures (weights), users, implementing / enforcing agents, technical advisors, consumers, consultants etc. for the preparation of Standards.

Mr. Arshad identified the following issue:

Participation of PSQCA Sectional Committee members on legal metrology is needed in International Bureau of weights and measures (BIPM) and International Organization of Legal Metrology (OIML) to upgrade its system with the developed world.

Vaqaar A. Khamisani, Manager, Developer & Platforms Group, Microsoft Pakistan gave presentation on Promoting IT Standardization in Pakistan. He said the Standardization campaign may not succeed in isolation i.e., Not the only prerequisite for successful businesses. A holistic approach should be pursued that will facilitate growth in all business phases i.e., Standardized

processes, product development, marketing, sales, and finances. Partnership with Pakistan Software Export Board (PSEB) will be helpful to launch the Software Business Accelerator program for local software companies. The program as a global best practice will attract local and foreign private investments.

Mr. Khamisani identified the following issue:

Microsoft Pakistan provides Advisory & Testing Services of: Application Certification, Development advice and best practices, Provision of code samples, Technology architecture & Roadmap, Application design reviews and Tech-talks and workshops.

Mr. Aftab Alam, Director, Internet Media City, Govt of Sindh gave presentation on Information Technology Standards. IMC is focusing on testing and measurement projects that will expedite the research, development, standardization, and commercialization of new technologies and emphasizing tests that can be used early in the technology development cycle. Specific projects include tests for the Virtual Reality Modeling Language (VRML), computer security, XML, and JAVA. He also described various approaches used for solving software engineering problems, and pointed to the ISO 9001 standard for quality assurance.

Mr. Aftab identified the following issue/challenge:

Technical and conceptual issues included: application of physical measurement theory to IT, the correspondence of testing and measurement, the quantification of test results, and how the development time and costs can be reduced for tests.

Finally, Mr. Jabbar chaired the session, highly appreciated the speakers for their thought provoking presentations on standards and conformity assessment procedures. He said, “We are continuing to explore ways to facilitate harmonized approaches on a program of Standards and Conformity Assessment cooperation with the help of NIST US. And, there are several initiatives in the current WTO negotiations on non-tariff barriers which are exploring opportunities to advance harmonization through sector-specific agreements in such areas as Textile, Food, Electrical/Electronic, Steel/Surgical products.”

Concluding Session: Chaired by Dr. Shaukat Hameed Khan. Member, Planning Commission)

Closing Session was chaired by Dr. Shaukat Hameed Khan, Member, Planning Commission for Science and Technology. He said that when discussing technical barriers to trade and how to overcome them, it is necessary to start with considering the objectives. There are three important objectives to consider: Each country has to protect its own society against hazardous and sub-standard products, imported as well as domestically produced; Exporters have to comply with the increasingly demanding legislation in target markets; Complying with legislation is not enough – the products must also be attractive in the target markets. He said that to increase the role of Standards and Conformity Assessment in the National Economy there is the need of integration/coordination between the principal elements of the national quality infrastructure for Pakistan are: Technical regulations (Acts of Law); Voluntary standards; A national metrology system; Testing laboratories (public or private); Certification bodies; Border control and market surveillance; Accreditation (access to services) and WTO enquiry points (information service). Then he requested Abdul Ghaffar Soomro, Director General, PSQCA to give the overall recommendations of Workshop.

Mr. Ghaffar said, “I am pleased to have the privilege to give the presentation on the conclusions/ recommendations of all the plenary and breakout groups – an event that has been full of interesting inspiration and ideas. It is obviously impossible to summarize all the contributions now. A number of problems have been discussed at this workshop that have arisen because realities and interests differ from country to country. Standards and regulations must therefore take account of differing realities and must not erect any unnecessary trade barriers in doing so.” Finally, Mr. Abdul Ghaffar Soomro, Director-General, Pakistan Standards and Quality Control Authority (PSQCA) presented recommendations of the workshop plenary sessions and breakout groups. He assured the participants that the proceedings of the workshop will be circulated by PSQCA. The overall recommendations of the workshop are given below:

- i. The **workshop** confirmed that development of trade through International Recognized Standards and Conformity Assessment infrastructure is an important strategy. The present quality and product safety infrastructure to support exports – as well as for protection of domestic markets, is weak (See Table-1 gap analysis/findings of Workshop). A leapfrog Sector Specific Strategies are required to reach results in a reasonable time with the assistance of US Standards and Conformity Assessment Institutions (See Table 2-10) in collaboration with NIST US.
- ii. Standards, technical regulations and conformity assessment procedures have become increasingly important as non-tariff barriers to trade as the more traditional, border barriers have been pulled down. However, relatively little is known about the extent and nature of these barriers and even less about their quantitative impact, particularly in Pakistan. This area needs considerably more study and in-depth gap analysis.
- iii. PSQCA have not been heavily involved in the development of international and regional standards to present and have thus been on the sidelines of efforts to rationalize this process. Harmonization of **standards** is an essential element in development of Pak-US trade, so PSQCA should take assistance from the Standards developing organizations of US through American National Standards Institute (ANSI) and NIST to upgrade its Standard development Process. PSQCA should also take more pro-active approach in the ISO/IEC and other relevant multilateral and regional bodies.

- iv. PSQCA should avoid developing their own national standards to the extent possible, for reasons of both efficiency and cost. In order to facilitate entry into their export markets, Pakistan should adopt those standards of their major trading partners i.e., US and EU with the help of their standard developing organizations and actively participation in the standard development process.
- v. Agriculture and food products are the most important sectors in the Pakistan economy and new exports have to be based on these sectors. Value added products must be promoted with the assistance of Standards and Conformity Assessment Institutions.
- vi. The **workshop** confirmed the validity of the *Just-in-Time Export Strategy/Sector Specific Strategy* for development of exports from Pakistan. The strategy implies parallel development of the supply side and the relevant quality and product safety infrastructure. Successful exports cannot be expected unless all necessary conditions are satisfied at the same time.
- vii. Protecting domestic markets against hazardous and sub-standard products is an issue of high priority and requires a general quality and product safety infrastructure.
- viii. Building awareness and understanding among influential stakeholders is an essential prerequisite for getting developments started. The first step is distribution of information; the second is awareness building among stakeholders. But real progress will only be made when export development projects, based on the *Just-in-Time Export/Sector Specific Strategy* are realized.
- ix. Co-operation between stakeholders in the private sector, government and in the quality infrastructure (standardisation, testing, certification etc.) is a critical success factor. Industry has an obligation to lead the standards process and governments have essential responsibilities **to configure the standardization process in accordance with international norms.**
- x. Participants recommended the follow up of this workshop on the same subject at NIST US because it was unfortunate that no US participants attended the Lahore workshop. A workshop at NIST, in which Pakistan and US experts in relevant focus areas might be very valuable in developing understanding and future collaborations.
- xi. The following issues/challenges of exporters were also discussed:
 - Address issues in the development, adoption and use of standards and conformity assessment procedures in a sector-specific manner.
 - Address standards/conformity assessment issues of sectors with significant exports/potential exports into US.
 - Develop professional contacts as a basis for strengthening technical ties and enhancing trade.
 - Explore areas for future collaboration and cooperation in the development and adoption of standards and conformity assessment procedures to avoid potential technical trade barriers and market access issues.

