United Nations Industrial Development Organization

Trade Related Technical Assistance (TRTA) Programme

Compliance Issues Affecting Enterprise Clusters in Punjab Province of Pakistan

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COMPLIANCE ISSUES AFFECTING ENTERPRISE CLUSTERS in PUNJAB PROVINCE of PAKISTAN

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The UNIDO team comprising Steffen Kaeser, Zawdu Felleke, Ali Abbas Qazilbash and Badar ul Islam conceived the survey in collaboration with the UNIDO Cluster Development Programme and Small and Medium Enterprise Development Authority (SMEDA).

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Special thanks to the cluster associations and enterprises for their cooperation in the conduct of the survey and participation in focus group discussions.

LIST OF ACRONYMS

BSCI	Business Social Compliance Initiative
CDP	Cluster Development Program, UNIDO
EC	European Commission
EU	European Union
FDI	Fan Development Institute (Gujrat)
GoP	Government of Pakistan
GS	German Safety Mark
HACCP	Hazard Analysis and Critical Control Points
IEC	International Electrotechnical Commission
ITS	Intertek Testing Services
OHSAS	Occupational Health and Safety Standards
NPSL	National Physical and Standards Laboratory
PCP	Penta Chloro Phenol
PCSIR	Pakistan Council of Scientific and Industrial Research
PNAC	Pakistan National Accreditation Council
QA	Quality Assurance
QC	Quality Control
S&S	Sardar & Sardar, Development and Management Consultants
SASO	Saudi Arabian Standards Organization
SEDEX	Supplier Ethical Data Exchange
SMEDA	Small and Medium Enterprises Development Authority
TBT	Technical Barriers to Trade
TDAP	Trade Development Authority of Pakistan
TPI	Twist per inch
TRTA	Trade Related Technical Assistance
UL	Underwriters Laboratories Inc.
UNIDO	United Nations Industrial Development Organization
USD	United States Dollar
WRAP	Worldwide Responsible Apparel Production

CONTENTS

ACKNOWLEDGMENTS ..... **i**

LIST OF ACRONYMS ..... **ii**

CONTENTS ..... **iii**

LIST OF TABLES ..... **iv**

EXECUTIVE SUMMARY **1**

1. INTRODUCTION **4**

1.1 Impact of Technical Barriers to Trade (TBT) 4

1.2 Important Areas of Compliance 5

1.3 Scope and Objectives 5

1.4 Methodology 5

2. SURVEY FINDINGS **6**

2.1 Testing 6

2.2 Laboratory Accreditation 9

2.3 Certification 10

2.4 CE Mark 13

2.5 Calibration 14

2.6 Grading and Traceability 16

2.7 Branding 16

3. CONCLUSION AND RECOMMENDATIONS **18**

3.1 Awareness on Value Added Markets and Quality Culture 18

3.2 Improving Conformity Assessment Services 19

3.3 Strengthening Compliance Requirements for Local Markets 19

3.4 Improved Availability of Qualified Staff 19

3.5 Cluster Specific Recommendations 19

ANNEXURES

Annexure I: Main Findings of Survey 21

Annexure II: Bibliography 28

Annexure III: Textile Cluster Lahore 29

Annexure IV: Textile Cluster Faisalabad 45

Annexure V: Sports Goods Cluster Sialkot 63

Annexure VI: Cutlery Cluster Wazirabad 75

Annexure VII: Fans Cluster Gujrat 87

Annexure VIII: Tangerine Cluster Sargodha 99

Annexure IX: Mango Cluster Multan 109

LIST OF TABLES

Table 1:	Target Clusters Covered by the Study
Table 2:	Testing Awareness Correlation with Enterprise Size and Export Share
Table 3:	Correlation of Testing Cost and Time Satisfaction with Enterprise Size
Table 4:	Mean Satisfaction Scores for Testing Service Quality and Affordability
Table 5:	Perceived Awareness about Accreditation and PNAC
Table 6:	Correlation of Awareness on Accreditation with Enterprise Size
Table 7:	Correlation: Certifications Awareness with Enterprise Size and Export Share
Table 8:	Important Certification Requirements Identified by Clusters
Table 9:	Mean Satisfaction Scores - Certification Bodies
Table 10:	Mean Satisfaction Scores - Calibration Laboratories
Table 11:	Importance Perception of Branding in Target Clusters
Table 12:	Branding Practice in Target Clusters

EXECUTIVE SUMMARY

1. In today's economically integrated world, countries that have strengthened their links with the global economy through trade and investment have generally grown more rapidly over a sustained period. One of the major hindrances for the low-income countries towards adopting this path is the limited enterprise capacity to comply with international buyers' requirements. International buyers are increasingly demanding compliance to safety, environment, ethical and social standards along with demands for product quality and reliability. Non-compliance to these requirements often results in loss of market.

2. The European Commission (EC) is funding the Trade Related Technical Assistance (TRTA) programme aimed at assisting Pakistan in addressing trade related issues, thereby fostering its integration into the world economy and alleviating poverty. UNIDO is implementing the component of TRTA programme that aims at trade capacity building related to standardization, conformity assessment, accreditation and metrology.

3. This report discusses the results of a survey of 195 Pakistani enterprises on compliance issues affecting the seven product clusters in Punjab province; Textile Garments Cluster in Lahore, Textile Cluster in Faisalabad, Sports Goods Cluster in Sialkot, Cutlery Cluster in Wazirabad, Fans Cluster in Gujrat, Tangerine Cluster in Sargodha and Mango Cluster in Multan. These clusters were selected on the basis of their significance in Pakistan's export earnings and have been supported by UNIDO CDP and SMEDA and discussed in their publications[1]. The report identifies the requirements for testing, certification, calibration, grading, CE marking and branding in respect of exports from the enterprise clusters. It then assesses the capabilities of the firms in meeting the compliance requirements of export markets. The report also examines the adequacy and cost of compliance and makes recommendations on how to address these compliance challenges.

4. Key findings of the study indicate that there is comparatively better level of awareness and adequacy of infrastructure to meet buyers' compliance requirements amongst large metropolitan and export oriented cities (Lahore, Sialkot and Faisalabad) as opposed to the other smaller cities or cities with under-developed export culture. The two agro-related clusters, i.e. Mango and Tangerine, have registered the lowest awareness on testing, certification, calibration and accreditation. Three clusters (Mango, Tangerine and Cutlery) are devoid of any testing laboratories in the cities, where the clusters are predominantly located.

5. Time required for testing of product samples by laboratories and cost of testing and certification have been generally indicated as key issues of concern to exporters. The majority of the respondents use testing laboratories, certification and calibration bodies available outside of their city locations. This increases the time consumed in obtaining requisite conformity assessment services. Up to 22% of respondents from three clusters (Sports Goods Sialkot, Textile Lahore and Faisalabad) use foreign laboratories for testing purposes. The cost and delays of services are the key issues for both foreign and local laboratories. Correlating these results with firm size indicates that the larger firms are more aware of the testing requirements, are more likely to employ technically qualified staff for testing, are relatively satisfied with cost of testing, use foreign laboratories more often and their buyers are more likely to require use of accredited laboratories, as opposed to smaller firms.

6. Though exporters are generally satisfied with the accessibility of services offered by the certification bodies, their level of satisfaction is relatively lower in terms of cost of services and time required by certification bodies. There is also low level of awareness of Government support for accreditation of laboratories and certification bodies. Few respondents were aware of Pakistan National Accreditation Council and even fewer knew its role. Laboratory facilities in the public sector were rarely used by the respondents with the exception of PCSIR laboratories and that of Fan Development Institute's laboratory in Gujrat.

7. In some of the clusters, the requirement by buyers on use of accredited laboratories for testing purposes is relatively low. This is particularly the case when an exporter is operating in low value markets or supplying products to second and third tier customers. Respondents with higher percentage share in exports (as part of overall revenues) and those supplying products for professional use, such as footballs, indicated that their buyers require use of accredited or foreign laboratories as opposed to respondents with lower revenue from exports.

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1 Diagnostic Study Sports Wear Cluster Sialkot, SMEDA. Diagnostic Studies Fan Cluster Gujrat, Garments Cluster Lahore, Cutlery Cluster Wazirabad, UNIDO CDP, EPB, SMEDA (June 2006).

8. The practice of deploying technically qualified quality control and quality assurance staff is prevalent amongst 'high value added clusters', i.e. Sports Goods, Textile and Cutlery. In these clusters, an average of 70% of respondents claim to employ technically qualified staff for testing and quality control operations. In the rest of the clusters, only an average of 5.5% employ qualified staff for testing purposes. There is a positive correlation between percentage share of exports (in overall revenue) and deployment of qualified staff for in-house testing and quality control purposes.

9. From a safety perspective, only a small number of firms in the Gujrat Fan Cluster export to the EU and, therefore, the level of awareness in CE marking is low. However, exporters rate safety as an important parameter for future growth in exports of fans and attach high importance to placing the CE mark on their products. Lack of awareness and cost are the two main issues in the application of CE marking scheme.

10. A high level of awareness to comply with calibration requirements prevails, yet the calibration practices do not correlate with this finding. The traceability of calibration is not transparent and a large number of respondents (e.g., 30% in Fans and up to 60% Mango Clusters) do not calibrate their measuring equipment.

11. Grading of products (covered in Mango, Tangerines and Cutlery Clusters only) is usually practiced based on size, weight and product defects and characteristics. Traceability (covered in Mango, Tangerines and Cutlery Clusters only) is predominantly required in the Sargodha Tangerine cluster, yet up to 83.3% indicated to have no or partial capabilities to meet traceability requirements of foreign buyers.

12. Exporters are generally aware of branding issues and perceive branding to be important for competing in international markets and achieving growth. However, on an overall basis, less than 17% of the respondents have engaged in joint branding with foreign concerns. Though a large percentage claims to be branding for local and/or international markets, in reality most firms are supplying their products to other brand names.

13. In a highly vendorized industry and in agriculture, the issues of compliance become more challenging as it requires focus on a wide supplier base and implementing testing and other compliance related practices throughout the value chain, i.e. farming, handling, storage and processing. Exporters normally do not realize the responsibility of creating awareness amongst their suppliers and farmers and expect Government to intervene in this area.

14. The domestic market has little requirements in terms of product testing, certification or meeting appropriate safety standards. As a result, producers find it difficult to shift from being a local market supplier to an international exporter. Inadequate emphasis on even the most important safety standards (use of open switches in Fans and non-magnetic metals in Cutlery) not only hampers the overall ability of the cluster to increase exports but also creates serious safety threats for the local consumer.

15. Based on the findings of the study in the seven selected clusters, the report makes the following recommendations to the Government, donors, private sector associations, education institutions and the enterprise clusters:

- Increased efforts should be undertaken by Government and private sector associations in creating awareness on the potential of value addition through market and product diversification and by exporting to 'high-value' buyers. The awareness on value added markets, in turn, should be supported with training and capacity building of the entire value chain in meeting compliance requirements of the targeted market segments.

- Sector specific testing laboratories, which must achieve internationally recognized accreditation, should be established in the proximity of the exporting clusters.

- Credible calibration and certification services should be available for use of the exporting clusters, especially in smaller cities and in clusters with agro-based exports.

- Grading standards and schemes should be introduced particularly in agro-based products and relevant industry sectors, to maximize sales and revenue from quality products.

- CE marking should be applied in respect of those products governed by regulatory health and safety requirements of export markets.

- Traceability methods and practices in the agro-based clusters (Mango and Tangerines) to meet the requirements of foreign buyers.

- SMEs should be assisted to better understand and achieve buyers' compliance requirements including testing, calibration and certification.

- A gradual introduction and enforcement of testing, certification, safety and calibration requirements for domestic markets would enhance local consumer protection.

- Support should be provided to clusters exporting under local brand names and for exploring joint branding with foreign buyers.

16. It is critical that compliance issues affecting enterprise clusters are addressed in a holistic manner through well conceived supply side development strategy to impact on raising the competitiveness of the clusters leading to success in export market access. The private sector associations, Federal and Provincial Governments and their development partners must work in concert to mitigate the quality and compliance problems prevalent in the clusters and enterprises concerned.

1. INTRODUCTION

1.1 Impact of Technical Barriers to Trade (TBT)

Technical Barriers to Trade (TBT) arise whenever an exporter is required to comply with the particular requirements of the importing country. Such requirements may entail considerations of health and safety of consumers and those to do with environmental protection (Chand, 2003). Within the WTO context, the TBT and Sanitary and Phyto-Sanitary (SPS) Agreements cover packaging and quality requirements; the latter may include production and processing methods as well as minimal nutritional requirements for the product. A recent World Bank and UNIDO joint study[2] clearly highlighted the importance of compliance to SPS for increasing agro based exports from Pakistan.

The issue of Technical Barriers to Trade (TBT) has grown as a focus for international attention over the past two decades (Popper et al, 2004). The 1986-1994 Uruguay Round of General Agreement on Tariffs and Trade (GATT) negotiations led to the formation of the World Trade Organization (WTO). It also resulted in a specific multilateral Agreement on Technical Barriers to Trade. WTO members recognized the important contributions of technical measures to the efficient functioning of national economies and encouraged their development but were also cognizant of the fact that technical regulations, standards and conformity assessment procedures for products, processes and production methods (including terminology, symbols, packaging, marking and labelling requirements) may present obstacles to international trade. The TBT Agreement does not define "TBT" per se (Begnin and Bureau, 2001). Rather, it defines acceptable behaviour with respect to technical measures (Deardorf and Stern, 1997). The Agreement specifies that technical measures must be applied in a non-discriminatory fashion. However, it does not disallow trade-affecting regulations, standards, or assessment procedures. Instead, it recognizes their legitimacy in some instances and sets ground rules for establishing and maintaining them to avoid "unnecessary" obstacles to trade and discrimination against imported products (Markus and Wilson, 2001).

Only over the past decade as tariff levels and import surcharges have begun to fall, import quotas and licenses were removed on a large scale. At the same time, other forms of potential non-tariff measures, including in particular, differing national standards and conformity assessment procedures, have started to surface as barriers to trade as the more obvious layers of trade barriers have been peeled off (Stephenson, 1997). Particularly, technical regulations are standards laid down by regulatory authorities for which compliance is mandatory. They may affect both products and/or production processes. Products cannot be sold or exported without compliance to such regulations. These are particularly important and prominent in the area of government assurance of public health and safety. Such regulations set minimum levels of consumer protection for products, such as in food and drugs, for human consumption. Mandatory national safety provisions affect mechanical, electrical and transport equipment (such as the fitting and use of seat belts in automobiles). Technical regulations are also in effect for building materials and construction, fire safety and hazardous substances. There is also an increasing use of technical regulations in the form of process standards which are most often associated with environmental policy objectives (such as setting emission levels for air or water pollution).

Even when applied properly, these technical standards pose a major problem, as it is de-facto the responsibility of the seller to demonstrate that the products satisfy applicable requirements (UNIDO, 2002). The complexity and extent of this problem is demonstrated by the fact that the worldwide stock of standards and technical regulations is well above 100,000, and that this number is growing rapidly [OECD TD/TC/WP (98) 36/FINAL of February 1999]. While there is no doubt that standards and technical regulations provide many important advantages to producers and consumers, both in domestic and export markets, and that they will continue to gain in importance, it is also clear that in many cases they have become a real hurdle to increasing developing country exports. Large scale and well-coordinated assistance to build up the capabilities and capacities to conform to these requirements is needed if trade liberalization is to have its intended impact on developing countries.

Products aimed at developed country markets have to meet many applicable standards, quality requirements and technical regulations. In addition, the burden of proof that these are met lies with the exporter. The effective implementation of the respective agreements as well as the increased participation of developing countries in global trade depend, therefore, on the ability of the signatory countries to fully satisfy such requirements. A recent study conducted by UNIDO[3] identified compliance as a major challenge faced by exporters in Pakistan in gaining increased access to global markets. Exporters need adequate physical and institutional infrastructure as well as scientific and technological skills and capabilities in order to meet compliance requirements.

2 World Bank and UNIDO (2007), "Pakistan Agrobased Exports and Sanitary and Phyto-Sanitary (SPS) Compliance".
3 UNIDO (2007), "Trade Related Challenges Facing Exporters in Pakistan".

1.2 Important Areas of Compliance

In order to prove that the required compliance level has been attained, the supplier enterprises need to conduct tests and obtain necessary certification. This requires laboratory infrastructure, which can provide affordable and expeditious testing services. Moreover, in order for these tests to be credible and acceptable to buyers, it is important that the laboratories should be accredited by an internationally recognized accreditation body.

Tests are conducted using various types of laboratory instruments. For the test results to be correct, these instruments must maintain desired accuracy levels. Therefore, traceable calibration becomes an important criterion for ensuring the accuracy of measuring instruments.

Export of graded products fetches better price in international markets. Grading is relevant in those sector, where raw material is being sold and where there are only few simple processing steps carried out on the raw material to be sold as final product. Exporters have also benefited from quality grading of manufactured products in respect of consumer needs and regulatory requirements.

In addition to product and system certification, CE marking has emerged as another important requirement for exports to EU market. Similarly, branding of products plays an important role in accessing new markets and securing better prices.

1.3 Scope and Objectives

The study targets to assess the prevailing situation and compliance requirements for testing, certification, calibration, grading and CE marking affecting clusters shown in Table 1.

The objective of the study is to assess respondent's awareness, export market requirements, and the infrastructure and services available for testing, certification, calibration and accreditation. The study also covered grading and traceability practices in Mango, Tangerine and Cutlery Clusters, and assessment of awareness and application of CE marking scheme in Fans, Sports Goods and Cutlery Clusters. The issue and concern for branding of export products were also examined.

1.4 Methodology

In order to achieve its objectives, the study was designed to cover qualitative (focus group discussions) and quantitative research (survey questionnaire). For qualitative survey, assistance in identification of knowledgeable stakeholders was provided by UNIDO CDP and SMEDA. Meetings were facilitated by UNIDO CDP in Textile (Lahore), Fans and Cutlery clusters and by SMEDA in Textile (Faisalabad), Sports Goods, Tangerine and Mango clusters.

For the quantitative survey, sample size of 30 enterprises per cluster was considered to be appropriate so as to make the results of the survey statistically significant. Sample size for Mango Cluster in Multan was limited to 15 enterprises due to limited number of exporters in that cluster. Thus, a total of 195 questionnaires were completed from the seven clusters. The criteria for selection of enterprises, to participate in the survey, included reputation of firm and significant share of revenue from export earnings.

The questionnaire was designed by the Consultants and UNIDO keeping in view the aims and objectives of the study. It was pre-tested and then approved by UNIDO before conduct of field survey work. The collection of field data was carried out by enumerators, who had technical academic background and were provided with proper training. Data was entered and analysed using SPSS.

Table 1: Target Clusters Covered by the Study

Location	Cluster
Lahore	Textile
Faisalabad	Textile
Sialkot	Sports Goods
Wazirabad	Cutlery
Gujrat	Fans
Sargodha	Tangerine
Multan	Mango

2. SURVEY FINDINGS

The following section details the findings of the quantitative survey of 195 enterprises in the seven selected clusters. The main findings of the survey are summarized in Annexure I. The detailed survey results are also compiled cluster wise in Annexure III to Annexure IX.

2.1 Testing

Conformity assessment testing is an essential requirement to determine product quality, reliability and safety. Test methods are often adopted from international or national standards or developed by specific consortia of buyers. Complying with the buyer's testing requirements is critical for increasing international trade from exporting countries. Test reports issued by accredited laboratories are recognized and accepted by international buyers and foreign regulatory bodies.

2.1.1 Testing: Key Findings

The study assessed the compliance status with respect to testing requirements covering awareness, adequacy of testing infrastructure, common testing practices and the use of technically qualified human resources. The responses were compared across targeted clusters and co-related with firm size and percentage share of exports in total enterprise revenues.

The study findings reflect that high level of self perceived and general awareness prevailed in all clusters except for the agro-based clusters of Tangerine and Mango. On an overall basis, awareness on the testing requirements is positively correlated with the firm size and with the percentage of exports in overall revenues. Interestingly, smaller firms claimed to be more aware of the testing requirements of buyers than the medium size firms, and firms with no exports claimed to be more aware than the firms deriving up to 25% of revenues from exports.

Analysis of above responses, in the light of the discussions in the focus groups, reflects that the firm's declaration of awareness was a parameter of the export destination and the market orientation. Second or third tier buyers in 'low-value' international markets enforce little testing requirements as opposed to established brands operating in 'high-value' markets. Enterprises trading with the former are likely to perceive themselves as more aware of testing requirements than exporters operating in high value markets and trading with established brand names.

Most common testing practice is the use of in-house or local laboratories. However, in cases where testing was performed for meeting specific buyers requirements, 14% of the respondents reported to be using foreign laboratories. Four clusters, i.e. Tangerine, Cutlery, Mango and Sports Goods, had concerns in non-availability of appropriate testing facilities (for performing various types of tests) within their locations. The respondents, however, provided mixed responses in their assessment of laboratory infrastructure.

The quantitative survey findings also indicate higher satisfaction levels for acceptability of test results from foreign laboratories by buyers. Mixed results were reported for satisfaction levels of laboratory accessibility while respondents were relatively dissatisfied with test costs and time required in conduct of tests. Satisfaction level of testing costs was positively correlated with firm size and percentage of exports of firm revenues.

The assessment of availability and adequacy of testing infrastructure and adequacy clearly indicates major differences between the agro and non-agro based clusters. Agro based clusters were found to have low awareness of testing, lack appropriate testing facilities and rarely deploy qualified staff for quality assurance and quality control purposes. Similarly, small firms and those with limited exports find testing cost as a major concern for their businesses.

2.1.2 Testing: Awareness

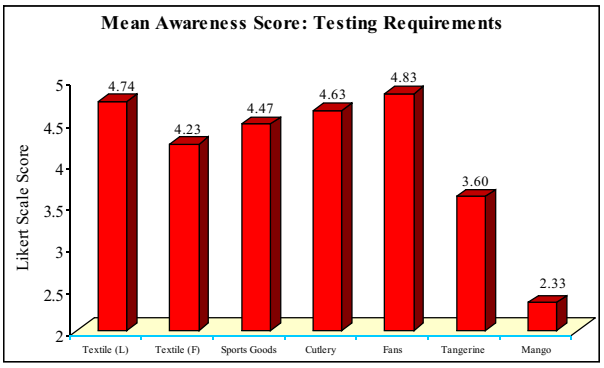
The general level of awareness on product testing was found to be high. Five point Likert scale was used for this assessment (5 being the completely aware). Of the total 191 valid responses, 64.9% respondents claimed to have complete awareness about the requirements for testing from their customers. Correlation of this perceived awareness shows that it increases with the size of the organization and the relative share of export in total revenue. Bigger and export-oriented enterprises tend to have greater exposure, and consequently, better awareness levels about the requirements for testing.

Mean scores of awareness about product tests correlated with organization size and share of exports is provided in Table 2 below.

Table 2: Testing Awareness Correlation with Enterprise Size and Export Share in Revenues

Enterprise Size	Mean Scores of Awareness
Small (1-49 employees)	3.97
Medium (50-150 employees)	3.73
Large (more than 150 employees)	4.62
Share of Exports in Total Sales	**Mean Scores of Awareness**
0%	3.93
1-25%	3.78
26-90%	4.41
90-100%	4.46

One notable observation from the Table 2 is that awareness perception of smaller enterprises is higher than that of medium ones. Similarly, awareness is found to be higher among enterprises which are not exporting at all compared to the ones that derive up to 25% of their revenues from exports.



The chart above shows differences in awareness perceptions in the seven clusters surveyed under the study.

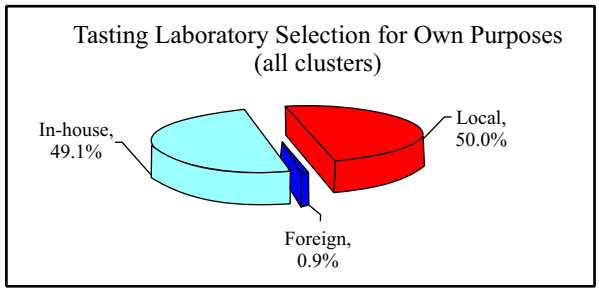
Awareness on testing requirements is low for the two agro-related clusters, lowest being for Mango Cluster. Apart from these two clusters, the general level of awareness about testing requirements was found to be relatively high.

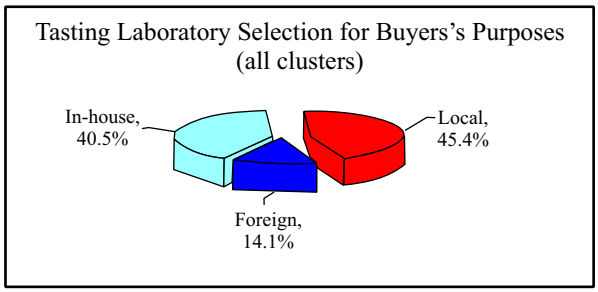
2.1.3 Testing Infrastructure

2.1.3.1 Common Testing Practice

The common practice for product testing was use of in-house and local laboratories in Pakistan. Testing was performed for purposes of internal quality assurance and meeting buyer's requirements.

The use of foreign laboratories was not a common practice. It was only used in response to meet buyer's demands. The selection of testing facilities was primarily driven by the concern to address own or buyer's purposes as depicted in the charts below.





In order to assess ease of access to local laboratories, the availability of testing facilities within the cluster locations was also surveyed. The predominant presence of laboratory facilities for clusters operating within large cities was visible. Lahore, Faisalabad and Gujrat were the three cities, where enterprises indicated availability of testing facilities. A number of laboratories were reported to be available in Lahore and Faisalabad, while the only laboratory mentioned in Gujrat was that of the Fan Development Institute of the local association.

While in-house testing was reported as the most prevalent practice for testing, it was not supported by the use of qualified quality assurance staff. Only 37.7% of the total enterprises were found to be using qualified quality assurance staff. This was most common in the three export-oriented clusters of Sports Goods and Textile Clusters of Lahore and Faisalabad, with the occurrence values of 90%, 50% and 79.3% respectively. For the Fan, Cutlery, Tangerine and Mango Clusters, enterprises using qualified quality assurance staff were 13.3%, 6.7%, 3.4% and 0%, respectively.

Apart from these three areas, laboratory accessibility is another area which may require strengthening as satisfaction score is relatively lower than the other three service quality variables.

Further analysis indicated that the satisfaction level of the enterprises is directly correlated with the size of the firm. Although the overall satisfaction levels of testing cost and time remain below average, yet they tend to increase in proportion to the size of the firm. Mean scores for satisfaction levels of small, medium and large enterprises for testing cost and time are given in Table 3 below.

Table 3: Correlation of Testing Cost and Time Satisfaction with Enterprise Size

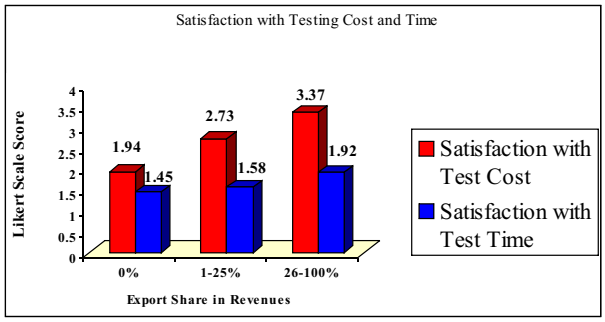
Enterprise Size	Size of Employees	Mean Scores - Satisfaction with Testing Cost	Mean Scores - Satisfaction with Testing Time
Small	1-49	2.24	1.59
Medium	50-149	3.14	1.21
Large	150 and more	3.72	1.90

2.1.3.2 Satisfaction with Service Quality and Affordability

Perception about the quality and affordability of the services from laboratories was assessed in terms of seven variables. Four of those, acceptability to buyers, laboratory adequacy, laboratory accessibility and technical skills related to service quality, while testing cost, overall cost to business and time taken in testing were considered as measures of affordability of testing services.

On an overall basis, enterprises were found to be satisfied with the quality of services provided by laboratories. Mean ratings obtaned on a Likert scale of 1 to 5 (5 being most satisfied) were 4.31, 4.08, 3.46 and 4.33 respectively for acceptability, adequacy, accessibility and technical skills. The mean satisfaction scores for cost of testing, overall cost to business and testing time required were only 2.93, 2.82 and 2.86 respectively.

Similarly, the chart below shows that satisfaction level of enterprises increases with share of export in total revenues.



The satisfaction level of the respondents with the local laboratory infrastructure also varies with clusters. These variations are shown in Table 4 .

Table 4: Mean Satisfaction Scores for Testing Laboratories Service Quality and Affordability

	Mean Scores					
Attribute	Textile (Lahore)	Textile (Faisalabad)	Sports Goods	Cutlery	Fans	Tangerines
Acceptability	4.82	3.94	4.72	4.08	4.40	4.50
Adequacy	4.95	3.55	4.18	3.61	4.28	4.25
Accessibility	4.70	4.00	3.09	3.03	3.04	1.50
Technical skills	4.82	3.90	4.90	4.00	4.38	4.50
Testing Cost	4.32	3.37	2.30	2.70	1.70	4.25
Cost to business	4.63	3.50	1.63	2.80	1.11	4.63
Testing time	4.70	3.40	2.63	2.61	1.69	3.00

2.2 Laboratory Accreditation

Use of internationally recognized accredited laboratories for product testing has become a requirement of international customers. Test results from such accredited laboratories are acceptable by foreign buyers eliminating the practice of further testing at laboratories of the importing country. The survey thus explored the awareness, current practices and demand by buyers for use of accredited labs.

2.2.1 Laboratory Accreditation: Key Findings

The respondents were asked questions relating to their awareness level on laboratory accreditation, buyer's requirements for use of accredited laboratories and the current practices in choice of laboratories. Enterprises also recorded their knowledge of PNAC and its role. The analysis reveals that 58% of the respondents were aware about the laboratory accreditation concepts. Although 77.4% of the respondents indicated that foreign buyers did not require use of accredited laboratories, yet 35.3% of the respondents felt that use of accredited laboratories can result in business growth. Few respondents (32.3%) were aware of PNAC and even fewer (17.6%) knew about its role.

The above results, when analyzed together with the discussions in the focus groups, indicate that exporters presently do not face strict requirements from current buyers on use of accredited laboratories.

However, exporters felt that use of accredited laboratories would be useful in business growth and in meeting future requirements from existing buyers or expected demand from new markets. In this connection, the analysis suggests that there was a need to create awareness among clusters on Government's initiative in promoting laboratory accreditation as well as the role and operations of PNAC in accreditation work.

2.2.2 Laboratory Accreditation: Awareness

The survey points out that 58% of the respondents claimed to be aware of the purposes of laboratory accreditation. The research also indicated that only 32.3% respondents were aware of PNAC and only 17.6% claimed to be knowledgeable of its role.

Awareness perception about accreditation concept and PNAC is shown in Table 5 below.

Table 5: Perceived Awareness about Accreditation and PNAC

Type of Awareness	Textile (L)	Textile (F)	Sports Goods	Cutlery	Fans	Tangerines	Mango
Accreditation Concept	36.7%	69.0%	89.7%	90.0%	30.0%	44.8%	40.0%
Awareness about PNAC	26.7%	48.3%	76.7%	30.0%	3.3%	20.0%	13.3%

The level of awareness on accreditation varied widely with target markets. For enterprises operating in local markets only, awareness about accreditation was only 26.2%, while for exporters, it was 69.0%. Similarly, the level of awareness varied with the size of the firm as shown in Table 6 below.

