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**UNITED NATION INDUSTRIAL DEVELOPMENT ORGANISATION**

**TRADE RELATED TECHNICAL ASSISTANCE (TRTA II) PROGRAMME**

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**Draft Report on Industrial Sectors**

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Crown Agents  
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List of Acronyms and Abbreviations

Crown Agents

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## 1. Executive Summary

*Pakistan must think competitively. Future economic growth and prosperity will predominantly come from Pakistan firms / businesses taking the lead in exploiting opportunities domestically as well as overseas whether on their own, as clusters or through joint ventures and linkages that expand market horizons and knowledge; upgrading their workforce; bringing in new technology(s); fostering innovation and working with academia and the public sector to create a knowledge based economy. For Pakistan's firms and investors to chose Pakistan as their investment and production destination, and to succeed, they need government and its related agencies to facilitate them and is able to create and maintain a policy and regulatory framework that is dependable, flexible and both responsive to and consistent with market realities and requirements balanced by social responsibility. For this it is extremely important to improve the capacities of the government and common interest agencies so that service delivery improves along with strong governance and monitoring systems put in place.*

*Enhancing economic integration of Pakistan into the global and the regional economy and to stimulate decent work and employment creation will depend on the public and private sectors working as a team with academia to attract and capture the best the local and global markets have to offer in the way of information, technology, logistics, investors, buyers and suppliers. Success will depend on strengthening supply and value chains to position Pakistan as a preferred if not priority partner and a competitive location for investors. The Government and its related agencies must work at helping the private sector and academia to collectively create an innovative and knowledge based economy that will attract opportunities as well as position Pakistan to take advantage of those that arise in the global and domestic market.*

*The EU TRTA II programme is working with the Government of Pakistan to support development and poverty reduction in Pakistan. Under the programme a key component will be to work with the key industrial sectors to provide technical assistance focusing value addition, productivity and compliance.*

*It is hoped that the efforts of the TRTA II will assist in rolling a set of broad parameters and will indicate micro-economic "drivers" for success over a period of 4 years that are necessary for competitiveness, job and wealth creation resulting in poverty alleviation. Economic studies on the population trend and labour force analysis of Pakistan suggest a clear bulge in the young working population. This trend in data presents a contingent opportunity that must be addressed to avoid the population bulge becoming a major threat to the economy and stability of Pakistan. The government will have to create enough jobs to absorb this bulge in working age population to avoid a growing pool of unemployed youth who risk becoming disenchanting with the system and turn to crime and/or extremism. There is a clear understanding that these jobs will have to be created by the private sector and more so the one involved in industry and manufacturing.*

Crown Agents *The report suggests a strategic framework required to upgrade the value addition, productivity and compliance issues of key industrial sectors. The strategy presented tries to cover most of the aspects, however, based on the overall strategy specific recommendations have been made for the TRTA II programme keeping in mind the overall objective of the TRTA II programme.*

*Below we have provided the recommendations made for TRTA II interventions only:*

### **1.1 Fans Industry**

The following recommendations are made for TRTA II programme:

1. Using the platform of PEFMA to arrange a study tour to China on cost sharing basis.
2. Conduct a feasibility study of the US and the Australian market and develop recommendations to upgrade the industry to meet the requirements of these markets. If the markets are feasible then provide experts who can assist the sector get compliance for these markets. Further promote CE Marking and provide technical assistance to firm to get CE Marks.
3. Conduct an analysis of the industry to make recommendations on feasible technology shifts to optimize returns.
4. Work with NPO and PEFMA to provide a fan expert on cost sharing basis to evaluate and make recommendations on existing productivity constraints due to weak production floor management.

### **1.2 Cutlery & Hunting Equipment Industry**

The following recommendations are made for TRTA II programme:

1. Arrange a study tour of China and Vietnam. The focus of the tour to China should be observe and learn about economies of scale production. The Vietnam tour should be benchmarking tour to learn how Vietnam has become a major player in the world exports over the last 3 years. The tours may be arranged from the platform of Cutlery Association and must be developed on a cost sharing basis.
2. Awareness seminars and trainings on sector specific testing and compliance requirements.
3. A detailed technology gap study of the sector to come up with an up gradation plan for the most optimal technology shift. This technical assistance should focus on how to improve the technology of the sector such that it can replace market shares of high end producers such as Germany, Switzerland and France.
4. Working with NPO a productivity and factory layout expert may be provided to the firms to upgrade their production processes. A branding and marketing expert may also be provided to develop

common brands and joint marketing. TARTA II can also fund an international journalist who can write about the success stories of the sector in international media.

5. Trainings should also be provided to do better accounting and inventory management.

### **1.3 Surgical Industry**

The following recommendations are made for TRTA II programme:

1. Awareness seminars and trainings on sector specific testing and compliance requirements and testing requirements.
2. Working with NPO a productivity and factory layout expert may be provided to the firms to upgrade their production processes. This may be made part of the 'surgical industry competitiveness' project being implemented by NPO.
3. Work with TEVTA on refining and implementing the PC-1 on surgical training school.

### **1.4 Sports Goods Industry**

### **1.5 Textile Industry**

#### **1.5.1 Knitwear**

Following are the recommendations made for TRTA II Programme;

1. Skill up gradation of the workforce in the production process specially stitching to improve quality and productivity
2. Skill up gradation of designers (in house) to produce more value added garments for specific markets through foreign designers.
3. Awareness and skill up gradation on modern dyeing techniques & use of more environment friendly chemicals in dyeing and printing processes
4. Capacity building on marketing and brand development
5. Exposure/marketing visit to potential European Countries on cost sharing basis to explore the potential markets for "Made in Pakistan Products"
6. Publication of articles on Knitwear Products of Pakistan in International Textile Journals to promote made in Pakistan Products through international experts
7. Capacity building of PHMA in establishing "Research & Development Wing" for the industry

- Crown Agents 8. Capacity building of PHMA for sustainability of these initiatives and provision of these expertise to the mass target audience

### 1.5.2 Woven garments

Following are the recommendations made for TRTA II Programme;

1. Skill up gradation of the workforce in the production process specially pattern making, stitching, embroidery/printing, dry & wet processing & finishing to improve quality and productivity and to bring it to the international level.
2. Skill up gradation of designers (in house) to produce more value added garments for specific markets through foreign designers.
3. Awareness and skill up gradation on more effective and efficient ways of production to reduce cost of production and improve profit margins.
4. Awareness and skill up gradation on modern dyeing & washing techniques & use of more environment friendly chemicals in printing/embroidery, dyeing and washing processes
5. Capacity building on marketing and brand development
6. Exposure/marketing visit to potential countries like Italy, Germany and Australia on cost sharing basis to explore the potential markets for “Made in Pakistan Products”
7. Publication of articles on Woven Garments from Pakistan in International Textile Journals to promote made in Pakistan Products through international experts
8. Capacity building of PRGMEA to strengthen “Research & Development Wing” for the industry
9. Capacity building of PRGMEA for sustainability of these initiatives and provision of these expertise to the mass target audience