Dr. Shaukat Hameed Khan. Member, Planning Commission of Pakistan for Science & Technology and spoke about the Vision 2030. Participants were asked to discuss their future needs for standards and conformity assessment, and the opportunities for government and industry to work collaboratively in advancing the agenda of Pakistan Vision 2030. He said that the Internationally recognised conformity assessment systems will in the future play a decisive role when marketing products and services on the world market. International recognition is confirmed through the mutual recognition agreements/arrangements with regards to testing,

certification and accreditation, and through the use of international standards, appropriate and traceable metrology systems.

He said that I have been hearing in discussions in the wings of this workshop, and I certainly agree, that great expertise is needed in order to understand and address these issues. This is in itself a trade barrier. You must not forget that in some countries the number of people who deal with these issues is very limited. Often, developing countries also lack capacity to implement standards and rules that have been agreed, because this, too, requires high levels of human resources. This is an important field for action for development cooperation. However, what I would like to highlight is a different aspect: a great deal can be achieved in this regard through the division of labor, cooperation, and transparency.

He said that If Pakistan is to benefit from the process of globalization, they need to enhance their capacity for supplying the world market with competitive products. From a development point of view, the swift and continuous increase of standard requirements is a cause for concern, because it widens the gap between successful and unsuccessful countries on the world market. However, this workshop has helped raise important questions and start formulating the answers.

He also emphasized the importance of actions to *implement* the conclusions agreed upon, in order to develop successful exports to strengthen the vision 2030 i.e., ***Developed, industrialized, just and prosperous Pakistan through rapid and sustainable development in a resource constrained economy by deploying knowledge inputs.*** He emphasized the following outcomes of the workshop:

- *Create awareness among all important stakeholder groups*
- *Develop plans and Policies in line with international agreements: business plans, national plans and plans for regional development*
- *Implement the actions according to the strategies agreed upon in the **workshop** and Reorganise Standards and Conformity Assessment Institutions for effective operation .*
- *Measure the results, relate to plans, publish and implement actions to correct deviations from plan (Standard Strategies and Action Plan).*
- *Make ministries aware that quality and product safety is essential if Pakistan shall remain in international markets*
- *Involve and integrate the private sector for the major export Sector Specific Strategies Standards and Conformity assessment procedures (e.g., Textile, Electrical/Electronic) and to ensure that a proper and efficient infrastructure is available as soon as possible, otherwise the Pakistan will become irrelevant in global trade.*

He said that Planning Commission will support the objectives of the workshop. But it is up to the Standards and Conformity Assessment Organizations (i.e., PSQCA, PCSIR, PNAC, NPSL etc..) to present concrete proposals to Planning Commission of Pakistan in line with the vision 2030.

Finally, he concluded the **workshop**, which he described as insightful, educating and challenging.

Vote of Thanks was given by Abdul Ghaffar Soomro, Director General, PSQCA

Souvenir Distribution

WORKSHOP EVALUATION

Participants' evaluation

The participants' evaluation of the **workshop** is referred in the table below.

	Highly Satisfied	Satisfied	Irrelevant
Workshop Content (Was contents in line with your expectations)	36	48	16
Presentation by participants	28	46	26
Documentation provided	32	44	24
Practical arrangements	24	43	33
Significance with the export	32	51	17

Note: Many of the participants took the opportunity to add personal comments. Most of these were on a positive note. It was pointed out, however, that the amount of material covered in two days was very large for the time available.

Programme co-coordinators comments

Close co-operation with the organizers, lecturers and other participants before, during and in the weeks after the **workshop** give reason for a number of comments, which I would like to summarize in the following points:

1. We were able to get highly representative participants from all the important stakeholder groups in Pakistan: ministries and public agencies, the quality and product safety infrastructure, industries, NGOs
2. The **workshop** concept allowed in-depth presentations of the key issues of the main report *Promoting Exports through Standards and Conformity Assessment*.
3. The large number of presentations from the Industrial side was important and supplemented the presentation of problem areas, ongoing developments and recipes for success.
4. Several breakout sessions and the plenary discussions provided ample opportunity to express opinions, ask questions and digest the extensive material presented.
5. The **workshop** strongly supported the importance of developing trade using Standards and Conformity assessment (moderator) as a strategy for reducing poverty, as well as the importance of quality and product safety for developing trade.
6. The **workshop** further confirmed the principal strategies and approaches that are proposed in the main report.
7. Follow-up is now essential. The first step is distribution of information; the second is awareness building among stakeholders. But real progress will only be made when export development projects, based on the Sector Specific *Strategy*, are realized.

FOLLOW-UP

The organizers of the **workshop** have agreed to the following actions in order to distribute the results of the project and the **workshop**, and to facilitate development of trade in Pakistan:

1. This proceeding will be distributed to all **workshop** participants, regional trade organizations. The report will be openly available to all interested parties.
2. All **workshop** participants are encouraged to make use of the **workshop** documentation, notably the CD ROM and the main report, to build awareness in their own organizations and other stakeholders.
3. The main report Standards and Conformity Assessment *is* available at PSQCA website www.psqca.org.pk.
4. The PSQCA will contact with ANSI through NIST for Pakistan with the view to promote harmonization and use of international **standards** in Pakistan.
5. The conclusion of this workshop will be presented on workshop in Standards and Conformity Assessment, Washington US (last quarter of 2007) and further follow-up will be agreed during the **workshop**.
8. PSQCA will consider organizing similar workshops annually, as well as other means of raising awareness of Standards and Conformity Assessment issues in relation to development of trade.
9. Further information of the workshop and their results should be distributed by all parties concerned and form the basis for sustainable trade development projects in Pakistan.