Table 6: Correlation of Awareness on Accreditation with Enterprise Size

Firm Size	Number of Employees	Awareness on Accreditation
Small	1-49	53.3%
Medium	50-149	50.0%
Large	150 and more	65.4%

2.2.3 Importance of Laboratory Accreditation and Current Practices

The analysis showed that 77.4% of the respondents claimed to have no requirement for use of accredited laboratories by their established buyers. The requirement for use of accredited laboratories was underlined by exporters with 31.5% of the respondents mentioning as essential requirement from their international customers. Only 7.2% of the respondents mentioned that more than 75% of their exports had to be tested in laboratories having internationally recognized accreditation.

The analysis also indicated that 39.3% and 31% of respondents respectively from the two export-oriented Textile Clusters of Faisalabad and Lahore were required by international buyers to use accredited laboratories. For Tangerine Cluster of Sargodha, 30% of the respondents mentioned about the requirement from buyers to use accredited laboratories. Similarly, 40% of the respondents from Sports Goods Cluster underlined the requirement to use accredited labs. The requirement by current and established buyers for use of accredited laboratories in respect of Mango, Fan and Cutlery Clusters was significantly low.

In overall, the benefits of using accredited laboratories to secure more business was stressed by 35.3% of the respondents from the seven enterprise clusters.

2.3 Certification

Certification refers to compliance against an accepted national or international standard. These standards are developed by international or national standards organizations, buyers associations and also by established brand names for ensuring compliance against product characteristics, production processes and exporter's management, social and environmental practices. The survey indicated that certification standards are becoming increasingly sector and buyer specific. Non-compliance with the required certification often acts as a barrier for international trade.

2.3.1 Certifications: Key Findings

The survey identified certifications required by buyers from enterprises in the targeted clusters. In addition, overall level of awareness, importance and current practices regarding certification were also assessed. Suitability of the current infrastructure and availability of certification services were also examined. The analysis indicated that awareness level on the required certification was high with the exception of the Mango Cluster. Awareness was positively correlated with the size of the firm and percentage share of exports in total revenues.

The requirements of buyers for application of both generic and sector/ customers specific standards were stressed by respondents. In this connection, ISO 9000 certification was recorded as most common requirement followed by certification to sector specific standards, i.e. HACCP and EUREPGAP for Tangerine, OEKO-TEX and WRAP for Textiles, CE mark and UL 77 for Fans and SA 8000 certification for Sports Goods Cluster.

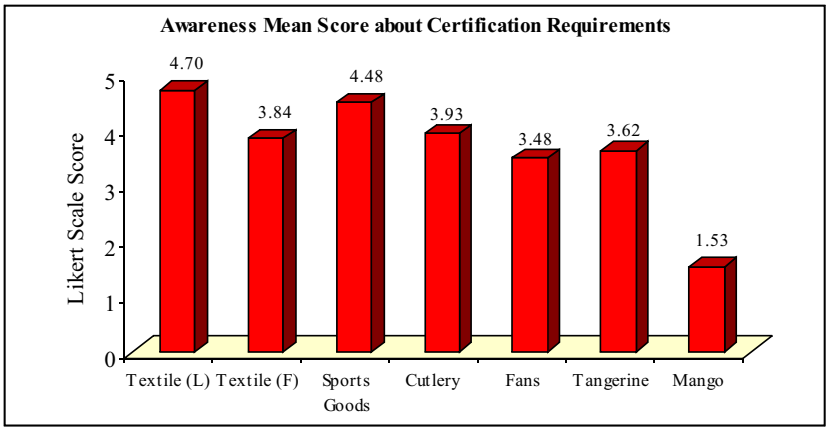
The majority of the respondents used local based foreign certification agencies and were satisfied with their services in respect with accessibility and technical skills. They were, however, less satisfied with the cost and time involved in certification process. Respondents from the Tangerine Cluster were the least satisfied with the services of local certification agencies with the lowest mean score of 3.2 (on 5 point Likert scale, 5 being completely satisfied).

The analysis shows that a higher level of exporters' satisfaction prevailed with the services offered by certification agencies than with the laboratory testing services. Certification cost and protracted certification process were reported as major issues. The survey results also indicate the need to improve certification services in smaller and less metropolitan cities.

2.3.2 Certifications: Awareness

Overall level of awareness about the requirements of certification was found to be high. The analysis showed that 51% of the respondents claimed to have complete awareness in this regard. On a five point Likert scale (5 being highest awareness) a mean score of 3.88 was obtained which is fairly high. However, it should be noted that these results represent respondents' perceptions.

Awareness level was found to vary with clusters. Mean scores for awareness about certification requirements in the seven clusters of Textile (Lahore), Textile (Faisalabad), Tangerines, Fan, Cutlery, Mango and Sports Goods were 4.70, 3.84, 3.62, 3.48, 3.93, 1.53 and 4.48 respectively. Lahore, being the largest city with highest exposure level, showed the highest level of awareness about certification requirements. These results are presented in the chart below.



The awareness on certification requirements was directly correlated with the share of exports in total revenues and the size of the firm as shown in Table 7 below.

Table 7: Correlation: Certifications Awareness with Enterprise Size and Export Share

Share of exports in total Scales	Mean scores of awareness
0%	2.79
1-25%	3.72
26-100%	4.38
Size of enterprises	**Mean scores of awareness**
Small (1-49 employees)	3.19
Medium (50-149 employees)	3.38
Large (150 and more) employees	4.41

2.3.3 Important Certification Requirements

Certification to ISO 9000 was the most important requirement across all the clusters except for the two agro-related clusters. In fact, no single certification requirement was identified in Mango Cluster, which signifies low level of awareness. Within Tangerine Cluster, the two most important certification requirements were HACCP and EUREPGAP.

In Textile Clusters (Lahore and Faisalabad), ISO 9000 certification was identified as the most important requirement. Requirement for environment-related certification to ISO 14000 was also observed; however, the frequency of certification was low. The other important requirements identified for Textile Clusters were OAKO-TEX, BSCI and WRAP.

In the Fans Cluster, ISO 9000 certification was the most common requirement by buyers. CE marking was the second most common requirement in this cluster. Some of the respondents also mentioned UL-77 certification as another important requirement.

Within Cutlery Cluster, certification to ISO 9000 was perceived to be the only important certification requirement. It is important to note that from within the sample of cutlery enterprises in Wazirabad, only three enterprises had rudimentary knowledge of certification requirements. Regardless, however, the level of awareness perceived by the enterprises in Cutlery Cluster was relatively high with mean awareness score of 3.93. This indicates a mismatch and proves the hypothesis that the scores indicating awareness should be seen with a discounted approach as actual awareness level is lower than what is being depicted by the quantitative results.

The important certification requirements of the clusters are summarized in Table 8 below.

Table 8: Important Certification Requirements Identified by Clusters

Clusters	Certifications in %age															
	ISO 9000	ISO 14000	ISO 22000	SA 8000	HACCP	EUREPGAP	OHSAS	WRAP	OEKO-TEX	BSCI	CITY PUT	EALO	CE Mark	PSI 77	SORK	UL 77
Textile (L)	97	7	3	0	0	0	0	13	0	13	3	7	0	0	0	0
Textile (F)	60	7	0	3	0	0	0	3	17	0	0	0	0	0	0	0
Sports Goods	90	3	0	23	3	0	3	3	0	0	0	0	0	0	0	0
Cutlery	10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Fans	33	0	0	0	0	0	0	0	0	0	0	0	10	3	3	3
Tangerine	3	0	0	0	27	7	0	0	0	0	0	0	0	0	0	0

** No certification requirements were reported by the Mango Cluster*

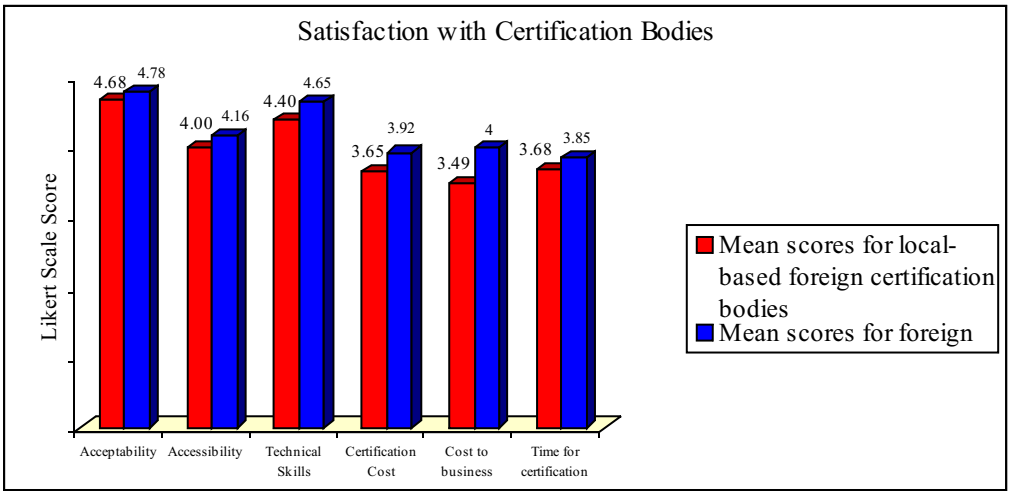
Within Sports Goods Cluster, certification to ISO 9000 was the most important requirement. The other requirement by the international buyers of sports goods was adherence to social compliance. Respondents reported that SA 8000 was the second most important requirement demanded by buyers. Certification to ISO 14000 was also noted by some of the respondents as an emerging requirement by foreign customers.

2.3.4 Infrastructure for Certifications

The most common practice in obtaining certification is the use of local-based foreign certification bodies. These are franchised bodies of international organizations and have established their local offices in Pakistan. There is no certification body with local origin. Therefore, the assessment of the certification services relates to the local based foreign or foreign certification agencies.

Satisfaction of enterprises with the present certification infrastructure was assessed. Quality of the service was surveyed in terms of acceptability by buyers, accessibility and technical expertise. Affordability was gauged in terms of certification cost, overall cost to business and the time involved in achieving certification.

Mean satisfaction scores for local-based foreign and foreign certification bodies are presented below.



Based on the overall sample from five clusters (responses were not obtained from Cutlery and Mango Clusters), a general level of satisfaction was perceived with respect to the quality of services provided by local based foreign certification bodies. The rating for certification body accessibility was, however, lower than those of acceptability and technical skills. Satisfaction levels in terms of cost and time required for certification were relatively lower. The mean scores of these attributes are given in Table 9.

In overall, it is notable that the level of satisfaction obtained with the certification bodies is much higher than the satisfaction level for testing laboratories. Moreover, although the affordability of certification has been rated lower, yet the difference between the scores for service quality and affordability is not as pronounced as was the case for testing laboratories. Thus, it can be inferred that infrastructure improvement of testing laboratories in Pakistan is a high priority area for any intervention compared to support for expansion of certification practices in the country.

The Textile Garment Cluster in Lahore exhibited the highest satisfaction levels both for service quality and affordability. The other four clusters registered general trend of high rating for service quality and lower for affordability. Cost and time required for certification were serious concerns for the Tangerine and Textile (F) clusters. The Tangerines Cluster also reported dissatisfaction with accessibility of certification bodies; highlighting the need to provide services within or close to the cluster.

Table 9: Mean Satisfaction Scores with Local-based Foreign and Foreign Certification Bodies *

Attribute	Textile (L)	Textile (F)	Sports Goods	Fan	Tangerines
Acceptability	4.7	4.0	4.7	4.6	5.0
Accessibility	4.8	3.9	3.9	3.6	2.6
Technical skills	4.6	4.1	4.6	4.7	4.0
Certification cost	4.4	2.8	3.6	4.4	2.1
Cost to business	4.5	3.2	3.0	3.2	3.0
Time for certification	4.5	3.2	3.4	4.2	2.6

** No response was obtained for rating certification bodies in the Cutlery-Wazirabad and Mango-Multan Clusters*

The analysis of the data further shows that there was limited use of foreign certification bodies by the clusters. The use of the foreign certification bodies was reported mostly for Textile Clusters of Lahore and Faisalabad. Satisfaction level with these foreign certification bodies was relatively higher for acceptability and technical skills and lower or accessibility as well as cost and time required for certification.

2.4 CE Mark

2.4.1 CE Mark: Key Findings

Product safety has become an important consideration for the international buyers. CE marking is a safety related certification required for selling products in the EU market. The survey assessed the awareness levels, requirement and procedures for CE marking in the Fans, Sports Goods and Cutlery Clusters.

The study findings demonstrate that 96%, 66% and 36% of the respondents amongst the Sports Goods, Cutlery and Fan Clusters respectively, were aware of the CE mark. It was noted that the reported level of awareness prevailed from participation in Workshop on CE Marking conducted by UNIDO in early December 2006 for benefits of the clusters. The majority of Cutlery and Sports Clusters showed keen interest to receive more training and information on CE marking. The lack of technical support and cost of compliance (including overall cost to business for product redesigning, use of alternate raw materials and restructuring of production processes) were reported as major obstacles in CE marking of products.

2.4.2 CE Mark: Awareness

CE mark was found to be a well-known concept in Sports Goods and Cutlery Clusters and relatively less in the Fan Cluster. In the Sports Goods Cluster, 96.7% of respondents were aware of the concept of CE mark and 66.7% of the respondents from the Cutlery Cluster also reported of being knowledgeable. In the Fan Cluster, the percentage awareness was 34.5%.

The three clusters mentioned above, for which CE marking is applicable, are very different from each other with respect to their presence in the EU market. The majority of enterprises in Fan Cluster do not export to EU. In case of Sports Goods, the majority was exporting to EU resulting in high awareness about CE marking. There was divided response from Cutlery Cluster, where awareness in enterprises exporting to EU was 85.7% while for non-exporters to EU the awareness level about CE marking was 50%. The level of awareness of the three clusters in CE mark is shown in the charts below.

The awareness about CE mark is completed only when the procedure for placement of the CE mark on products is known and understood. From amongst the enterprises, which claimed to be aware of the CE mark , additional questions were asked on the procedures for applying the CE mark. Percentage awareness levels in this regard were 86.7%, 55% and 36.3% for Sports Goods, Cutlery and Fans Clusters respectively.

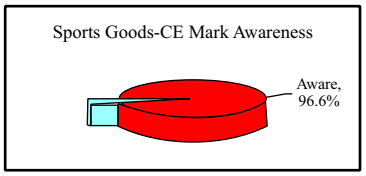
2.4.3 Applying CE Mark

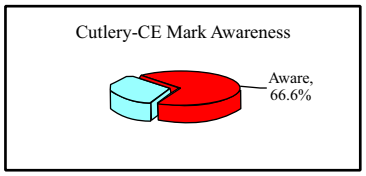
The current level of awareness on CE mark was also measured in terms of enterprises attending training programmes on the subject. This was found to be very low. Even for Sports Goods Cluster in Sialkot, where general awareness about CE mark was very high, only 20% of the enterprises were found to have attended any training on the subject. Similar figures for the Fan and Cutlery Clusters were 14.8% and 27.6% respectively. The interest in CE marking could be measured by the willingness expressed by Clusters in Sports Goods (89.7%), Cutlery (74.8%) and Fan (38.5%) to receive awareness and training in procedure of placement of CE mark on their products.

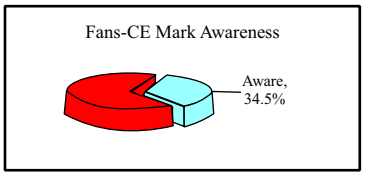
2.4.3.1 Obstacles in CE Marking

The lack of proper training of technical staff in CE marking procedures are considered to be a serious obstacle in application of CE marking in the enterprise clusters. The conduct of a series of group training workshops similar to that conducted by UNIDO in December 2006 would contribute towards imparting knowledge and skills in CE marking. Such training arrangements need, however, to be followed by focused training in CE marking procedures, placement of CE mark on products and expert guidance at enterprise level in the form of technical advisory services and support.

The cost of compliance was considered by respondents as in impediment in CE marking of products. This included the cost of testing in accredited laboratories, introduction of quality control practices and improvement of manufacturing processes to meet compliance.







2.4.3.2 Preferred Option for CE Marking

A significant portion of the group, which expressed awareness in CE marking, was not, however, certain about the preferred route for CE marking. The analysis showed three options preferred by respondents. These included for importers in Europe to perform the whole assessment for CE marking (preferred by Sports Goods Cluster), CE marking through self-declaration by using local and foreign laboratories (preferred by Fan Cluster) and designating for CE marking purposes of representatives in EU market knowledgeable and having contacts with the European testing laboratories for the CE marking purposes (preferred by Cutlery Cluster).

Majority of respondents, however, remarked that technical advice and guidance would be required to enable them to decide and follow the appropriate route applicable to their enterprise clusters.

2.5 Calibration

Product testing and measurement, whether conducted to meet buyers' requirements or for internal quality control purposes, adds value only if performed through accurate measuring equipment. To maintain the desired accuracy levels, measuring and testing equipment require periodic and traceable calibration.

2.5.1 Calibration: Key Findings

The research study undertook assessment of the situation with respect to compliance to calibration requirements including awareness level and the practices followed in the target clusters. Major calibration requirements of each cluster were identified and the infrastructure available for calibration was assessed. The findings indicate that the majority of enterprises were aware of calibration requirements and considered the practice of calibration important for their business growth except for the Mango Cluster in Multan. In particular, the Textile, Tangerine and Fans Clusters reported calibration as a critical issue for their businesses. The most common calibration frequency was once a year. As high as 24.3% of the respondents reported to replace equipment rather than calibrate them; indicating concerns with accessibility to calibration services and cost of calibration. Respondents reported to use calibration laboratories both within and outside of their cities. The mean time required for calibration, if performed within the city, was reported as 4.3 days and doubled to 9.5 days if performed outside of the city.

Respondents from Sports Goods Cluster were relatively dissatisfied with the cost and time required for calibration as compared with respondents from other clusters. About 50% of the respondents were not performing any calibration activity at all including 60% of the respondents from Multan, 41.4% from Faisalabad and 30% of the respondents from Gujrat.

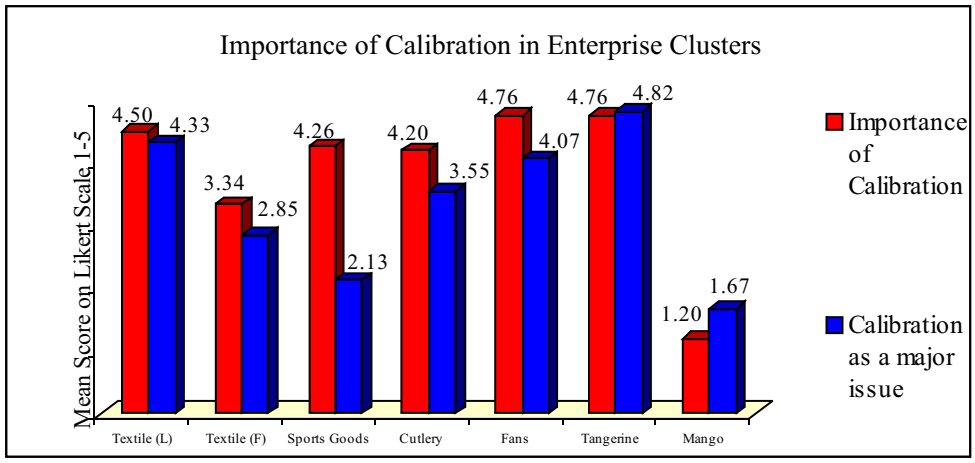
The survey findings on calibration, when interpreted with the discussions in the focus groups, point towards the need for improving availability of calibration services in the targeted clusters and awareness/training of enterprises to engage in proper calibration practices.

2.5.2 Awareness on Calibration

The perceived awareness about the calibration requirements of the targeted clusters was found to be very high with 91.6% of responding enterprises expressing knowledge on calibration requirements. The response was similar for all the clusters except for Mango, where 53% of the surveyed enterprises mentioned lack of awareness about calibration requirements.

Consistent trend was observed in giving importance to calibration in all clusters except for Mango Cluster Multan. This indicates a lack of exposure of the enterprises in that cluster. Most of the activities in mango processing are carried out in informal manner. For the Textile Cluster (Faisalabad), the relative score of importance given to calibration was above average, but was lower than those for the other five clusters.

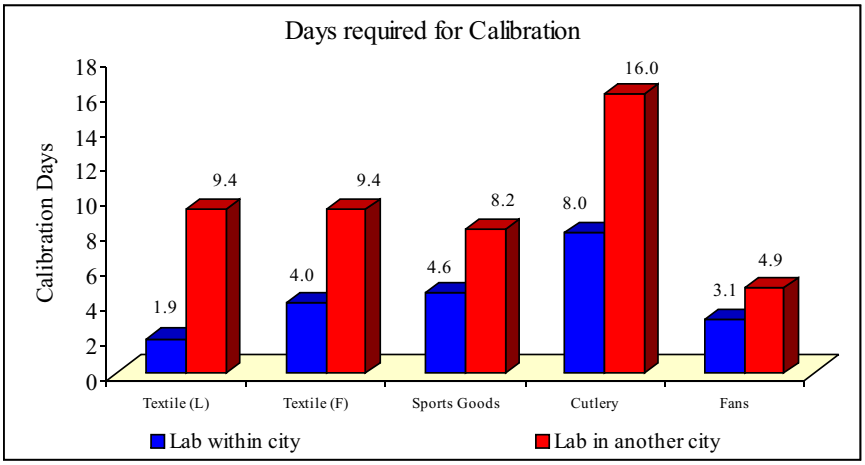
The importance of calibration and its relevance as major issue is shown in the chart below.



2.5.3 Calibration Practices

Most enterprises undertake calibration of their equipment annually. A few otheres do it every six months. The analysis shows that 37% of the enterprises were performing calibration once per year and 13.3% were calibrating at six months interval. It was also found that 24.3% of the enterprises replace instruments instead of calibrating them. The analysis further revealed that about 50% enterprises were not performing any calibration activity at all. This category included 60% of respondents from mango Clusters, 41.4% from Textile (F) and 30% respondents from Fan Cluster.

Calibration services are provided either from laboratories within the cluster or from the one in city of proximity. The use of foreign calibration laboratories was not found to be common. There were 6.7% enterprises from Textile (F) and 1.85% enterprises from Textile (L), which were reported to be using foreign calibration laboratories. The time required for calibration increased significantly as laboratory in another city was used instead of laboratory in the same city. Average times required for calibrating instruments from laboratories within the city compared to that from laboratory in another city are shown in the chart below.



2.5.4 Calibration Laboratories Infrastructure

Calibration activity was found to be commonly practiced in three clusters; Textile (L), Textile (F) and Fans Clusters. All the three are export-oriented enterprise clusters. Enterprises in other clusters, in spite of recognizing the high importance of calibration, could not provide details about their calibration practices. This is indicative of the fact that, in actual practice, calibration is not an important area for them.

The most commonly used calibration laboratories by the three above-mentioned clusters were from Lahore. Some enterprises also mentioned using laboratories in Karachi for calibration purposes. No calibration laboratory was identified in Faisalabad and Sialkot.

2.5.4.1 Satisfaction with Calibration Laboratory Infrastructure

Trend of higher satisfaction level for service quality and relatively lower satisfaction level for affordability of services was seen in case of calibration laboratories infrastructure. This difference was least pronounced in case of Textile Cluster in Lahore and most pronounced for Sports Goods Cluster in Sialkot. Mean scores on Likert scale of 1 to 5 (5 being most satisfied) was used.

The mean satisfaction scores in respect of calibration laboratories is shown in Table 10 below .

Table 10: Mean Satisfaction Scores with Calibration Laboratories

Attribute	Textile (L)	Textile (F)	Sports Goods
Acceptability	4.23	4.69	4.0
Adequacy	4.07	4.33	4.2
Accessibility	4.38	3.85	3.0
Technical Skills	4.15	4.15	4.7
Calibration Cost	4.30	3.53	2.3
Cost to Business	4.23	3.71	2.5
Time for Calibration	4.30	3.66	2.3

The satisfaction with accessibility of laboratories was also relatively lower than other service quality attributes. This was more prominent in Textile Cluster (Faisalabad) and Sport Goods Cluster (Sialkot) as the enterprises in both of these clusters use calibration laboratories in Lahore.

2.6 Grading and Traceability

2.6.1 Grading: Key Findings

The grading section of the survey applied only to the Mango, Tangerine and Cutlery Clusters. The section included queries on the common grading practices. Major findings from this section indicate that as high as 95.9% of the respondents from the selected clusters grade their products. Size and number of defects were the most common grading practices amongst the agro-based clusters. Product finish and raw material were most common grading parameters for the Cutlery Cluster.

2.6.2 Grading: Key Findings

The analysis indicates that 95.9% of the surveyed enterprises in the three clusters (Mango, Tangerine and Cutlery) were found to be selling graded products to international customers. The purpose of grading was to get better profits. An important driver for grading was the requirement from the buyers, which included international and local buyers. Requirement from international customers for grading was more prominently highlighted in agro-processing clusters. It was reported that 93.1% and 86.7% of the respondents from Tangerine and Mango Clusters respectively performed grading for purposes of meeting importers' requirements. More than 90% of international buyers were reported to purchase only graded products in all the three clusters.

In the agro-processing clusters, fruit size and number of defects were the two parameters used for grading. Relative importance of these two parameters varied with the cluster, with size being more important for Tangerine. The percentage of attributes accorded for size and defects in Mango Cluster was almost 50% for each, and in Tangerine Cluster reached to 100% for size and 17% for number of defects.

In case of cutlery products, the product characteristics and defects were identified as the key grading parameters by almost all the respondents. Most of the identified product characteristics related to raw material; main elements were material composition, hardness and gauge. Final product finish of the cutlery product was the other important grading parameter that depended more on manufacturing operations rather than raw material.

2.6.3 Traceability: Key Finding

Traceability requirement is an important quality assurance activity increasingly demanded by buyers, especially where use of sub-standard products can create safety and health hazards. The responses for traceability applied only for Mango, Tangerine and Cutlery Clusters. The analysis showed that awareness about traceability concept was found to be high in Cutlery Cluster. As high as 93.1% of respondents claimed to be aware of traceability requirements. In case of agro-processing sectors, this awareness level was found to be relatively lower. For Tangerine, it was 56.7% and in the Mango Cluster only 20.0% of the responding enterprises were found to be aware of traceability.

In Tangerine Cluster, only 13.3% respondents mentioned buyer's requirement for compliance to traceability. However, in Cutlery, this percentage was significant, where 51.7% of the respondents reported demand by buyers to ensure compliance with traceability requirements. For the Cutlery Cluster, on a Likert scale of 1 to 5 (5 being strictest), the mean score of 4.3 was obtained depicting strictness to meeting traceability requirements.

2.7 Branding

Branding is an important tool for increasing competitiveness in international markets. In order to remain competitive, it is important to create product differentiation by developing international brands. In this connection, the study aimed at identifying the self perceived awareness and importance of branding for the enterprise clusters and the current branding practices employed by them.

Awareness about the concept of branding was found to be high across all the clusters with 95.9% of the total surveyed enterprises found to be aware of branding and its concepts. On a Likert scale of 1 to 5 (5 being most important), all the mean scores obtained were higher than 4.0 as shown in Table 11.

Table 11: Perceptions of Branding in Target Clusters

Importance	Textile (L)	Textile (F)	Sports Goods	Cutlery	Fan	Tangerines	Mango
Competitiveness	4.68	4.07	4.30	4.23	4.20	4.64	4.53
Export Growth	4.74	4.07	4.20	4.20	4.83	4.46	4.67

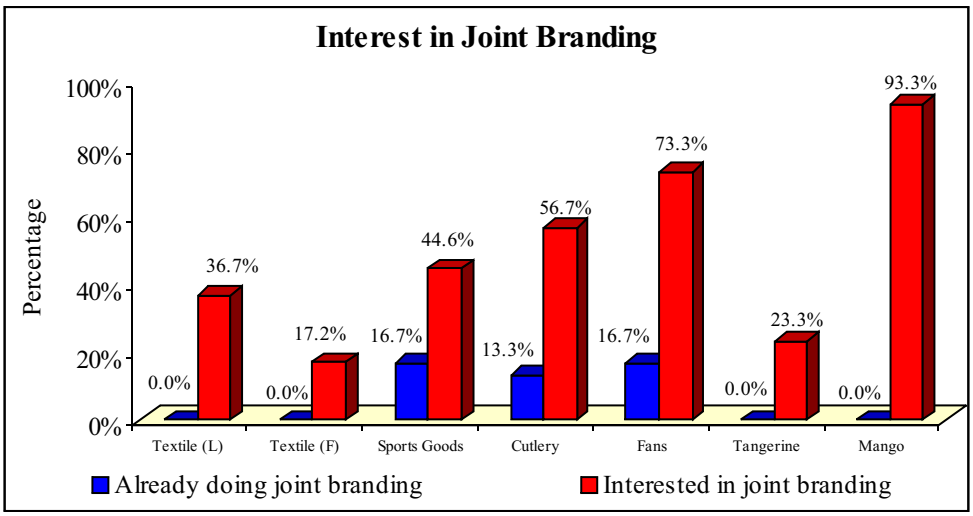
Current practice of product branding varied across the clusters and is shown for local and export markets in Table 12 below.

Table 12: Branding Practice in Target Clusters

Branding	Textile (L)	Textile (F)	Sports Goods	Cutlery	Fan	Tangerines	Mango
Local Market	34.5%	67.9%	5.9%	33.3%	100.0%	64.0%	0%
Export Market	64.2%	44.8%	36.7%	61.5%	100.0%	82.1%	33.3%

The percentage figures shown in Table 12 indicate a high branding activity pursued among enterprise clusters.

Joint branding, though not quite common, is being explored and has started in certain areas between local producers and foreign buyers. Enterprises in Fan, Cutlery and Sports Goods Clusters were found to be practicing joint branding on a limited scale with reported figures of 16.7%, 13.3% and 16.7% of enterprises respectively practicing joint branding operations. All the clusters reported keen interest in joint branding of products as wn in the following chart.



3. CONCLUSION AND RECOMMENDATIONS

Sustaining and enhancing the current growth in exports is critical for creating employment, reducing poverty and achieving broad based economic growth. The recent export revenue increase is primarily a result of the free trade agreements and the favorable international political situation. The current expansion in the export base needs to be sustained through wide based policy reforms and capacity development initiatives targeted towards diversified manufacturing ranging in the country. Improved services and infrastructure for compliance with international requirements for testing, certification, calibration and accreditation will provide the required impetus for integrating the local supply chain with international markets.

Gradual upgrading of compliance requirements for the local market will ultimately enable local suppliers to enter export markets as well as offer to domestic consumers quality products that are reliable and safe to use or consume. In the light of the above considerations, this concluding section outlines recommendations on key issues identified in the survey.

3.1 Awareness on Value Added Markets and Quality Culture

The quantitative survey reported generally high level of respondents' awareness on testing, certification, calibration and accreditation requirements by foreign buyers. This self-perceived awareness, as indicated in the focus group discussions, is a measure of the export destination and targeted buyers. Exporters with limited exposure to markets and buyers were perceived as being aware, though the case was otherwise, when compared with compliance requirements stated by larger exporters with deeper penetration in high value markets.

There is, thus, the need to create awareness amongst exporters on compliance requirements in high value markets and for top tier customers to be able to assess their current compliance capacities. The report makes the following recommendations on creating compliance related awareness amongst targeted clusters:

- Government and relevant public (SMEDA, TDAP, etc) and private sector (Chambers of Commerce, Trade Associations, etc) organizations should take concerted efforts to create awareness amongst exporters on value addition in exports through product improvement and supplying to high-end buyers and markets. This awareness must include dissemination of information on compliance requirements of the targeted high-end market and the support available for complying with the potential requirements. Similarly, the exporters' awareness programmes should also cover value realization through branding. The branding initiatives may also be supported in the public sector by group formation, fiscal incentives and financial support (as provided by TDAP in selected cases) for exporting under Pakistani brand names.