### 1.5.3 Bed wear

Following are the recommendations made for TRTA II Programme;

1. Skill up gradation of the workforce in the production process specially pattern making, stitching, printing and finishing to improve quality and productivity and to bring it to the international level.
2. Skill up gradation of designers (in house) through foreign designers to produce more value added bed wears for specific markets.
3. Awareness and skill up gradation on more effective and efficient ways of production to reduce cost of production and improve profit margins.
4. Awareness and skill up gradation on modern printing techniques & use of more environment friendly chemicals in printing processes

5. Provision of support on designing, building and operation of economical waste water treatment plant
6. Capacity building on marketing and brand development
7. Exposure/marketing visit to potential countries like Italy, Germany and Australia on cost sharing basis to explore the potential markets for “Made in Pakistan Products”
8. Publication of articles on Bed Wear Products of Pakistan in International Textile Journals to promote made in Pakistan Products through international experts
9. Capacity building of APBUMA for sustainability of these initiatives and provision of these expertise to the mass target audience

#### **1.5.4 Cotton fabric**

Following are the recommendations made for TRTA II Programme;

1. Skill up gradation of the workforce in the production process specially weaving, and finishing to improve quality and productivity and to bring it to the international level.
2. Skill up gradation of designers (in house) through foreign designers to produce more value added fabric for specific markets.
3. Awareness and skill up gradation on more effective and efficient ways of production to reduce cost of production and improve profit margins.
4. Awareness and skill up gradation on modern dyeing techniques & use of more environment friendly chemicals in dyeing processes
5. Provision of support on R&D with respect to new fabric development, building and operation of economical waste water treatment plant
6. Capacity building on marketing and brand development
7. Exposure/marketing visit to potential countries like Italy, Turkey, United Kingdom, Italy, Spain and Russian States on cost sharing basis to explore the potential markets for “Made in Pakistan Products”
8. Publication of articles on fabrics of Pakistan in International Textile Journals to promote made in Pakistan Products through international experts Capacity building of APTMA for sustainability of these initiatives and provision of these expertise to the mass target audience

## 2. Introduction

The European Commission has financed a Trade Related Technical Assistance (TRTA II) Programme which was signed by the European Commission on 30 June 2009 and countersigned by the Government of Pakistan on 28 August 2009. The Financing Agreement provided the framework for the funding of € 9,545,000 by the EC for execution of TRTA II programme of activities over a period of 54 months.

The TRTA II programme is being implemented in a joint management mode with UNIDO under the overall guidance of the EC Delegation to Pakistan. Monitoring, evaluation and audits will be implemented in centralized management mode by the EC Delegation to Pakistan.

As lead implementing agency, UNIDO has been mandated the task of overall coordination of the TRTA II programme. The three components of TRTA II programme are:

- Component 1: Trade policy capacity building
- Component 2: Export development through improvement of quality infrastructure
- Component 3: Strengthening of intellectual property rights

Under component 2 the programme will implement strategic initiatives in key sectors that will target at improving value addition, productivity and quality compliance. All of these improvements will target to improve competitiveness of the Pakistani exports. It is expected that by making exports more competitive that programme will be able to achieve higher levels of employment resulting in balanced growth and wealth creation.

### 2.1 Scope & Objectives

The strategy paper targets to assess the existing situation of the key export focused industrial sectors of Pakistan in term of their export competitiveness, value addition, productivity and quality and standards compliance. The paper also presents a broad strategy to address the issues identified in the situation analysis and also makes specific recommendations for the TRTA II programme. These recommendations will be rationalised and evaluated at a National Seminar and the finalised set of recommendations will be implemented under the TRTA II programme. The target industries covered under the project are presented in table 1.

**Table 1: Target Industrial Sectors Covered by the Study**

Industry	Sub-Sector
Fan	Complete Sector
Surgical Instruments	Complete Sector
Cutlery & Hunting Equipment	Complete Sector
Sports Goods	1. Soccer Balls

	<p><b>2. Gloves</b></p> <p><b>3. Sports Wear</b></p>
<b>Textile</b>	<p><b>1. Woven</b></p> <p><b>2. Knitwear</b></p> <p><b>3. Cotton Fabric</b></p> <p><b>4. Garments</b></p>

The objectives of the study to develop overarching strategic interventions that will assist these sectors drive up the value curve. The study also looks at the existing structure of selected industries, identifies the critical issues and weaknesses along the value chain and where data is available makes a comparison with international value chains.

The study also conducted product specific value chain analysis for each industrial sector to identify the critical bottlenecks affecting productivity, value addition and market access. The study also comments on the quality and standards issues, the capacity of the sectors to undergo required testing and awareness of compliance and certification issues. In parallel the TRATA II has also conducted a detailed study on the laboratory infrastructure available in Pakistan.

The study will be used as an evidence to design sector specific action plan to be implemented under the TRAT II programme over the next 54 months.

## 2.2 Methodology

In order to achieve its objectives, the study was designed to cover qualitative (industry specific interviews and focus groups) and quantitative research (survey questionnaire). The questionnaire for the qualitative survey was developed by the TRTA II PMO with input from all the sector experts. The generic survey form is attached as an ANNEX 1 to this report. The meetings were arranged by the sector experts by approaching relevant chambers of commerce and industry and relevant industry associations. The associations were extremely helpful in arranging meetings and assisting in filling up of the survey questioners.

For the qualitative survey, sample size of a minimum of 15 enterprises per industry sector was considered to be appropriate so as to make the results of the survey statistically significant. Thus, a total of 142 questionnaires were completed from the five industrial sectors stated above. The criterion for selection of enterprises, to participate in the survey was designed in a manner to avoid any specific size bias and to ensure true representation of the sector.

The questionnaire was discussed in details with the sector experts at the start of the project. The inputs and reservations of the experts were addressed. The collection of field data was done by relevant sector experts by having face to face interviews with the enterprises. Data was entered and then analysed using SPSS. Other sources for data such as national and international statistics were also used in developing the detailed analysis of the sector.

## Crown Agents **2.3 Export Competitiveness**

Export competitiveness remains a concept that is not well understood, despite widespread acceptance of its importance. To understand export competitiveness, the starting point must be the sources of a country's prosperity. A country's standard of living is determined by the productivity of its economy, which is measured by the value of goods and services produced per capita of the economy's human, capital and natural resources<sup>1</sup>. Productivity depends both on the value of the country's products and services, measured by the prices they can command in open markets, and the efficiency with which they can be produced. True competitiveness then, is measured by productivity. Productivity allows a country to support high wages, a strong currency and attractive returns to capital and with them support a high standard of living.