Pakistan Standards Strategy & Action Plan**By:****Abdul Ghaffar Soomro, Director General****Pakistan Standards & Quality Control Authority****1. Introduction:**

PSQCA develops Pakistan Standards Strategy & Action Plan, in order to respond to recent developments in the world of standardization both internationally and at home. Issues surrounding the environment, sustainable development, international and regional trade, social responsibility, healthcare, food safety, new technologies and businesses (large and small) can be solved with the innovative solutions of standardization. The purpose of the PSS is to provide direction for timely adjustment of Pakistan Standardization to meet the ever increasing demands of the marketplace, society and leadership on how to use standardization to advance the social and economic well-being of Pakistanis in a global economy. The Pakistan Standardization Strategy focuses on following five major goals.

- Identifying Pakistan Needs for Domestic, Regional, and International Standardization to facilitate trade, support the competitiveness of Pakistan business.
- Meet the needs of an evolving regulatory and policy environment by wider adoption of PS standards in technical regulations to safeguard our quality of life, safety, health, and the environment.
- *Represent fully the range of standardization stakeholders by enhancing participants' of the public and private sectors in standardization activities through incentives.*
- Strengthening the national standardization infrastructure, in terms of finance and human resource.
- Communicate effectively the role and benefits of standards and conformity assessment practices.

2. The Importance of Standardization

Standardization is a task undertaken by its stakeholders that benefits everyone in one way or another. As such, it needs the active involvement of businesses, association other organizations and government. With the acceleration in globalization, coupled with integration of markets, worldwide harmonization of standards and conformity assessment systems are taking centre stage. International frameworks and agreements such as the World Trade Organization/Technical Barriers to Trade (WTO/TBT) Agreement have lent support to the usage of international standards as a means to eliminate technical barriers to trade. In some industrial sectors, recommendations or other deliverables from intergovernmental organizations are also considered as international standards. Such bodies are often referred to as standardizing bodies and their work has been recognized as a basis for harmonization of legislation.

As regulators, European authorities widely use standards to support technical rules and to support their policy objectives. Because Europe has had a tradition of strong national standards bodies with divergent standards, the EU has used standards as a tool to unify the European market. In this approach, the European Commission has entrusted industry and other interested parties with the task of drawing up standards to give presumption of conformity with legislation. The standards bodies have taken the lead in providing technical solutions to regulatory requirements.

Through a combination of both regulation and deregulation, Europe has politically and financially supported the development of its standardization system.

Contrary to common Pakistan perception, only a minority of Pakistan standards are linked to legislation. In a political context, the incorporation of the results of the work of standard bodies in technical legislation makes the job of legislators easier, and standardization thus effectively contributes to deregulation.

Standards exist in a dynamic environment. The globalization of markets, emerging new business sectors, faster product development and shorter product life cycles, as well as the increasing convergence of technologies, meant that national standardization now face many new and more demanding challenges. By coordinating a Pakistan National standards strategy, we will build the superstructure to facilitate standards and trade worldwide. As the global system shakes out, people will look for more strategic partners, and the challenges of divergent standards will be even more difficult. The EU is the world's single largest importer/exporter. The United States and the European Union together comprise 55 percent of the world's economy. For the Pakistan Standardization system, this means examining structures and processes and aligning them strategically.

3. Organizational arrangements

The Pakistan Standards and Quality Control Authority, under the Ministry of Science and Technology, is the national standardization body. In performing its duties and functions, PSQCA is governed by the PSQCA Act 1996.

The main function of the Department is to foster and promote standards and conformity assessment as a means of advancing the national economy, promoting industrial efficiency and development, ensuring the health and safety of the public, protecting the consumers, facilitating domestic and international trade and furthering international co-operation in relation to standards and conformity assessment.

PSQCA is a member of International Organization for Standardization (ISO), International Electro-technical Commission (IEC), and International Organization of Legal Metrology (OIML). PSQCA has also been established to advise the Government on standardization policies, programmes and activities to promote industrial efficiency and development, as well as for consumer protection.

Formulation of national standards is carried out in Sectional Technical Committees which includes PSQCA experts, intellectuals from related scientific institutions, technical experts from relevant production units and consumers. Effort is made to make sure national standards safeguard national interests, public tendencies, and the views of all stakeholders such as producers, consumers, businessmen, specialized centers as well as government organizations are satisfied. The drafts of national standards are distributed among all interested parties and the relevant Sectional Technical Committee for review. The drafts are then finalized and approved on a consensus basis in their respective divisional councils and published as national standards. So far PSQCA has published about 4800 Pakistan Standards covering various products, codes of practices, terminology, etc for various industrial and economic sectors. PSQCA is formulating, adopting and revising the national standards with the help of eight divisional councils (Agriculture & Food, Chemical, Civil Engineering, Electronics, Electrotechnical, Mechanical, Textile, Weight and Measure) under which 147 Sectional Technical Committees are operating. The standards are priced publications and are available from all the offices of the PSQCA. Apart

from formulation, emphasis is laid also on regular review of the standards to keep them in line with modern technological developments, as also to harmonise them with international standards or their equivalents.

4. Strategy

The strategy is developed: to accelerate the establishment of the national standardization system by focusing on transparency and customer needs in standards development; to enhance synergies of existing governmental and private partnerships; and to improve standardization workflow by adopting information technology. The plan also calls for promoting international standards activities within Pakistan. Strategic collaboration with other countries is also strengthened through Pakistan's participation in memoranda of understanding (MOU) and multilateral recognition arrangements (MLA) on standards and conformity assessment. One of the major goals of the Plan is to facilitate trade between Pakistan and its trading partners by emphasizing harmonization of its national standards and conformity assessment system with international norms. The National Standards Strategy is illustrated below;

4.1 Wider adoption of Pakistan Standards in technical regulations

Standards offer an opportunity for regulatory agencies to discharge their responsibilities in a more effective manner. Standards reduce the level of regulatory details to essential requirements needed to attain legitimate objectives, such as the protection of health, safety and the environment. As more and more regulations move towards performance-based requirements, the reference to standards in regulations will greatly facilitate these efforts. By adopting or referencing standards in technical regulations, regulators will have a ready made solution that avoids duplication of efforts to develop alternative technical requirements and ensures that consultation with interested parties has taken place. The standards will ensure only safe and quality products and services are offered in the Pakistan market.

Associations and standardization experts have made a concerted effort to encourage political decision-makers to adopt the principle of referring to standards when drawing up legislation and how this approach benefits the state is duly appreciated.

Action Plans:

- i. The application in government rules and regulations.
- ii. The application in government purchase.
- iii. The application in certification.
- iv. Close coordination and regular consultations between national standards development bodies and regulatory agencies. Government policy and support for regulations and laws to adopt or refer to Pakistan Standards.
- v. An intensive dialogue with political decision-makers should be initiated to integrate standardization in the political process as a basis for specific actions and decisions. This dialogue should be conducted by the industry and trade associations and must stress the vital significance of the autonomy of industry as a fundamental element in any kind of standardization.
- vi. Greater participation of national standards development bodies in committees drafting technical regulations; etc.
- vii. Standards development programmes coordinated to meet the needs of regulators. Through new partnerships with regulatory agencies, the PSQCA will continue to work to meet the

multi-faceted needs of our domestic regulatory and policy environments in an efficient and practical manner.