- Government support programmes and compliance related support institutions must be widely publicized to exporters. Information on their role and assistance available in meeting compliance requirements must be disseminated through relevant mechanisms. Appropriate allocations must be made in budget of GoP's support institutions (PSQCA, PNAC, PCSIR, NPSL) for promoting awareness of their services.

- Government should work with selected clusters (with large vendor industry or those involving agro products export) to create awareness amongst the vendors and farmers on testing, calibration, traceability, safety, handling, storage, preservation and other related requirements of international buyers and how they affect the vendors/farmers part of the value chain.

- The importance of internationally recognized accreditation must be promoted within testing laboratories and once achieved both producers and buyers should be made aware of the quality of the testing infrastructure. The Government efforts in strengthening conformity assessment and compliance related support infrastructure must be accompanied by initiatives to create awareness amongst international buyers for increasing their confidence in the local testing, certification, calibration, accreditation and related facilities.

- Dissemination of information on CE marking, especially in safety-sensitive products manufacturing clusters, must be undertaken. The procedure for CE marking and the technical support required (use of alternate materials, notification process, etc.) should be widely publicized among concerned clusters.

- The public institutions involved in conformity assessment issues must work closely with their counterpart international organizations and with major buyers of Pakistani products to develop understanding of existing and future compliance requirements. This information should be proactively disseminated amongst the enterprise clusters.

3.2 Improving Conformity Assessment Services

The survey results clearly indicate the need for improving access, optimizing cost and time for testing, calibration, certification and accreditation services especially in smaller cities and those with agro based products. Specifically, the following recommendations are made to improve compliance related infrastructure and services:

- Sector specific laboratories should be developed and strengthened, especially in clusters where no such facilities currently exist. Government should establish the required laboratories in public sector or as public private partnership or through financial/non-financial support to the private sector.

- As an interim measure, until testing/calibration service providers are established at cluster locations, efficient 'Sample/ Equipment Collection Centers' need to be established for collection of samples/ equipment, transportation to nearest testing/calibration facility and provision of test results/calibration certificate to exporters. Time required for these activities must be minimized to the extent possible.

- Testing facilities available in laboratories established in the universities, technical training institutes and other public sector establishments should be encouraged to offer commercial testing services to local exporters.

- Testing and calibration laboratories as well as certification bodies must achieve internationally recognized accreditation to render their services credible and internationally acceptable. Government and donor support would be essential for this purpose and cause.

- Fiscal incentives should be provided to the private sector for establishment of accredited and internationally recognized testing and calibration facilities in selected export clusters.

- Large scale establishments should be encouraged to allow commercial use of their testing facilities by small-scale exporters.

3.3 Strengthening Compliance Requirements for Local Markets

In the absence of robust compliance requirements for domestic markets, the local supplier finds it difficult to migrate to exports. Strengthening compliance requirements for local markets raises preparedness levels of local manufacturers to enter export markets and helps local consumers with access to better quality and safe products. It is, therefore, recommended that:

- The Government must raise the awareness level of the local consumer, strengthen the quality, testing, safety and performance related infrastructure and regulations and strictly enforce compliance requirements for local markets. The safety and product performance standards must be gradually upgraded to international requirements. This will not only benefit local consumers but also strengthen capacity of local market suppliers to compete in international markets.

- Steps should be taken for mandatory testing, certification, use of accredited laboratories, traceability, etc. in selected public procurements to promote compliance practices amongst manufacturers.

3.4 Improved Availability of Qualified Staff

The survey indicates limited use of in-house quality control staff in agro-based clusters and those with low export volumes. To encourage use of qualified staff for quality control and compliance issues, it is recommended that:

- Adequately qualified quality control staff should be deployed in enterprise clusters to be responsible for compliance issues. Testing facilities should, in particular, engage quality control personnel to handle quality related issues in their operations.

- The development of such skilled manpower should be promoted through specific course design at the universities and technical training institutes. Employment of such staff may be through apprenticeship and specialized youth employment schemes (e.g. as part of the National Internship Programme).

3.5 Cluster Specific Recommendations

The seven clusters targeted in the survey are diverse in their need to address compliance issues. Based on the survey analysis and findings, the following recommendations are made in respect of each specific cluster:

Textile (Lahore and Faisalabad)

- Proactive interaction with major importers of textile products from Pakistan to understand their current and potential compliance requirements and dissemination of this information to the industry.

- Accredited laboratories, consulting and certification services for meeting buyer specific compliance requirements.

- Create awareness on sector specific standards including WRAP, OEKO-TEX and BSCI.

Sports Goods Sialkot

- Establishment of internationally acceptable Azo-Free testing facility.
- Increased awareness of SA 8000 and local provision of consulting and certification services for this standard.
- Increased awareness on CE marking and technical support in CE marking of products.

Cutlery Wazirabad

- Improve availability of raw material (required by established importers of tableware) through establishment of material warehouses.
- Establish local laboratories for material testing.
- Increased awareness on CE marking and technical support in CE marking of products.

Fans Gujrat

- Increased awareness on CE marking and UL-77 requirements and technical support in meeting these requirements.
- Availability of Elecgtromagnetic Compatibility (EMC) testing facility. Government should avail EMC testing at PCSIR Laboratory Complex in Lahore.
- Improved safety and performance of fans supplied in the local markets.

Tangerine Sargodha and Mango Multan

- Dissemination of information related to product testing, certifications and calibration.
- Establishment of local laboratories with internationally recognized accreditation for product testing and calibration.
- Capacity building and support in meeting traceability requirements of buyers. The exporters in these clusters are currently unable to meet these requirements due to involvement of a large un-organized farming base.
- Improved services for complying with the requirements of HACCP and EUREPGAP including availability of certifying bodies and technically qualified staff for application of these practices in enterprise clusters.
- Fiscal and organizational support to individual or group of exporters in establishing brands for international markets.

This report, based on the analysis of the survey data, has assessed compliance requirements of export markets and the capacity of the seven clusters including the infrastructural support available for conformity assessment services in the country. The strategy to address the compliance concerns of the clusters should involve public/private partnership to maximize benefits from access of Pakistani products to international markets and the rule-based global trading system.

ANNEXURE I: MAIN FINDINGS OF SURVEY

TEXTILE, LAHORE						
Testing	**Laboratory Accreditation**	**Certifications**	**CE Mark**	**Calibration**	**Grading**	**Branding**
* High perceived awareness * In-house facility not available with all * Local labs used more commonly * For internal QA purpose in-house labs used, for buyers purpose, local labs used * Qualified QA staff not available with all * Accessibility good, testing labs available in city * High satisfaction with capability, accessibility and test time and cost of local labs * SGS and Intertek most used local labs * Local based foreign and foreign labs also used * High satisfaction with capability, accessibility and test time and cost of local-based foreign and foreign labs	* Average awareness about need for using accredited labs * Limited awareness about PNAC name and no awareness on its role * Majority not widely demanded by buyers for using accredited labs * Limited use of accredited labs (foreign)	* High perceived awareness on certification needs * ISO 9000 and WRAP two most commonly required certifications * Local-based foreign certification bodies most commonly, very limited use of foreign bodies * Moody and SGS, the two most commonly used certification bodies * Satisfaction high with local-based foreign bodies for capability and test time and cost	Not applicable	* High awareness on calibration needs * High importance attached to calibration * Weigh scale, Crack meter and data color most commonly used requirements * Calibration frequency once to twice per year * Unity Labs and ERRA labs used most commonly * Very limited use of foreign calibration bodies * Satisfaction high for quality and time and cost	Not applicable	* High awareness on branding concept * High importance attached to branding * Brand selling in local market * Very limited brand selling in export markets * Joint branding being practiced * Majority interested in joint branding

TEXTILE, FAISALABAD						
Testing	**Laboratory Accreditation**	**Certifications**	**CE Mark**	**Calibration**	**Grading**	**Branding**
* High perceived awareness * In-house testing facility available with majority * In-house labs mostly used, for buyers purpose local labs also used * Average rating on laboratory adequacy * Laboratory accessibility good, labs exist within Faisalabad * Satisfaction high with labs capability and average with test time and cost * National Textile University and Clariant the two most commonly used labs * Local-based foreign labs also used, SGS lab most common * Satisfaction high for capability and average for test time and cost * Foreign labs also used on limited scale, satisfaction high for capability and very low for testing time and cost	* High awareness on accreditation * Limited awareness of PNAC and no awareness in its role * Majority not widely demanded by export buyers * About half of the respondents concerned about accreditation foreign labs used	* High perceived awareness on certification needs * ISO 9000 and OEKO-TEX most common certification requirements * Local-based foreign and foreign certification bodies used * Moody and TUV most commonly used bodies * Satisfaction high for certification bodys capability and average for test time and cost	Not applicable	* High awareness on calibration needs * High importance attached to calibration * Weigh scale, pH meter and measuring tapes most commonly used instruments * Calibration frequency once to twice per year * Unity Labs and ERRA labs used most commonly	Not applicable	* High awareness on branding concept * High importance attached to branding * Brand selling in local market * Very limited brand selling in export markets * No joint branding practiced * Majority not interested in joint branding

SPORTS GOODS, SIALKOT						
Testing	**Laboratory Accreditation**	**Certifications**	**CE Mark**	**Calibration**	**Grading**	**Branding**
* High perceived awareness * In-house testing facility available with majority * In-house and local labs used, limited use of foreign labs for buyers purpose * Laboratory accessibility an issue, divided opinion on presence of laboratory in Sialkot * Local labs rated high for capability and average for accessibility, time and cost * CPC and PCSIR most commonly used labs * Local-based foreign labs also used (from far eastern countries)	* High perceived awareness on need for accreditation * Awareness of PNAC high, but its role low * Many exporters were required by buyers to use accredited labs * Majority uses accredited labs	* High perceived awareness on certification needs * ISO 9000 and SA 8000 two most commonly required certifications * Moody, BVQI and SGS most common bodies * Use of foreign certification bodies not common * High rating on certification bodys capability and average on accessibility, cost and time	* Very high awareness * Small percentage had attended training course on CE marking * Majority interested in getting information on CE marking * Common reason for not CE marking was no requirement from buyer * Preferred option was sending products to EU and let them perform all testing	* Complete awareness on calibration needs * Very high importance attached to calibration * Weigh scale, measuring tapes, pressure/thickness gauges most common instruments * Calibration frequency once to twice per year * ERRA Laboratory Lahore most commonly used	Not applicable	* High awareness on concept * High importance attached to branding * Limited brands in local and export markets * Limited practice of joint branding * Majority interested in joint branding

CUTLERY, WAZIRABAD						
Standards/Tests	**Laboratory Accreditation**	**Certifications**	**CE Mark**	**Calibration**	**Grading**	**Branding**
* High perceived awareness * Metal hardness and composition two most important tests * In-house facility not common * Use of qualified QA staff not common * Local labs used, very limited use of foreign labs, only for buyers purposes * Testing laboratory not available in Wazirabad * Satisfaction with local labs high for capability, average for accessibility and low for time and cost * Mughal Steel most commonly used laboratory * No local-based foreign or foreign labs used	* Few consider essential * High perceived awareness about accreditation * Limited awareness about PNAC * Not widely demanded by export buyers for using accredited labs * Majority does not consider this a major concern	* High perceived awareness * ISO 9000 the only certification requirement * Very limited awareness on certification bodies	* High importance attached to CE Marking * No demand from export buyers * Majority has not attended any training course * Majority interested in getting awareness * Reasons for not CE marking are no requirement from buyers and lack of awareness * Majority wants CE marking through representative in EU market	* High perceived awareness about calibration needs * High importance attached to calibration * Magno meter and Weigh Scale two most commonly used instruments * Replacement of equipment practiced more than calibration	* Grading practiced * Purposes of grading are requirement from buyer and earn better profits * High importance attached to grading * Two important grading parameters are defects and product characteristics * Demand for meeting traceablity requirements exists but not very strict	* High awareness on branding concept * High importance attached to branding * Majority not selling under brand names in local market * Limited sells in export market under brand names * Limited practice of joint branding * Majority interested in joint branding

FANS, GUJRAT						
Testing	**Laboratory Accreditation**	**Certifications**	**CE Mark**	**Calibration**	**Grading**	**Branding**
* High perceived awareness * Magno, fan starting and running and voltage fluctuation the most common tests * In-house testing facility available * Limited use of qualified QA staff, only in large firms * In-house and local labs used, no use of foreign labs * Testing laboratory available in city * High satisfaction with local labs for service quality and low for testing cost and time * FDI most commonly used laboratory	* Low awareness on accreditation * No awareness on PNAC * Few consider laboratory accreditation as a major concern * Not widely demanded by buyers to use accredited labs	* ISO 9000 the most commonly required certification * Average perceived awareness on certification requirements * Local-based foreign certification bodies used * High satisfaction with certification bodies for service quality and low for certification cost and time * For foreign bodies, accessibility was rated low	* Average perceived awareness * Divided opinion on importance, majority does not consider this important * Limited demand for CE marking certification from export buyers * Majority has not attended any training course * Interest in attending a training course * Lack of awareness the biggest hindrance for CE marking, followed by high cost * Majority wants to perform testing in Pakistan for CE marking	* Complete perceived awareness * Very high importance attached to calibration * Power Analyser and Micro Meter the two most important instruments * Calibration frequency once to twice per year * PCSIR Labs Lahore used most commonly * No use of foreign calibration labs	Not applicable	* Full perceived awareness on branding concept * Very high importance attached * Fans sold in local market under own brand names * Limited practice of joint branding * Majority interested in joint branding

TANGERINE, SARGODHA						
Testing	**Laboratory Accreditation**	**Certifications**	**CE Mark**	**Calibration**	**Grading**	**Branding**
* High perceived awareness about required tests * Brix, water, residue and metals important tests * Very limited existence of in-house testing labs * Use of qualified QA staff not common * Local labs used most commonly * Use of foreign labs very limited * Laboratory accessibility an issue, no laboratory available in Sargodha * Local labs rated high for capability and quality and low for accessibility, test cost and time * PCSIR Labs used most commonly	* Low awareness about need for use of accredited labs * Limited awareness of PNAC and its role * No particular requirement from export buyers for use of accredited labs	* High awareness on certification needs of the cluster * HACCP and EUREPGAP the two most important requirements * Moody and BVQI the two commonly used certification bodies * No use of foreign certification bodies * Satisfaction with certification bodies high for capability and quality and low for accessibility, test cost and time	Not applicable	* High perceived awareness on calibration needs * High importance attached to calibration * Weigh scale and thermometers two most commonly used instruments * Replacement of equipment more commonly practices instead of calibration * Labour department used for calibrating weigh scale	* Majority following grading practices * Requirement by export buyers and improved profits are the two purposes of grading * Tangerine size is the most important grading parameter * Important product attributes are weight, color and defects * Awareness high on traceablity requirements * Limited requirement of traceablity from buyers.	* High awareness on branding concept * High importance attached to branding * Majority selling under own brand names in local and export markets * No practice of joint branding * Limited interest for joint branding

MANGO, MULTAN						
Testing	**Laboratory Accreditation**	**Certifications**	**CE Mark**	**Calibration**	**Grading**	**Branding**
* Low perceived awareness on testing requirements * No in-house testing facilities available * No particular tests carried out and no labs used * No testing laboratory available in Multan	* Low awareness about need for use of accredited labs * Limited awareness of PNAC and its role * No requirement from buyers for using accredited labs	* Low awareness on certification needs * No certification body mentioned by any respondent	Not applicable	* Limited awareness on calibration needs of the cluster * High importance attached to calibration * Calibration not practiced	* Purposes of grading are to meet buyers requirements and earn better profits * All buyers demand graded products * Mango size and defects in the fruit are the two grading parameters * Three grades used, large, medium and small * Limited awareness on traceablity requirements * No requirement of traceablity from buyers	* Complete awareness on branding concept * High importance attached to branding * No selling in local market under brand name * Limited selling in export markets under brand name * No joint branding practiced * All the respondents interested in joint branding

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ANNEXURE III: TEXTILE CLUSTER LAHORE

3.1 Industry Profile

Lahore, along with being the second most populous city of Pakistan, is also an important industrial city of the country. Textile is one of the most important industries that are located in the city. Textile Cluster Lahore includes industrial units that manufacture products at different stages of the value chain. This includes weaving, knitting, processing and stitching (garments and madeups) units. The cluster includes all types of enterprises; small, medium and large.

Geographically, Textile Cluster Lahore is spread over a large area. Some of the units are situated in the industrial estates within the Lahore city, while a major number of Textile units are situated on the roads which connect Lahore to the cities of Gujranwala, Sheikhupura, Kasur, Multan and Raiwind. The Textile units of Lahore provide employment to large percentage of workforce in Lahore and its suburbs.

Textile products are sold in both local and export markets. The exporters have to comply with more stringent requirements of the customers compared to those of the local buyers. One of the most common requirements of the international buyers is ISO 9000 certification. Most of the large and medium enterprises in Textile Cluster have obtained this certification. Along with this, with the passage of time, some textile-specific standards have also been developed. The international buyers prefer to have their suppliers certified to those standards in order to be completely sure about the quality of the product. Two of such standards are WRAP and OEKO-TEX.

Along with the product standards, Health, Safety and Environment (HSE) have emerged as the other important areas where the manufacturers have to ensure compliance. In case of Textile, these areas are especially relevant for dyeing and finishing processes. Use of dyes and chemicals that are safe, and the use of which is permissible as per the international standards, has become very important. As a result the production cost of the enterprises is increasing and their competitive advantage is getting eroded. Similarly, adhering to environmental compliance by treating effluents before drainage, by limiting the venting of harmful gases into atmosphere and other similar requirements are making it tougher for the manufacturers to keep production costs low. Some of the enterprises in Textile Cluster Lahore have obtained ISO 14000 certification for ensuring compliance to environmental standards.

Along with the standards related to products and processes, another important area is that of social compliance. With the passage of time, this area is gaining increasing attention of the international buyers. Issues like elimination of child labor, provision of proper work environment to the workers, ensuring safety of the people working in an organization, etc. have become very important during the past one decade. The stringency of compliance to social standards is currently not very high for Textile Cluster Lahore; however, the sector stakeholders have already started thinking in terms of compliance to social standards also.

Along with these universal standards, there are some buyer-specific standards also that the manufacturing firms have to comply with. Usually, it is a large international brand that provides its own standards. The local manufacturers have to comply with the provided standards if they wish to sell to that particular brand.

These additional requirements are not only increasing the manufacturing costs of textile exporters but are also compromising their bargaining position while dealing with the buyers. It is important that the Textile industry of Pakistan should gear up to meet these upcoming challenges in the international markets.

3.2 Tests Required

Table 3-1 represents the important tests conducted for different products in Textile Cluster Lahore.

Table 3-1 Textile Cluster Lahore List of Tests

Sr. No.	Test	Sr. No.	Test
1	Abric Color	15	Metal test for Zip
2	Bland Test	16	Material
3	Color	17	pH
4	Color Bleading	18	Pilling
5	Color Fastness	19	Printing Test
6	Color Mixing	20	Rubbing
7	Cracking	21	Shade Mailing
8	Data Color	22	Shining
9	Ecko Text	23	Softness
10	Equalizing	24	Shrinking
11	Ezyod Stuff	25	Textile Strength
12	Fastness	26	Thickness of Knit/Rope
13	Flexibility	27	Washing Fastness
14	Light Fastness	28	Yarn Test

Awareness Perception

High level of awareness was reported on the testing requirements. Likert scale was used for this purpose (scale of 1-5, 1 being the least aware). Out of total 30 valid responses 24 (i.e. 80%) gave the highest rating 5. Average rating was 4.3.

Laboratory Infrastructure for Testing

In-house testing facility was not available for majority of the tests. For the total 57 responses (by the 30 respondents), the availability of in-house facility was found only in 38.6% of the cases. Only 42.9% of the surveyed enterprises were found to be using qualified quality assurance staff for testing their products.

Common Testing Practices

There is a difference in approach of Textile manufacturers in testing depending upon the purpose. In case of tests being conducted for internal quality assurance purpose, the commonly used approach is to do it in-house. This reported in 60% of the cases, the balance being done in local laboratories. Foreign laboratories were not used for testing for quality assurance purpose. For buyer's purpose, using foreign laboratories was the most commonly found practice. In case of buyers demanded testing, foreign laboratories were used in 54.7% of the cases. Local laboratories were used in 30.2% of the cases, with the balance 15.1% being done in in-house laboratories (multiple responses valid).

Table 3-2 Purpose of Testing for Different Laboratory Types

	Own Purpose			Buyers Purpose		
	In-house	Local	Foreign	In-house	Local	Foreign
No. of Tests	18	12	0	8	16	29
Percent	60.0	40.0	0.0	15.1	30.2	54.7

Testing Laboratory Adequacy

Laboratory adequacy is rated high by the Textile Cluster Lahore. Likert scale was used for assessing the perception (1-4, 1 being the lowest). All the ratings obtained for local and foreign laboratories reported highest score. In case of in-house laboratories, 88.2% of the valid responses were for the highest rating of 4.

Testing Laboratory Accessibility

The respondents reported satisfaction with the accessibility of testing laboratory(ies) in the Cluster. For both local and foreign laboratories, all the responses indicated the laboratory accessibility as adequate.

Satisfaction Level for Local Laboratories

Satisfaction level regarding the available testing infrastructure was assessed using Likert scale (1-5, 1 being the lowest). The results are shown in Table 3-3:

Table 3-3 Satisfaction with Local Testing Laboratories

Score	Laboratory Adequacy		Laboratory Accessibility		Technical Skills		Acceptability by Foreign Buyers	
	Freq.	%	Freq.	%	Freq.	%	Freq.	%
1	0	0.0	0	0.0	0	0.0	0	0.0
2	0	0.0	0	0.0	0	0.0	0	0.0
3	0	0.0	1	5.0	0	0.0	0	0.0
4	1	4.5	4	20.0	4	18.2	4	18.2
5	21	95.5	15	75.0	18	81.8	18	81.8

Quality of Laboratory Infrastructure

The overall satisfaction level of Textile Cluster Lahore is high with respect to quality of the locally available testing laboratories infrastructure and the services provided by those laboratories.

- 95.5% respondents gave the highest rating for adequacy of the laboratory infrastructure.
- In case of laboratory accessibility, 75% responses were given for the highest rating.
- Situation of acceptability by export buyers was also found to be satisfactory. There was no rating below 4.

Affordability of Testing Services

Table 3-4 Satisfaction with Affordability of Local Testing Laboratories

Score	Test Costs		Overall Cost to Business		Time Required for Tests	
	Freq.	%	Freq.	%	Freq.	%
1	0	0.0	0	0.0	0	0.0
2	1	4.5	1	4.5	0	0.0
3	1	4.5	0	0.0	1	5.0
4	10	45.5	5	22.7	4	20.0
5	10	45.5	16	72.7	15	75.0

In case of affordability of getting tests conducted by local laboratories in terms of costs and the time involved, the overall satisfaction level was found to be relatively low compared to the one seen for quality of testing services.

- For test costs, 45.5% respondents gave highest and the same percentage gave the second highest rating.
- The perception about the effect of tests on the overall cost of business was not negative. 72.7% respondents showed above average satisfaction level for this.
- Satisfaction level with the time taken by the local laboratories for conducting the required tests was rated satisfactory. 95% respondents gave above average rating.

Average Ratings

Mean scores for the assessed factors about the satisfaction level with local laboratories infrastructure is shown in Table 3-5:

Table 3-5 Textile Cluster Lahore Mean Satisfaction Scores for Local Testing Laboratories.

Factor	Mean Score (scale of 1-5, 1 being lowest)
Laboratory adequacy	4.95
Laboratory accessibility	4.70
Technical skills	4.82
Acceptability by export buyers	4.82
Tests costs	4.32
Overall cost to business	4.63
Time taken for tests	4.70

Local Laboratories Used

The textile enterprises of Lahore use testing laboratories within the city. There was only one response mentioning the use of laboratory in Karachi. The laboratories used by Textile Cluster Lahore are shown in Table 3-6:

Table 3-6 Names of Local Testing Laboratories being Used

Sr. No.	Laboratory	Location	Frequency	Percent
1	SGS	Lahore	12	48.0
2	Intertek	Lahore	4	16.0
3	Intertek	Karachi	1	4.0
4	Microtech	Lahore	3	12.0
5	T.T.I	Lahore	3	12.0
6	I.T.S	Lahore	1	4.5
7	Tech Dyeing	Lahore	1	4.5
	Total		**25**	

Satisfaction Level with the Local Laboratories

Table 3-7 Satisfaction with Identified Local Testing Laboratories

Laboratory	Rating Frequency		Mean Rating
	4	5	
SGS	2	10	4.83
Intertech, Lahore	0	4	5.00
Interteck, Karachi	0	1	5.00
Microtech	2	1	4.33
T.T.I	1	2	4.66
I.T.S	0	1	5.00
Tech Dyeing	0	1	5.00
Total	5	20	4.80

Local-based Foreign Laboratories

Use of local-based foreign laboratories is practiced in Textile Cluster Lahore. SGS is the most commonly local-based foreign laboratory. The laboratories being used are shown in Table 3-8:

Table 3-8 Names of Local-based Foreign Testing Laboratories being Used

Name of the Laboratory	Location	Frequency
SGS	Lahore	7
SGS	Singapore	3
SGS	UK	2
Intertech	Lahore	1
Intertech	UK	1

Satisfaction Level with Individual Laboratories

All the ratings for the two identified local-based foreign laboratories being used by Textile Cluster Lahore were found to be the highest.

Overall Satisfaction Level with Local-based Foreign Laboratories

Quality of Laboratory Infrastructure

Table 3-9 Satisfaction with Local-based Foreign Testing Laboratories

Score	Laboratory Adequacy		Laboratory Accessibility		Technical Skills		Acceptability by Export Buyers	
	Freq.	%	Freq.	%	Freq.	%	Freq.	%
1	0	0.0	0	0.0	0	0.0	0	0.0
2	0	0.0	0	0.0	0	0.0	0	0.0
3	0	0.0	0	0.0	0	0.0	0	0.0
4	2	12.5	6	35.2	4	21.0	4	21.0
5	16	88.8	11	64.8	15	79.0	15	79.0

Affordability of Testing Services

Table 3-10 Satisfaction with Affordability of Local-based Foreign Testing Laboratories

Score	Test Costs		Overall Cost to Business		Time Required for Tests	
	Freq.	%	Freq.	%	Freq.	%
1	0	0.0	0	0.0	0	0.0
2	0	0.0	0	0.0	0	0.0
3	0	0.0	1	5.2	0	0.0
4	10	52.6	6	31.5	4	21.0
5	9	47.4	12	63.1	15	70.0

Satisfaction levels both with the quality of the services of local-based foreign laboratories and their affordability is high. All the ratings are above average. This is also indicated by the mean ratings shown in Table 3-11.

Average Ratings

Table 3-11 Mean Satisfaction Scores for Local-based Foreign Testing Laboratories

Factor	Mean Score (scale of 1 -5, 1 being lowest)
Laboratory adequacy	4.88
Laboratory accessibility	4.64
Technical skills	4.78
Acceptability by export buyers	4.78
Tests costs	4.47
Overall cost to business	4.57
Time taken for tests	4.78

Foreign Laboratories Used

22.6% of the surveyed enterprises reported using foreign laboratories for product testing.

Foreign Laboratories Used

Laboratories in Singapore and Hong Kong were reported to be most frequently used by the textile manufacturers of Lahore. The details are indicated in Table 3-12:

Table 3-12 List of Foreign Testing Laboratories being Used

Testing Laboratory	Location	Frequency
SGS	Hong Kong	1
SGS	UK	2
Intertek	Hong Kong	1
Intertek	Singapore	2
AITX	Spain	1
PPT	UK	1
Micro Tech	UK	1

Satisfaction Level with Individual Laboratories

Table 3-13 Satisfaction with Identified Foreign Laboratories

Name of Laboratory	Frequency of Rating		Mean Rating
	4	5	
SGS	0	3	5.0
Intertek	0	3	5.0
AITX	0	1	5.0
PPT	1	0	4.0
Micro Tech	0	1	5.0

Overall Satisfaction Level with Foreign Laboratories

Quality of Laboratory Infrastructure

Table 3-14 Satisfaction with Foreign Testing Laboratories

Score	Laboratory Adequacy		Laboratory Accessibility		Technical Skills		Acceptability by Export Buyers	
	Freq.	%	Freq.	%	Freq.	%	Freq.	%
1	0	0.0	0	0.0	0	0.0	0	0.0
2	0	0.0	0	0.0	0	0.0	0	0.0
3	0	0.0	1	16.7	0	0.0	0	0.0
4	0	0.0	1	16.7	1	16.7	0	0.0
5	7	100.0	4	66.6	6	85.3	7	100.0

Overall satisfaction level is high for quality of the testing laboratories, while lower for affordability of using these laboratories in terms of cost and time involved.

Affordability of Testing Services

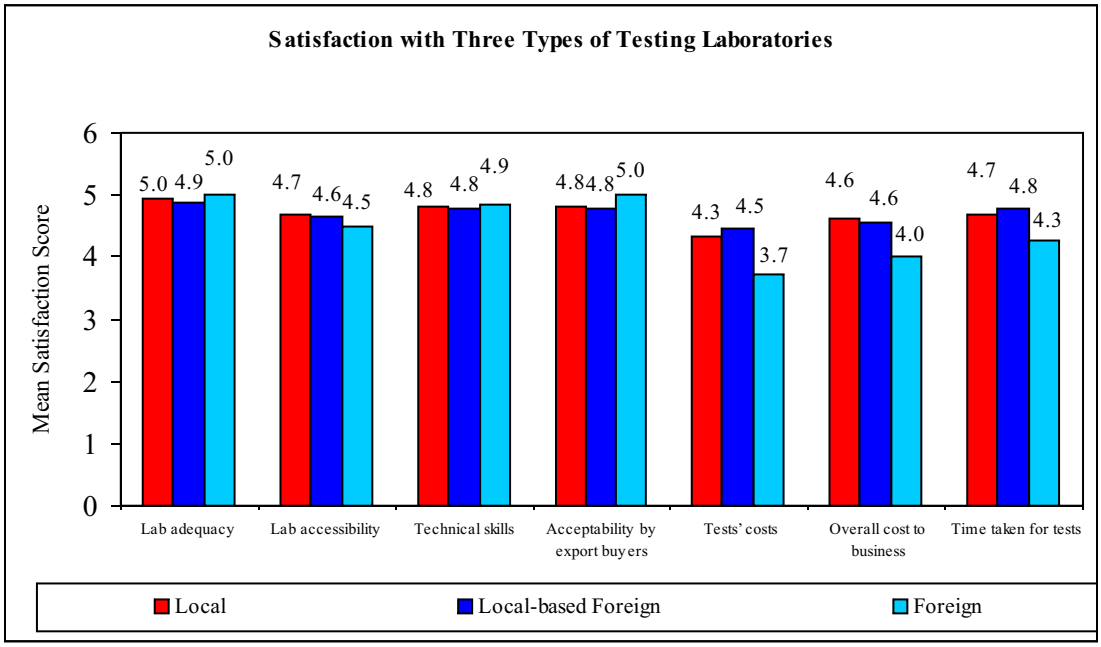
Table 3-15 Satisfaction with Affordability of Foreign Testing Laboratories

Score	Test Costs		Overall Cost to Business		Time Required for Tests	
	Freq.	%	Freq.	%	Freq.	%
1	0	0.0	0	0.0	0	0.0
2	1	14.2	1	14.2	0	0.0
3	2	28.5	0	0.0	2	28.5
4	2	28.5	4	57.1	1	14.2
5	2	28.5	2	28.5	4	57.1

Table 3-16 Mean Satisfaction Scores for Foreign Testing Laboratories

Factor	Mean Score (scale of 1 – 5, 1 being lowest)
Laboratory adequacy	5.00
Laboratory accessibility	4.50
Technical skills	4.85
Acceptability by export buyers	5.00
Tests costs	3.71
Overall cost to business	4.00
Time taken for tests	4.28

Comparison of three types of laboratories being used by Lahore Textile Cluster is shown in the following chart:



3.3 Pre-shipment Inspection

Use of Pre-shipment Inspection

Use of pre-shipment inspection is well known in Textile Cluster Lahore. 97.1% respondents were found to be aware of the concept of pre-shipment inspection. Table 3-17 shows the use of pre-inspection in the Cluster.