In light of above discussion, it is imperative to state that export competitiveness is significantly dependent on efficiency of production, so the number of units produced per capita and also the value produced per capita are both important in determining competitiveness. To improve competitiveness a country needs to focus on both productivity and value addition. In other words, competitiveness increases as the marginal contribution to GDP of each national of a country increases. For example, a country can either produce keyboards or produce micro processors. One is a simple production process leading to a significantly high numbers of units being produced, however, the other is a much sophisticated process but one that adds a lot of value per worker employed. Now, the choice is either to stick with low value per worker output or to shift to high value output per worker. Competitiveness will only be achieved if a country's moves towards the strategy of maximising value per capita. Hence, the critical drivers of export competitiveness is the price points at which a country can access global value chains and also the efficiency and sophistication the production process which minimizes wastage of resources.

Breaking down the analysis further, the growth in productivity is underpinned by enhanced trade, foreign investment, and innovation activity. Here, the critical indicators are the stability of exports; attractiveness for foreign direct investment and innovation performance of the economy. Exports are a direct way to ratchet up the productivity of the domestic economy by concentrating on those activities in which the country has a relative productivity advantage.

Furthermore, the FDI improves the business environment by improving the level of domestic competition, and raising the level of buyer sophistication through the quality and the procurement standards of foreign multinationals. It also provides the opportunity to acquire new technologies, operational practices, and other knowledge developed elsewhere. Foreign investors usually have capabilities otherwise not available in the domestic economy. These superior capabilities improve the productivity of the domestic economy. Finally, innovation is a crucial source of dynamic improvements in productivity. High and increasing levels of productivity and innovation are manifestations of competitiveness. But innovation will only happen if a country offers a stable macroeconomic, political, legal and social environment and a

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<sup>1</sup> Porter, Michael E. (2002a), *Building the Microeconomic Foundations of Prosperity: Findings from the Microeconomic Competitiveness Index*, in: Michael E. Porter, Klaus Schwab (eds.), *The Global Competitiveness Report 2002-2003*, World Economic Forum, Oxford University Press: New York

positive competition environment for its firms. These two areas are different, but mutually reinforcing.

However, competitiveness ultimately depends on firms and the way they compete. Hence, a sound macroeconomic, political, legal, and social context is necessary for achieving competitiveness, but not sufficient. The way firms compete and way the industry structure is developed then defines the need for more highly skilled people, better information, improved infrastructure, more capable suppliers, more advanced research institutions, and stronger competitive pressure.

In case of Pakistan, all the factors contributing to competitiveness have declined over time. The data provided in the section below provides evidence of low productivity, both of labour and capital. Furthermore, over time Pakistan exports are becoming more and more volatile and attracting lower prices in international markets resulting in low value added. The investment climate ratings have fallen, and the increased problems with law and order and a just society, weak protection of property, tumbling legal system has kept foreign investors away from Pakistan. This situation is further worsened by lack of technology, lack of skill and lack of desire to innovate. This problem is further fuelled by weak completion structures and a strong political economy supporting non-viable industries using excessive hand outs and subsidies. The government has been weak is designing policies that carefully weigh the tradeoffs. For example, textile sector being politically strong gets its way by depreciating currency to enhance export competitiveness; however, this particular action is absolutely disastrous for the pharmaceutical industry which relies on imports of basic chemicals. The government will have to move to a changed mind set where policy is based on merit and not on political clout gather by industry.

### **3. Sustainable Economic Growth & Export Competitiveness**

#### **3.1 Current Situation of the Industrial Sector in Pakistan**

##### **3.1.1 Structural Rigidity & Inadequate Transformation**

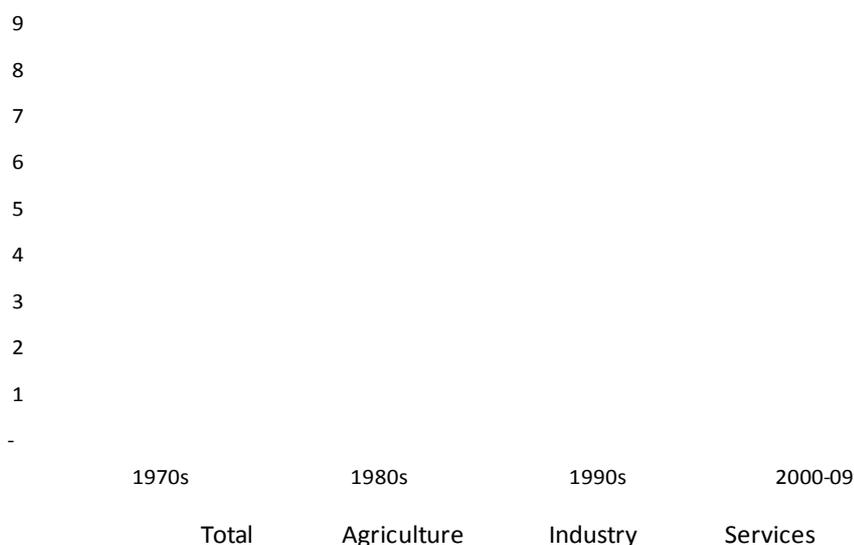
The revival of the Pakistan economy hinges on the performance of its industry and its forward and backward linkages. In the past year and a half the country has seen a dramatic retardation of economic activity characterized in particular by a stagnating manufacturing sector. Between 2008-09, in the wake of both internal security issues and the increasingly binding energy constraint, output in the manufacturing sector contracted by 3.3 percent with large-scale manufacturing registering a substantial decrease in output of 7.7 percent [GoP (2009)]. Given the fact that the potential of growth and development of a country is inextricably linked to the extent of investment and industrialization, the continued dismal performance in industrial growth in Pakistan does not augur well for the future.

The process of structural change has been a central feature in the economic growth and development of both the Western Economies and the Newly Industrialized Countries of the East. As an economy develops the share of agriculture in GDP inevitably declines while that of manufacturing and services increases. In other words, structural change is a gradual shift from low productivity to high productivity activities. Along with this observable structural transformation there is a large body of

Crown Agents empirical literature which suggests that there is a “U” shaped relationship between a country’s income level and its degree of product specialization or sectoral concentration [see, Klinger and Lederman (2004)]. At low income levels specialization is high and is primarily determined by resource based comparative advantage. As the country becomes richer the manufacturing base diversifies with firms producing and exporting a wider range of relatively more sophisticated products. However, at higher levels of income, the process reverses; specialization again increases but in high value added and technologically advanced products. Therefore increased product diversification is an intermediate stage in the process of structural transformation and economic development of a country.