- viii. Regulatory bodies to implement mandatory standards for products and services, to protect the safety and well-being of the consumer and the protection of the environment.

4.2 Development of sector-specific strategies responding to market and social needs

With innovation cycles of new technologies becoming shorter and shorter, the corresponding standards need to be available more quickly than ever. PSQCA provides efficient procedures and tools to meet these market needs. Full-consensus standards and specifications are developed in line with market demands, with increased attention being paid to market relevance and the involvement of the stakeholders concerned. The quality of standardization is improved by involving well-trained and capable experts in the process. PSQCA will further encourage the wider and deeper involvement of interested parties, such as industries and regulators, as well as reflecting the views of consumers. In order to adequately and effectively respond to changing market and social needs for standardization, PSQCA, together with interested parties, shall develop sector-specific strategy, which sets priorities for standardization in the following sectors.

- Standardization of Textile Products
- Standardization of Surgical Products
- Standardization of Engineering Products
- Standardization of Food Products
- Standardization of information technology
- Standardization that contributes to environmental protection and recycling
- Standardization that reflects the view of consumers

Action Plans:

- i. The timely development of standards requires ongoing optimization of the processes involved. The consistent use of electronic media (electronic committees) will enable involvement in standardization to become more and more efficient in terms of time and cost.
- ii. The standards shall be developed on the basis of globally accepted principles (i.e., *Transparency, Openness, Impartiality, Effectiveness and Relevance, Consensus, Performance Based, Coherence, Due Process, Technical Assistance*) for standards development
- iii. Continued close working partnership between the private sector and government agencies is needed.
- iv. Development of industry standards should be approached on a sectoral basis.
- v. Small companies, state agencies, and consumers must be brought into the process.
- vi. There must be support for supplier's declaration of conformance; single CASCO symbol for product marking and labeling; mutual recognition and transparency on a global basis.
- vii. Re-engineer the process to achieve more timely and less costly development of standards with improved technical content.
- viii. Maintenance of the high quality of Pakistan standardization, and the successful representation of Pakistan interests in international standardization, require the active involvement of well-trained and capable Pakistan experts. Greater involvement of Pakistan companies and their executives is needed. All stakeholders must be involved. To place that on a sure footing, the first priority is to make top management aware of the benefits of involvement in standardization so that delegating the best experts for this purpose is regarded as integral to corporate strategy.

- ix. Other points to be addressed are the funding of qualified experts in standardization, management of experts, e.g. by developing suitable networks, advance planning of succession, and training and qualification. As well as specialist skills, the administrative, linguistic and communication abilities of the experts should be assured. Appropriate training concepts should be introduced.
- x. The benefits of standardization must be brought to wider attention with the help of targeted marketing, sustained public relations efforts, and other informative measures. The term standardization must gain a positive connotation and be made more attractive for the general public.
- xi. In the case of target groups in industry and politics, the information given must be specific, with a clear explanation of the standardization process being accompanied by a lucid presentation of its microeconomic and macroeconomic benefits and its deregulatory function.

4.3 Ensuring stakeholder participation and support for standardization at regional, International, Country levels

An important means of influencing international standardization (e.g., ISO, IEC) activities is participating in regional organizations (e.g., CEN). Pakistan should seek to influence the growth and governance of these organizations for the mutual benefit of their respective members and for our own strategic interests. It is difficult for Pakistan to have an in-depth participation in the development of international standards because of technology and funds. This strategy is to ensure stakeholders participant and support for standardization by: regulators and the government sector; industry; consumers and non-government organizations; professional bodies and associations; research and technical bodies; educational institutions. The success of standardization depends on the support by stakeholders. Critical support is necessary in the form of funding, recognition and commitment in terms of resources and expertise. The support of employers and organizations in releasing experts to participate in standardization activities is important for the success of national and international standardization activities. With a strong stakeholder support, the implementation and application of standards will be enhanced.

Both international standards and the developed country like U.S. standards are very important to Pakistan; the technical evidence to Pakistan's foreign trade, the model for Pakistan to promote its standard management capability, the reference for Pakistan to improve its standard technical level. However, developed countries are in the dominant position of most of the international standards development. And not all of the international standards suit Pakistan.

In past, Pakistan has not been successful in improving its representation in international standardization. PSQCA, however, recognizes that there is further need for increasing involvement in international standardization to appropriately reflect the interests of Pakistan. While PSQCA recognizes ISO/IEC as an international standardizing body that develops appropriate international standards in many areas, PSQCA also understands the fact that in some areas, standards developing organizations such as ASTM other than ISO/IEC are developing internationally prevailing standards. PSQCA recognizes possible importance of cooperation with such SDOs in strategic implementation of its international standardization activities. PSQCA also supports the ISO strategy to establish partnership with such SDOs.

Action Plans:

- i. Extensive promotion on standardization activities and creation of awareness on the importance of standards;
- ii. Close networking between national standards bodies with consumer and non government organizations, government agencies, industries and professional bodies;

- iii. Implementation of recognition or incentives at the national level for active participation in standards development activities;
- iv. Regular dialogues with stakeholders to obtain support for standardization activities;
- v. Establishment of funding mechanisms and sourcing of funds for standardization activities;
- vi. Active participation of all stakeholders, including professionals, the local universities, research institutions, and consumer associations, in standards development activities;
- vii. Establishing a data-bank on experts for standardization activities through e-standardization.
- viii. Participation of Pakistan in Developed Countries such as US, UK, Germany Standards activities.

4.4 International Standardization Strategy

Recognizing that standards can create technical barriers to trade, the World Trade Organization also includes an obligation in its Agreement on Technical Barriers to Trade (TBT) to use international standards in technical regulations implemented by members.

International standards have become the preferred choice of producers, purchasers and governments due to the increasing globalization of production and trade.

In this new environment participation in international standards development becomes an essential part of the country's strategy to ensure the linkage of its economy to global supply chains and markets. Participation both at policy level and in sectors of economic importance should be targeted at ensuring that national concerns and interests are reflected adequately in the international standards developed. The significance of acquisition and transfer of new technologies and practices added benefits derived from participation should also be noted.

The presence of differing national standards can create non-tariff barriers to trade. Concurrent efforts to align Pakistan Standards to international standards become an imperative. By aligning Pakistan Standards to international standards, the entry of Pakistan products and services conforming to these standards into the international markets will be greatly facilitated.