Table 3-17 Use of Pre-shipment Inspection

% Exports Undergoing Pre-Shipment Inspection	Frequency	Percent
None	4	13.3
1-10%	1	3.3
11-25%	1	3.3
26-50%	0	0.0
51-75%	0	0.0
75-100%	24	80.0
Total	**30**	100.0

Use of Pre-Shipment Inspection Bodies

The most common choice for pre-shipment inspection is through local inspection bodies. The results are shown in Table 3-18:

Table 3-18 Pre-shipment Inspection Practice with Certification Body Type

Nature of Certification Body	Frequency	Percent
Local inspection bodies	23	85.1
Local-based foreign inspection bodies	3	11.1
Foreign inspection Bodies	1	3.7
Total	27	100

Most of the respondents mentioned that the pre-shipment inspection is carried out by a foreign body recommended by their customer. 3 respondents mentioned the name of Co-Techna as the local pre-shipment inspection body. All the respondents gave the highest rating to the pre-shipment inspection bodies being used by them.

Overall Satisfaction Level with Pre-shipment Inspection Bodies

Quality of Pre-Shipment Inspection Bodies

Table 3-19 Satisfaction with Pre-shipment Inspection Bodies

Score	Adequacy		Accessibility		Technical Skills		Acceptability by Export Buyers	
	Freq.	%	Freq.	%	Freq.	%	Freq.	%
1	0	0.0	0	0.0	0	0.0	0	0.0
2	0	0.0	0	0.0	0	0.0	1	4.3
3	0	0.0	0	0.0	1	4.3	1	4.3
4	9	39.1	10	43.4	12	52.1	7	30.4
5	14	60.9	13	56.6	10	43.4	14	60.9

Affordability of Pre-shipment Inspection Bodies

Table 3-20 Satisfaction with Affordability of Pre-Shipment Inspection Bodies

Score	Costs		Overall Cost to Business		Time Required for Inspection	
	Freq.	%	Freq.	%	Freq.	%
1	0	0.0	1	4.3	0	0.0
2	0	0.0	1	4.3	1	4.2
3	1	4.3	3	13.0	0	0.0
4	6	26.0	6	26.0	8	34.7
5	16	69.6	12	52.1	14	60.9

Average Ratings

Table 3-21 Mean Scores for Pre-shipment Bodies

Factor	Mean Score (scale of 1 -5, 1 being lowest)
Adequacy	4.60
Accessibility	4.56
Technical skills	4.39
Acceptability by export buyers	4.48
Costs	4.65
Overall cost to business	4.17
Time taken for inspection	4.52

3.4 Accreditation of Testing Laboratories

Awareness

33.3% of the total respondents were reported to be aware of the requirement of using accredited testing laboratories. Awareness about the name of Pakistan National Accreditation Council (PNAC) was found to be satisfactory. Of the total 35 valid responses, there were 8 respondents who claimed to know about the role of PNAC. 7 of those 8 respondents claimed to also know about its role.

Practice Regarding Accreditation

Requirement from Buyers

Majority of the respondents (73.5%) were not pushed by their buyers for using accredited laboratories for testing. The details are depicted in Table 3-22.

Table 3-22 Demand from Buyers for using Accredited Laboratories

Percentage of Buyers Requiring Accredited Laboratories	Frequency	Percent
None	22	73.3
26-50%	2	6.7
51-75%	2	6.7
More than 75/%	4	13.3
Total	**30**	**100.0**

Use of Accredited Laboratories

Use of accredited testing laboratories was not identified as a major concern in Textile Cluster Lahore. Only 18.6% respondents were found to be using accredited laboratories. For 81.2%, it was not important.

Table 3-23 Use of Accredited Laboratories

	Frequency	Percent
Always use accredited laboratory	3	10.0
Usually use accredited laboratory	3	10.0
Usually use unaccredited laboratory	0	0.0
Always use unaccredited laboratory	0	0.0
Not a major concern	24	80.0
Total	**30**	**100.0**

Perception about Utility of Using Accredited Laboratories

Regarding the utility of using accredited laboratories for getting more business, there was split opinion. 36.1% of the respondents were of the view that this helps in getting more business. 16.7% respondents said that it is not helpful, while 47.2% were found to be not sure.

3.5 Certification Requirements

Awareness

Awareness about the certification requirements of the Cluster was assessed using Likert scale (1-5, 1 being lowest). Overall awareness level was found to be high. 76.7% of the respondents reported having complete awareness about these requirements. The results are shown in Table 3-24.

Table 3-24 Awareness on Certification Requirements

Rating	Frequency	Percent
1 (no awareness)	3	10.0
2	2	6.7
3	0	0.0
4	2	6.7
5 (complete awareness)	23	76.7
Total	**30**	**100.0**

Types of Certification Required by Textile Manufacturers

Commonly required certifications in Lahore Textile Cluster are shown in Table 3-25.

Table 3-25 List of Certifications

Sr. No.	Certification	Frequency *
1	ISO 9000	29
2	WRAP	4
3	ISO 14000	2
4	ISO 22000	1
5	BCSI	4
6	CITY PUT	1
7	EAILO	2
	Total	43

** Multiple responses.*

Local-based Foreign Certification Bodies

The certification bodies used by Lahore Textile Cluster are mentioned in Table 3-26.

Table 3-26 List of Certification Bodies being Used

Certification Body	Location	Frequency
Moody International	Lahore	1
Moody International	UK	1
SGS	Lahore	4
AFAQ	Sialkot	1
UKAS	Lahore	1
UKAS	UK	1
CGS	Lahore	1
CT Pat	Lahore	1
CT Pat	Karachi	1

Satisfaction with Local-based Foreign Certification Bodies

Table 3-27 Satisfaction with Identified Certification Bodies

Certification Body	Frequency of Rating		Mean Rating
	4	5	
Moody International	0	2	5.0
SGS	1	3	4.7
AFAQ	0	1	5.0
UKAS	1	1	4.5
CGS	0	1	5.0
CT Pat	0	2	5.0

Overall Satisfaction Level with Local-based Foreign Certification Bodies

Quality of Certification Bodies

Table 3-28 Satisfaction with Local-based Foreign Certification Bodies

Score	Accessibility		Technical Skills		Acceptability by Export Buyers	
	Freq.	%	Freq.	%	Freq.	%
1	0	0.0	0	0.0	0	0.0
2	1	4.3	0	0.0	2	8.3
3	0	0.0	0	0.0	0	0.0
4	2	8.6	9	37.5	0	0.0
5	20	86.9	15	62.5	22	91.7

Affordability of Certification Services

Table 3-29 Textile Cluster Lahore Affordability of Local-based Foreign Certification Bodies

Score	Certification Costs		Overall Cost to Business		Time Required for Certification	
	Freq.	%	Freq.	%	Freq.	%
1	0	0.0	0	0.0	0	0.0
2	0	0.0	1	4.2	0	0.0
3	0	0.0	0	0.0	1	4.3
4	14	58.3	9	37.5	10	43.4
5	10	1.7	14	58.3	12	52.1

Mean Ratings

Table 3-30 Mean Satisfaction Scores for Local-based Foreign Certification Bodies

Factor	Mean Score (scale of 1-5, 1 being lowest)
Accessibility	4.78
Technical skills	4.62
Acceptability by export buyers	4.75
Certification costs	4.41
Overall cost to business	4.50
Time taken for certification	4.48

3.6 Calibration

Awareness

88.6% of the respondents from Textile Cluster Lahore claimed to be aware of the calibration requirements in their sector.

Importance of Calibration

Importance given to calibration by the respondents was above average. Mean rating was found to be 4.05. Frequency distribution on Likert scale of 1 to 5 (1 being lowest) is shown in Table 3-31:

Table 3-31 Importance of Calibration

Rating	Frequency	Percent
1 (not important)	3	8.6
2	0	0.0
3	5	16.7
4	5	16.7
5 (very important)	17	56.6
Total	30	100.0

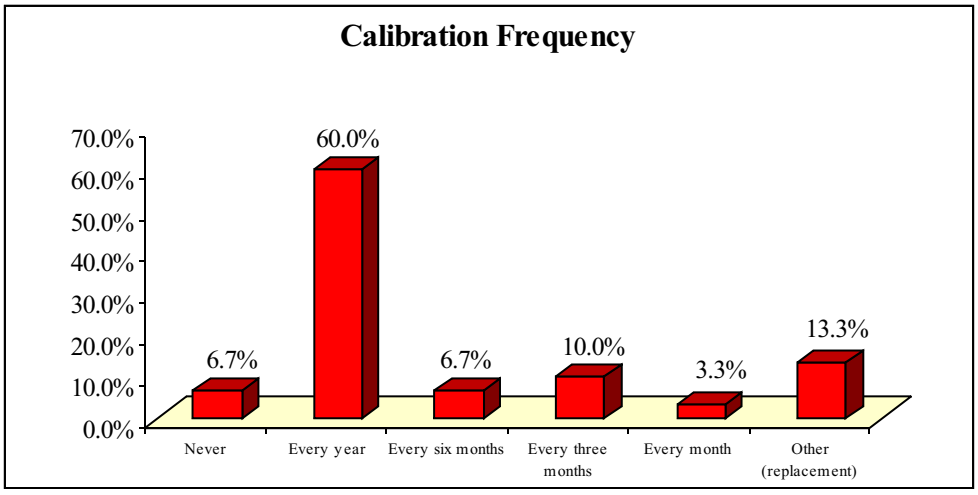
Important Calibration Requirements

Table 3-32 Calibration Needs

Instrument	Freq.	Instrument	Freq.	Instrument	Freq.
Crack Meter	8	Spectrophoto Meter	2	pH Meter	1
Data Color	7	Vernier Calliper	1	Fastness	1
Weigh Scale	6	Thermometers	1	pH Calibration	1
Mantinable	5	Color Rate	1	Steching Paints	1
Pilling	4	Fiber Mining	1	Clameter	1
Tanyal Fabric	3	Shrinking	1	Protecter	1
Pressure Gauge	2	Computerized	1	Rocawates	1
Rubbing	2	On Labs	1	Moisture Meter	1
GSM meter	2	Electronic Seal	1	Temp Gauge	1
Viscometer	2	Bleading Test	1		

Calibration Practices

Most of the enterprises were found to be performing calibration activities once a year. There were 30 valid responses, of which 60% reported performing instrument calibration once a year.



Names of Laboratories Used by Textile Cluster Lahore

Unity Laboratory in Lahore is the most commonly used laboratory for equipment calibration. Other laboratories used are listed in the following Table:

Table 3-33 Names of Calibration Laboratories

Name of the Laboratory	Location	Frequency
Unity	Lahore	5
ERRA Laboratory	Lahore	3
SGS	Lahore	3
Data Colour Laboratory	Lahore	3

Use of Foreign Calibration Laboratories

Only one respondent mentioned the name of UL (Underwriter's Laboratories), Hong Kong as the foreign calibration laboratory.

Time Taken for Calibration

From Laboratories within Lahore

Average time taken for a typical calibration activity from a laboratory within the city was found to be 1.94 days (for 16 valid responses).

Table 3-34

No. of Days for by a Typical Calibration Activity from Laboratory in Lahore		
No. of Days	**Frequency**	**Percent**
1	7	43.7
2	7	43.7
3	1	6.2
7	1	6.2
Total	16	100.0
Average No. of Days		1.94

From Laboratories in other Cities

Average time taken for calibration from a laboratory in other city was found to be 9.4 days.

Table 3-35 Calibration Days from Laboratories out of Lahore

No. of Days for by a Typical Calibration Activity from Laboratory in Lahore		
No. of Days	**Frequency**	**Percent**
2	2	18.2
7	1	9.1
10	5	27 .8
12	1	9.1
15	2	18.2
Total	11	100.0
Average No. of Days		9.4

Satisfaction by Local Calibration Laboratories

Overall satisfaction level of Textile enterprises for Lahore Cluster was found to be above average.

Table 3-36 Satisfaction with Local Calibration Laboratories

	Frequencies						
Rating	Acceptability By Export Buyers	Laboratory Adequacy	Laboratory Accessibility	Calibration Costs	Time Required for Calibration	Technical Skills	Overall Cost to Business
1	1	1	0	0	0	0	0
2	0	0	0	0	0	0	0
3	0	0	0	0	0	0	0
4	6	8	8	9	9	11	10
5	6	4	5	4	4	2	3

3.7 Branding

Awareness

There was complete awareness on the concept of branding in Textile Cluster Lahore. All the surveyed enterprises were found aware of the concept.

Importance

High importance was attached by the respondents to branding for achieving major growth in exports. Using Likert scale of 1-5 (1 being lowest), 82.8% respondents gave the highest rating (5). Average rating of 4.83 was obtained. Similarly, branding was also considered very important for competing in international markets.

Table 3-37 Importance of Branding

Rating	Importance for Achieving Export Growth	Importance for Competing in International Markets
0	0	0
1	0	0
2	0	0
3	0	0
4	5	9
5	25	21
Mean rating	4.83	4.71

Branding Practices

Local Market

Majority of the Textile manufacturers have their brands for local market. Of the total 30 valid responses, there were 10 respondents, which were found to be selling in local market under their brand names (33.3%).

Export Market

In export market, 63.6% respondents claimed to sell products under their brand name. This seems surprising as most of the products manufactured by Textile (L) Cluster are sold as unbranded products or sold for other international brands.

Joint Branding

82.8% respondents were not interested in doing joint branding with other enterprises. 17.2% showed their interest for this. No respondent reported marketing products under any joint brand.

Table 3-38 Potential of Joint Branding

	Frequency	Percent
Interested in joint branding	13	43.3
Already practicing joint branding	15	50.0
Not interested in joint branding	2	6.7
Total	30	100.0

ANNEXURE IV: TEXTILE CLUSTER, FAISALABAD

4.1 Industry Profile

Two types of standards are required by the buyers; generic international standards and buyer-specific standards. The buyers can be divided into two groups with respect to testing and certification requirements, depending upon their size. The large buyers can dictate their terms by asking for any type of certification, whether that is specific to that buyer or is against some other international standard. All the large international buyers provide their own standards to the supplier companies. For example, Levi's is a big buyer of textile products in the world and it provides its own standards to the manufacturer/supplier. Levi's standard covers quality, environment, social and ethical aspects of the business. Small and medium sized buyers do not ask for stringent requirements, while the large buyers are able to dictate their terms and conditions. In terms of markets, there is no major difference in buyers' requirements; it is almost the same everywhere.

The requirements of international buyers can be seen in the form of a continuous band. Different exporters have achieved different levels of compliance depending upon the buyers they are dealing with. With the passage of time, the first few levels of this band including ISO 9000 and ISO 14000 have almost become mandatory and are generally taken for granted by the buyers. It is over and above these basic requirements that will be important in future. Requirements have increased during the past decade and are increasing even now. However, the frequency of this change is not very high. Depending upon any specific situation or event, the buyer may ask for any special requirement to be met.

SEDEX is an important standard (Supplier Ethical Data Exchange), which deals with business ethics and labour issues. In the coming days, ethical standards will be the most important along with quality and environmental standards. Issues like environment, child labour, health, safety, etc. will be the most important compliance requirements in the coming days. WRAP (Worldwide Responsible Apparel Production) is one standard that is required by the international buyers; mostly for USA market. One very important testing standard is OEKO-TEX. This is for fabric certification and the prime purpose is to ensure that the fabric is not harmful to the user. In textile processing sector, there are many chemicals that are not allowed to be used, such as Formaldehyde. Compliance is required by the buyer either in the form of use of certified suppliers of chemicals and dyes or in the form of some post-wash tests in the laboratory. Some tests are also required for accessories, e.g. Nickel Test. However, such tests are not very important as most of the time, sources of accessories are mentioned by the buyers themselves. As long as sourcing is done from the buyers' approved suppliers, generally, there is no requirement for any tests for accessories. As a general rule, buyers' requirements are more difficult to comply in knit products than those in woven products due to a more complicated process involved.

There are two types of costs involved in meeting the buyers' requirements. The first is the consultancy and certification cost which are easily affordable (especially for an exporter). An example of this is the certification cost of Rs 200,000-300,000 for OEKO-TEX certification. The other type of cost is the compliance cost which is the cost involved for upgrading the system to the desired level at which certification can be granted. These compliance costs may involve an initial capitalization like civil works for making canteens, toilets, parking areas, etc. or for improving the working conditions like adding exhaust fans, installing ACs, etc. The other form of compliance costs are in the form of recurring costs like using only a specific chemical for processing which may be many time costlier than the one being used currently. These costs are usually very high and lead to eroding enterprise's competitiveness. Sometimes, the compliance costs may go very high when some environment related compliance is to be achieved. For example, if a buyer wants a supplier to have a water processing/recycling plant in his factor, this may become prohibitive. But even such costs bring benefits in the long run. Sometimes incurring these costs becomes mandatory as running that business is not possible without complying with these. The culture of textile industry has changed over the past decade. Chain of command culture has taken over the *Seth* culture; especially in large enterprises. Documentation is now a commonly accepted practice all over. This change has actually resulted from the conditions imposed by the international buyers in different areas. The benefit of meeting the requirements imposed by international buyers is very high compared to the costs involved. In many cases, enterprises are meeting the compliance requirements unwillingly, but this is actually a blessing in disguise. This has led to bringing a lot of improvements and increasing competitiveness of the industry.

The results of the tests conducted in local laboratories are generally acceptable by the international buyers. Sometimes, the buyers themselves mention the agency through which certification should be achieved. Most of the times, tests are conducted by the in-house laboratory. Most of the exporting organizations have the entire required infrastructure for conducting the routine tests. Some commonly conducted tests include crocking, Twist per inch (TPI), colour fastness, shade matching, enzymes, strength, etc. Sometimes, the buyer requires certification by a third party. In this case, cost is borne by the buyer; it is made a part of the product cost. Even if there is an added cost to the manufacturer, it is acceptable to the manufacturer as any deviation from the agreed upon specs may lead to cancellation of order which means loss of

revenues, not only for that particular consignment, but also for future business. Time required for testing is also not an issue as the buyer is already aware that more time will be involved when the sample has to be tested from a foreign laboratory. Time and costs do not become a constraint even when sampling is being done for getting an order. The buying houses involved in textile business are very professionally managed and they manage to complete the entire set of activities in the available time.

Acceptability of test results done by Pakistani laboratories is good. However, sometimes, there is some difference in results for the same sample if it is done by the buyer from some foreign laboratory. Some companies do use external laboratories, but the companies situated far the city have to have their in-house testing facilities. Regarding accreditation, sometimes the buyers assess a particular laboratory and mark it appropriate for testing the products intended for them. Generally, no test is rejected due to lack of accreditation by a particular laboratory. Calibration is an important area that is overlooked by most of the enterprises without realizing that the actual cost of not having calibrated instruments may be much higher than what is indicated by the cost of actually getting the calibration done. Cost of getting instruments calibrated is not a concern for the industry. Labelling requirements vary from market to market and from customer to customer and from product to product. General information on labels is about composition of the fabric, process and the usage instructions. There was not much awareness or any requirement for CE mark certification in textile Cluster. Two safety-related requirements identified in Textile Cluster are regarding provision of holes in polyethylene bags for packing to avoid any accident due to suffocation and maintaining record of broken needles. Metal detectors are used on garments to avoid any pieces of broken needles going to the consumer. There are no Pakistani textile brands available in the world markets. No Pakistani company has ventured into creating its own brand as the cost involved is very high. The company needs to have a physical presence in the markets plus high awareness building and market development costs.

4.2 Tests Required

Table 4-1 show the standard tests conducted for different products in Textile (F) Cluster.

Table 4-1 List of Tests

Sr. No.	Test	Sr. No.	Test	Sr. No.	Test
1	AATCC	10	Dry Fastness	19	Shrinkage test
2	Blending Test	11	Formaldehyde test	20	Single Yarn test
3	Bowing & Skewing	12	Grey test	21	Softness
4	Bye Strength test	13	Hairiness	22	Strength
5	Chlorine test	14	Heat Fastness	23	Tagua test
6	Clany made test	15	ISO-washing test	24	Trash Check
7	Colour	16	Light Fastness	25	Twist per inch
8	Colour Fastness	17	Pilling	26	Washing Fastness
9	Cracking	18	Rubbing	27	Washing test

Awareness Perception

The overall level of awareness about tests carried out in the Textile (F) Cluster was reported to be high. Likert scale was used for this purpose (scale of 1-5, 1 being the least aware). 17 out the total 26 valid responses (65.3%) gave the second highest rating 4, while 30.8% gave highest rating for awareness about the tests required by export buyers of Textile. The mean score for these responses was 4.19.

In-house Testing Facility

In-house testing facility is available for in majority of the enterprises. For 29 different types of entries, in-house testing facilities were available in 69.7% of the cases. These facilities are used for conducting tests for own quality assurance purposes as well for meeting the buyers' requirements. 79.3% of the surveyed enterprises use qualified quality assurance staff for testing their products.

Common Testing Practices

There is a difference in approach of Textile (F) manufacturers in testing depending upon the purpose. When it is conducted for internal quality assurance purpose, the commonly used approach is to do it in-house. This was reported to be done in 71.8% of the cases, the balance being done in local laboratories. There was no test done from foreign laboratory for quality assurance purpose. For buyer's purpose, the uses of in-house and local laboratories were reported almost to be same (48.7% and 46.1% respectively). Foreign laboratories were also used in 5.1% of the cases.

Table 4-2 Purpose of Testing with respect to Laboratory Type

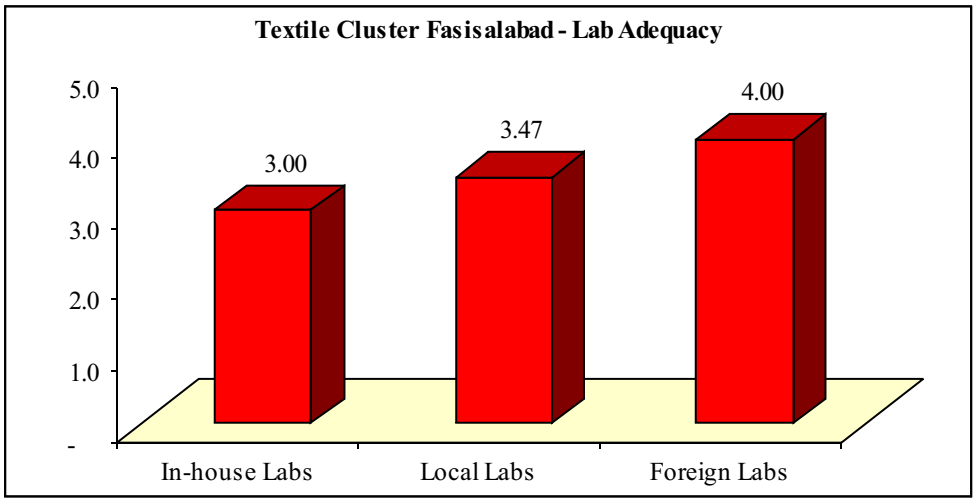
	Own Purpose			Buyers Purpose		
	In-house	Local	Foreign	In-house	Local	Foreign
No. of tests	23	9	0	19	18	2
Percent	71.8	28.2	0.0	48.7	46.1	5.1

Laboratory Adequacy

Laboratory adequacy is rated high by the surveyed enterprises of Textile (F) Cluster. Likert scale was used for assessing the perception (1-4, 1 being the lowest). The results are shown in the Table 4-3.

Table 4-3 Satisfaction with Laboratory Adequacy

	Frequency of Rating			Percent			Mean
	1	3	4	1	3	4	
In-house Labs	7	8	14	24.1	27.5	48.2	3.00
Local Labs	0	12	11	0.0	52.1	47.8	3.47
Foreign Labs	0	0	12	0.0	0.0	100.0	4.00



The surveyed Textile manufacturers possess a better perception of the local testing laboratories compared to that of in-house laboratories. For local laboratories, 100% responses were those of above average rating, while for in-house laboratories, 75.9% responses were above average. Rating of the foreign laboratories was the best. They got the highest rating of 4 in 100% of the cases. This is also shown by mean scores of 3.0, 3.47 and 4.0 for in-house, local and foreign laboratories respectively.

Laboratory Accessibility

The accessibility of testing laboratory(s) in the Cluster was reported to be good in Textile (F) Cluster. 92.9% of the 28 valid responses mentioned the existence of laboratory in the city of Faisalabad that can provide relevant testing services

to the Textile manufacturing enterprises. The accessibility of testing laboratories for the enterprises was also checked with respect to individual tests. For local laboratories, the accessibility was rated adequate in 75.9% of the cases, while for foreign laboratories, it was rated adequate in only 6.3% of the cases.

Satisfaction Level for Local Laboratories

Satisfaction level regarding the available testing infrastructure was assessed using Likert scale (1-5, 1 being the lowest). The results are shown in the Table 4-4.

Quality of Laboratory Infrastructure

Table 4-4 Satisfaction with Local Laboratories

Score	Laboratory adequacy		Laboratory Accessibility		Technical Skills		Acceptability by export buyers	
	Freq.	%	Freq.	%	Freq.	%	Freq.	%
1	0	0.0	0	0.0	0	0.0	0	0.0
2	1	5.0	1	5.0	0	0.0	0	0.0
3	8	40.0	3	15.0	5	25.0	4	23.5
4	10	50.0	11	55.0	12	60.0	10	43.4
5	1	5.0	5	25.0	3	15.0	3	13.0

The overall satisfaction level of Textile industry is high with respect to quality of the locally available testing laboratories infrastructure and the services provided by those laboratories. However, most of the ratings are towards averages and less towards the extreme ratings.

- 55% of the respondents gave above average rating for adequacy of the laboratory infrastructure, while 40% gave average rating. Highest rating (50%) was for rating 4.
- In case of laboratory accessibility, the maximum number of responses was for rating 4 (55%) and 25% for rating 5. 80% responses gave above average rating in this regard.
- Availability of technical skills with the local laboratories was rated very high. 75% of the respondents gave above average rating.
- Situation of acceptability by export buyers was also reported to be satisfactory. There was no rating below 4.

Affordability of Testing Services

Satisfaction of the surveyed respondents with test cost and time required for testing is shown Table 4-5.

Table 4-5 Satisfaction with Affordability of Local Laboratories

Score	Test costs		Overall cost to business		Time required for tests	
	Freq.	%	Freq.	%	Freq.	%
1	0	0.0	0	0.0	0	0.0
2	2	10.5	4	20.0	0	0.0
3	8	42.0	4	20.0	13	65.0
4	9	47.3	10	50.0	6	30.0
5	0	0.0	2	10.0	1	5.0

In case of affordability of getting tests done by local laboratories in terms of costs and the time involved, the overall satisfaction level was reported to be relatively low compared to the one seen for test quality.

- For test costs, 42% of the respondents gave average rating. 47.3% gave the second highest rating of 4.
- The perception about the effect of tests on the overall cost of business was not negative. 60% respondents showed above average satisfaction level for this.
- Satisfaction level with the time taken by the local laboratories for conducting the required tests was rated satisfactory. 35% respondents gave above average rating with the rest going for average rating.

Average Ratings

Average ratings for the assessed factors about the satisfaction level with local laboratories infrastructure is shown in Table 4.6.

Table 4-6 Mean Satisfaction Scores for Local Laboratories

Factor	Mean Score (scale of 1-5, 1 being lowest)
Laboratory adequacy	3.55
Laboratory accessibility	4.00
Technical skills	3.90
Acceptability by export buyers	3.94
Tests costs	3.37
Overall cost to business	3.50
Time taken for tests	3.40

Local Laboratories

Ten laboratories were identified by the respondents, which were used for testing purpose. The names of those laboratories are listed in Table 4-7.

Table 4-7 Names of Local Laboratories being Used

Sr. No.	Laboratory	Location	Frequency	Percent
1	National Textile College	Faisalabad	13	29.5
2	Clariant	Faisalabad	11	25.0
3	Al-Qyyum Laboratory	Faisalabad	5	11.4
4	Sandoz	Faisalabad	4	9.1
5	PTEA	Faisalabad	4	9.1
6	SGS	Faisalabad	1	2.3
7	SGS	Karachi	1	2.3
8	SGS	Lahore	1	2.3
9	Govt. Laboratory Sialkot Centre	Faisalabad	1	2.3
10	T.T.I	Lahore	1	2.3
11	Tech Dyeing	Faisalabad	1	2.3
10	PTTF	Faisalabad	1	2.3
	Total		44	100.0

Satisfaction Level with the Local Laboratories

The overall satisfaction level with the identified laboratories was generally high. The results are shown in Table 4-8.

Table 4-8 Satisfaction with Identified Testing Laboratories

Laboratory	Satisfaction scale Local laboratory				Mean Rating
	2 (low)	3	4	5 (high)	
National Textile College	0	3	8	1	3.83
Clariant	0	1	10	0	3.90
Al-Qyyum Laboratory	1	2	2	0	2.00
Sandoz	0	0	2	1	4.33
PTEA	0	1	3	0	3.75
SGS	0	0	3	0	4.00
Govt. Laboratory Sialkot Centre	0	0	1	0	4.00
T.T.I	0	0	1	0	4.00
Tech Dying	0	0	1	0	4.00
PTTF	0	0	1	0	4.00
Total	**1**	**7**	**32**	**3**	**3.86**

Local-based Foreign Laboratories

Use of local-based foreign laboratories is practiced in Textile (F) Cluster. SGS is the most commonly local-based foreign laboratory. The laboratories being used are listed in Table 4-9.

Table 4-9 Local-based Foreign Testing Laboratories

Name of the Laboratory	Location	Frequency
SGS	Faisalabad	18
SGS	Karachi	2
PTTF	Faisalabad, Karachi	2
TTI	Singapore	1
Clariant	UK	1

Satisfaction Level with Individual Laboratories

Table 4-10 Satisfaction with Identified Local-based Foreign Testing Laboratories

Name of Laboratory	Frequency of Rating			Mean Rating
	3	4	5	
SGS	1	8	7	4.4
PTTF	0	2	0	4.0
TTI	0	1	0	4.0
Clariant	0	1	0	4.0

SGS enjoys an above average satisfaction level in Textile Cluster Faisalabad.

Overall Satisfaction Level with Local-based Foreign Laboratories

Quality of Laboratory Infrastructure

Table 4-11 Satisfaction with Local-based Foreign Laboratories

Score	Laboratory adequacy		Laboratory Accessibility		Technical Skills		Acceptability by export buyers	
	Freq.	%	Freq.	%	Freq.	%	Freq.	%
1	0	0.0	0	0.0	0	0.0	0	0.0
2	0	0.0	0	0.0	0	0.0	0	0.0
3	5	29.4	5	31.2	0	0.0	0	0.0
4	7	41.1	7	43.7	10	62.5	10	55.5
5	5	29.4	4	25.0	6	37.5	8	44.5

Affordability of Testing Services

Table 4-12 Satisfaction with Affordability of Local-based Foreign Laboratories

Score	Test costs		Overall cost to business		Time required for tests	
	Freq.	%	Freq.	%	Freq.	%
1	1	6.2	0	0.0	0	0.0
2	5	31.2	4	25.0	1	6.2
3	5	31.2	6	37.5	10	62.5
4	3	18.8	3	18.8	4	25.0
5	2	12.4	3	18.8	1	6.2

Satisfaction level with the quality of the services of local-based foreign laboratories is good. Majority of the ratings are above average. However, satisfaction level is relatively lower when it comes to affordability of tests for the enterprises of Textile (F) Cluster. This is also indicated by the mean ratings shown in the Table 4-13.