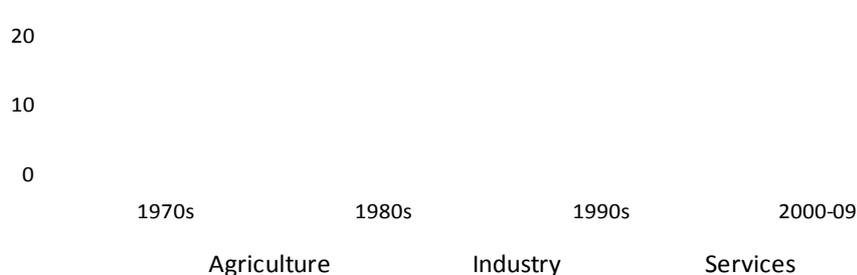
In the context of the Pakistan economy this structural transformation has been skewed in favour of the services sector. Since the 1990s the growth in services has outstripped that in agriculture and industry resulting in its current 50% share in GDP. Agriculture and industry over the past decade have contributed around 25% each to GDP with the share of agriculture declining over time and that of industry remaining fairly stagnant, (see figures 1 & 2). The industrial structure of the country has not experienced any significant change in the course of the past thirty years. The manufacturing base remains rigidly narrow leading to a lack of product and export diversification which has been a major impediment to sustained economic growth and development of the country.

Figure 1: Annual Growth by Sector (%)



Source: Pakistan Economic Survey 2002-03, Pakistan Economic Survey 2008-09 and Bureau of Statistics data on GDP up to 2009.

Figure 2: Output Shares by Sector (%)



Source: Pakistan Economic Survey 2002-03, Pakistan Economic Survey 2008-09 and Bureau of Statistics data on GDP up to 2009.

Although the services sector has become the main engine of growth in the country, in terms of structure of employment Pakistan is still a predominantly agrarian economy, (see figure 3). Even though the share of agriculture employment has declined over time, it still employs over 40% of the labour force. This suggests that a significant portion of the labour force remains stuck in the sector that suffers from low levels of productivity. The services sector employs just over 30%, whereas the industry sector employs only 20% of the labour force. Given the sluggish performance of manufacturing over the years, the services sector has absorbed most of the labour migrating out of the agricultural sector. Thus, the sector with greatest value addition and highest productivity employs the least. Data on labour productivity is indicative of this trend. Reallocation of labour into industry accounted for only 17% of the intersectoral increase in labour productivity growth, while the remaining 83% was due to reallocation of labour into services (Felipe (2007)).

Pakistan has the highest population growth rate (1.8% in 2007-08) in the South Asian region with hordes of unskilled entrants into the labour force every year. These adverse demographics pose a serious challenge to effective policy making. If the industrial base of the country does not expand to absorb this surplus labour, the burgeoning unemployment in both urban and rural areas is likely to have grave socio-economic and political ramifications.

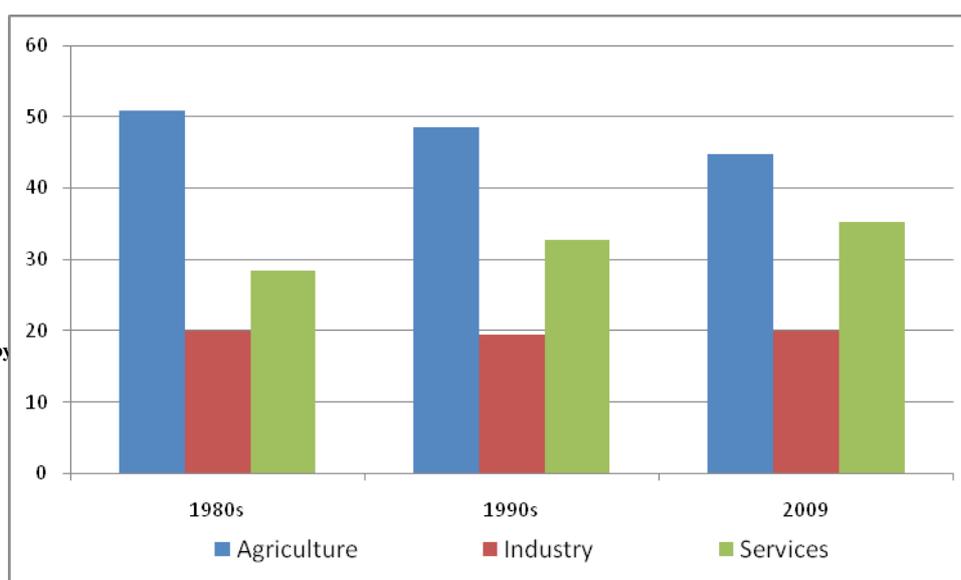
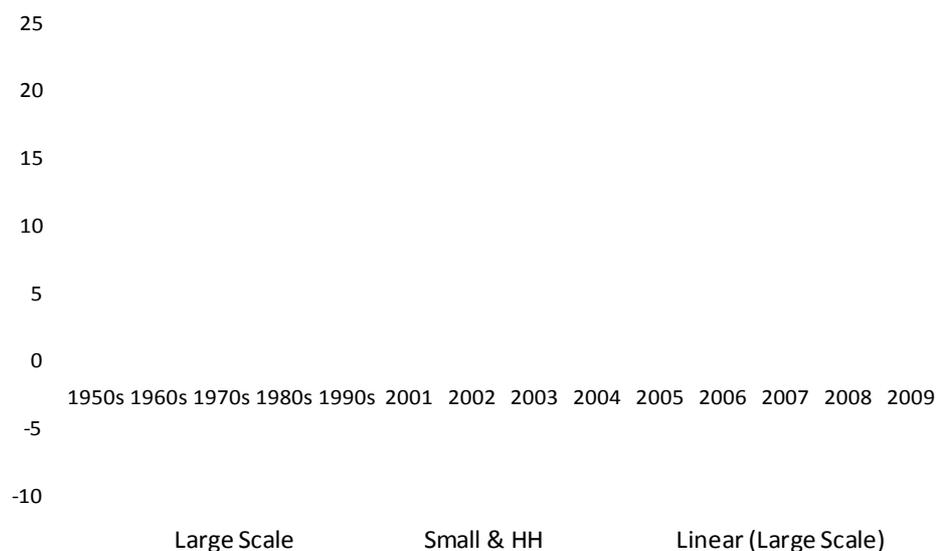


Figure 3: Employ

Source: Pakistan Economic Survey 2002-03, Pakistan Economic Survey 2008-09 and Bureau of Statistics data on GDP up to 2009.

When accounting for difference in performance between Pakistan and the Newly Industrialized Countries (NIC's) of Asia the critical explanatory factor comes to be their rapid and deep structural transformation: their output and employment structures have changed dramatically; resources have been transferred to higher value-added sectors (i.e./ from agriculture to industry and services); production has diversified; firms have improvised on their capabilities and are producing much more sophisticated and technologically advanced range of products; and their levels of labour productivity have increased significantly. Data suggests that, with the exception of Pakistan, India and the Philippines, in most of the Asian countries, industry has been the main engine of growth. Moreover, the performance of the large scale manufacturing (LSM) in Pakistan has also been quite volatile with a coefficient of deviation above 100% over the last ten years as compared with the volatility of small scale manufacturing (SSM) with a coefficient deviation at 11%, see fig. 4.