Action Plans:

- i. Constant review of participation levels in international and regional standardizing bodies, such as ISO (International Organization for Standardization), IEC (International Electrotechnical Commission), ITU (International Telecommunications Union) and CAC (Codex Alimentarius Commission) and increasing these levels to commensurate with external trade needs;
- ii. PSQC aligns Pakistan Standards (PS) with international standards in accordance with ISO/IEC Guide 21. It is expected that the alignment project, in which unharmonized PS are identified and aligned with corresponding ISO, IEC, EU and American standards, will be completed by the end of 2010. In coming years, PSQCA will increase the number of standards it maintains, so that it can better meet standards needs in the rapidly modernizing Pakistan economy.
- iii. Provide sufficient resources for international standardization activities;
- iv. Actively proposing new projects for international standardization when in national interest.
- v. Ensuring national positions on issues being discussed are obtained and communicated promptly.
- vi. Actively participates the development of international standards: try to hold more secretariats of TC/SCs, and try to draft the international standards.
- vii. Strengthen the exchange and cooperation with developed countries, such as the United States and national standardization bodies of EU.
- viii. Government support for regional and international standardization activities, with regards to funding and resources.
- ix. Provision of incentives for private sector participation;

- x. Ensuring sufficient pool of suitable and qualified resource persons for participation in international meetings.
- xi. Government support for international standardization of strategic importance by industries.
- xii. Government support for industry initiative to increase the chairperson, convenor, and secretariat of ISO/IEC/TC, SC, and WG from Pakistan.
- xiii. Efforts to improve the recognition and support for standardization from business leaders
- xiv. Further strengthening cooperation with national standardization bodies in Asia by utilizing regional organizations such as PASC and APEC.

4.5 Timely delivery of Pakistan Standards that meet the current and future needs of stakeholders

Technologies are converging more and more. Many technologies today integrate elements from various disciplines, such as mechanical engineering, electrical engineering and information technology. Standardization ensures that the innovative systems emerging from this technological convergence gain access to regional and global markets, thus realizing their full economic potential. The PSQCA should implement the structures and processes required to achieve this. Existing structures have not been systematically developed to fulfil the needs.

It is the national objective to have in place a sufficient number of relevant Pakistan Standards by the year 2010, in order to realize the vision of Pakistan being a developed nation by 2030. In order to achieve this target, the rate of development of Pakistan Standards has to be accelerated. Action plans and mechanisms must be in place to support this accelerated development rate. The national standardization infrastructure has to be strengthened in order to deliver what the country needs. However, this enhanced rate of development must be coupled with the development of market relevant standards i.e . standards that meet the needs of the country in terms of health and safety of consumers and the environment, as well as for industrial development.

To ensure that Pakistan Standards remain relevant, regular periodic reviews of standards have to be undertaken. In essence, it is critical for the national standards development system to deliver the right standards at the required number and at the right time.

Action Plans:

- i. For standardization in Pakistan to become a motor for technological convergence, those sectors in which Pakistan aspires to be a leader must be identified in a continuous and prospective process (vision 2030).
- ii. Representatives of converging technologies, of research institutes, and from politics and society should be brought together by PSQCA, to discuss and assess the potential development of markets over the three to 20 years. On the basis of this assessment, those areas are to be defined in which standardization could be applied at an early stage to promote technological convergence to the benefit of Pakistan products and systems. Associations have a particularly important role to play here.
- iii. Road maps will be developed to identify areas where there is a need for standardization with the help of stakeholders.
- iv. Continuous Government support in terms of provision and allocation of sufficient resources for standards development activities;
- v. Studies undertaken to take stock of standardization needs of the country and findings used to guide and determine the priorities of standards development activities;
- vi. Periodic review and revision of standards to ensure relevancy to current national requirements;
- vii. Maintenance and strengthening of the national standardization infrastructure;
- viii. Provide new procedures or mechanisms in standards development which can hasten the standards development while maintaining transparency and consensus;

- ix. Greater participation by public and private sector agencies as Standards Writing Organizations (SWOs);
- x. Continuous human resource development in order to maintain competency and efficiency in standards development;
- xi. Standardization is used as a tool in operational technology and innovation management, and internal communication on matters concerning standardization has improved. Standardization is presented to future product managers and departmental heads as an integral part of company policy and forms a regular part of staff training programmes.
- xii. Adoption of and adaptation to relevant international standards as Pakistan Standards;
- xiii. Enhanced usage of Information and Communications Technology (ICT).

4.6 Greater awareness and usage of Pakistan Standards by the Government, private sector and the consumers in procurement, trade, production, manufacturing and provision of services

By giving greater awareness the decision-makers in all sectors of the economy are more aware of the effects of standardization, and its impact on business and markets is appreciated by management. Full-consensus standards continue to make a major contribution to health, environmental and consumer protection and also help to safeguard investments.

As in all other outputs, Pakistan Standards will be widely used or referred to in order to be effective and productive. Standards can be used in many forms e.g. in procurement documents, in specifying requirements for trade, in ascertaining quality levels of products in manufacturing and service provision and as a vehicle for technology transfer. Building awareness regarding the standardization processes and the importance of standards are critical in ensuring the success of this effort.

Pakistan Standards act as a strategic tool for the export of Pakistan products and services because it is a policy that Pakistan Standards be aligned to international standards and in some instances, e.g. in the areas of textile, leather and surgical goods, Pakistan Standards set the benchmark for international trade .

For the consumer, standards play an important role as they define the quality, safety and compatibility requirements for a very wide range of consumer products and services. Areas of major concerns to consumers are addressed in the standards development process.

Consumers, well informed of the benefits of standards, can act as an effective and strong pressure group in ensuring the widespread use of standards in industry and trade.

Appropriate forms of recognition should also be accorded to users of Pakistan Standards as this will inculcate a culture of standards, and thus quality, awareness among producers and manufacturers, the main users of standards. One form of recognition could be a priority being given to products and services conforming to Pakistan Standards in procurement exercises by the Government and major purchasers. Another may be the granting of national awards and incentives.