Table 4-13 Means Satisfaction Scores for Local-based Foreign Testing Laboratories

Factor	Mean Score (scale of 1-5, 1 being lowest)
Laboratory adequacy	4.0
Laboratory accessibility	3.9
Technical skills	4.4
Acceptability by export buyers	4.4
Tests costs	3.0
Overall cost to business	3.3
Time taken for tests	3.3

Foreign Laboratories Used

20.7% of the surveyed Textile manufacturers were reported to be using foreign laboratories for product testing.

Foreign Laboratories Used

Laboratories in Singapore and Hong Kong were reported to be most frequently used by the textile manufacturers of Faisalabad. The details follow.

Table 4-14 Foreign Laboratories being Used

Laboratory	Location	Frequency
SGS	Hong Kong	3
SGS	Singapore	2
Intertect	Singapore	1
MTL	Hong Kong	1
MTL	Singapore	3
CTL	Hong Kong	1
CTL	USA	1

Satisfaction Level with Individual Laboratories

Table 4-15 Satisfaction with Identified Foreign Laboratories

Name of Laboratory	Frequency of Rating		Mean Rating
	4	5	
SGS	2	3	4.6
Intertek	0	1	5.0
MTL	1	3	4.7
CTL	2	0	4.0

Overall Satisfaction Level with Foreign Laboratories

Quality of Laboratory Infrastructure

Table 4-16 Satisfaction with Service of Foreign Laboratories

Score	Laboratory adequacy		Laboratory Accessibility		Technical Skills		Acceptability by export buyers	
	Freq.	%	Freq.	%	Freq.	%	Freq.	%
1	0	0.0	2	33.3	0	0.0	0	0.0
2	0	0.0	3	50.0	0	0.0	0	0.0
3	1	14.2	0	0.0	0	0.0	0	0.0
4	4	57.1	1	16.7	3	42.8	0	0.0
5	2	28.4	0	0.0	4	57.2	7	100.0

Quality of foreign laboratories infrastructure obtained high satisfaction ratings for adequacy, technical skills and acceptability by export buyers. The rating for accessibility was relatively lower.

Affordability of Testing Services

Table 4-17 Satisfaction with Affordability of Foreign Laboratories

Score	Test costs		Overall cost to business		Time required for tests	
	Freq.	%	Freq.	%	Freq.	%
1	2	28.5	1	14.3	3	42.8
2	5	71.4.0	5	71.4	3	42.8
3	0	0.0	1	14.3	0	0.0
4	0	0.0	0	0.0	1	14.3
5	0	0.0	0	0.0	0	0.0

Satisfaction ratings for affordability of tests was low, both in terms of costs and time involved for conducting these tests, Table 4-18 below.

Table 4-18 Mean Satisfaction Scores for Foreign Laboratories

Factor	Mean Score (scale of 1-5, 1 being lowest)
Laboratory adequacy	4.1
Laboratory accessibility	2.0
Technical skills	4.6
Acceptability by export buyers	5.0
Tests costs	1.7
Overall cost to business	2.0
Time taken for tests	1.8

The results should be generalized with care as the numbers of valid responses are few.

4.3 Pre-shipment Inspection

Use of Pre-shipment Inspection

Use of pre-shipment inspection is well known in Textile (F) Cluster. 86.2% respondents were reported to be aware of the concept of pre-shipment inspection. Table 4-19 shows the use of pre-inspection in Textile (F) Cluster.

Table 4-19 Pre-shipment Inspection Practice

% exports undergoing pre-shipment inspection	Frequency	Percent
None	7	24.1%
1-10%	10	34.5%
11-25%	4	13.8%
26-50%	2	6.9%
51-75%	2	6.9%
75-100%	4	13.8%
Total	**29**	100.0%

Pre-Shipment Inspection Bodies

The most common choice for getting pre-shipment inspection done is through local inspection bodies. Results are shown in the Table 4-20.

Table 4-20 Pre-shipment Inspection Practice by Type

Use of Inspection Body	Frequency	Percent
Local inspection bodies	13	65.0
Local-based foreign inspection bodies	7	35.0
Foreign inspection Bodies	0	0.0
Total	20	100

Pre-shipment Inspection Bodies being Used

Table 4-21 List of Pre-shipment Inspection Bodies being Used

Name of the Body	Type	Frequency
Tex Craft	Local	5
TUV	Local	2
ITS	Local-based foreign	4
SGS	Local-based foreign	7
Bureau Veritas	Local-based foreign	1

Tex Craft was reported to be the most commonly used body for pre-inspection in Textile (F) Cluster.

Satisfaction with Individual Inspection Bodies

Satisfaction level was relatively higher for local-based foreign inspection bodies compared to that for local-bodies. Table 4-22 shows the ratings obtained for different pre-inspection bodies.

Table 4-22 Satisfaction with Identified Pre-shipment Inspection Bodies

Name of the Body	Frequency of Rating		Mean Rating
	4	5	
Tex Craft	5	0	4.0
TUV	1	1	4.5
ITS	0	4	5.0
SGS	3	4	4.6
Bureau Veritas	1	0	4.0

Overall Satisfaction Level with Pre-shipment Inspection Bodies

Quality of Infrastructure

Table 4-23 Satisfaction with Service Quality of Pre-shipment Inspection Bodies

Score	Adequacy		Accessibility		Technical Skills		Acceptability by export buyers	
	Freq.	%	Freq.	%	Freq.	%	Freq.	%
1	0	0.0	0	0.0	0	0.0	0	0.0
2	0	0.0	1	9.1	0	0.0	0	0.0
3	0	0.0	0	0.0	0	0.0	0	0.0
4	4	36.4	2	18.2	3	27.3	2	18.2
5	7	63.6	7	63.6	8	72.7	9	81.8

The satisfaction level was high for the quality of the pre-shipment inspection body's infrastructure. While, it was lower for the affordability of using these bodies in terms of costs and time involved.

Affordability of Testing Services

Table 4-24 Satisfaction with Affordability of Pre-shipment Inspection Bodies

Score	Costs		Overall Cost to Business		Time required for Inspection	
	Freq.	%	Freq.	%	Freq.	%
1	0	0.0	0	0.0	0	0.0
2	3	33.3	3	33.3	1	9.1
3	2	22.2	1	11.1	4	36.3
4	2	22.2	2	22.2	4	36.3
5	2	22.2	3	33.3	2	18.2

Mean Satisfaction Ratings

Table 4-25 Mean Satisfaction Scores for Pre-shipment Inspection Bodies

Factor	Mean Score (scale of 1-5, 1 being lowest)
Adequacy	4.6
Accessibility	4.1
Technical skills	4.7
Acceptability by export buyers	4.8
Costs	3.3
Overall cost to business	3.5
Time taken for inspection	3.6

4.4 Accreditation of Testing Laboratories

Awareness

69% of the total respondents were reported to be aware of the requirement of using accredited testing laboratories. Awareness about the name of Pakistan National Accreditation Council was reported to be satisfactory. Of the total 23 valid responses, there were 9 respondents who claimed to know about the role of PNAC. Only 4 of those 9 people were able to make a statement on the role of PNAC. However, all of them said that that PNAC is certification company that provides consultancy.

Practice Regarding Accreditation

Requirement from Buyers

Majority of the Textile manufacturers (60.7%) were not pushed by their buyers for using accredited laboratories for testing. The details follow:

Table 4-26 Demand for Use of Accredited Laboratories

% buyers requiring accredited laboratories	Frequency	Percent
None	17	60.7
1-25%	6	21.4
26-50%	2	7.1
51-75%	2	7.1
More than 75%	1	3.6
Total	**28**	**100**

Use of Accredited Laboratories

Use of accredited testing laboratories is practiced in Textile (F) Cluster but majority is not concerned about this. 44.8% people reported to use accredited laboratories, while 55.2% of the respondents did not report it as a major concern. Table 4-27 depicts the results.

Table 4-27 Practice for Use of Accredited Laboratories

	Frequency	Percent
Always use accredited laboratory	4	13.8
Usually use accredited laboratory	9	31.0
Usually use unaccredited laboratory	0	0.0
Always use unaccredited laboratory	0	0.0
Not a major concern	16	55.2
Total	**29**	**100.0**

Perception about Utility of Using Accredited Laboratories

Regarding the utility of using accredited laboratories for getting more business, there was split opinion. 35.7% of the respondents thought that this helps in getting more business. 14.3% of the respondents said that it is not helpful, while 50% were not sure. This is approximately the same percentage as that of enterprises unaware of the requirement of using accredited testing laboratories.

4.5 Certification Requirements

Awareness

Awareness about the certification requirements of the Cluster was assessed using Likert scale (1-5, 1 being lowest). Overall awareness level was reported to be high. 30.8% of the respondents reported having complete awareness about these requirements, while 42.3% gave the second highest rating. The results are detailed in Table 4-28.

Table 4-28 Awareness on Certification Requirements

Rating	Frequency	Percent
1 (no awareness)	1	3.8
2	3	11.5
3	3	11.5
4	11	42.3
5 (complete awareness)	8	30.8
Total	**26**	**100.0**

Types of Certification

Most commonly required certifications in Textile (F) Cluster are shown in the following Table:

Table 4-29 Certification Needs

Sr. No.	Certification	Frequency
1	ISO-9001	18
4	OEKO-TEX	5
5	ISO 14000	2
6	SA 8000	1
8	WRAP	1
Total		27

Local-based Foreign Certification Bodies

Table 4-30 Local-based Foreign Certification Bodies being Used

Certification Body	Location	Frequency
TUV	Lahore	9
Moody International	Karachi	2
Moody International	Lahore	7
SGS	Lahore	1
SGS	Karachi	2
SGS	Sialkot	1
SGS	Multan	1
SGS	USA	1
UKAS	Lahore	3
UKAS	Karachi	1
PNAC	Lahore	1
PNAC	Karachi	1
OCKO	Karachi	1
RINA	Lahore	1
R & R	Lahore	1

Satisfaction with Individual Local-based Foreign Certification Bodies

Satisfaction level was reported to be highest for SGS. Moody International was rated lower than TUV and SGS.

Table 4-31 Satisfaction with Identified Certification Bodies

Certification Body	Frequency of Rating			Mean Rating
	3	4	5	
TUV	0	6	2	4.25
Moody International	1	6	1	4.00
SGS	0	0	5	5.00
EPB (TDAP)	0	1	0	4.00
UKAS	0	2	2	4.50
PNAC	0	1	1	4.50
OCKO	0	1	0	4.00
R & R	0	1	0	4.00

Overall Satisfaction Level with Local-based Foreign Certification Bodies

The overall quality of service from local-based foreign certification bodies was reported to be above average. It was the highest for acceptability by the international buyers.

Table 4-32 Satisfaction with Local-based Foreign Certification Bodies

Score	Laboratory Accessibility		Technical Skills		Acceptability by export buyers	
	Freq.	%	Freq.	%	Freq.	%
1	0	0.0	0	0.0	0	0.0
2	2	15.3	0	0.0	0	0.0
3	1	7.7	5	29.4	0	0.0
4	6	46.1	5	29.4	6	0.0
5	4	30.7	7	41.1	11	100

Satisfaction level was below average for the affordability of using local-based foreign certification bodies, both in terms of time and costs involved for getting these services.

Table 4-33 Satisfaction with Affordability of Local-based Foreign Bodies

Score	Certification costs		Overall Cost to Business		Time required for Certification	
	Freq.	%	Freq.	%	Freq.	%
1	0	0.0	2	11.1	0	0.0
2	10	55.5	6	33.3	5	27.8
3	2	11.1	3	16.7	7	38.9
4	4	22.2	4	22.2	2	11.1
5	2	11.1	3	16.7	4	22.2

Foreign Certification Bodies

The use of foreign certification bodies is practiced in Textile (F) Cluster. Certification Bodies used by the enterprises are given in Table 4-34.

Table 4-34 List of Foreign Certification Bodies being Used

Certification Body	Location	Frequency
BVQI	UK	1
UKAS	USA	2

Overall Satisfaction Level with Foreign Certification Bodies

Likert scale of 1-5 (1 being lowest) was used for assessing the satisfaction level in terms of defined factors. The results are indicated in the Table 4-35.

Table 4-35 Satisfaction with Foreign Certification Bodies

Score	Laboratory Accessibility		Technical Skills		Acceptability by export buyers	
	Freq.	%	Freq.	%	Freq.	%
1	0	0.0	0	0.0	0	0.0
2	0	0.0	0	0.0	0	0.0
3	0	0.0	1	25.0	0	0.0
4	1	33.3	1	25.0	0	0.0
5	2	66.7	2	50.0	4	100.0

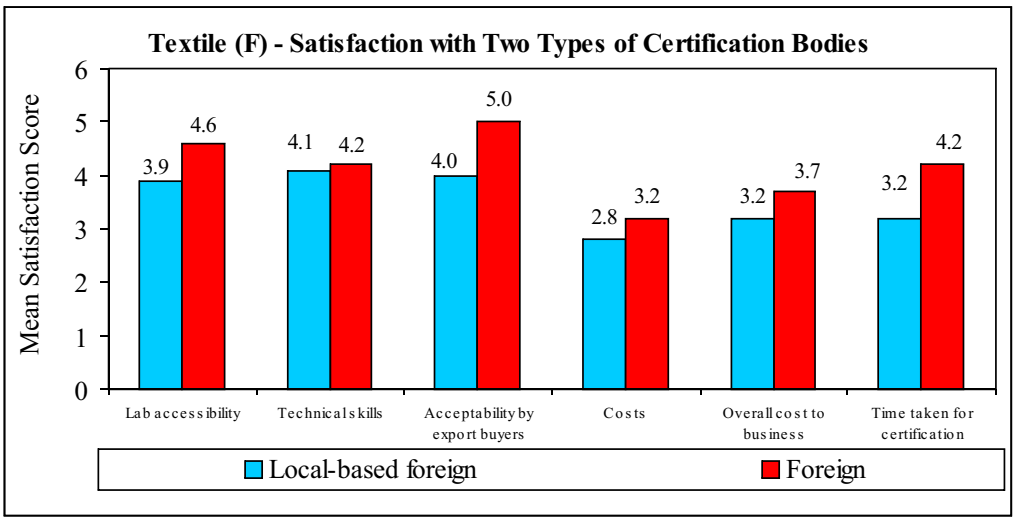
The satisfaction level was high for the quality of services and lower for affordability of using the foreign certification bodies.

Table 4-36 Affordability of Foreign Certification Bodies

Score	Costs		Overall Cost to Business		Time required for Certification	
	Freq.	%	Freq.	%	Freq.	%
1	1	25.0	0	0.0	0	0.0
2	0	0.0	0	0.0	1	25.0
3	0	0.0	1	25.0	0	0.0
4	3	75.0	1	25.0	2	50.0
5	0	0.0	2	50.0	1	25.0

Comparison of Ratings for Local-based Foreign and Foreign Bodies

Average ratings for each of these factors for local based foreign and foreign certification bodies are shown in the following figure:



It is interesting to note that the rating of foreign certification bodies are higher for all the factors; even for cost and time incurred to business.

4.6 Calibration

Awareness

82.1% of the respondents from Textile Cluster Faisalabad claimed to be aware of the calibration requirements in their Cluster.

Importance of Calibration

Importance given to calibration by the respondents fell in the average range with a tilt towards high importance. Mean rating was reported to be 3.3. Frequency distribution on Likert scale of 1 to 5 (1 being lowest) is shown in Table 4-37.

Table 4-37 Importance of Calibration

Rating	Frequency	Percent
1 (not important)	5	17.2
2	5	17.2
3	3	10.3
4	7	24.1
5 (very important)	9	31.0
Total	29	100.0

Important Calibration Requirements

Table 4-38 Calibration Needs

Sr. No.	Measuring Instrument	Frequency	Percent
1	Weigh Scale	9	18.0%
2	pH Meter	4	8.0%
3	Measuring tapes	4	8.0%
4	Temperature Gauge	3	6.0%
5	TDS Meter (total dissolved solids)	3	6.0%
6	Veri Vide Meter	3	6.0%
7	Magno meter	2	4.0%
8	Vernier Gauge	2	4.0%
9	Data Colour	2	4.0%
10	Pressure Gauge	2	4.0%
11	Temp Controller	2	4.0%
12	Gauge Machine	1	2.0%
13	Air Controller	1	2.0%
14	Pilling	1	2.0%
15	Crack Meter	1	2.0%
16	Visco meter	1	2.0%
17	Vacuum Gauge	1	2.0%
18	Tachometer	1	2.0%
19	Line length meter	1	2.0%
20	Weighing Set	1	2.0%
21	Thermometer	1	2.0%
22	HT-Machine	1	2.0%
23	Rota-Wash/Lando Meter	1	2.0%
24	ICI-Pilling Box	1	2.0%
25	Air Permeability tester	1	2.0%

Calibration Practices

Most of the enterprises were reported to be performing calibration activities once a year. There were 29 valid responses, of which 41.3% reported never performing instrument calibration and 44.8% performed it once a year.

Table 4-39 Calibration Frequency

Frequency of Calibration Activity in enterprise	Frequency	Percent
Never	12	41.3
Every year	13	44.8
Every six months	2	6.9
Other (replacement)	2	6.9
Total	29	100.0

Names of Laboratories Used by Textile (F) Cluster

Unity Laboratory in Lahore is the most commonly used laboratory for equipment calibration. Other laboratories used are listed in the Table 4-40.

Table 4-40 Calibration Laboratories being Used

Name of the Laboratory	Location	Frequency
Unity	Lahore	5
ERRA Laboratory	Lahore, Karachi	3
Data Colour Laboratory	Lahore, Karachi	3
Links 2000	Lahore	2
Irshad Mahidin Laboratory	Karachi	2
Muddy	Lahore	1
Master calibration service	Lahore	1
Moody International	Lahore	1
IICL	Lahore	1
PITAC	Lahore	1
NFC	Faisalabad	1
Latif Laboratory		1

No foreign calibration laboratories were used by Textile (F) Cluster.

Time Consumed for Calibration

Average time taken for a typical calibration activity from a laboratory within the city was reported to be 4 days (for 3 valid responses). Average time taken for calibration from a laboratory in other city was reported to be 9.4 days. The details follow.

Table 4-41 Calibration Days from Labs in another City

No. of Days	Frequency	Percent
2	2	18.2
7	1	9.1
10	5	45.4
12	1	9.1
15	2	18.2
Total	11	100.0%
Average No. of Days		9.4

Satisfaction by Local Calibration Laboratories

Satisfaction level with the services provided by local calibration bodies was reported to be high in terms of quality and relatively lower in terms of time and costs involved for that. Table 4-42 shows the results:

Table 4-42 Satisfaction with Local Calibration Laboratories

	Frequencies						
Rating	**Acceptability by export buyers**	**Laboratory adequacy**	**Laboratory accessibility**	**Calibration costs**	**Time required for calibration**	**Technical skills**	**Overall cost to business**
1	0	0	0	0	1	0	0
2	0	0	1	4	1	0	0
3	0	2	5	3	5	0	8
4	4	6	3	4	3	11	2
5	9	7	5	4	5	2	4
Total	**13**	**15**	**14**	**15**	**15**	**13**	**14**

4.7 Branding

Awareness

There was high awareness on the concept of branding in Textile (F) Cluster (96.7%). There was only one enterprise that was not aware of the concept.

Importance

Very high importance was attached by the respondents to branding for achieving major growth in exports. Using Likert scale of 1-5 (1 being lowest), 27.5% respondents gave the highest rating (5). Average rating of 4.06 was obtained. Similarly, branding was also considered very important for competing in international markets. However, the relative score was lower than the one seen for its importance for achieving export growth. 24.1% of the respondents gave the highest rating (5). Average rating of 4.07 was obtained.

Ratings of the importance of branding for these two purposes are shown in the Table 4-43.

Table 4-43 Importance of Branding

Rating	Importance for achieving export growth	Importance for competing in international markets
0	0	0
1	2	1
2	0	0
3	0	2
4	19	19
5	8	7
Mean rating	4.06	4.07

Branding Practices

Majority of the Textile manufacturers have their brands for local market. Of the total 28 valid responses, there were 19 respondents, which were reported to be selling in local market under their brand names. In export market, 44.8% respondents claimed to sell products under their brand name. This seems surprising as most of the products manufactured by Textile (F) Cluster are sold as unbranded products or sold for other international brands. 82.8% respondents were not interested in doing joint branding with other enterprises. 17.2% showed their interest for this. There was no enterprise that was currently reported to marketing its products under any joint brand.

ANNEXURE V: SPORTS GOODS CLUSTER SIALKOT

5.1 Industry Profile

Major sports goods products are Soccer balls, sportswear, fitness articles (boxing, weight lifting gloves, etc.), working gloves, martial arts wear, etc. Of the total industry, 70-80% sports goods industry is of soccer ball and the rest of other sports goods products. There are three categories of soccer balls; Professional, Club and Training and Promotional. Professional accounts for 30% of the total market. Pakistani soccer ball industry manufactures balls mostly for promotional and club and training segments of the market.

Currently, there are no specific requirements of international buyers regarding compliance. For soccer balls, there are two requirements regarding raw material, which are covered under CE marking standard EN-71; it should be Azo free and it should be heavy metal free (Cadmium, Chromium, Lead). These compliance requirements are only for promotional balls and not for professional balls. A small percentage (about 5%) of the total buyers demand compliance to Azo free or heavy metal free certification. In leather products, there is a requirement that azo dyes should not be used. There are three tests required for leather; IUC, IUM and IUPA. Another requirement is that it should be PCP (Penta Chloro Phenol) free. Sometimes, the buyer specifies the source of dyes/chemicals. In such a situation, a certificate showing the use of chemicals from that particular source is sufficient. For sportswear, no specific certification exists from international buyers. Some tests related to dyes and the buyers sometimes ask fabrics, but it is not a common practice. There are no particular requirements of buyers for products like hockey and cricket bat.

An important issue in Sports Goods Cluster is that of social compliance. Child labour cannot be used for manufacturing sports goods. With increasing awareness during the past few years, about 99% of the companies have achieved elimination of child labour form their manufacturing facilities. ISO 9000 and 14000 are the two other important requirements; however, not all the buyers require these certifications. Representatives of buyers come themselves to check the specs and compliance requirements.

Tests for Azo compounds and heavy metals are conducted from the laboratories in Hong Kong or Germany. The cost in conducting Azo test in Germany is USD 3000 while that in Hong Kong is Rs 80,000. The results of laboratories in these countries are internationally acceptable. Locally, PCSIR has the capability of conducting these tests. Leather laboratory of PCSIR has international accreditation and is accepted worldwide. There is a collection centre of PCSIR in Sialkot. Heavy metals tests can also be conducted in PCSIR laboratories. The cost of conducting these tests is Rs 3000. However, most of the exporters do not have awareness about the capability of PCSIR and the other issue is the lack of international accreditation of PCSIR Laboratories. The costs of the tests are added into the product cost and therefore do not cause margins reduction. However, the international competitiveness has to be kept in view. Calibration is a requirement in Sports Goods Cluster and common frequency of calibration is once per year. Some sports goods manufacturing companies do have their own brands, but most of the time, products are made for international brands.

5.2 Tests Required

Tables 5-1 represents the standard tests conducted for different products in Sports Goods Cluster Sialkot.

Table 5-1 List of Tests

Soccer Ball	Gloves	Boxing Gloves
Ultra Violet Test	Weight Test	Water up take
Circumference	Colour test	Ultra Violet Test
Air Retention	Water up take	
Colour test	Embossed Test	**Martial Arts**
Water up take	Optic test	Chemical test
Abrasion Test	Material test	Colour strents
Weight Test	Tensile Strength test	
Shooter Test		
Bounce test	**Hockey**	**Sports Wear**
Sphericity	Weight Test	Weight Test
Size test	Banding test	Shawar

Rebound test	Hitting test	Leanth test
Roundness Te st	Shake inpart	Bowed Cafling
Bounce		
Thickness Test	**Shin Guards**	**Rackets**
Tape test	Shake inpart	Weight Test
Tensile Strength test	Weight Test	Shake inpart

Awareness Perception

The overall level of awareness about tests carried out in the Sports Goods Cluster was found to be high. Likert scale was used for this purpose (scale of 1-5, 1 being the least aware). 24 out the total 30 respondents (80.0%) claimed to have complete awareness about the tests required by export buyers of Sports Goods. The mean score for these responses was 4.46.

Laboratory Infrastructure

In-house Testing Facility

In-house testing facility is available for most of the tests in all the enterprises. These facilities are used for conducting tests for own quality assurance purposes as well for meeting the buyers' requirements. 90% of the surveyed enterprises use qualified quality assurance staff for testing their products.

Common Testing Practices

Most of the tests in Sports Goods Cluster are conducted using in-house testing facilities and the local laboratories. Use of foreign laboratories was mentioned only for few cases (twice for testing for own purpose and thrice for testing for buyer's purpose). The 30 respondents mentioned total of 54 different tests. Table 5-2 shows the results of the valid entries.

Table 5-2 Purpose of Testing with respect to Laboratory Type

	Own Purpose			Buyers Purpose		
	In-house	Local	Foreign	In-house	Local	Foreign
No. of tests	41	9	2	20	0	3
Percent	78.8%	17.3%	3.8%	86.9%	0%	13.1%

Laboratory Adequacy

Laboratory adequacy is rated high by the Sports Goods industry. Likert scale was used for assessing the perception (1-4, 1 being the lowest). The results are shown in Tables 5-3.

Table 5-3 Satisfaction with Local Laboratories Adequacy

	Frequency of Rating			Percent			Mean
	1	3	4	1	3	4	
In-house Laboratories	3	3	33	7.7	7.7	84.6	3.69
Local Laboratories	0	2	17	0.0	10.5	89.5	3.89
Foreign Laboratories	0	0	9	0.0	0.0	100	4.0

The surveyed Sports Goods manufacturers possess a better perception of the local testing laboratories compared to that of in-house laboratories. The in-house laboratories obtained the highest rating of 4 in 39.7% of the cases, while local laboratories got highest rating in 89.5% and foreign laboratories in 100% of the cases. This is also shown by the average scores; 3.69 for in-house laboratories compared to 3.89 and 4.0 for local and foreign laboratories respectively.

Laboratory Accessibility

The accessibility of testing laboratory(s) in the Cluster was found to be problematic for the Cluster. Only 11 enterprises out of total 30 (36.6%) mentioned that there is a testing laboratory available in Sialkot that can provide relevant testing services to the sports goods manufacturing enterprises. The accessibility of testing laboratories for the enterprises was also checked with respect to individual tests. Similar results were seen. Of the total 54 different types of test mentioned by 30 enterprises, only 19 responses were found that mentioned the accessibility of local laboratories as adequate. This is only 35% of the total. Similarly, the sports goods manufacturers of Sialkot did not consider the accessibility of foreign laboratories adequate. There were only 4 responses, which considered it adequate (7.4%).

Satisfaction Level for Local Laboratories

Satisfaction level regarding the available testing infrastructure was assessed using Likert scale (1-5, 1 being the lowest). The results are shown in Table 5-4 to 5-6:

Quality of Laboratory Infrastructure

Table 5-4 Satisfaction with Local Laboratories

Score	Laboratory adequacy		Laboratory Accessibility		Technical Skills		Acceptability by export buyers	
	Freq.	%	Freq.	%	Freq.	%	Freq.	%
1	0	0%	0	0%	0	0%	0	0%
2	0	0%	4	36.3%	0	0%	0	0%
3	3	27.2%	3	27.2%	0	0%	0	0%
4	3	27.2%	3	27.2%	1	9.1%	3	27.2%
5	5	45.4%	1	9.1%	10	90.9%	8	72.7%

The overall satisfaction level of Sports Goods industry was found to be high with respect to quality of the locally available testing laboratories infrastructure and the services provided by those laboratories.

- 72.7% of the respondents gave above average rating for adequacy of the laboratory infrastructure.
- In case of laboratory accessibility, the rating was close to average with a tilt towards lower end. Highest frequency was seen for rating 4.
- Level of technical skills of the local laboratories was rated very high. 90.9% of the respondents gave the highest rating of 5 and the rest the second highest rating.
- Situation of acceptability by export buyers was also found to be satisfactory. There was no rating below 4.

Affordability of Testing Services

Table 5-5 Satisfaction with Affordability of Local Laboratories

Score	Test costs		Overall cost to business		Time required for tests	
	Freq.	%	Freq.	%	Freq.	%
1	1	10.0%	5	45.4%	0	0%
2	5	50.0%	3	27.2%	4	36.3%
3	4	40.0%	1	9.1%	7	63.7%
4	0	0%	1	9.1%	0	0%
5	0	0%	0	0%	0	0%

In case of affordability of getting tests done by local laboratories in terms of costs and the time involved, the overall satisfaction level was found to be low.

- For test costs, 60% of the respondents gave below average rating and the rest gave average rating (3). There was no above average rating.
- The perception about the effect of tests on the overall cost of business was also negative. 45.4% of the surveyed units gave the lowest rating of 1 that represents the lowest satisfaction level and 27.2% the second lowest rating of 2.
- Time taken by the local laboratories for conducting the required tests was also not rated satisfactory. 63.7% respondents gave average rating and the rest gave below average rating.

Average scores for the assessed factors about the satisfaction level with local laboratories infrastructure are shown in Table 5-6.

Table 5-6 Mean Satisfaction Scores for Local Testing Laboratories

Factor	Mean Score (scale of 1 5, 1 being lowest)
Laboratory adequacy	4.18
Laboratory accessibility	3.09
Technical skills	4.90
Acceptability by export buyers	4.72
Tests costs	2.3
Overall cost to business	1.63
Time taken for tests	2.63

Local Laboratories

Laboratories in Lahore and Sialkot are more commonly used by Sports Goods Cluster Sialkot. Table 5-7 shows the results.

Table 5-7 Testing Laboratories being Used

Name of the Laboratory	Frequency	City
Sialkot Star Laboratory	1	Sialkot
CPC (Cleaner Production Centre)	3	Sialkot
PCSIR Laboratories	4	Lahore
Leather Ast	1	Lahore
Institute of Gujranwala	1	Gujranwala
Wooden Test Laboratory	1	Karachi

Satisfaction Level with the Local Laboratories

Satisfaction level with the local laboratories used by Sports Good Cluster was rated high. All the laboratories were given the highest rating of 5 except Leather Ast , which was rated as 4.

Local-based Foreign Laboratories Used

Use of local-based foreign laboratories is not very common in Sports Goods Cluster Sialkot. Only one laboratory was mentioned (SGS) based in Karachi that was used for testing. Satisfaction level with the services of this laboratory was found to be high.

Foreign Laboratories Used

14.3% of the surveyed sports goods manufacturers were found to be using foreign laboratories for testing purposes. The percentage of tests done from foreign laboratories varied for each of these 4 enterprises. Two of these used foreign laboratories for 1-10% of their total tests, one for 11-25% tests and one for more than 75% of the tests.

Foreign Laboratories Used

Table 5-8 Foreign Testing Laboratories being Used

Name of the Laboratory	Country	Frequency
SGS	Taiwan	2
SGS	Hong Kong	2
FIFA Laboratory	Switzerland	1

Satisfaction level with these laboratories was unanimously given the highest rating for their adequacy, accessibility, technical skills and acceptability for international buyers. In terms of cost and time, the rating was relatively lower but was still in the above average range.