Figure 4: Performance of Large Scale & Small Scale Industry



Source: Pakistan Economic Survey 2002-03, Pakistan Economic Survey 2008-09 and Bureau of Statistics data on GDP up to 2009.

Breaking further into the structure of manufacturing, the sector is highly concentrated in consumer goods with food, beverage and textiles commanding the major share. The proportion of investment / capital goods is extremely low making the transition towards domestically produced sophisticated or higher value added products difficult. The structural transformation in Pakistan has been from agriculture to services circumventing to a large extent the manufacturing sector. The stagnancy in the manufacturing sector along with a rigidly narrow manufacturing base and the lack of product diversification is an obstacle to sustained economic growth, employment generation and development of the country.

- *The strategy to address the above issues would require a directed intervention by the government to facilitate the rigidity discussed above. The policies of the government should suggest a paradigm shift where the state will make way for the private sector to take the lead and steer the economic growth agenda. More resources should be invested in an efficient manner to enhance infrastructure, knowledge, research & development and skills to provide the necessary apparatus of change. Knowledge and skills development should be the epicentre to encourage change via innovation and creativity. These measures should be backed by even stricter intellectual property rights and legal support to create a more conducive investment environment.*

### 3.2 Lack of Export Competitiveness

The lack of structural change and product diversity has had a direct impact on the composition and the value of Pakistan's exports. Table 2, below shows the static export share of Pakistan in the past thirty five years.

Table 2: Country's Exports as a share of World Exports

	1974	1980	1990	2000	2008
<b>Pakistan</b>	0.14%	0.15%	0.18%	0.15%	0.15%
<b>India</b>	0.56%	0.43%	0.57%	0.70%	1.32%
<b>Malaysia</b>	0.55%	0.74%	0.94%	1.61%	1.43%
<b>Thailand</b>	0.32%	0.37%	0.74%	1.13%	1.25%

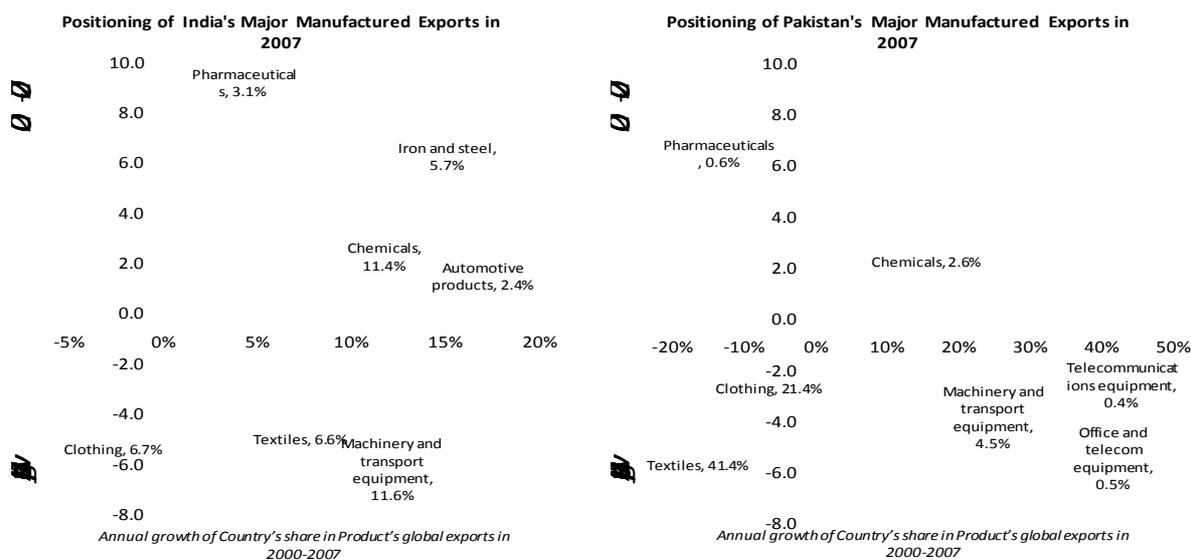
UN Commodity Trade Statistics

The competitiveness challenge of Pakistan is extremely difficult, given the weak positioning of Pakistan's industry in terms of low technology intensity and low productivity. Few firms are involved, directly or indirectly in international trade. Firms that are trading internationally are producing products that are not aligned with global trends. Figure 9 below demonstrates this claim. Not only do global competitiveness indicators rank Pakistan in the bottom quartile of the world, the situation seems to be worsening. The World Economic Forum's global competitiveness ranking of Pakistan fell from 92 (2008) to 101 (2009) out of a total of 134 countries.

Figure 4<sup>2</sup>: Competitiveness and Performance of Pakistan's Exports

<sup>2</sup> the vertical axis measures the worldwide growth in the export of any product x, as a share of total world exports, while, the horizontal axis measures the growth in the export of product x for a country as a share of total world export of product x. If the country's product is on the right hand upper quadrant (competitive quadrant), it shows that the product is gaining in its international competitiveness.

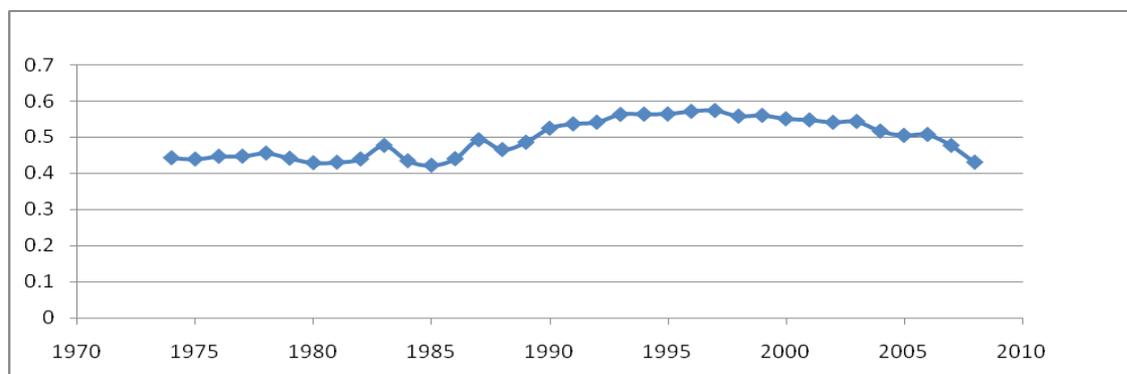
Crown Agents



Source: Economic Growth and Structural Change in South Asia: Miracle or Mirage, World Bank and LUMS Paper (March 2010)

Furthermore, the country exports a narrow range of products which are essentially low value added. The product concentration index of Pakistan's export has historically remained above 0.40 (figure 8). The index has shown a declining trend since the mid-90s and now stands at an all time low of 0.43. 15 products account for 90% of the country's exports.