Action Plans:

- i. Networks are to be created linking business, associations, politics and standardization bodies to enable specific target groups to be addressed and information to flow freely. Association meetings, joint seminars or the annual general meetings of organizations are to be used as platforms for keeping smaller companies and their management informed about

- standardization in their particular sector. This is a particularly good way of involving SMEs in standardization, and here the associations have an especially important
- ii. Improve the flow of information on standardization in companies by involving specially trained consultants in the network, the flow of information between standards bodies and corporate management, and the information on standardization available within companies, could be positively influenced. Such consultants could see to it that standardization departments are assigned a suitable position within the organizational structure and staffed with qualified personnel, so that standardization is considered not just as an aspect of operations, but as an instrument of corporate management.
 - iii. Improved access to standards by relevant interested parties;
 - iv. Development of standards that meet the requirements of these stakeholders.
 - v. National recognition to users of Pakistan Standards.
 - vi. Provide training programmes to interested parties for participating in standardization, including courses at university level
 - vii. The significance of standardization in all its aspects (economic and deregulatory) should be incorporated in all relevant college and university courses (e.g. by funded professorships), and promoted by way of teaching modules (e.g. e-learning) as well as by making information material easily accessible.

Table-1 Gap Analysis of Breakout Groups of Pak-US Standards & Conformity Assessment Workshop

Workshop Breakout Groups	Pakistan Standards SDC, PSQCA	Customer priority for US standards	Conformity Assessment Institutions of Pakistan				
			Testing	Calibration	Certification	Accreditation	Recommendations
Textile (Major Export to US)	Total = 816 ASTM= 06	<p>American Association of Textile Chemists and Colorists (AATCC)</p> <p>ASTM International <i>on Textiles</i></p> <p>National Fire Protection Association (NFPA), US</p> <p>(Market demands conformity against AATCC and ASTM)</p>	<p>Non-accredited testing labs are available in public Sector i.e., Pakistan Standards and Quality Control Authority (PSQCA), <i>Pakistan Council for Science & Industrial Research</i> (PCSIR) and National Textile University (NTU).</p> <p>Accredited testing labs are only available in private sector such as Textile testing International, SGS.</p> <p>ECO labeling testing facilities are not available.</p>	Accredited calibration facilities for textile sector are not available in Pakistan	Public (PSQCA) and Private facilities are available.	Multi-recognition arrangement (MRA) signatory (ILAC, IAF, APLAC, PAC) Accreditation Body is not available in Pakistan.	<p>Sale of PS standard is significantly low which showed lack of awareness and harmonization with the developed world standards.</p> <p>Lack of coordination between regulators and Standard development organization i.e., PSQCA.</p> <p>MINFAL and PSQCA jointly, should update food laws in line with Codex Alimentarius Commission guidelines with the help of NIST US.</p>

Electro-technical/ Electronic Products	Total = 87 (IEC)	National Electrical Manufacturers Association, US (Market demands conformity against IEC standards and most of the US market also demands conformity against IEC standards)	Non-accredited testing labs i.e., PSQCA, PC SIR, RAWAT WAPDA, SGS are available in public as well as private sector which cover only few tests.	Few parameter are covered by National Physical Standards Lab	Certifications as per International Electrotechnical Commission for Electrical Equipment Certification Bodies (IEC EE CB) scheme are not available with PSQCA and any public sector lab.	Same	Weak participation of industries in the Standards development Sectional committees of PSQCA. Public sector testing and calibration labs only cover less than 10 % of major export areas i.e., textile, surgical, food of Pakistan.
Food	Total = 846 (Most of the PS standards are adopted from ISO and traceable to Codex Alimentarius Commission guidelines)	59 PS standards adopted from ISO are harmonized with US standards for food	Few Internationally recognized Accredited testing labs are available in public and private sector	NPSL is providing calibration facilities but is not accredited by a signatory to the international agreements for accreditation	PSQCA product certification scheme is available for compulsory and voluntary certification. ISO 22000, IFS, EUREPGAP certifications are available with multinational certification bodies such as Bureau Veritas	UNIDO has provided MRA signatory Accreditation body services to public sector labs	PSQCA should introduce IECEE CB scheme in Pakistan with the assistance of NIST US. Shortage of qualified personnel in the field of standard development and conformity assessment. Lack of accredited product certification facilities in Pakistan.
Surgical Products	Total= 16 10 PS are harmonized	ASTM International (Market demands conformity against	Non-Accredited testing labs are available in public (i.e., PSQCA, PC SIR)	NPSL is providing accredited calibration	PSQCA is providing Voluntary product certification and 4	MRA signatory Accreditation body is not	Lack of MRA signatory accredited testing and calibration

	with ASTM	ASTM and EU standards)	as well as private sector	facilities in few parameters	Nos. of PVt certification bodies providing CE marking	available in Pakistan	<p>laboratories in Pakistan.</p> <p>Sector Specific strategies or mechanism for major export sectors should be developed to get maximum benefits from US institutions to overcome the TBTs.</p> <p>Major restructuring of Standards and Conformity Assessment Institutions is proposed with the help of NIST US.</p>
Steel Products	430 40 ASTM adopted	ASTM International (Market demands conformity against ASTM standards)	Non-Accredited testing labs are available in public (i.e., PSQCA, PCSIR) sector	Same	PSQCA is providing compulsory and voluntary product certification services	MRA signatory Accreditation body is not available in Pakistan	
ICT/IT	IT = 54 ICT= 34		Testing facilities are available in public and private sectors	?	?	None	
Auto	46	No harmonization with US standards	Few testing facilities are available with Public sector labs	?	Personnel Certification is not available in Pakistan	None	
Energy efficiency/ Gas appliances	64	No harmonization with US standards	Few testing facilities are available with Public sector labs	NPSL is providing accredited calibration facilities in few parameters	Personnel certification is not available in Pakistan	None	

Table-2 Textiles (Sector Specific Strategy for Pak-US Collaboration)

U.S. Federal Regulatory Agency	Pak Federal Regulatory Agency	US Standards Developing Organization (SDO)	Pak Standards Developing Organization	Conformity Assessment Organization of US	Conformity Assessment Organization of Pak	U.S. Trade Association / Other	Pak Trade Association/
Federal Trade Commission (FTC) Occupational Safety & Health Administration (OSHA) Consumer Product Safety Commission (CPSC)	Pakistan Standards & Quality Control Authority (PSQCA) Ministry of Food, Agriculture and Livestock (MINFAL) Ministry of Environment	ASTM International <i>Technical Committee D13 on Textiles</i> American Association of Textile Chemists and Colorists (AATCC) National Fire Protection Association (NFPA)	Pakistan Standards & Quality Control Authority (PSQCA)	NIST/NVLA P, <i>Carpet and carpet cushion accreditation program</i>	(Testing) Quality Control Center, PSQCA (Product Certification) SDC, PSQCA <i>Pakistan Council for Science & Industrial Research</i> (PCSIR) Labs National Textile University (NTU) Faisalabad Private Labs (Textile Testing Int) <i>National Physical Standard Lab</i> (NPSL) for calibration PNAC for Accreditation of Lab	National Council of Textile Organizations (NCTO) American Apparel & Footwear Association (AAFA) Association of the Nonwoven Fabrics Industry (INDA) American Fiber Manufacturers Association, Inc. (AFMA)	All Pakistan TEXTILE MILLS ASSOCIATION TEXTILE PROCESSING MILLS ASSOCIATION TOWEL MANUFACTURERS ASSOCIATION OF PAK BEDSHEETS & UPHOLSTERY MANUFACTURERS ASSOCIATION