5.3 Pre-shipment Inspection

Use of Pre-shipment Inspection

Use of pre-shipment inspection is well known in Sports Goods Cluster Sialkot. 96.7% respondents were found to be aware of the concept of pre-shipment inspection. Table 5-9 shows the use of pre-inspection in Sports Goods industry of Sialkot:

Table 5-9 Pre-Shipment Inspection Practice

% Export undergoing Pre-shipment Inspection	Frequency	Percent
None	5	16.7%
1-10%	9	30.0%
11-25%	3	10.0%
26-50%	6	20.0%
51-75%	1	3.3%
75-100%	6	20.0%
Total	**30**	**100%**

Use of Pre-Shipment Inspection Bodies

The most common choice for getting pre-shipment inspection done is through local-based foreign inspection bodies. The complete results are shown in the following Table 5-10:

Table 5-10 Pre-Shipment Inspection Practice with respect to Laboratory Type

Nature of Certification Body	Frequency	Percent
Local Inspection Bodies	2	8.3%
Local-Based Foreign Inspection Bodies	21	87.5%
Foreign Inspection Bodies	1	4.2%
Total	24	100%

Bodies used for Pre-shipment Inspection

Following inspection bodies were mentioned by the units using pre-shipment inspection that includes buyers.

Table 5-11 Names of Pre-Shipment Inspection Bodies Used

Name of Body	Frequency
STS	1
SGS	13
Decathlon Pakistan	3
WSI	1
BUVI	2
Adiddas	3
Reebok	1
RUSSAL	1
Moody International	2
BVQI	1
ITS	1

SGS is the most commonly used body for getting pre-shipment inspection done.

Satisfaction Level with Pre-shipment Inspection Bodies

Satisfaction level was measured in terms of the quality of the service provided and the affordability. Rating was high for quality and low for affordability. Mean ratings obtained using Likert scale of 1 to5 (1 being least satisfied) are shown in Table 5-12.

Table 5-12 Mean Satisfaction Scores for Pre-Shipment Inspection Bodies

Factor	Mean Score (scale of 1-5, 1 being lowest)
Adequacy	4.34
Accessibility	3.59
Technical skills	4.90
Acceptability by export buyers	4.87
Costs	2.95
Overall cost to business	2.81
Time taken	1.95

5.4 Accreditation of Testing Laboratories

Following are the key findings about the opinion of using accredited laboratories for testing sports good products:

Awareness

89.7% of the total respondents were found to be aware of the requirement of using accredited testing laboratories. Regarding the utility of using accredited laboratories for getting more business, there was split opinion. 40% of the respondents thought that this helps in getting more business. One third of the respondents said that it is not helpful, while the balance 26.7% were not sure. Awareness about the name of Pakistan National Accreditation Council was found to be high. 76.7% respondents knew about that; however, they did not know about its role. There was only one respondent who said that PNAC is a 'laboratory checking association'.

Practice Regarding Accreditation

Requirement from Buyers

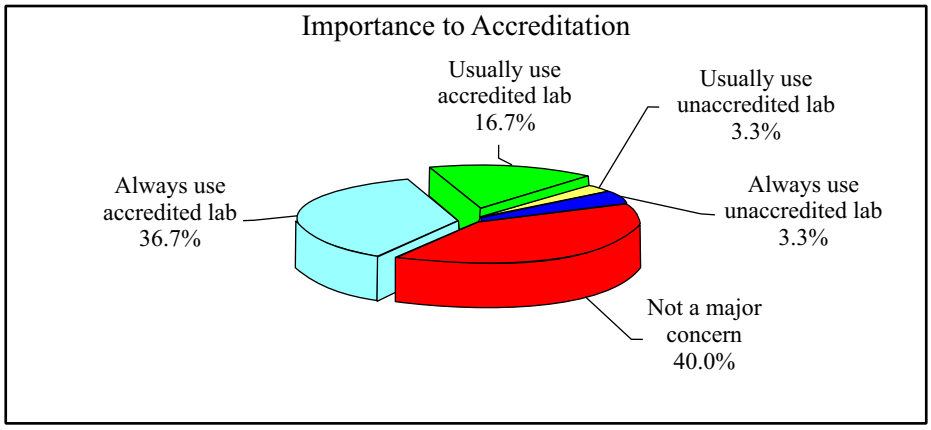
Majority of the sport goods manufacturers (60%) were not pushed by their buyers for using accredited laboratories for testing. The split of the remaining 40% is shown in Table 5-13.

Table 5-13 Demand of Buyers for Using Accredited Testing Laboratories

Percentage of Buyers Requiring the use of Accredited Laboratories	Frequency	Percent
1-25%	4	13.3
26-50%	3	10.0
51-75%	1	3.3
More than 75%	4	13.3
Total	**12**	**40.0**

Use of Accredited Laboratories

Use of accredited testing laboratories is practiced in Sports Goods Cluster. 53.3% reported to be using accredited laboratories, while for 40%, it was not found to be a major concern. The results are shown below:



5.5 Certification Requirements

Awareness

Overall level of awareness about the required certifications by the Sports Goods Cluster was found to be high. Three fourth of the respondents reported having complete awareness about these requirements. Awareness was checked using Likert scale (1-5, 1 being lowest). The results are shown in Table 5-14.:

Table 5-14 Awareness on Certification Requirements

Rating	Frequency	Percent
1 (no awareness)	0	0
2	3	10.0
3	2	6.7
4	2	**6.7**
5 (complete awareness)	22	73.3
Invalid	1	3.3
Total	30	100

Types of Certification

Most commonly required certifications in Sports Goods Cluster are shown in Table 5-15.

Table 5-15 Important Certification Requirements

	Frequency	Percent
ISO 9000	27	90.0
SA 8000	7	23.3
ISO 14000	2	6.6
HACCP	1	3.3
OHSAS	1	3.3
WRAP	1	3.3
N	30	

Local-based Foreign Certification Bodies

Table 5-16 shows the names of certification bodies being used by Sports Goods Cluster Sialkot:

Table 5-16 Names of Certification Bodies being Used

Certification Body	Location	Frequency
TUV	Sialkot, Lahore	4
BVQI	Sialkot, Karachi	7
Moody international	Sialkot	9
SGS	Sialkot, Karachi, Lahore	6
SWISS	Lahore	2
AFAQ	Karachi	1
QA International	Lahore	1
ITS	Karachi	1
CGS	Sialkot	1

Foreign Certification Bodies

The use of foreign certification bodies was not found to be a common in Sialkot Sports Goods Cluster. None of the respondents mentioned about using the services of any such certification body.

Satisfaction Level with Local-based Foreign Certification Bodies

Likert scale of 1-5 (1 being lowest) was used for assessing the satisfaction level in terms of defined factors. Average ratings for each of these factors for local based foreign certification bodies are shown in Table 5-17.

Table 5-17 Satisfaction with Local-based Foreign Certification Bodies

Factor	Frequency of Rating					Mean Rating
	1	2	3	4	5	
Acceptability by export buyers	1	0	1	2	22	4.7
Laboratory accessibility	2	0	0	4	5	3.9
Technical skills	1	0	2	0	17	4.6
Certification costs	1	1	10	5	6	3.6
Overall cost to business	3	5	8	3	4	3.0
Time for certification	1	0	17	2	5	3.4

All the local-based foreign certification bodies identified by the enterprises were given the highest rating. There was not even one rating below 5 (Likert scale of 1-5, 5 being the highest)

5.6 Calibration

Awareness

100% of the respondents in sports Goods Cluster Sialket were aware of the calibration requirements.

Importance of Calibration

Importance given to calibration by the respondents was very high. On Likert scale of 1-5 (1 being lowest), 68.9% of the respondents gave the highest rating to importance of calibration for their enterprises. 13.8% gave the second highest rating and the same percentage gave average rating in this regard. The importance of calibration requirement by measuring instrument is given in Table 5-18 below.

Table 5-18 Important Calibration Requirements

Sr. No.	Measuring Instrument	Percent
1	Weigh Scale	73.3
2	Measuring Tape	70.0
3	Pressure Gauge	60.0
4	Thickness Gauge	40.0
5	Steel Rule	30.0
6	Steel Foll	3.3
7	Vernier Calliper	3.3
8	Hardness Gauge	3.3
9	Thermometers	3.3
10	Measuring Machine	3.3
11	Micro Meter	3.3
	N	

Calibration Practices

Most of the enterprises were found to be performing calibration activities once to twice a year. There were 28 valid responses, of which 64.3% performed calibration once and 21.4% twice a year. The frequency of calibration activity in enterprises in shown is Table 5-19 below.

Table 5-19 Calibration Frequency

Frequency of Calibration Activity in enterprise	Frequency	Percent
Never	1	3.6
Every year	18	64.3
Every six months	6	21.4
Every three months	2	7.1
Every month	1	3.6
Total	28	

Names of Laboratories

ERRA Laboratory in Lahore is the most commonly used laboratory for equipment calibration. No foreign calibration laboratories were used by Sialkot Sports Goods Cluster. The laboratories used are listed in Table 5-20.

Table 5-20 Calibration Laboratories being Used

Name of the Laboratory	Location	Frequency
ERRA Laboratory	Lahore	11
PCSIR Laboratories	Lahore	3
Links 2000	Lahore	1
J-Siza	Gujranwala	1
SGS	Karachi	1

Time taken for Calibration

Average time taken for a typical calibration activity from a laboratory within the city was found to be 4.6 days (for valid frequency of 5 enterprises). Average time taken for calibration from a laboratory in other city was found to be 8.2 days. The details are shown in the Table 5-21.

Table 5-21 Calibration Days from Laboratory in Same City

Days for a typical calibration activity from laboratory in same city		
No. of days	**Frequency**	**Percent**
1	2	40.0
3	2	40.0
15	1	20.0
Total	5	
Average no. of days		4.6

Table 5-22 Calibration Days from Laboratory in Other City

Days for a typical calibration activity from laboratory in other city		
No. of days	**Frequency**	**Percent**
1	1	5.6
3	3	16.7
4	3	16.7
5	1	5.6
7	3	16.7
10	2	11.1
15	4	22.2
20	1	5.6
Total	18	100.0
Average no. of days		8.2

Satisfaction by Local Calibration Laboratories

Satisfaction level with local calibration laboratories being used by Sialkot Sports Goods Cluster is high for the quality of the services and low for the time and cost involved for getting those services. The results follow:

Table 5-23 Satisfaction with Local Calibration Laboratories

	Satisfaction from Local Calibration Laboratories Frequencies						
Rating	**Acceptability by export buyers**	**Laboratory Adequacy**	**Laboratory Accessibility**	**Calibration costs**	**Time required for calibration**	**Technical skills**	**Overall cost to business**
1	1	1	1	1	2	1	9
2	0	0	5	12	10	0	2
3	3	3	5	0	1	0	0
4	4	2	1	0	0	0	0
5	6	9	3	2	2	14	2
Total	**14**	**15**	**15**	**15**	**15**	**15**	**13**
Mean Rating	**4.0**	**4.2**	**3.0**	**2.3**	**2.3**	**4.7**	**2.5**

5.7 Branding

Awareness

There was high awareness on the concept of branding in Sports Goods Cluster Sialkot (96.7%). There was only one enterprise that was not aware of the concept.

Importance

High importance was attached by the respondents to branding for achieving major growth in exports. Using Likert scale of 1-5 (1 being lowest), 60% respondents gave the highest rating (5). Average rating of 4.3 was obtained. Similarly, branding was also considered very important for competing in international markets. However, the relative score was lower than the one seen for its importance for achieving export growth. 53.3% of the respondents gave the highest rating (5). Average rating of 4.2 was obtained. Ratings of the importance of branding for these two purposes are shown in Table 5-24.

Table 5-24 Importance of Branding

Rating	Importance for achieving export growth	Importance for competing in international markets
0	0	0
1	1	1
2	1	1
3	4	5
4	6	7
5	18	16
Mean rating	4.3	4.2

Branding Practices

Local Market

Majority of the sports goods manufacturers did not have their brands for local market. Of the total 17 valid responses, there was only one respondent that was found to be selling in the local market under his brand name.

Export Market

In export market, most of the respondents (63.3%) claimed to sell products under their brand name. This seems surprising as most of the products manufactured in Sports Goods Cluster Sialkot are made for international brands.

Joint Branding

46.7% respondents were not interested in doing joint branding. The remaining were interested and 16.7% were found to be already practicing this.

Table 5-25 Potential of Joint Branding

	Frequency	Percent
Interested in joint branding	11	36.7
Already practicing joint branding	5	16.7
Not interested in joint branding	14	46.7
Total	30	

ANNEXURE VI CUTLERY CLUSTER WAZIRABAD

6.1 Industry Profile

There are approximately 200 units in Cutlery Cluster Wazirabad about half of which are exporters. Cutlery Cluster comprise of two main product groups; Tableware and Non-Tableware, with almost equal split amongst the two product categories. In exports, however, the situation is different. About 99% of the total exports of cutlery comprise of non-tableware. Since tableware cutlery products can affect human heath, therefore, the requirements of the buyers are higher than those for non-tableware cutlery. Availability of quality stainless steel (basic raw material) is an issue for the industry. Use of non-magnetic stainless steel for making tableware is very important. The basic purpose is to prevent it from rust as this will come in contact with food items. Most of the time, cutlery manufacturers have to use the steel made in Gujranwala, which is not of suitable quality. Pakistan Steel does not manufacture steel that is required by cutlery manufacturers/exporters.

Cutlery Cluster Wazirabad has a long history of trading with international brand names. In most of the cases, it is the long relationship between buyer and supplier that plays the key role in getting export orders. The manufacturer fulfils the basic product characteristics and the supplier is not very demanding of him for meeting any new requirements. Most of the time, it is the mutual trust between the two parties that drives this business. In case if the manufacturer is dealing with a new customer, the samples are sent to customer's own laboratories before getting order.

Commonly required tests by the buyers include material composition and hardness. Chromium and Molybdenum content is checked in raw material. For material composition, a certificate is provided by the supplier of the steel that is acceptable to the buyers. Most of the exporters are ISO 9000 certified. Currently, there is no particular requirement of compliance from any international buyer; even not from the multinational companies buying cutlery products from Wazirabad. However, with the cutlery manufacturers moving towards newer markets (like international chain stores), there may be a need for fulfilling more compliance requirements in future. There are no specific standards requirements from local market. CE marking is not a requirement for cutlery from any buyer.

Few good companies have their in-house testing laboratories. There is no commercial testing laboratory in Wazirabad. There is a need of metal testing laboratory in Wazirabad. There is a testing laboratory in Sialkot, which is used by the Cluster, but the reliability of its tests is questionable. The idea of launching a common brand for Wazirabad Cutlery for exports market is being implemented with assistance from UNIDO CDP.

6.2 Tests Required

Table 6-1 represents the tests identified in the survey of Cutlery Cluster Wazirabad.

Table 6-1: List of Tests

Sr. No.	Test
1	Metal Hardness
2	Metal Composition Test
3	Gauge
4	Tempering

Awareness Perception

The overall level of awareness on tests conducted in the Cutlery Cluster was reported to be high. Likert scale was used for this assessment (scale of 1-5, 1 being least aware). 22 of the total of 30 respondents (73.3%) perceived to have complete awareness on the tests required by their buyers. 23.3% gave the second highest rating of 4. There was only one respondent who gave lowest rating of 1.

Laboratory Infrastructure

In-house Testing Facility

Majority of the cutlery manufacturers do not possess in-house testing facilities. There were a total of 58 responses for listing down the tests from the 30 respondents. Of these, there were only 9 responses where the existence of in-house testing facility was reported. These responses were reported by 4 organizations (13.3%).

Availability of Qualified Staff

Use of qualified quality assurance staff is not practiced in Cutlery Cluster Wazirabad. Only 2 respondents out of the total sample size of 30 were reported to be using qualified quality assurance staff for conducting the required tests.

Common Testing Practices

Most of the tests in Cutlery Cluster are conducted using local laboratories, mainly in cities other than Wazirabad. Few tests are conducted using in-house laboratories. Use of foreign laboratories was also reported but was not very common. Table 6-2 shows data for all of the mentioned tests. The totals do not add to 100% due to multiple responses from different respondents.

Table 6-2 Testing Purpose with respect to Laboratory Type

	Own Purpose			Buyers Pu rpose		
	In-house	Local	Foreign	In-house	Local	Foreign
No. of tests	4	57	0	4	27	5
Percent	6.8%	98.2%	0%	6.8%	46.5%	8.6%

Laboratory Adequacy

Cutlery Cluster rated laboratory adequacy as being appropriate. Likert scale was used for assessing the perception (1-4, 1 being the lowest). Total of 4 responses were obtained for rating the adequacy of in-house laboratories. All of them gave rating 3. Total of 56 valid responses were obtained for rating local laboratories adequacy. Of these, most of the respondents gave the highest rating 4, the balance going for the second highest rating 3. The results are shown Table 6-3:

Table 6-3 Satisfaction with Testing Laboratory Adequacy

	Frequency		Percent		Average score
	Rating 3	Rating 4	Rating 3	Rating 4	
In-house Labs	4	0	100.0	0.0	3.00
Local Labs	24	32	42.8	57.2	3.57
Foreign Labs	No rating was provided for foreign laboratories				

Laboratory Accessibility

Assessment of accessibility of testing laboratory(s) in the Cluster indicates that laboratory facility is not available in Wazirabad. There was only one respondent who said that there is a laboratory in Wazirabad. However, in spite of this, the overall accessibility to laboratory services was rated adequate. Of the total 58 responses for different tests, the accessibility was rated adequate in 56 cases (96.5%).

Satisfaction Level for Local Laboratories

Satisfaction level regarding the available testing infrastructure was assessed using Likert scale (1-5, 1 being the lowest). The results are shown in Tables 6-4 to 6-6:

Quality of Laboratory Infrastructure

Satisfaction with quality of service by local testing laboratories in shown in Table 6-4:

Table 6-4 Satisfaction with Local Testing Laboratories

Rating	Laboratory adequacy		Laboratory Accessibility		Technical Skills		Acceptability by export buyers	
	Freq.	%	Freq.	%	Freq.	%	Freq.	%
1	0	0.0	0	0.0	1	3.7	1	4.0
2	0	0.0	2	7.4	1	3.7	2	8.0
3	10	38.4	22	81.4	4	14.8	1	4.0
4	16	61.6	3	11.1	12	44.4	11	44.0
5	0	0.0	0	0.0	9	33.3	10	40.0

The overall satisfaction level of Cutlery industry is high with respect to quality of the locally available testing laboratories infrastructure and the services provided by them.

- 61.6% of the respondents gave their rating as 4 for adequacy of the laboratory infrastructure and 38.4% gave 3. It is interesting to note that none of the respondents gave highest rating to laboratory adequacy for testing in Cutlery Cluster.
- In case of laboratory accessibility, an average opinion was obtained with a slight tile towards the upper end.
- Availability of technical skills with the local laboratories was rated high. 77.7% respondents gave above average rating in this regard.
- Situation of acceptability by export buyers was also reported to be satisfactory. 84% ratings were above average.

Affordability of Testing Services

Table 6-5 Satisfaction with Affordability of Local Testing Laboratories

Rating	Test costs		Overall cost to business		Time required for tests	
	Freq.	%	Freq.	%	Freq.	%
1	2	7.4	1	4.0	1	3.8
2	6	22.2	5	20.0	8	30.7
3	18	66.6	17	68.0	17	65.3
4	0	0.0	2	8.0	0	0.0
5	1	3.7	0	0.0	0	0.0

In case of affordability of getting tests conducted by local laboratories, in terms of costs and the time involved, the overall satisfaction level was low.

- For test costs, 66.6% of the respondents gave an average rating, the balance going for below average satisfaction levels. There was only one respondent who showed his highest level of satisfaction for tests costs. Looking at the profile of this enterprise, it was reported that this was the largest enterprise surveyed in terms of number of employees. Owner's education was graduation.
- The perception about the effect of tests on the overall cost of business had a tilt towards lower level. Majority (68.0%) gave an average rating, while 24% gave below average rating.
- Time taken by the local laboratories for conducting the required tests was also not considered to be satisfactory. 65.3% respondents gave average rating, with the remaining showing below average satisfaction level. There was no respondent who gave an above average rating to this parameter.

Mean scores for the assessed factors on the satisfaction level with local laboratories infrastructure, are detailed in Table 6-6.

Table 6-6 Mean Satisfaction Scores with Local Testing Laboratories

Factor	Mean Score (scale of 1-5, 1 being lowest)
Laboratory adequacy	3.61
Laboratory accessibility	3.03
Technical skills	4.00
Acceptability by export buyers	4.08
Tests costs	2.70
Overall cost to business	2.80
Time taken for tests	2.61

Local Laboratories Used

Table 6-7 Testing Laboratories of Gujranwala

Gujranwala		
Name of the Laboratory	**Frequency**	**%**
Mughal Steel	14	46.6
Sialkot Laboratory	1	3.3
Mubarak Steel	1	3.3
Khokhar Laboratory	1	3.3
S.K.	1	3.3
Total	**18**	**60.0%**

Table 6-8 Testing Laboratories of Lahore

Lahore		
Name of the Laboratory	**Frequency**	**%**
PCSIR Labs	4	13.3
People Steel	2	6.7
Mughal Sons	1	3.3
Total	**7**	**23.3**

Table 6-9 Testing Laboratories of Sialkot

Sialkot		
Name of the Laboratory	**Frequency**	**%**
Sialkot Laboratory	3	10.0
MIDC	2	6.7
Surgical Material Testing Laboratory	1	3.3
Waqas Laboratory	1	3.3
Mubarak Laboratory	1	3.3
Sialkot Cutlery Institute Laboratory	2	6.7
Surgical Technical Laboratory	1	3.3
Government Technical Centre	2	6.7
Small Estate Sialkot	1	3.3
Government Institute Sialkot	1	3.3
Total	**15**	**50.0**

The most common testing practice followed by the cutlery manufacturers of Wazirabad is to use the laboratories of Gujranwala and Sialkot. 60% of the respondents mentioned the laboratories of Gujranwala, the most commonly occurring being the laboratory of Mughal Steel. 50% of the respondents mentioned the name of laboratories in Sialkot. Although the frequency was lower for Sialkot, but the number of laboratories in Sialkot was higher than those in Gujranwala. In addition to these, there was mention of Government Technical Centre, Karachi and Mubarak Steel in Kahuta for getting tests conducted by Wazirabad Cutlery Clusters.

Satisfaction Level with the Identified Laboratories

Overall satisfaction level of the service provided by the laboratories mentioned above is high. Likert scale of 1-5 was used (1 being lowest) for assessment. None of the ratings obtained below the score of 3 for any of the testing facility. Detailed results are shown in Table 6-10.

Table 6-10 Satisfaction with Local Laboratories

Sr. No.	Name of the Laboratory	Frequency	Rating Frequency			Mean Rating
			3	4	5	
1	Mughal Steel	14	2	10	2	4.0
2	PCSIR	4	0	2	2	4.5
3	Sialkot Laboratory	3	1	2	0	3.6
4	Govt Technical Centre	3	1	0	2	4.3
5	MIDC Sialkot	2	0	2	0	4.0
6	Mubarak Steel	2	0	1	1	4.0
7	Sialkot Cutlery Institute Laboratory	2	0	2	0	4.0
8	People Steel Lahore	2	0	1	1	4.5
9	Small State Sialkot	2	0	2	0	4.0
10	Surgical Material Testing Laboratory	1	0	1	0	4.0
11	Waqas Laboratory	1	0	1	0	4.0
12	Mughal Sons	1	0	1	0	4.0
13	Khokhar Laboratory	1	0	0	1	5.0
14	S.K	1	0	1	0	4.0
15	Surgical Technical Laboratory	1	0	1	0	4.0
16	Govt Institute Sialkot	1	0	1	0	4.0

Local-based Foreign/Foreign Laboratories used by Wazirabad Cutlery Cluster

None of the Cutlery manufacturers in Wazirabad use local-based foreign or foreign laboratories for product testing.

6.3 Pre-shipment Inspection

Use of Pre-shipment Inspection

Use of pre-shipment inspection is not very common in Wazirabad Cutlery Cluster. Awareness about the concept was reported to be good. 90% of the enterprises were reported to be aware. Table 6-11 shows the use of pre-inspection in Cutlery Cluster Wazirabad:

Table 6-11 Pre-Shipment Practice

% exports shipments undergoing pre-shipment inspection	Frequency	Percent
None	15	50
1-10%	5	16.7
11-25%	10	33.3
Total	**28**	**100**

6.4 Accreditation of Testing Laboratories

Accreditation of testing laboratories did not come out as an important consideration for the cutlery manufacturers. The key findings are detailed in this section.

Awareness

Awareness about the requirement of using accredited laboratories for testing was reported to be high (90%). There was limited awareness about Pakistan National Accreditation Council. 30% respondents claimed to have heard the name of PNAC. However, none of those knew about the role of PNAC. They only knew that it a Government organization just like many others.

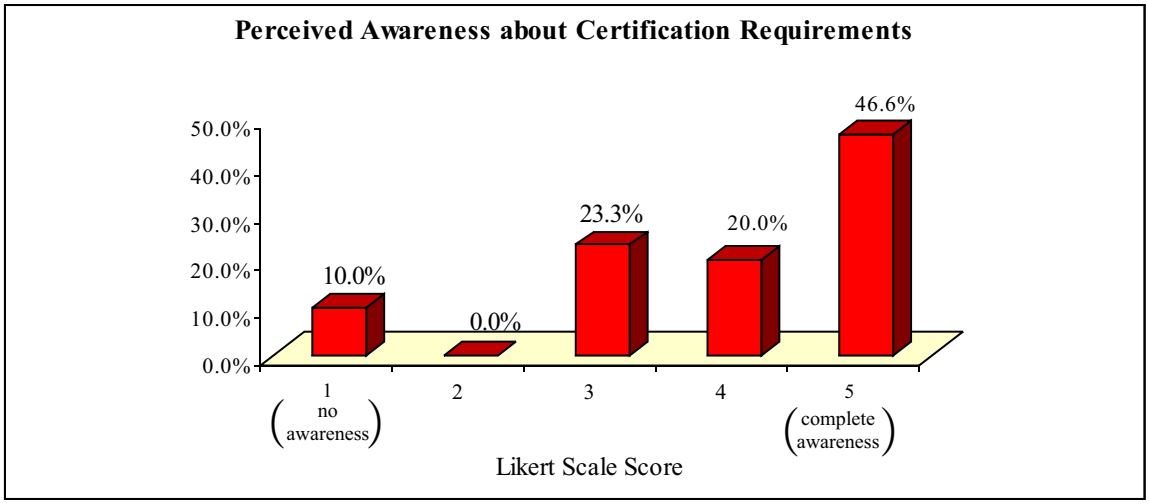
Practice Regarding Accreditation

Majority of the cutlery manufacturers were not pushed by their buyers for using accredited laboratories for testing. Only 1 respondent mentioned that it is required by their buyers. 96.5% of the respondents said that the buyers are not bothered about use of accredited laboratories. It is due to this scenario that accreditation did not turn out to be a major concern for cutlery manufacturers of Wazirabad. All the surveyed enterprises shared this opinion. However, it is interesting to note that in spite of this 56.7% of the respondents still believe that using accredited laboratories is useful for getting more business in international markets.

6.5 Certification Requirements

Awareness

The overall level of awareness about the certification requirement of cutlery cluster was high. 66.6% ratings were reported to be above average, 23.3% average and the balance below average. The results are shown in the following graph:



List of Certifications

ISO 9000 was the only certification requirement mentioned by the cutlery manufacturers of Wazirabad. There were only 3 respondents (10%) who mentioned this requirement. The other 90% did not require any certification from their buyers.

Local-based Foreign/Foreign Certification Bodies

No name of any local-based foreign certification body was mentioned by any of the respondents from Cutlery Cluster Wazirabad. Only one foreign certification body, BVQI (Bureau Veritas) was mentioned by one enterprise.

6.6 CE Marking

Awareness

66.7% of the cutlery manufacturing enterprises were reported to be aware of CE Mark certification. These included both the enterprises which are currently exporting and the ones which are currently not exporting, the majority being exporters. Distribution of aware and unaware people between exporters and non-exporters is shown in the Table 6-12.

Table 6-12 Awareness about Certification in Exporter and Local Player

	Exporter	Non-exporter	Total	Percent
Aware	17	3	**20**	**66.7**
Unaware	5	5	**10**	**33.3**
Total	**22**	**8**	**30**	**100**
Percent	**73.3**	**26.7**	**100**	

Importance of CE Marking

The cutlery industry places high level of importance to CE Mark certification. 73.3% of the respondents placed above average level of importance to this certification, while 20% considered it to be not important at all. Majority of the people who gave high rating on importance were exporters, but this category also included non exporters. The division with respect to exporters and non-exporters is shown in Table 6-13:

Table 6-13 Importance of CE Marking for Exporter and Local Player

Rating on Importance	Exporter	Non-exporter	Total	Percent
0	2	4	**6**	20.0
3	1	1	**2**	6.67
4	7	2	**9**	30.0
5	12	1	**13**	43.3
Total	**22**	**8**	**30**	100
Percent	73.3	26.7	100	

Demand of Buyers

The export buyers of Wazirabad Cutlery were not reported to be demanding regarding CE Mark certification. There was no enterprise that mentioned about any demand from buyers for getting product certified for CE Mark.

Need for Training Course

29 responses were obtained in this category of which, 8 (27.5%) had attended any course on CE Mark certification. Majority did not have any formal exposure to CE Mark certification. There were 72.4% respondents who showed their interest in attending a course for getting awareness and training on CE Mark certification.

Current Export Markets

46.7% of the exporters of Cutlery from Pakistan were reported to be exporting to EU. Nobody was reported to be exporting to any market other than EU that required CE Mark certification.

Target Markets

It is interesting to note that some cutlery manufacturers were also reported to be interested in getting CE mark certification for local markets. There were 9 respondents in this category. For export markets, the number of enterprises interested in getting this certification was 20 (66.7%). 7 of these enterprises wanted to get CE mark certification for EU market, while 2 considered it to be a good option for Gulf market also.

Reasons for Not Getting CE Marking

Only two reasons were quoted for not getting CE Mark certification. 55.8% respondents said that they were not pushed by their buyers for getting CE mark certification. The balance quoted lack of awareness for net getting this certification.

Preferred Route for CE Marking

46.7% of the respondents were not sure about the preferred route for getting CE Mark certification. For the respondents who did mention their preference, they wanted to do it through a representative in EU market instead of getting it done in Pakistan. Therefore, the need of facilitating the provision of CE Mark certification services in Pakistan for Cutlery Cluster Wazirabad does not seem to be in demand (at the current level of awareness).

Table 6-14 Preferred Routes for Getting CE Marking

Option	% age
Send products to importer in Europe and let him perform the whole assessment	3.3%
Through a representative in EU market who has knowledge and contact with European testing laboratories	50.0%
Send products to Notifying Body in EU and let it perform all testing and help with technical documentation. Export CE marked product to Europe	0%
Perform testing in Pakistan for products for that don't need involvement from a notifying body. Technical documentation drawn in Pakistan and already CE marked product is exported to Europe	0%
Not sure	46.7%
Total	**100%**

6.7 Calibration

Awareness

29 out of 30 enterprises (96.7%) of Cutlery Cluster Wazirabad claimed to be aware of the calibration requirements of their cluster.

Importance of Calibration

Importance given to calibration by the respondents was very high. On Likert scale of 1-5 (1 being lowest), 83.3% respondents gave above average rating to importance of calibration. 10% gave average rating.

Important Calibration Requirements

Table 6-15 shows the important calibration requirements of Cutlery Cluster Wazirabad:

Table 6-15 Important Calibration Needs

Sr. No.	Measuring Instruments	Frequency	Percent
1	Magno meter	3	10.0%
2	Weigh Scale	2	6.7%
3	Gray Scale	1	3.3%
4	Vernier Gauge	1	3.3%
5	Macro Meter	2	6.7%
6	Hardness Tester	2	6.7%
	N	30	

Calibration Practices

In Cutlery Cluster, the most common practice is the replacement of the measuring instrument instead of calibrating it. The most common calibration frequency was reported to be after every six months.