Figure: 5 Product Diversification Index 1974 – 2008



Data Source: UN Comtrade Statistics

The current global economic conditions also pose a serious challenge to the export potential of Pakistan. Due to the recent financial crisis, the global economy is in a recession and recovery is likely to be slow and shallow. Given the size of the budgetary and balance of payments deficits of the main engine of growth of the

international economy in the past, i.e. the United States, it is very likely that for many years the country will run much smaller external deficits than it has in the past. Thus, the competition amongst countries for capturing or retaining global market share is likely to be much fiercer. It is clear that Pakistan will have to pull out all the stops in order to retain a significant export presence in a more competitive international economy of the future. In order to stay competitive, the produce of Pakistan will have to meet certain quality and compliance requirements and also focus on value addition, positive marketing and branding strategies.

- *The strategy should be to facilitate the key export based industry to jump up the value chain. The facilitation should include initiatives that will up-grade domestic product value chains, connect local value chains favourably with the global value chains, assist in product diversification, branding & marketing and help industry meet the quality, compliance and certification requirements necessary for new market penetration. In addition, the policies should facilitate joint ventures and partnerships of local firms with international counterparts for quick transfer of technology, skills and knowledge. Policy shifts should create a level playing field for the local industry so it can compete internationally.*

### 3.3 Productivity Issues: Large Scale and SME sector

Strong growth in productivity is essential for maintaining competitiveness of the industry in an increasingly competitive global market as discussed above. Between the period 1961-2005 the growth of the manufacturing sector has predominantly been driven by growth in inputs i.e., labour and capital. The contribution of total factor productivity in the aggregate manufacturing growth has been fairly low (see table 3). Although labor expansion is an important growth source, it does not explain the growth variation in countries; it is almost as strong in Pakistan, India, Bangladesh, and East Asia. Driving the difference across countries are capital accumulation and productivity improvements.

Looking at the growth decomposition of Pakistan, (table 4), in the 1960s, growth was clearly driven by capital accumulation. In the following decades, it became a less important but still significant growth source, explaining at least one-third of GDP growth. Productivity growth was quite low in the 1960s and 1970s and then again in the 1990s. While capital accumulation and labor expansion are steady sources of growth in Pakistan, productivity changes accompany the fluctuations in GDP growth occurring over time in the country. Looking at inter firm productivity differentials, data suggests that the larger firms have a higher total factor productivity relative to medium and small sized firms suggesting the greater accessibility and use of more efficient production techniques.

Table 3: Growth Accounting in Pakistan and Comparable Countries (%) 1961-2005

	GDP Growth	Capital	Labour	Total Factor Productivity
<b>Pakistan</b>	5.28	2.31	1.89	1.08
<b>India</b>	4.57	1.77	1.50	1.30
<b>Bangladesh</b>	3.38	1.16	1.64	0.57
<b>East Asia &amp; Pacific</b>	6.46	3.15	1.74	1.71

Crown Agents Source: World Bank 2006

Table 4: Growth Accounting in Pakistan by Decades (%) 1961-2005

	GDP Growth	Capital	Labour	Total Factor Productivity
1961-1970	6.97	4.48	1.63	0.86
1971-1980	4.58	1.80	2.30	0.48
1881-1990	6.09	1.90	1.90	2.30
1991-2000	3.86	1.45	1.71	0.71
2001-2005	4.55	1.58	1.92	1.04

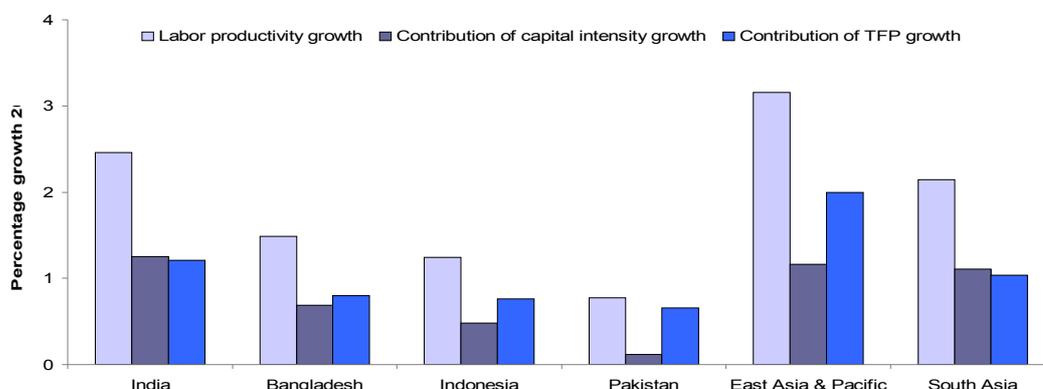
Source: World Bank 2006

Smaller firms are credit rationed due to lack of available collateral and information asymmetry present in the formal credit market (commercial banks). As a consequence of these financial constraints micro enterprises and SME's find it difficult to grow in size and scale. The resultant diseconomies of scale and inaccessibility to efficient technology of production are the main factors behind their relatively low productivity inhibiting their growth potential.

Micro-enterprises and the small- and medium-sector face different capital and financial constraints—the former are constrained principally by a lack of access to these resources; the latter often lack the capacity to use such resources effectively. The micro and the cottage sectors chiefly comprise informal establishments scattered around several clusters of value chains across Pakistan. The key clusters include textile and garments in Lahore, Karachi and Faisalabad; surgical instruments and sports goods in Sialkot; light engineering and electronics in Gujranwala, Duska, and Gujrat; cutlery in Wazirabad; leather and footwear in Karachi, Sialkot, Muridke, and Kasur; carpets and artificial jewellery in Lahore; and livestock and agriculture clusters all across Pakistan.