--	--	--	--	--	--	--	--

Table- 3 Electrical Safety (Sector Specific Strategy for Pak-US Collaboration)

U.S. Federal Regulatory Agency	Pak Federal Regulatory Agency	US Standards Developing Organization (SDO)	Pak Standards Developing Organization	Conformity Assessment Organization of US	Conformity Assessment Organization of Pak	U.S. Trade Association / Other	Pak Trade Association/
Occupational Safety & Health Administration (OSHA)	Pakistan Standards & Quality Control Authority (PSQCA)	National Fire Protection Association (NFPA), <i>NFPA 70, National Electrical Code</i>	Pakistan Standards & Quality Control Authority (PSQCA)	Occupational Safety & Health Administration (OSHA), <i>Nationally Recognized Testing Laboratory Program (NRTL)</i>	Quality Control Center, PSQCA Product Certification, PSQCA	Electrical Safety Foundation International (ESFI)	ELECTRIC FAN MANUFACTURERS ASSOCIATION
Energy Information Administration (EIA), Department of Energy	Water and Power Development Authority (WAPDA)	Institute of Electrical and Electronics Engineers Inc. (IEEE), <i>National Electric Safety Code (NESC)</i> National Electrical Manufacturers Association (NEMA) Underwriters' Laboratories, Inc. (UL)		MET Electrical Testing Company, Inc. ETL Testing Laboratories, Inc. Factory Mutual Research Corporation (FMRC)	<i>Pakistan Council for Science & Industrial Research</i> (PCSIR) Labs RAWAT Lab WAPDA Pakistan National Accreditation Council	Electrical Power Supply Association (EPSA) Edison Electric Institute (EEL)	ELECTRICAL & ELECTONICS MERCHANTS ASSOCIATION (PEEMA) ELECTRONIC MANUFACTURERS ASSOCIATION CABLES & CONDUCTORS MANUFACTURERS ASSOCIATION

Table-4 Consumer Safety (Sector Specific Strategy for Pak-US Collaboration)

U.S. Federal Regulatory Agency	Pak Federal Regulatory Agency	US Standards Developing Organization (SDO)	Pak Standards Developing Organization	Conformity Assessment Organization of US	Conformity Assessment Organization of Pak	U.S. Trade Association / Other	Pak Trade Association/
Consumer Product Safety Commission (CPSC) National Highway Traffic Safety Administration (NHTSA) Food and Drug Administration (FDA) Department of Transportation (DOT) Environmental Protection Agency (EPA) Coast Guard (USCG) Occupational Safety & Health Administration (OSHA) Department of Labor (DOL) Federal Trade Commission (FTC)	Pakistan Standards & Quality Control Authority (PSQCA) Ministry of Environment Ministry of Industry Ministry of Health	ASTM International Underwriters' Laboratories, Inc. (UL) Outdoor Power Equipment Institute, Inc. (OPEI) Association of Home Appliance Manufacturers (AHAM) Juvenile Products Manufacturers Association (JPMA) Association of Equipment Manufacturers (AEM) NSF International	Pakistan Standards & Quality Control Authority	Consumer Product Safety Commission (CPSC)	Consumer Liaison Office, SDC, PSQCA	Consumers Union (CU) Toy Industry Association (TIA) Grocery Manufacturers Association/Food Products Association (GMA/FPA) Cosmetic, Toiletries and Fragrance Association (CTFA) Cookware Manufacturers Association (CMA) Distilled Spirits Council of the United States, Inc. (DISCUS) American Amusement Machine Association (AAMA) American Home Furnishings Alliance (AHFA)	DAIRY ASSOCIATION FRUIT & VEGETABLE EXPORTERS IMPORTERS & MERCHANTS ASSOCIATION RICE EXPORTERS ASSOCIATION OF PAKISTAN SEAFOOD INDUSTRIES ASSOCIATION Pakistan Vanaspati Manf. Association Pakistan Beverage Manf. Association

Table 5- Surgical Products (Sector Specific Strategy for Pak-US Collaboration)

U.S. Federal Regulatory Agency	Pak Federal Regulatory Agency	US Standards Developing Organization (SDO)	Pak Standards Developing Organization	Conformity Assessment Organization of US	Conformity Assessment Organization of Pak	U.S. Trade Association / Other	Pak Trade Association/
Food and Drug Administration (FDA)	Ministry of Health Ministry of Industry and Commerce	ASTM International, <i>Committee F04 on Medical and surgical materials and devices</i>	Pakistan Standards & Quality Control Authority (PSQCA)	Food and Drug Administration (FDA), <i>Accredited Persons (AP) Inspection Program</i>	Technical Service Center, PSQCA, Lahore Pakistan Institute of Technology for Minerals and Advanced Engineering Materials, (PITMAEM) PCSIR Labs Lahore Product Certification, SDC, PSQCA Pakistan National Accreditation Council	Association for the Advancement of Medical Instrumentation (AAMI)	SURGICAL INSTRUMENT MANUFACTURERS ASSOCIATION OF PAKISTAN

Table 6- Steel Products (Sector Specific Strategy for Pak-US Collaboration)

U.S. Federal Regulatory Agency	Pak Federal Regulatory Agency	US Standards Developing Organization (SDO)	Pak Standards Developing Organization	Conformity Assessment Organization of US	Conformity Assessment Organization of Pak	U.S. Trade Association / Other	Pak Trade Association/
	Pakistan Standards and Quality Control Authority Ministry of Industry	American Institute of Steel Construction (AISC) ASTM International, <i>Committee A01 on Steel, Stainless Steel and Related Alloys</i>	Pakistan Standards & Quality Control Authority (PSQCA)	American Institute of Steel Construction, Inc. (AISC), <i>Certification programs</i>	Technical Service Center, PSQCA, Lahore Pakistan Institute of Technology for Minerals and Advanced Engineering Materials, (PITMAEM) PCSIR Labs Lahore Product Certification SDC, PSQCA Pakistan National Accreditation Council	Association for Iron and Steel Technology (AIST) National Association of Steel Pipe Distributors (NASPD) American Society of Mechanical Engineers (ASME) American Society for Metals International (ASM) American Iron and Steel Institute (AISI) Steel Founders' Society of America (SFSA)	STEEL MELTERS ASSOCIATION STEEL RE-ROLLING MILLS' ASSOCIATION Pakistan Iron & Steel Merchants Association