Table 6-16 Calibration Frequency

Frequency of Calibration Activity in enterprise	Frequency	Percent
Never	3	10.3%
Every year	4	13.7%
Every six months	7	24.1%
Every three months	2	6.9%
Every month	1	3.4%
More than one year	1	3.4%
Replace the equipment	11	37.9%
Total	29	

Names of Laboratories Used by Cutlery Cluster Wazirabad

Only the name of one organization, Technical Institute Sialkot, was mentioned by one enterprise for getting calibration services.

Time taken for Calibration

Average time taken for a typical calibration activity from a laboratory within the city was reported to be 8.03 days (for valid frequency of 16 enterprises). Average time taken for calibration from a laboratory in other city was reported to be 16 days. The details are shown in the Table 6-17.

Table 6-17 Calibration Time from Laboratory within City

No. of days for typical calibration activity from laboratory within city		
No. of days	**Frequency**	**Percent**
1	2	7.4%
5	3	11.1%
7	14	51.9%
10	5	18.5%
12	1	3.7%
15	1	3.7%
25	1	3.7%
Average days		8.03
N		27
No. of days for typical calibration activity from laboratory in other city		
No. of days	**Frequency**	**Percent**
2	1	4.0%
3	1	4.0%
10	2	8.0%
12	1	4.0%
13	1	4.0%
15	11	44.0%
20	6	24.0%
25	1	4.0%
40	1	4.0%
Average days		16.0
N		25

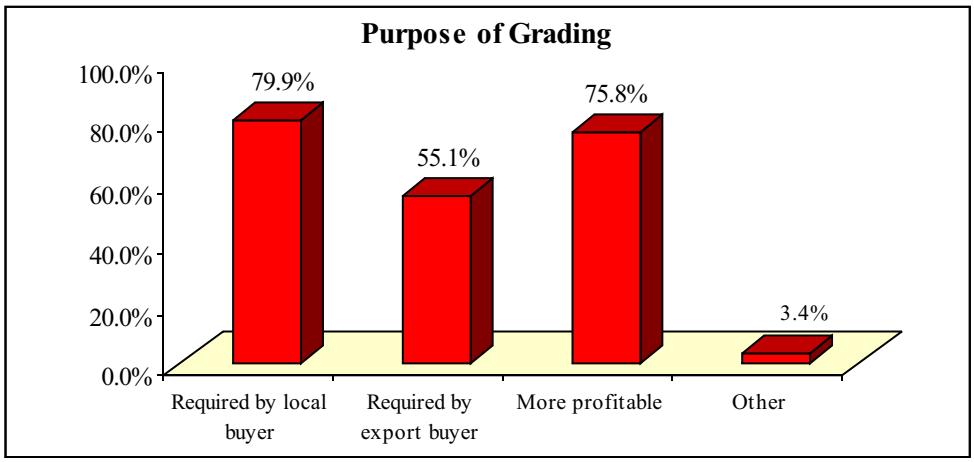
6.8 Grading and Traceability

Grading Practice

100% of the respondents mentioned grading to be a practice followed by them while selling their cutlery products.

Purpose of Grading

Grading is practiced for multiple reasons, listed in the following figure:



Importance of Grading

Grading is very important as 100% of the international buyers of cutlery from Pakistan require graded products. However, majority of the cutlery exporters do not expect any loss in exports if they do not practice grading. Only 6 respondents (20.7%) expected to suffer a loss in exports if grading is not done.

Major Grading Parameters

Number of defects and product characteristics were identified as the two main parameters for gradin cutlery products. The details is given in Table 6-18:

Table 6-18 Grading Parameters

Grading Parameter	Frequency	Percent
No. of defects	29	100
Product characteristics	28	96.5
Size	8	27.5
N		29

Product Attributes Used for Grading

Product attributes used for grading of cutlery products along with their frequencies are summarized in Table 6-19:

Table 6-19 Product Attributes Used for Grading

Product Attribute	Frequency	Percent
Polish	59	25.4
Hardness	43	18.5
Composition	38	16.4
Material	29	12.5
Finish	17	7.3
Guage	17	7.3
Mould	5	2.2
Design	4	1.7
Minor Cutting	3	1.3
Fittings	3	1.3
Manufacturing	2	0.9
Surface	2	0.9
Cutting	2	0.9
Accuracy	2	0.9
Edge	1	0.4
Quality Fitness	1	0.4
Assembling	1	0.4
Packing	1	0.4
Sharpness	1	0.4
Firmness	1	0.4
Total	232	100.0

Traceability

Awareness

93.1% of the respondents claimed to be aware of the traceability requirements of Cutlery Cluster.

Requirement from Buyers

15 respondents from 29 valid responses mentioned that traceability is demanded from their buyers (51.7%). However, looking at the response regarding the degree of strictness being imposed by the buyers, the demand from buyers seems stricter. 86.7% of the respondents in this case mentioned that the buyers are very strict (conflict in two responses). There was only one respondent who mentioned that he has lost order due to his inability of fulfilling traceability requirements. Table 6-20 shows the details:

Table 6-20 Requirement of Grading from Buyers

Rating	Frequency	Percent
1 (not strict)	0	0.0
2	2	6.7
3	2	6.7
4	11	36.7
5 (very strict)	15	50.0
N	30	

6.9 Branding

Awareness

There was 93.3% awareness on the concept of branding in Wazirabad Cutlery Cluster. There were only 2 enterprises who expressed their ignorance in this regard.

Importance

Very high importance was attached by the respondents to branding for achieving major growth in exports. Using Likert scale of 1-5 (1 being lowest), 60% respondents gave the highest rating (5) and 20%, the second highest. There were only two respondents (6.7%) who said that branding in not important for achieving growth in exports. Mean rating of 4.2 was obtained. The importance of branding was rated high as well for competing in international markets. Similar results were seen. 80% ratings were above average. Mean rating of 4.2 was obtained.

Branding Practices

The percentage of enterprises selling under their own brand name in local market was smaller compared to those selling without any brand. Of the total valid responses, 33.3% were being sold under their own brand. When looked from the overall sample perspective, the percentage reduced to only 20%. In export market, there were 10 respondents (33.3%) who were reported to be marketing their cutlery products under their own brand. Regarding joint branding, there were 30% enterprises who replied in negative about doing joint branding with other enterprises. 13.3% were already practicing joint branding, while 56.7% were interested in going for this practice.

ANNEX VII: FANS CLUSTER GUJRAT

7.1 Industry Profile

Traditionally, electric fans has been a product for local market in Pakistan. Export of fans started about five years back and since then its at the rate of three to four percent per year. Only 10-15% of the total fans production is exported. There are 12-15 exporters in the Fans Cluster in Gujrat all of which supply to local market as well. Percentage of production exported by a single enterprise may go up to a maximum of 30% of the total production. The Cluster is highly vendor-based. The share of parts manufactured by vendors is higher for smaller manufacturers (85-90%), while for large players, the situation is reverse.

Fans standards are of two types; performance and safety. Majority of the electric fans manufacturers in Gujrat follows SASO (Saudi Arabia Standards Organization) standards, which are derived from IEC (International Electro Technical Commission) standards. CE marking and UL (Underwriters' Laboratories) standards are the two international safety standards, which have strict requirements to meet. UL certification is for US market and CE mark certification is for European market. The requirements of CE mark certification are stricter compared to those of UL. Another safety standard is GS (German Safety Mark). CE mark certification does not require surveillance testing, but GS does. After a proposed amendment, CE mark certification will also need surveillance testing in future.

There are no defined safety standards for fans in Pakistan. PSI has defined only the performance standards. There is a need for PSI to draft standards for safety also. All the relevant standards relating to safety should be collected and a Pakistani standard of safety should be developed. The standards for fans are defined by the importing country. However, enforcement of these standards is usually not very strict. Most of the times, certification requirements for fans industry are just a formality and actual compliance is usually not carried out. The Cluster enterprises note that in the near future, safety standards will be the most demanded compliance requirement by the international buyers.

The survey identified a number of issues in achieving the CE marking and UL certifications. One of the major sources of non-compliance is the use of substandard components, like switches and capacitors. The industry will either have to bear the cost of compliance or loose business as a consequence of non-compliance. Lack of proper awareness on different types of required standards is an issue. There is a need to increase this awareness. For getting CE mark certification, there is no laboratory in Pakistan. Establishment of such a laboratory will support the industry in facilitation for improving exports. Unavailability of internationally accredited laboratory is also an issue. PCSIR is accredited for carrying out SASO tests and is in the process of getting international accreditation from a well-known Norwegian company. Cost for obtaining CE mark certification is in the tune of USD 10,000 and is also an issue. Along with cost, time also sometimes becomes an issue. SASO test is done in about three to four days, whereas safety compliance may require as long as one and a half month.

7.2 Tests Required

List of Tests

Following are the major tests conducting by the fans manufacturers of Gujrat:

Table 7-1 Tests Preformed on Fan Products

Sr. No.	Test
1	Magno Test
2	Starting and Running Test (RPM)
3	Voltage Fluctuation Test (Voltage Test)
4	Air Delivery Test (Service delivery)
5	Temperature Rise Test (Heat Temperature)
6	Copper Wire Test
7	Watts Test
8	Ampere Test

Awareness Perception

The overall level of awareness about tests carried out in the Fans Cluster was found to be high. There was no respondent who rated awareness level below 4 (on a scale of 1-5, 1 being the least aware). 25 out of the total 30 respondents (83.3%) perceived to have complete awareness about the tests required by export buyers of electric fans. The mean score for these responses was 4.83.

In-house Testing Facility

All the fans manufacturers were reported to have an in-house testing facility in their factories. These facilities are used for conducting tests for own quality assurance purposes as well for meeting buyers requirements.

Availability of Qualified Staff

Use of the qualified staff for conducting tests was not found to be common in Fans Cluster. Only 4 respondents out of the total sample size of 30 use qualified quality assurance staff (13.3%). Looking at the profile of these 4 organizations, it was found that all of these are the large manufacturers. 3 of these are private limited companies having more than 300 employees. The fourth is a partnership firm with 70 employees; average number of employees in the sample was 54.5. All of these four organizations are 'older' organizations compared to the average 'age' of the sample; two of these were established in 1950s. None of the sole proprietorships was using qualified quality assurance staff.

Common Testing Practices

Most of the tests in Fans Cluster are conducted using in-house testing facilities and the local laboratories. None of the surveyed manufacturers reported to having used foreign laboratory. There was no major difference in testing practice whether the test was conducted for internal quality assurance purpose or for buyer's purpose. Table 7-2 shows the results (the total do not add to 100% due to multiple responses).

Table 7-2 Fans Cluster Purpose of Testing in relation to Laboratory Type

	Own Purpose			Buyers Purpose		
	In-house	Local	Foreign	In-house	Local	Foreign
No. of tests	78	74	0	62	65	0
Percent	100%	94.8	0.0	79.4%	83.3	0.0

Laboratory Adequacy

Laboratory adequacy is rated high by the fans industry. Likert scale was used for assessing the perception (1-4, 1 being the lowest). None of the respondents gave a score of less than 3 for any of the tests. The surveyed fans manufacturers were found having a better perception of the local testing laboratories compared to that of in-house laboratories. The in-house laboratories obtained the highest rating of 4 in 39.7% of the cases, while local laboratories got highest rating in 93.6% of the cases. This is also shown by the average scores; 3.4 for in-hose laboratories compared to 3.94 for local laboratories. The results are shown in the Table 7-3:

Table 7-3 Fans Cluster - Satisfaction on Adequacy of Laboratory Infrastructure

Laboratory Type	Number		Percent		Average score
	Rating 3	Rating 4	Rating 3	Rating 4	
In-house Labs	47	31	60.3	39.7	3.40
Local Labs	5	73	6.4	93.6	3.94
Foreign Labs	None of the respondents use foreign laboratories for testing				

Laboratory Accessibility

All respondents in the Fans Cluster, other than one, reported existence of a local testing laboratory.

Satisfaction Level for Local Laboratories

Satisfaction level regarding the available testing infrastructure was assessed using Likert scale (1-5, 1 being the lowest). The results are shown in the Table 7-4:

Table 7-4 Quality of Laboratory Infrastructure Fans Cluster Satisfaction with Local Testing Laboratories

	Freq.	%	Freq.	%	Freq.	%	Freq.	%
1	0	0.0	2	7.1	1	3.4	0	0.0
2	0	0.0	10	35.7%	1	3.4%	0	0.0
3	0	0.0	4	14.3	0	0.0	0	0.0
4	21	72.4	9	32.1	11	37.9	6	60.0
5	8	27.6	3	10.7	16	55.2	4	40.0

The overall satisfaction level of fans industry is high with respect to quality of the locally available testing laboratories infrastructure and the services provided by that. Important findings in this regard are as follows:

- 72.4% of the respondents reported rating of 4 for adequacy of the laboratory infrastructure and 27.6% gave 5. None of the ratings was found below 4.
- In case of laboratory accessibility, the opinion was split with major frequencies for ratings 2 and 4.
- Availability of technical skills with the local laboratories was rated very high. 55.2% of the respondents reported the highest rating of 5 and 37.9% the second highest rating 4.
- Situation of acceptability by export buyers was also found to be satisfactory. There was no rating below 4.

Affordability of Testing Services

In case of affordability of getting tests done by local laboratories in terms of costs and the time involved, the overall satisfaction level was low as indicated in the Table 7-5.

Table 7-5 Fans Cluster Satisfaction with Affordability of Local Testing Laboratories

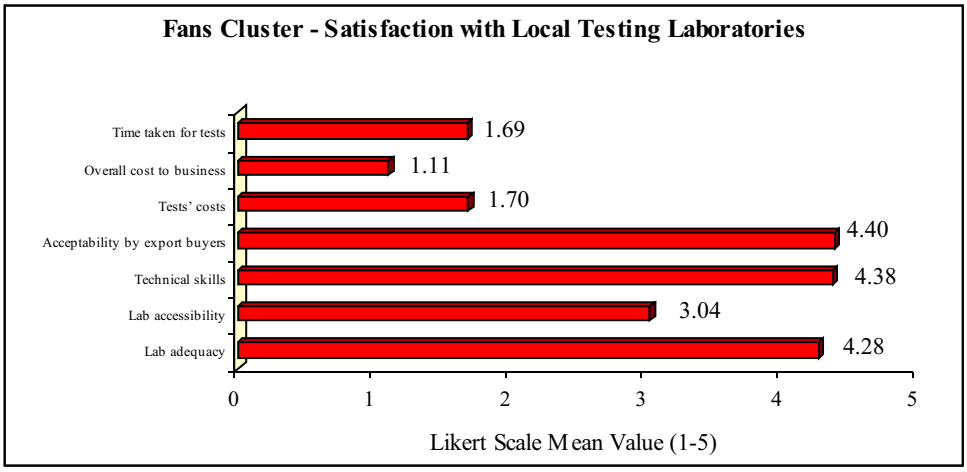
Rating	Test costs		Overall cost to business		Time required for tests	
	Freq.	%	Freq.	%	Freq.	%
1	13	48.1	25	89.3	14	53.8
2	10	37.0	3	10.7	9	34.6
3	3	11.1	0	0.0	1	3.8
4	1	3.7	0	0.0	1	3.8
5	0	0.0	0	0.0	1	3.8

Important findings are:

- For test costs, 48.1% of the respondents gave the lowest rating of 1 and 37% gave the second lowest rating of 2. There was no respondent that gave the highest rating of 5.
- The perception about the impact of conducting tests on the overall cost of business was also negative. 89.3% of the surveyed units gave the rating 1 that represented the lowest satisfaction level.
- Time taken by the local laboratories for conducting the required tests was also considered to be not satisfactory. 88.4% respondents gave below average rating about their satisfaction level regarding this parameter.

Average Ratings

Average scores for the assessed factors about the satisfaction level with local laboratories infrastructure is shown in the chart on the next page.



Local Laboratories

Seven laboratories were mentioned by the fans manufacturers of Gujrat for getting the tests conducted. Of these three are located in Gujrat and four in Lahore. Fans Development Institute (FDI) of Pakistan Electric Fans Manufacturers Association is used most commonly. 93.3% of the respondents mentioned the name of FDI as their service provider for testing. After FDI, laboratory in Swedish College is the other commonly used laboratory. In Lahore, PCSIR Laboratory is most commonly used. However, the use is less frequent than those of the laboratories of FDI and Swedish College. The results are shown in the Tables 7-6 and 7-7:

Table 7-6 Fans Cluster Satisfaction with Local Laboratories being Used in Gujrat

Gujrat				
Name of the Laboratory	Frequency	% Frequency	Satisfaction Level	
			Rating 4	Rating 5
Fan Development Institute	28	93.3	8	20
Swedish College	4	13.3	1	3
Pak Fans	1	3.3	0	1

Table 7-7 Fans Cluster - Satisfaction with Local Laboratories being Used in Lahore

Lahore				
Name of the Laboratory	Frequency	% Frequency	Satisfaction Level	
			Rating 4	Rating 5
PCSIR Labs	3	10.0	1	2
People Steel	1	3.3	0	1
PSI	1	3.3	0	1
Unity	1	3.3	0	1

It is surprising to note that none of fans manufacturers mentioned any laboratory from Gujranwala for getting any test conducted. Satisfaction level of the service provided by the laboratories mentioned above is high. Likert scale of 1-5 was used (1 being lowest) for assessment. None of the ratings obtained below the score of 4 for any of the testing facility. For FDI, 71% respondents gave the highest rating and the balance the second highest rating.

Local-based Foreign/Foreign Laboratories Used by Gujrat Fans Cluster

None of the electric fans manufacturers in Gujrat were found using local-based foreign or foreign laboratories for product testing.

7.3 Pre-shipment Inspection

Use of Pre-shipment Inspection

Use of pre-shipment inspection is not very commonly practiced in Fans Cluster Gujrat. Only 29.6% of the respondents were found to be aware of the concept of pre-shipment inspection. Units practicing pre-shipment inspection use either foreign inspection bodies or local-based foreign inspection bodies for this purpose. None of the respondents was reported to be using any local body for this purpose. This is due to difficulty in acceptability of the results of any local inspection body. Table 7-8 shows the use of pre-inspection in Fans Cluster.

Table 7-8 Fans Cluster Practice of Pre-Shipment Inspection

% exports undergoing pre-shipment inspection	Frequency	Percent
None	20	71.4
1-10%	5	17.8
11-25%	3	10.7
Total	**28**	**100**

The three inspection bodies were mentioned by the units using pre-shipment inspection included Bureau Veritas Quality International, Intertek Testing Services (ITS) and SGS. The services provided by these three bodies were given the highest rating by the respondents in terms of their satisfaction level.

7.4 Accreditation of Testing Laboratories

Accreditation of testing laboratories did not come out as an important consideration for the Fans Cluster. Following are the key findings.

Awareness

Only 30% of the total respondents were aware of the requirement of using accredited testing laboratories. 21 out of 30 respondents did not have any idea about this requirement. There was uncertainty amongst the fans manufacturing units about the utility of using accredited laboratories. 80% of the respondents said that they are not sure about whether using accredited laboratories is helpful for getting more business. Only two respondents were of the view that it is helpful in this regard (6.7%). There was almost no awareness about Pakistan National Accreditation Council. Only one out of 30 respondents knew the name of PNAC.

Practice Regarding Accreditation

Majority of the manufacturers were not pushed by their buyers for using accredited laboratories for testing. Only 2 respondents mentioned that it is required by their buyers. Both of these were found to be large manufacturers having significant share of their total revenues from exports. Due to the absence of any pressure from buyers, the use of accredited testing laboratories is not common in Fans Cluster Gujrat. Only 3 manufacturing units mentioned that they always use accredited laboratories for testing, while for others (83.3%), it was not a major concern.

7.5 Certification Requirements

Table 7-9 shows the certification requirements identified by the surveyed fans manufacturers of Gujrat.

Table 7-9 Fans Cluster Certification Requirements

Sr.No.	Certification	Frequency
1	ISO 9001	10
2	CE Mark	3
3	PSI -77	1
4	Sork	1
5	UL -77	1
	Total	**16**

Awareness

A divided opinion was received on the level of awareness of the certification requirements of Fans Cluster. 30% were of the view that they had complete awareness about all types of certification requirements, while 3.3% did not have any awareness. The results are shown in the Table 7-10:

Table 7-10 Fans Cluster Awareness on Certification Requirements

Rating	Frequency	Percent
1 (no awareness)	1	3.3%
2	6	23.3%
3	9	30.0%
4	4	13.3%
5 (complete awareness)	9	30.0%
Invalid	1	
Total	**30**	

Local-based Foreign Certification Bodies

Names of five certification bodies were mentioned by the respondents from Fans Cluster which are shown in the Table 7-11:

Table 7-11 Fans Cluster Local-based Foreign Certification Bodies being used

Certification Body	Location	Frequency
TUV	Lahore	4
Moody International	Lahore, Sialkot	2
BVQI (Bureau Veritas)	Lahore	1
UL (Underwriters Laboratory)	Lahore	1
DUB	Karachi	1

Foreign Certification Bodies

The use of foreign certification bodies was not found to be a common in Gujrat Fans Cluster. Only one foreign certification body, TUV Hong Kong, was being used by the surveyed respondents.

Satisfaction Level with Certification Bodies

Likert scale of 1-5 (1 being lowest) was used for assessing the satisfaction level in terms of defined factors. Average ratings for each of these factors for local based foreign and foreign certification bodies are shown in the Table 7-12:

Table 7-12 Fans Cluster Mean Scores for Local-based Foreign and Foreign Certification Bodies

Factor	Average Score for Local - based Foreign Certification Bodies	Average Score for Foreign Certification Bodies
Acceptability by export buyers	4.6	5.0
Laboratory accessibility	3.6	2.5
Technical skills	4.7	5.0
Certification costs	4.4	5.0
Overall cost to business	3.2	3.0
Time for certification	4.2	4.0
N	**7**	**2**

The results shown in Table 7-12 only indicate a comparison and should be generalized with caution as frequencies used for compiling the above-mentioned scores are small.

7.6 CE Marking

Awareness

36.7% of the respondents were found to be aware of CE marking. Relating this awareness to the share of exports in total sales, it is seen that all of these are not exporters. Of the total 11 respondents who are aware of CE marking, 6 were not currently exporting. Similarly, all the exporters were not aware of CE marking. Of the total 9 exporters, only 5 were aware of CE marking requirement.

Importance of CE Marking

The industry seemed to be divided into two distinct groups in this regard. Majority of the respondents (56.6%) did not attach any importance to CE marking. The others attached very high importance to this requirement. 23% respondents gave rating 5 and 20% rating 4 to CE marking. There was no response for ratings 2 and 3 and only one response of rating 1. This division shows that the people who are aware of CE marking attach high importance to this certification, while others do not attach any importance.

Demand from Buyers

The export buyers of Pakistani fans were not found to be very demanding regarding CE marking. There were only two companies (6.7%) who mentioned that up to 50% of their export buyers demand CE marking. Both of these were the large renowned brand names.

Current Export Markets

Most of the manufacturers of fans in Gujrat are not exporting to EU. There was only one company that was found to be exporting fans to the EU market. There was only one respondent that was exporting to markets other than EU where CE marking was required.

Need for Training Courses

27 responses were obtained in this category of which, 23 (85%) have not attended any course on CE marking. There were 33% respondents who showed their interest in attending a course for getting awareness and training on CE marking. These people are split with respect to their present level of awareness. Of the total persons who want to take this training, 60% are already aware of CE marking and 40% want to know about it.

On the other hand, of the people who do not want to take this course, 25% are already aware of this and the rest neither know currently, nor want to know about it in future. The results are shown in the Table 7-13 below.

Table 7-13 Fans Cluster: Awareness of CE Marking and Demand for Training

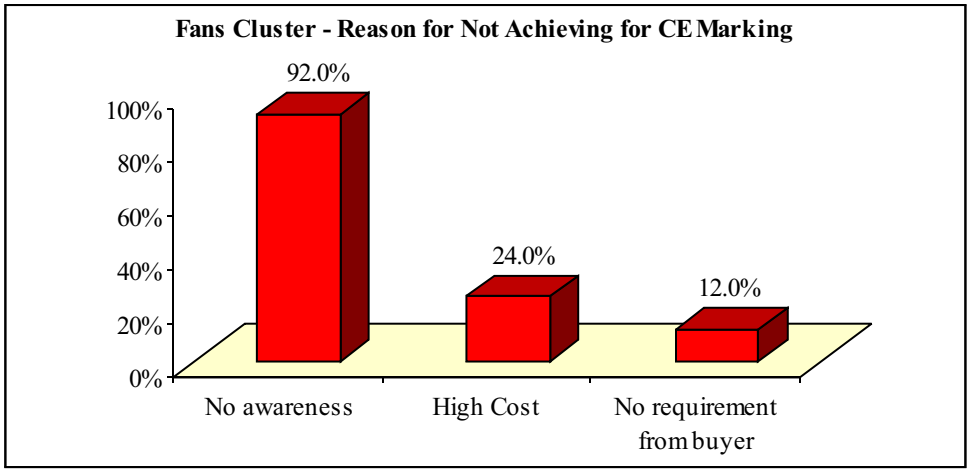
Training/ Awareness Required		Aware of CE marking		Total
		Yes	No	
Wishing to get training/awareness	Yes	6	4	10
	No	4	12	16
	Not applicable	0	1	1
	No information	1	2	3
Total		11	19	30

Target Markets

None of the respondents was found to be interested in getting CE marking for local market. Majority was interested in getting this certification for EU market. Of the total 25 valid responses, 23 were affirmative towards getting this certification for EU market (92%). Two respondents also showed their intentions for getting CE marking for US and Gulf markets. These results indicate towards lack of clarity prevailing in the industry about CE marking. Majority of the respondents did not attach any importance to this certification. Yet, when it comes to getting this certification, majority is interested in obtaining this certification. These anomalous results once again indicate towards the need for building awareness about CE marking in electric Fans Cluster Gujrat.

Reasons for Not Achieving CE marking

Lack of awareness was quoted as the largest reason for not adopting CE marking. High cost was the second most important reason and third related to demand from the buyers. The results are shown in the following graph:



Preferred Route for CE marking

75% of the respondents were not sure about the preferred route for not obtaining CE marking. Respondents who did mention their preference, preferred to manage most of the activities for getting this certification in Pakistan instead of some agents in Europe or let the buyers perform all the testing. This shows the need for setting up required infrastructure (awareness, testing, accreditation, notifying body) for getting CE marking in Pakistan.

Table 7-14 Fans Cluster Preferred Route for Getting CE marking

Option	Frequency	Percent
Send products to importer in Europe and let him perform the whole assessment	0	0%
Through a representative in EU market who knowledge and contact with European testing laboratories	1	3.6%
Send products to Notifying Body in EU and let them perform all testing and help with technical documentation. Export CE marked product to Europe	1	3.6%
Perform testing in Pakistan for products for that don't need involvement from a notifying body. Techn ical documentation drawn in Pakistan and already CE marked product is exported to Europe	5	17.8%
Not sure	21	75%
Total	**28**	

7.7 Calibration

Awareness
All respondents were aware of the calibration requirements in Fans Cluster Gujrat.

Importance of Calibration
The survey respondents attached high importance to the calibration. On Likert scale of 1-5 (1 being lowest), not even a single rating was given below 4. 93% of the respondents gave the highest rating of 5 to calibration in terms of its importance for the enterprise.

Important Calibration Requirements
Following are the important calibration requirements of Fans Cluster Gujrat.

Table 7-15 Fans Cluster Calibration Requirements

Sr. No.	Measuring Instrument	Frequency	Percent
1	Power Analyzer	23	76.7%
2	Micro Meter	17	56.7%
3	Vernier Gauge	13	43.3%
4	Mager Meter	13	43.3%
5	Watt Meter	12	40.0%
6	Voltage meter	12	40.0%
7	Tachometer	11	36.7%
8	Macno Meter	7	23.3%
9	Ampere Meter	4	13.3%
10	Temperature Gauge	2	6.7%
11	RPM Meter	2	6.7%
12	Vertical Extending Machine	1	3.3%
13	Femco Meter	1	3.3%
14	Sound level meter	1	3.3%
15	Hi-voltage tester	1	3.3%
16	Insulation meter	1	3.3%
17	Hardness tester	1	3.3%
18	DTI (Dial Test Indicator)	1	3.3%
19	Wire Meter	1	3.3%
20	Revolving Meter	1	3.3%
21	Air Controller	1	3.3%
	N	30	

The percentages do not add to 100 due to multiple responses

Calibration Practices

Most of the enterprises were found to be performing calibration activities once to twice a year. There were 20 valid responses, of which 35% of respondents performed calibration once and 30% twice a year. It is surprising to note that 30% of the respondents mentioned as not performing calibration at all (although they attached very high importance to calibration).

Table 7-16 Fans Cluster Frequency of Calibration

Frequency of Calibration Activity in enterprise	Frequency	Percent
Never	6	30%
Every year	7	35%
Every six months	6	30%
Replacement	1	5%
Total	20	

Names of Laboratories Used by Fans Cluster Gujrat

PCSIR Laboratories Lahore is the most commonly used laboratories for equipment calibration by Fans Cluster Gujrat. The laboratories used in Lahore and Sialkot are listed in the Table 7-17.

Table 7-17 Fans Cluster Calibration Laboratories Used

Name of the Laboratory	Frequency
Lahore	
PCSIR Labs	3
Unity	1
Links 2000	2
Sialkot	
Akber Engineering	1

Use of Calibration Laboratories: Within City vs. Other City Laboratories

All the calibration requirements of Fans Cluster are met either from laboratories within the city or from laboratories in other cities. None of the surveyed enterprise uses any foreign laboratory for calibration.

Time taken for Calibration

Average time taken for a typical calibration activity from a laboratory within the city was found to be 3.06 days (for valid frequency of 16 enterprises). Average time taken for calibration from a laboratory in other city was found to be 4.87 days. The details for the two cases are presented in the Table 7-18 and 7-19:

Table 7-18 Fans Cluster Calibration Days from Laboratory within City

No. of days for a typical calibration activity from laboratory within city		
No. of days	**Frequency**	**Percent**
1	1	6.2%
2	7	43.7%
3	4	25.0%
5	3	18.7%
7	1	6.2%
Total	16	
Average no. of days		3.06

Table 7-19 Fans Cluster Calibration Days from Laboratory in Other City

No. of days for a typical calibration activity form laboratory within city		
No. of days	**Frequency**	**Percent**
2	1	6.2%
3	5	31.2%
4	4	25.0%
5	2	12.5%
7	3	18.7%
10	1	6.2%
	16	
Average no. of days		4.87

Level of Satisfaction: Local Calibration Laboratories

Satisfaction level with local calibration laboratories was assessed using Likert scale (1-5, 1 being lease satisfied). The results are shown in the Table 7-20:

Table 7-20 Fans Cluster Satisfaction with Local Calibration Laboratories

	Frequencies						
Rating	**Acceptability by export buyers**	**Laboratory adequacy**	**Laboratory accessibility**	**Calibration costs**	**Time required for calibration**	**Technical skills**	**Overall cost to business**
1	0	0	0	0	0	0	0
2	0	0	0	0	0	0	2
3	0	0	2	2	2	0	1
4	0	0	1	0	0	0	0
5	3	3	0	1	1	2	0
Total	**3**	**3**	**3**	**3**	**3**	**2**	**3**

Rating is high for acceptability by export buyers, laboratory adequacy and technical skills, while for accessibility, costs and time, it is relatively low.

7.8 Branding

Awareness

There was 100% awareness on the concept of branding in Fans Cluster.

Importance

High importance was attached by the respondents to branding for achieving major growth in exports. Using Likert scale of 1-5 (1 being lowest), 83.3% respondents gave the highest rating (5) and the rest the second highest rating (4). No below average rating was obtained. The importance of branding was rated high as well for competing in international markets. However, the relative score was lower than score for its importance for achieving export growth. 53.3% of the respondents gave the highest rating (5) and 33.3% gave rating 4. There were two respondents who did not attach any importance to branding for competing in international markets.