- *The strategy should be to create a facilitative environment that will encourage firms to invest in training workers, acquire specific knowledge and niches, bring in more efficient technology and upgrade production processes, comply with cleaner environmental standards and move to more energy efficient production methods.*

Figure:6 Labor Productivity Growth Decomposition in Selected Economies, 2001-2006



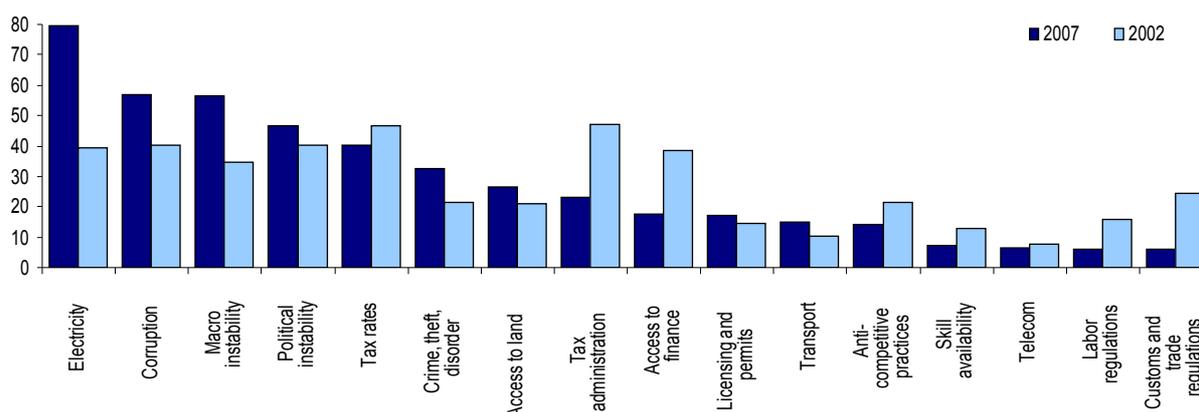
Source: Investment Climate Survey 2007, World Bank 2008.

### 3.4 Non-conductive Investment Environment

Work done by the World Bank provides significant evidence that the productivity issues faced by Pakistan are somewhat a result of the less than optimal investment environment. Although, investment environment is not the only source of low productivity it certainly does discourage investment into high end and relatively riskier projects that trigger the structural change in the economy.

The World Bank has conducted two major surveys (2002 and 2007) titled 'Investment Climate Assessment' identifying the top constraints that impede higher levels of investment in Pakistan. The results show that in 2002, most firms perceived the principal investment climate constraints to be infrastructure; red tape, bureaucracy and economic governance; access to finance and electricity; corruption; political instability; and macroeconomic instability. In 2007, they identified the constraints as electricity, macroeconomic instability, corruption, and political uncertainty. The issues relating to infrastructure, governance and economic/political stability have stayed consistently as important factors. Figure 7 below presents the most important constraints identified by the private sector that dampen incentives to invest.

Figure 7: Most Important IC Constraints over Time



Source: Investment Climate Assessment, World Bank (2009)

The comparison above clearly suggests that more recently electricity provision has been the main impediment to investment. In fact, if this survey was redone today the score of electricity would be almost 100%. Rough calculations suggest that one unit of electricity costs Rs. 23 if produced via diesel generator as compared to Rs. 12 on average if supplied by WAPDA. This difference in cost is hurting the competitiveness of the industry significantly. The estimated cost to the industry of energy shortage has been estimated to be in the range of Rs.157 billion causing an approximate \$1 billion loss in export revenues.

Corruption which increases the informal cost of doing business is another major constraint to investment. Macro-economic and political instability also add to an uncertain investment environment; significantly hampering inflow of capital – Foreign Direct Investment. The recent steps taken by the government show improvements in areas such as finance, tax administration, anti-competitive practices, labour regulations, and customs and trade regulations.

Crown Agents The finding of the World Bank ICA is also consistent with other similar surveys such as latest GCR 2008, states government instability, corruption, inefficient bureaucracy, and inflation as primary constraints faced by the private sector in Pakistan (Table 5).

Table 5: Pakistan's Ranking in the Global Competitiveness Index, 2008-09

	<i>Pakistan</i>	<i>India</i>	<i>China</i>	<i>Bangladesh</i>
<b>Global Competitiveness Index</b>	<b>92</b>	<b>48</b>	<b>34</b>	<b>107</b>
1. Institutions	81	48	77	126
2. Infrastructure	72	67	52	120
3. Macroeconomic stability	101	108	7	87
4. Health and primary education	115	101	61	105
5. Higher education and training	116	55	78	126
6. Goods market efficiency	82	36	58	93
7. Labor market efficiency	113	96	55	76
8. Financial market sophistication	65	37	118	75
9. Technological readiness	89	62	73	125
10. Market size	28	3	2	36
11. Innovation and sophistication	78	26	50	111

Source: World Economic Forum, Global Competitiveness Index, 2008.

Additional elements that emerge out of GCI index is the poor ratings in labour market efficiency, Higher education & training and Infrastructure. The government is clear that there is a shortage of infrastructure, inadequate quality and diversity in education and training and rigidities in the labour market operations. These elements are examples of markets failures and evidence that historic policy stance of the government has not been sufficient to address these constraints.

### 3.5 Human Resource Development/Institutional Capacity Building

Bringing about an improvement in the current condition of competitiveness of Pakistan's industry will require a strong a base of good quality human resource and strong institutional capacity building. There is an acute shortage of capable human resource that can drive the industrial development agenda forward. Under TRTA II inception phase we have develop a detailed report on the key agencies and government departments working for the development of industrial sectors. The report has identified several gaps and issues with the state of support provided by theses agencies to industry.

Hence, it is imperative that a comprehensive plan be developed that will improve the governance structure and enhance accountability and monitoring of these agencies. However, this will require several capacity building and human resource improvement initiatives. These initiatives have been clearly spelled out in the TRTA II agency report prepared for the industrial sector.

### 3.6 Quality and Standards Compliance

Over the past two decades the issue of technical barriers (TBTs) to trade has emerged as a critical area affecting competitiveness of exports of countries. TBTs arise whenever an exporter is required to comply with the particular requirements of the importing country. These barriers may be set at the national level or may be defined by buyers who follow certain protocols or marketing aspects. Few years ago World Bank and UNIDO did a joint study which highlighted the importance of compliance to such TBTs for increasing agro-based exports from Pakistan.

Increasingly, products aimed at export 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 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. Several studies were conducted by UNIDO under the TRTA I programme which 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.

Moreover, in order to demonstrate that the required compliance level has been attained, the supplier enterprises need to conduct tests and obtain necessary clarifications. This requires laboratory infrastructure that can provide certifiable tests. More so, these certifications should also be acceptable in destination markets.

Each sector/industry faces some kind of compliance requirement in the international market. The slow pace of firms in adapting to these standards is resulting in lack of market access or low value being added. Again this leads to lower productivity and lack of competitiveness. The specific industry sections covered below talk about specific requirements of compliance faced by each industry and how it is affecting competitiveness of Pakistani exports globally.

## 4. Fan Industry

### 4.1 Overview

The fan industry is mainly clustered in four major cities namely, Gujrat, Gujranwala, Lahore and Karachi. However, 98% of the country's production is centered at Gujrat and Gujranwala. The sector comprises over 450 SMEs, of which 300 are based in Gujrat and the rest in Gujranwala. The industry produces on average 8 million fans a year with an estimated value of Rs 17 billion. Out of the total production, approximately 30% fans consist of pedestals, 7% brackets and the remaining 63% are ceiling fans<sup>3</sup>. The industry belongs to the light engineering industry category, and is one of the industries that existed at the time of independence.