Table 7. Food Safety (Sector Specific Strategy for Pak-US Collaboration)

U.S. Federal Regulatory Agency	Pak Federal Regulatory Agency	US Standards Developing Organization (SDO)	Pak Standards Developing Organization	Conformity Assessment Organization of US	Conformity Assessment Organization of US	U.S. Trade Association / Other	Pak Trade Association/
<p>Center for Food Safety and Applied Nutrition (CFSAN), Food and Drug Administration</p> <p>Food Safety and Inspection Service (FSIS),</p> <p>US Dept of Agriculture Animal and Plant Health Inspection Service (APHIS),</p> <p>US Dept of Agriculture Centers for Disease Control and Prevention (CDC)</p> <p>Environmental Protection Agency (EPA)</p> <p>Bureau of Alcohol, Tobacco and Firearms (BATF)</p> <p>National Oceanic and Atmospheric Administration (NOAA)</p>	<p>Pakistan Standards and Quality Control Authority (PSQCA)</p> <p>Ministry of Food, Agriculture & Livestock (MINFAL)</p> <p>Ministry of Environment</p> <p>Ministry of Health</p>	NSF International	Pakistan Standards and Quality Control Authority	<p>U. S. Department of Agriculture (USDA), National Organic Program Food Safety and Inspection Service (FSIS)</p> <p>American National Standards Institute (ANSI), <i>Provides an accreditation service for Food Management Institutes Safe Quality Food Initiative certification program</i></p>	<p>Quality Control Center, PSQCA</p> <p>Product Certification, PSQCA</p> <p><i>Pakistan Council for Science & Industrial Research (PCSIR) Labs</i></p> <p>Ministry of Food, Agriculture & Livestock (MINFAL) Labs</p> <p>Pakistan National Accreditation Council</p>	American Food Safety Institute (AFSI)	Federation of Pakistan Chamber of Commerce and Industry

Table-8 Information and Communication Technology (Sector Specific Strategy for Pak-US Collaboration)

U.S. Federal Regulatory Agency	Pak Federal Regulatory Agency	US Standards Developing Organization (SDO)	Pak Standards Developing Organization	Conformity Assessment Organization of US	Conformity Assessment Organization of Pak	U.S. Trade Association / Other	Pak Trade Association/
Federal Communications Commission (FCC)	Pakistan Telecom Authority, Pakistan Electronic Media Regulatory Authority (PEMRA) Ministry of Information & Media Development	Institute of Electrical and Electronics Engineers Inc. (IEEE) Association for Computing Machinery (ACM) International Committee for Information Technology Standards (INCITS) Alliance for Telecommunications Industry Solutions (ATIS) World Wide Web Consortium (W3C) Internet Engineering Task Force (IETF)	Pakistan Standards & Quality Control Authority	Federal Communications Commission (FCC), <i>Telecommunications certification bodies program</i> NIST/NVLAP, <i>Information Technology Security Testing Accreditation Program for Common Criteria Testing and Cryptographic Module Testing</i> NIST/NVLAP, <i>Electromagnetic Compatibility and Telecommunications Accreditation Program</i> U.S. Department of Health and Human Services (HHS), <i>Ambulatory Electronic Health Record Products Certification Program</i>	Pakistan Telecom Authority Labs and certification units Ministry of Information & Media Development Labs and certification Units	Telecommunications Industry Association (TIA) Information Technology Association of America (ITAA) World Information Technology and Services Alliance (WITSA) American Electronics Association (AeA) Software and Information Industry Association (SIIA) Semiconductor Industry Association (SIA)	Federation of Pakistan Chamber of Commerce and Industry Internet Service Providers Association of Pakistan Pakistan Software Houses Association Pakistan Telecom Association Pakistan Electronic Manf. Association

Table-9 Energy Efficiency (Sector Specific Strategy for Pak-US Collaboration)

<i>U.S. Federal Regulatory Agency</i>	<i>Pak Federal Regulatory Agency</i>	<i>US Standards Developing Organization (SDO)</i>	<i>Pak Standards Developing Organization</i>	<i>Conformity Assessment Organization of US</i>	<i>Conformity Assessment Organization of Pak</i>	<i>U.S. Trade Association / Other</i>	<i>Pak Trade Association/</i>
Energy Efficiency and Renewable Energy Office (EEREO), US Dept of Energy California Energy Commission	National Electric Power Regulatory Authority (NEPRA) Ministry of Environment	Underwriters' Laboratories, Inc. (UL) American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE) National Electrical Manufacturers Association (NEMA) Government Electronics and Information Technology Association (GEIA)	Pakistan Standards & Quality Control Authority	Leadership in Energy and Environmental Design (LEED), <i>Certification program</i> American National Standards Institute- American Society for Quality (ANSI-ASQ), <i>National Accreditation Board</i> Association of Home Appliance Manufacturers (AHAM), <i>Certification programs</i> Green Seal, <i>Product certification program</i> Air-Conditioning and Refrigeration Institute (ARI), <i>Certification programs</i>	National Institute of Electronics (NIH) Ministry of Environment Labs PECRET, MoST, Islamabad	National Association of Energy Service Companies (NAESCO) Alliance to Save Energy (ASE) World Energy Efficiency Association (WEEA) Energy Efficiency and Renewable Energy Network (EREN) United States Energy Association (USEA)	Federation of Pakistan Chamber of Commerce and Industry

Table-10 Gas Appliances (Sector Specific Strategy for Pak-US Collaboration)

U.S. Federal Regulatory Agency	Pak Federal Regulatory Agency	US Standards Developing Organization (SDO)	Pak Standards Developing Organization	Conformity Assessment Organization of US	Conformity Assessment Organization of Pak	U.S. Trade Association / Other	Pak Trade Association/
Occupational Safety & Health Administration (OSHA) Department of Energy (DOE)	Oil and Gas Regulatory Authority of Pakistan Ministry of Environment	CSA America, Inc. Association of Home Appliance Manufacturers (AHAM) Underwriters' Laboratories, Inc. (UL) National Fire Protection Association (NFPA) International Code Council (ICC) Association of Appliance and Equipment Manufacturers (GAMA)	Pakistan Standards & Quality Control Authority	Association of Appliance and Equipment Manufacturers (GAMA)	Technical Service Center, PSQCA, Lahore Pakistan Institute of Technology for Minerals and Advanced Engineering Materials, (PITMAEM) PCSIR Labs Lahore Ministry of Environment departments/Labs	National Propane Gas Association (NPGA) Hearth, Patio & Barbecue Association (HPBA)	Federation of Pakistan Chamber of Commerce and Industry