Branding Practices

All the enterprises reported to be selling fans with their own brand names in the local market. 15 respondents (50%) were reported to be marketing their fans under their own brand. 10% of surveyed enterprises replied in negative on doing joint branding with other enterprises. 16.7% were already practicing joint branding, while 73.3% were interested in going for this practice.

ANNEXURE VIII: TANGERINE CLUSTER SARGODHA

8.1 Industry Profile

On an overall basis, there is low awareness about international compliance requirements amongst Tangerine (Kinnow) growers and exporters. There is a perception that even when some expert provides information about the requirements, the route for achieving compliance is not explained properly and the exercise is not of much value to exporters. HACCP and EUREPGAP are the two main certification requirements for Tangerine Cluster that are being demanded by some of the buyers. Currently, the buyers are not very strict for meeting these compliance requirements. However, it is expected that demands for ensuring compliance from buyers will increase in the coming years. Traceability is one major requirement for getting EUREPGAP certification. Records have to be maintained that should allow traceability to the level of detail of each acre. Residues of pesticides in fruit is the other major concern. The residue level has to be within permissible limits in order for the fruit to be exported. In horticulture clusters like Kinnow, residue levels have to be checked at the farms. In a single export factory, kinnows are coming from various orchards, where different pesticide practices have been adopted and correspondingly, the level of residues varies for each batch of fruit being received. It is not possible for the exporter to individually check the residue levels for all the raw material sources. The intervention has to be implemented on a collective basis. The acceptable residue levels are different for different countries. Some tests at the pre-harvest stage include checking for use of any chlorinated products, heavy metals and Thiametazole levels. Avoiding use of child labour is also one requirement for this Cluster. Environmental protection is another consideration. ISO 9000 is not a major requirement in Kinnow Cluster. There is a difference in degree of strictness with respect to different international markets. Citrus-growing countries are exercising the highest degree of strictness. Countries like Indonesia are using this as a barrier to trade.

There is no laboratory in Sargodha for checking residue levels. There is one laboratory established in Kala Shah Kaku near Lahore that has the facility of testing for pesticides residues. Brix is one product attribute that is considered by the buyers for evaluating products. It is checked by refractometer. This is either calibrated internally, or is replaced with new one. The other important calibration requirement of Kinnow exporter is Weigh Scale, which is done by Labour department of District Government. Currently, of the total 80 export factories, 4 have obtained HACCP certification and few others are in process.

8.2 Tests Required

Table 8-1 represents the standard tests conducted by the exporters of Tangerine Cluster Sargodha.

Table 8-1: List of Tests

Sr. No.	Test
1	Brix Test (sugar content)
2	Water Test
3	Residue Test
4	Metal Test
5	Wax Test
6	Heavy Metal test
7	Pesticide test
8	Normal Water Bidigical test
9	Hardness test
10	Nutritional Composition

Awareness Perception

The overall level of awareness about tests carried out in the Tangerine Cluster was reported to be high. Likert scale was used for this purpose. (scale of 1-5, 1 being the least aware). 16 of the total 30 respondents (53.3%) claimed to have complete awareness about the tests required by their buyers. 13.3% respondents gave average and 30% below average rating to awareness about the tests.

In-house Testing Facility

Majority of the Tangerine exporters do not possess in-house testing facilities. There were total 37 responses for listing down the tests from the surveyed 30 respondents. Of these, there were only 3 responses where the existence of in-house testing facility was reported. This was only 8.1% of the total tests. These three responses were from three different organizations. It comes to 10% of the total sample size of 30.

Availability of Qualified Staff

Use of qualified quality assurance staff is not common in Tangerine Cluster of Sargodha. Only 1 respondent out of the total valid responses of 29 reported to use qualified quality assurance staff for conducting the required tests.

Common Testing Practices

Most of the tests in Tangerine Cluster are conducted using local laboratories. Very few tests are conducted using in-house laboratories. Of the 13 valid responses obtained for test conducted for enterprises own purpose, only 3 were conducted in-house. For buyers' purpose, of 6 total valid responses, 2 were conducted in-house. The distribution of tests conducted in-house, by local laboratories and by foreign laboratories is shown in the Table 8-2.

Table 8-2: Purpose of Testing

	Own Purpose			Buyers Purpose		
	In-house	Local	Foreign	In-house	Local	Foreign
No. of tests	3	9	1	2	3	1
Percent	23.0	69.2	7.7	33.3	50.0	16.7

Laboratory Adequacy

Likert scale was used for assessing the perception (1-4, 1 being the lowest). Total of 3 responses were obtained for rating the adequacy of in-house laboratories. All of them gave the highest rating 4. Total of 8 valid responses were obtained for rating local laboratories adequacy. Of these, 5 responses were for the highest rating 4. Average rating was 3.5. The results are shown in the Table 8-3.

Table 8-3: Satisfaction with Laboratory Adequacy by Laboratory Type

	Rating Frequency			Mean Rating
	2	3	4	
In-house Labs	0	0	3	4.0
Local laboratories	1	2	5	3.5
Foreign laboratories	0	0	2	4.0

Foreign laboratories were given the highest rating, followed by local and in-house laboratories. The above results indicate only a trend and should be generalized to the entire population with care as the number of valid responses used for arriving at these results is very small.

Laboratory Accessibility

The accessibility of testing laboratory(s) in the Cluster was also checked. It came out unanimously that laboratory facility is not available in Sargodha. There was only one respondent who reported that there is a laboratory in Sargodha.

Satisfaction Level for Local Laboratories

Satisfaction level regarding the available testing infrastructure was assessed using Likert scale (1-5, 1 being the lowest). The results are shown in Tables 8-4 to 8-6.

Quality of Laboratory Infrastructure

Table 8-4: Satisfaction with Local Testing Laboratories

Score	Laboratory adequacy		Laboratory Accessibility		Technical Skills		Acceptability by export buyers	
	Freq.	%	Freq.	%	Freq.	%	Freq.	%
1	0	0.0	2	50.0	0	0.0	0	0.0
2	0	0.0	2	50.0	0	0.0	0	0.0
3	1	25.0	0	0.0	1	25.0	1	25.0
4	1	25.0	0	0.0	0	0.0	0	0.0
5	2	50.0	0	0.0	3	75.0	3	75.0

Satisfaction level was above average for laboratory adequacy, technical skill sand acceptability by international buyers, while below average for accessibility of laboratory services.

Affordability of Testing Services

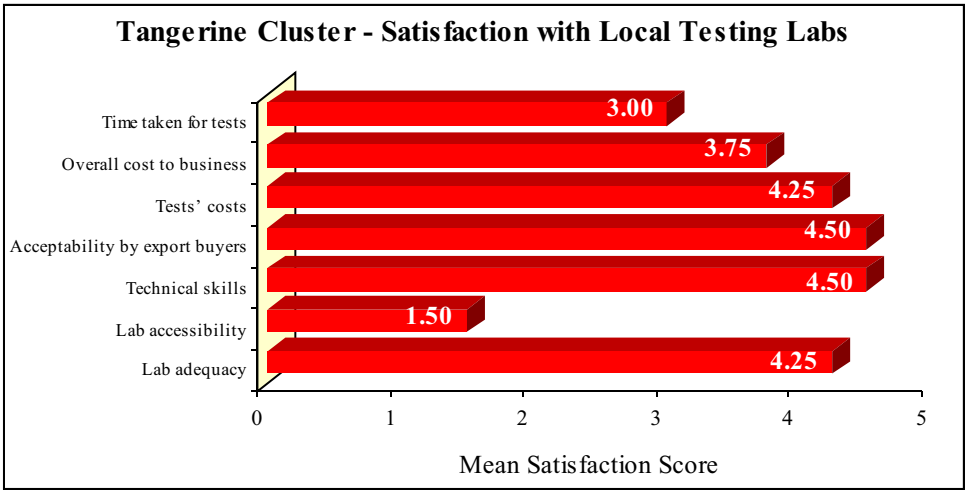
Table 8-5: Tangerine Satisfaction with Affordability of Local Testing Laboratories

Score	Test costs		Overall cost to business		Time required for tests	
	Freq.	%	Freq.	%	Freq.	%
1	0	0.0	1	25.0	1	25.0
2	0	0.0	0	0.0	1	25.0
3	1	25.0	0	0.0	0	0.0
4	1	25.0	1	25.0	0	0.0
5	2	50.0	2	50.0	2	50.0

Satisfaction level for affordability of using local testing laboratories was lower than that for quality of services. The above results should be generalized to the entire population with caution as the number of valid responses is very small.

Average Ratings

Average ratings for the assessed factors about the satisfaction level with local laboratories infrastructure is shown in the following graph.



Local Laboratories Used

The most common practice followed by the Tangerine exporters of Sargodha for testing is to use PCSIR Laboratories in Lahore and Karachi. The test mentioned for which PCSIR Karachi Labs is used include heavy metal test and pesticides test. Names of the identified laboratories are:

Table 8-6: Names of Local Testing Laboratories being Used

Name of the Laboratory	Location	Frequency	% Frequency
PCSIR Labs	Lahore	1	16.7
PCSIR Labs	Karachi	2	33.3
Karachi Industrial Analytical Centre	Karachi	1	16.7
Agriculture Department	Karachi	1	16.7
Leather Ast	Lahore	1	16.7
Total		**6**	

Satisfaction Level with the Identified Laboratories for Tangerine

Overall satisfaction level of the service provided by the laboratories mentioned above is high. Likert scale of 1-5 was used (1 being lowest) for assessment. None of the ratings obtained below the score of 3 for any of the testing facility. Table 8-7 shows the results regarding satisfaction levels with individual laboratories:

Table 8-7: Satisfaction with Identified Local Testing Laboratories

Sr. No.	Name of the Laboratory	Rating Frequency		Mean score
		4	5	
1	PCSIR Labs Lahore	0	1	5.0
2	PCSIR Labs Karachi	2	0	4.0
3	Karachi Industrial Analytical Centre	0	1	5.0
4	Agriculture Department	1	0	4.0
5	Leather Ast	1	0	4.0

Local-based Foreign/Foreign Laboratories used by Tangerine Cluster Sargodha

None of the Tangerine exporters in Sargodha use local-based foreign or foreign laboratories for product testing.

8.3 Pre-shipment Inspection

Use of Pre-shipment Inspection

Use of pre-shipment inspection is not very common in Tangerine Cluster Sargodha. However, awareness about the concept was reported to be good. 80% of the enterprises were reported to be aware in this regard.

Practice of Pre-shipment Inspection

Percent Exports Undergoing Pre-shipment Inspection

Table 8-8 shows the use of pre-inspection in Tangerine Cluster Sargodha:

Table 8-8: Use of Pre-shipment Inspection

% of Exports shipments undergoing pre-shipment inspection	Frequency	Percent
None	8	26.7%
1-10%	14	46.7%
11-25%	2	6.7%
26-50%	1	3.3%
51-75%	0	0.0%
75-100%	5	16.7%
Total	**30**	**100%**

Use of Inspection Bodies

The most common choice for getting pre-shipment inspection done is through use of local-based foreign inspection bodies. Of the total 15 valid responses, 6 enterprises (40%) used local-based foreign bodies for pre-inspection inspection and 2 used local inspection bodies. There was no use of any foreign inspection body. There were 7 respondents who reported that they perform pre-shipment inspection themselves.

List of Pre-shipment Inspection Bodies

Table 8-9: List of Pre-shipment Inspection Bodies

Name of Body	Location	Satisfaction Score (based on 4 responses)
SGS	Lahore	3.0
APL Shipment Check		5.0
G B POTTS	Lahore	5.0

8.4 Accreditation of Testing Laboratories

Accreditation of testing laboratories did not come out as an important consideration for the Tangerine exporters. Following are the key findings in this regard

Awareness

Awareness about the requirement of using accredited laboratories for testing was reported to be low. 44.8% of the total valid responses (29) reported to be aware of the requirement of using accredited laboratories for testing. Regarding Pakistan National Accreditation Council, 20% respondents claimed to have heard the name of PNAC. However, only 2 of those claimed to know about role of PNAC. It was told that PNAC is a body for standardization and approval of laboratories.

Practice Regarding Accreditation

Their buyers did not push majority of the Tangerine exporters for using accredited testing laboratories. There were only 3 respondents who reported that their buyers require it. Accreditation of laboratories did not turn out to be a major concern for the Tangerines exporters of Sargodha. There were 7 respondents who reported that they always prefer to use accredited laboratories, while for majority, it was not a major concern. Regarding the utility of using accredited testing laboratories for getting more business, there were only 5 respondents who believed that it is useful in this regard.

8.5 Certification Requirements

Awareness

The overall level of awareness about the certification requirement of Tangerine Cluster was high. 65.5% ratings were reported to be above average, 6.9% average and the balance below average. The results are shown in Table 8-10.

Table 8-10: Awareness on Certification Needs

Rating	Frequency	Percent
1 (no awareness)	8	27.6
2	0	0.0
3	2	6.9
4	4	13.8
5 (complete awareness)	15	51.7
Total	29	

List of Certifications

Table 8-11: List of Certifications

Certification Type	Frequency
HACCP	**8**
EURAPGAP	**2**
ISO 9000	**1**

HACCP certification was reported to be the most important certification requirement, with EUREPGAP being the second most important certification requirement.

Local-based Foreign Certification Bodies

Table 8-12: List of Local-based Foreign Certification Bodies

Certification Body	Location	Frequency
BVQI	Lahore, Karachi	6
Moody international	Karachi	3
SGS	Karachi	2

Bureau Veritas was reported to be the most commonly used certification body in Tangerine Cluster Sargodha.

Foreign Certification Bodies

The use of foreign certification bodies was not reported to be a common in Tangerine Cluster Sargodha. None of the respondents mentioned about using the services of any such certification body.

Satisfaction Level with Local-based Foreign Certification Bodies

Likert scale of 1-5 (1 being lowest) was used for assessing the satisfaction level in terms of defined factors. Average ratings for each of these factors for local based foreign certification bodies are shown in the following Table:

Table 8-13: Satisfaction with Local-based Foreign Certification Bodies

Factor	Frequency of Rating					Mean rating
	1	2	3	4	5	
Acceptability by export buyers	0	0	0	0	7	5.0
Accessibility	2	0	4	1	0	2.6
Technical skills	1	0	1	1	4	4.0
Certification costs	5	0	0	0	2	2.1
Overall cost to business	3	0	1	0	3	3.0
Time for certification	3	0	2	1	1	2.6
Total Valid Responses						**7**

The results should be generalized with care as the total number of responses is small.

Satisfaction with Individual Certification Bodies

There was a divided opinion about satisfaction with the local-based foreign certification bodies used by Tangerine Cluster. The results are shown in Table 8-14 on the next page.

Table 8-14: Satisfaction with Identified Certification Bodies

Certification Body	Rating Frequency			
	2	3	4	5
BVQI	0	1	1	4
Moody international	1	1	0	1
SGS	1	0	0	1

8.6 Calibration

Awareness

29 out of 30 enterprises (96.7%) in Tangerine Cluster Sargodha claimed to be aware of the calibration requirements of their Cluster.

Importance of Calibration

Importance given to calibration by the respondents was very high. On Likert scale of 1-5 (1 being lowest), 96.7% respondents gave above average rating to importance of calibration.

Important Calibration Requirements

Two most important calibration requirements of Tangerine Cluster of Sargodha were reported to be those for Weigh Scale and Thermometers. Calibration requirements are shown in Table 8-15:

Table 8-15: Important Calibration Requirements

Sr. No.	Measuring Instruments	Frequency	Percent
1	Mager Meter	1	3.3%
2	Weigh Scale	27	90.0%
3	Burner Gauge	1	3.3%
4	Thermometer	1	3.3%
5	Drier Thermometer	6	20.0%
6	Cold Storage Thermometer	11	36.7%
7	Cold thermostat	1	3.3%
8	Digital Thermometer	1	3.3%
9	Multimeter	1	3.3%
	N	30	100.0%

Calibration Practices

In Tangerine Cluster, the most common practice is the replacement of the measuring instrument instead of calibrating it. The most common calibration frequency was reported to be after every six months.

Table 8-16: Calibration Frequency

Frequency of Calibration Activity in enterprise	Frequency	Percent
Never	2	6.7
Every year	0	0.0
Every six months	1	3.3
Every three months	1	3.3
Every month	1	3.3
More than one year	1	3.3
Replace the instrument	24	80.0
Total	30	

Names of Calibration Laboratories Used

The most common practice for instruments calibration was through Labour Department, Government of Punjab. This was used for calibrating Weigh Scales. The details of different calibration bodies used by Tangerine Cluster Sargodha are shown in Table 8-17.

Table 8-17: Bodies being Used

Name of the Body	Location	Frequency
Labour Department, Government of Punjab	Sargodha	8
Links 2000	Lahore	1
Akber Engineering	Sialkot	1

Time taken for Calibration

No authentic data was received in this head. There were only two valid responses. For calibration from within city, 1 day was taken. For getting calibrations from other cities, one respondent mentioned 10 days and the other 15 days.

8.7 Grading and Traceability

Grading Practice

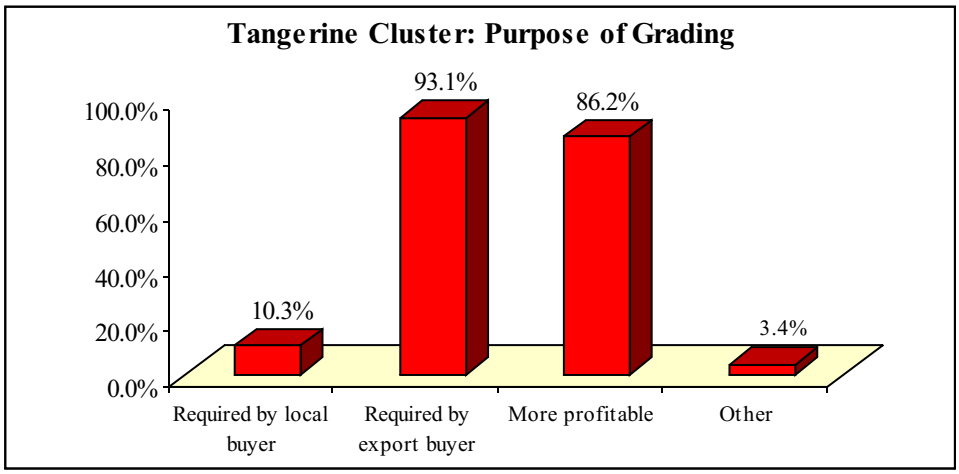
93.3% of the respondents mentioned grading to be a practice followed by them while selling Tangerines.

Purpose of Grading

Grading is practiced for multiple reasons, listed in Table 8-18:

Table 8-18: Purposes of Grading

Reason	Frequency	Percent
Required by local buyer	3	10.3
Required by export buyer	27	93.1
More profitable	25	86.2
Other	1	3.4
N	29	



Importance of Grading

Grading is very important as 96.3% of the international buyers of Tangerine from Pakistan require graded products. Majority of the Tangerine exporters expect loss in exports if they do not practice grading. 93.1% respondents expected to suffer a loss in exports if non-graded tangerines are exported.

Major Grading Parameters

Size of the Tangerines is the main parameter for grading Tangerines, with number of defects being the second most important parameter. The details are shown in Table 8-19:

Table 8-19: Grading Parameters

Grading Parameter	Frequency	Percent
Size	30	100.0
No. of defects	4	13.3
Product characteristics	1	3.3
N	30	

Product Attributes used for Tangerines Grading

Size is the most commonly used product attribute that decides upon the grade of a Tangerines. The size ranges from 55 to 85 millimetres. Other product attributes are:

- Weight
- Colour
- Defects (marks)

Traceability

Awareness

56.7% of the respondents claimed to be aware of the traceability requirements of Tangerine Cluster.

Requirement from Buyers

Majority of the respondents did not mention any requirement from the international buyers for traceability. Only 4 respondents out of the total sample of 30 (13.3%) reported that there is requirement from buyers regarding traceability. There is no strict requirement form the buyers in this regard. 77.7% respondents mentioned that it is not strict at all. The results are shown in Table 8-20:

Table 8-20: Demand of Traceability from Buyers

Rating	Frequency	Percent
1 (not strict)	21	77.7
2	3	11.1
3	3	11.1
4	0	0.0
5 (very strict)	0	0.0
N	27	

93.3% respondents answered in negative about losing any orders due to their inability of meeting any traceability requirements from the buyer.

8.8 Branding

Awareness

There was 86.7% awareness on the concept of branding in Tangerine Cluster Sargodha. There were only 4 enterprises that expressed their ignorance in this regard.

Importance

High importance was attached by the respondents to branding for achieving major growth in exports. Using Likert scale of 1-5 (1 being lowest), 89.2% respondents gave the highest rating (5). Average rating of 4.46 was obtained.

Similarly, branding was also considered very important for competing in international markets. The relative score was higher than the one seen for its importance for achieving export growth. 92.8% of the respondents gave the highest rating (5). Average rating of 4.64 was obtained.

Ratings of the importance of branding for these two purposes are shown in Table 8-21.

Table 8-21: Importance of Branding

	Frequency	
Rating	**Importance for achieving export growth**	**Importance for competing in international markets**
0	3	2
1	0	0
2	0	0
3	0	0
4	0	0
5	25	26
Mean rating	4.46	4.64

Branding Practices

The percentage of enterprises selling under their own brand name in local market was higher than the one for those who were selling without any brand. Of the total valid responses, 64.3% were marketing under their own brand. When looked from the overall sample perspective, the percentage reduced to only 53.3%. In export market, there were 23 respondents (76.6%) who were reported to be marketing Tangerine under their own brand. There were 23.3% enterprises that were interested in doing joint branding of tangerines with other enterprises of the Cluster. There was no enterprise, which was already practicing joint branding.

ANNEXURE IX - MANGO CLUSTER, MULTAN

9.1 Industry Profile

Mango is the second largest fruit grown in Pakistan after citrus. Mango production has grown at a steady pace during the past years and has increased from 0.9 million tons in 1996 to 1.67 million tons in the year 2005. This represents a total growth of 85% during the ten year period; a compounded annual growth rate of 6.3%. Mango is also the second largest fruit exported from Pakistan. Total exports of mangoes during the year 2005 were 85,000 tons fetching a total export value of USD 28 million. The exports grew from 52,000 tons in the year 2001. There was an overall increase of 62% in exports during the period 2001-05; an annual growth of 13%.

Mango is grown in Punjab and Sindh provinces of Pakistan. During 2005, 78% of the total mango production was accounted for by Punjab. Multan is the largest mango producing district in the country that accounts for about one third of the Mango production of Punjab and one fourth of the total mango production of Pakistan.

There are over 50 mango varieties that are grown in Pakistan. However, major share of the production is accounted for by two varieties; *Chansa* and *Sindhri*. These two varieties also take major share in the export product mix of mangoes from Pakistan. Some other important varieties are *Dasehri*, *Anwer Ratol*, *Langra* and *Malda*.

Middle East is the largest market of Pakistani mangoes and accounts for about 50% of the total exports of mangoes from Pakistan. UAE is the largest buyer of mangoes from Pakistan. Some European countries also import mangoes from Pakistan of which UK, France and Germany are important buyers. Looking at the global mango export markets, it is seen that the largest market is USA and Pakistan is not able to export any mango to that market. The exports are restricted due to inability of meeting the quarantine requirements of USA. Getting entry into USA market can open new avenues of opportunities for the Pakistani exporters of mangoes. Some of the treatments that are used for meeting quarantine requirements for exports of mangoes include hot water treatment, vapour heat treatment and irradiation.

Mango exporters of Pakistan have also to comply with the WTO requirements as specified in SPS and TBT agreements. In this regard, one important requirement is to meet the permissible limits of pesticides and insecticides residues in the fruits. This requires implementation of proper agricultural management practices and the infrastructure to check the residue levels. Presently, there is no proper lab within Multan or in its vicinity which can provide this service. In order to meet the requirements of international buyers, Pakistan exporters of mangos have initiated efforts for attaining the certification of EUREPGAP, which specifies the good agricultural practices for exporting agricultural products to Europe. Mango Cluster stakeholders are of the view that the exports of mango from Pakistan can be increased manifold if adequate measures are institutionalized for meeting the requirements of the international buyers.

9.2 Tests Required

Leaf analysis and water test are the two tests identified by the respondents from mango Cluster of Multan.

Awareness Perception

The overall level of awareness about tests carried out in the Mango Cluster was found to be low. Likert scale was used for this purpose. (scale of 1-5, 1 being the least aware). Of the total 10 valid responses obtained, 5 gave lowest rating to awareness about the required tests. There was only one respondent who assigned the highest rating to awareness. Average rating was 2.2.

In-house Testing Facility

There was no in-house testing facility available in any of the mango exporting enterprises in Multan Cluster. Use of qualified quality assurance staff is not practiced in Mango Cluster Multan. There was no respondent who reported to use qualified quality assurance staff for conducting the required tests.

Common Testing Practices

Since there were not many tests identified in Mango Cluster, consequently the testing practices were also minimal. There was only one respondent who mentioned using local laboratories for conducting tests.

Laboratory Accessibility

The accessibility of testing laboratory(s) in the Cluster was also checked. It came out unanimously that laboratory facility is not available in Multan. All the 8 valid responses were negative in this regard.

Local-based Foreign/Foreign Laboratories

None of the Mango exporters in Multan use local-based foreign or foreign laboratories for product testing.

9.3 Pre-shipment Inspection

Use of Pre-shipment Inspection

Awareness about pre-shipment inspection was found to be good. 80% of the enterprises were found to be aware in this regard (8 out of 10 valid responses)

Practice of Pre-shipment Inspection

Percent Exports Undergoing Pre-shipment Inspection

Table 9-1 shows the use of pre-inspection in Mango Cluster Multan:

Table 9-1 Pre-shipment Inspection Practice

% exports shipments undergoing pre-shipment inspection	Frequency	Percent
None	7	46.6
1-10%	6	40.1
75-100%	2	13.3
Total	**15**	**100%**

Use of Inspection Bodies

There were only 2 valid responses and both of them mentioned the use of local bodies for pre-shipment inspection. Names of Export Promotion Bureau and Plant Protection department were mentioned as the two names as inspection bodies. Satisfaction level with these inspection bodies was rated very low.

9.4 Accreditation of Testing Laboratories

Accreditation of testing laboratories did not come out as an important consideration for the Mango exporters. Following are the key findings in this regard:

Awareness

Awareness about the requirement of using accredited laboratories for testing was found to be 50.0%. Half of the total 15 valid responses knew about the requirement of using accredited testing laboratories. Regarding Pakistan National Accreditation Council, 20% respondents claimed to have heard the name of PNAC. These 2 respondents also knew about the role of PNAC. The two responses in this regard were:

- PNAC is a body for calibration or accreditation of testing laboratories
- PNAC is a laboratory checking associations

Practice Regarding Accreditation

None of the Mango exporters mentioned any requirement from their international buyers for using accredited laboratories. It is due to this situation that accreditation has not turned out to be a major concern for the Mango exporters of Multan. However, it is interesting to note that in spite of not attaching any importance to accreditation of testing laboratories, 50% of the respondents believed that using accredited laboratories can be helpful for getting more business.

9.5 Certification Requirements

Awareness

The overall level of awareness about the certification requirement of Mango Cluster was low. 60.0% ratings were for the lowest level of awareness. Mean rating was 2.3.

Table 9-2 Awareness on Certification Requirements

Rating	Frequency	Percent
1 (no awareness)	9	60.0
2	0	0.0
3	0	0.0
4	4	27.0
5 (complete awareness)	2	13.3
Total	15	

List of Certifications/Certification Bodies

No certification requirement or certification body was mentioned by any of the Cluster enterprises.

9.6 Calibration

Awareness

50% of the respondents claimed to be aware of the calibration requirements of their sector.

Importance of Calibration

Importance given to calibration by the respondents was not high. On Likert scale of 1-5 (1 being lowest), 70% respondents gave the lowest rating and 30% the highest rating. Average rating was 2.2. No calibration requirements were mentioned by any respondent.

Calibration Practices

In Mango Cluster, calibration was not found to be important for the Cluster. 60% respondents were found never calibrating their instruments. 40% reported calibrating instruments once per year. Only one respondent mentioned the name of Technical Institute Multan for calibration purposes. Regarding time taken for calibration, no authentic data was received. There were only two valid responses. For calibration from within city, days required for calibration were mentioned as 1 and 2.

9.7 Grading and Traceablity

Grading Practice

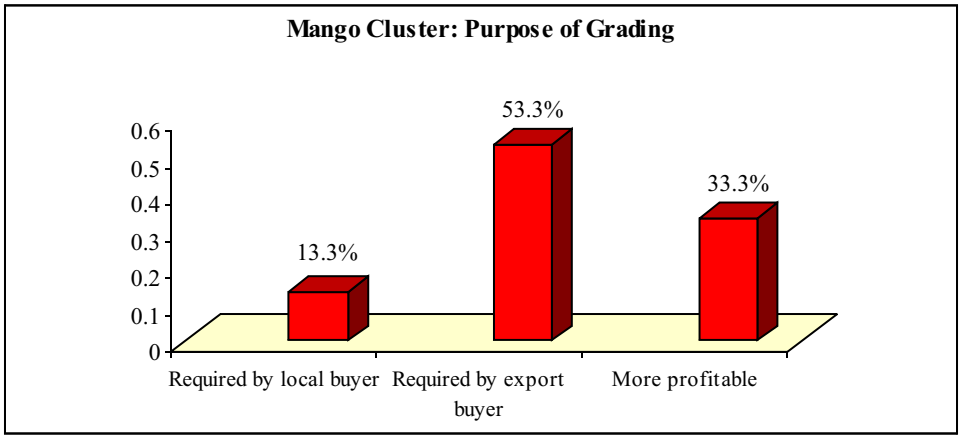
90% of the respondents mentioned grading to be a practice followed by them while selling Mangoes.

Purpose of Grading

Grading is practiced for multiple reasons, listed in Table 9-3.

Table 9-3: Purposes of Grading

Reason	Frequency	Percent
Required by local buyer	2	13.3
Required by export buyer	8	53 .3
More profitable	5	33.3
N	15	



Importance of Grading

Grading is very important as 90% of the international buyers of mangoes from Pakistan require graded products. The importance of grading was further emphasized when 100% respondents answered as expecting a loss in exports if non-graded mangoes are exported.

Major Grading Parameters

Size of the mango is the main parameter for grading mangoes, with number of defects being the second most important parameter.

Table 9-4: Grading Parameters

Grading Parameter	Frequency	Percent
Size	9	60.0
No. of defects	8	53.3
Product characteristics	0	0.0
N	15	

Product Attributes used for Mangoes Grading

Size is the most commonly used product attribute that decides upon the grade of a mango. Normally, there are three types of grades that are used, depending upon the size. These are shown in the following Table:

Table 9-5 Three Grades

Grade	Size
1	Large
2	Medium
3	Small

Traceability

Awareness

30% of the respondents claimed to be aware of the traceability requirements of Mango Cluster. No traceability requirement from international buyers was identified by any of the respondents.

9.8 Branding

Awareness

There was 100% awareness on the concept of branding in Multan Mango Cluster. All the 10 valid responses were affirmative in this regard. High importance was attached by the respondents to branding for achieving major growth in exports. Using Likert scale of 1-5 (1 being lowest), 30% respondents gave the highest rating (5). Average rating of 4.2 was obtained.

Branding Practices

Local Market

None of the respondents from Mango Cluster were found to be marketing their products under a brand name in local market. In export market, there were 20% respondents who were found to be marketing Mango under their own brand. All the respondents expressed their interest for doing joint marketing of mangoes with other enterprises.

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