Besides small and medium units, a few units are quite large and have integrated systems i.e. from motor winding to high-pressure die casting. Sales are also fairly concentrated with five large firms in Gujrat and three in Gujranwala, accounting for 40% of total industry sales. Most of the raw materials used by the fan industry are

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<sup>3</sup> UNIDO Field Survey and Board of Investment, Pakistan Light Engineering Sector

Crown Agents directly or indirectly imported from different countries. Some of the raw materials used in the manufacturing of a fan are: electric steel sheets, aluminum, enameled copper wire, ball bearing, steel rod and PVC.

Global fan trade is classified on the basis of energy consumption. The fans that consume less than 125 watts of energy (SITC 74341; HS 8414.51) are generally referred to as domestic fans and the fans that consume over 125 watts (SITC 74343; HS 8414.59) are classified as industrial fans. Pakistan's industry mainly dominates in production of fans which consume less than 125 watts of energy.

The sector employs around 30,000 thousand workers. However, employment is seasonal as most factories operate for only five to six months during the year. Over the last four years the exports from the sector has increased by about 120% to around US\$30 million. Currently only 10-15% of the industry is exporting whilst the remainder is only supplying in the local market.

Exports make up only a small fraction of world trade in fans, which amounts to around \$3 billion. Pakistan's exports are mainly concentrated in low-income markets, such as Africa, Bangladesh and some Middle East countries. The average export price of Fans made in Gujrat and Gujranwala is around \$23-25, which is much lower than some of the more sophisticated fans which sell for around US\$400-500. The retail price of Pakistani fans in its export markets on the other hand varies between US\$32-35.

The sector, whereas, has shown high levels of growth in the recent years suffer from low levels of productivity, inadequate technology upgrade and shortage of skilled staff. Moreover, most of the companies operate under locally created brands with only a couple moving to international branding of their products. The industry also requires testing and certifications of their products mainly conducted or required for electrical safety. Certifications are normally required for export markets, whereas, general performance and safety testing are conducted regardless. As a result of the UNIDO's benchmarking exercise we have also identified that those firms which have large local market demand are better at innovation and new designs as compared to those firms which are solely focused on export markets. The reason for this could be that, the local consumer is demanding better quality and design products as compared to consumers of the current export markets. Additionally, the surveys conducted also suggest that current export markets usually offer lower margins as compared to local markets.

## 4.2 Contribution to National Economy

The fan sector is a key SME sector of Pakistan with significant vertical linkages with other sectors of the economy. The fan sector contributes in multiple ways to the national economy. It offers pro-poor employment creation opportunities, income generation, foreign exchange and social development by strengthening cluster development in and around Gujrat and Gujranwala. It offers direct employment to around 25-30,000 people. This scale of employment is far below its potential as the industry currently faces a seasonal demand. Employment opportunities only exist for 5-6 months as a result workers are not attracted.

**Table 6: Contribution of Fan Industry to National Economy**

Indicator	Value
To GDP(%)	0.27%
To Direct Employment (Numbers)	25-30,000
To Indirect Employment (Numbers)	75-90,000
To Exports (%)	0.2%

Source: PEFMA, Pakistan Economic Survey 2008-09 and UN Commodity Trade Data Base

It is estimated that industry is currently producing 8 million fans worth Rs.15 Billion<sup>4</sup>. This figure implies that the sector contributes 0.27% to the national GDP. This is not significantly large, it, however has a wide range of supporting industries such as plastic, aluminium casting, steel, various parts, etc. and thus potential reverberations in economy is far greater than what is represented by the figure above. Pakistan Electric Fan Manufacturing Association (PEFMA) indicates that one employment in vendor industry creates 3 indirect employments elsewhere. Since employment in the fan industry is around 25-30,000, which is 0.37% of the total manufacturing employment, adding 75-90,000 indirect employment in the industry makes it to go up to 1.54% of total manufacturing employment.

The sector has recently picked up in exports as well. Figure 8 below shows that foreign exchange earnings of the sector are consistently on the rise. For the most recent year (2009) the exports crossed US\$32 Million. This has increased Pakistan's share in world fan exports to over 1%. The sector contributes 0.2% to Pakistan's total exports. The sector has experienced double figure export growth over the last five years and hence has continued to contribute more and more to national economy.

Figure 8: Pakistan's Fans (HS 8414.51) Exports (US\$)

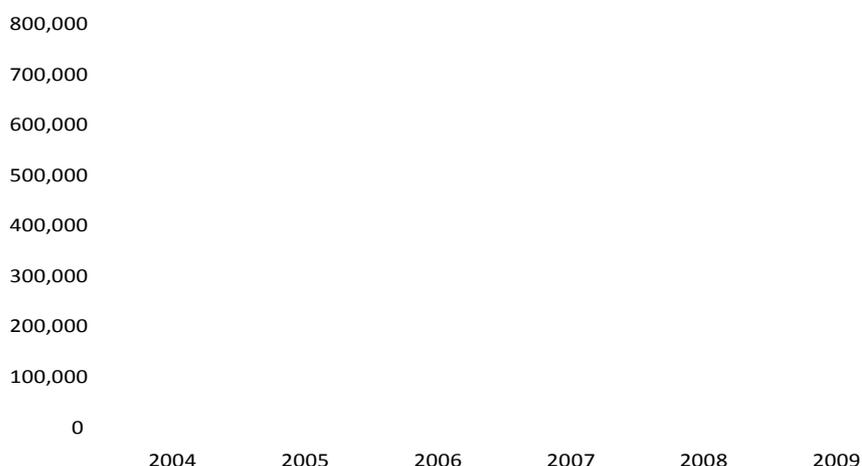


Source: UN Commodity Trade Statistics

<sup>4</sup> Estimates provided by Pakistan Electric Fan Manufacturers Association (PEFMA)

Moreover, Pakistan's fan industry also exports industrial category fans (HS 8414.59: Power >125Watts). However, the size of exports in this category is minimal as shown in the figure 9 below.

**Figure 9: Pakistan's Fans (HS 8414.59) Exports (US \$)**



Source: UN Commodity Trade Statistics

### 4.3 Characteristics of the Industry

The fan industry is mainly clustered in four major cities namely, Gujrat, Gujranwala, Lahore and Karachi. However, 98% of the countries production is centered at Gujrat and Gujranwala. The sector comprises over 450 SMEs, of which 300 are based in Gujrat and the rest in Gujranwala. The industry produces on average 8 million fans a year with an estimated value of Rs 17 billion. Out of the total production, approximately 30% fans consist of pedestals, 7% brackets and the remaining 63% are ceiling fans. The table below presents the main characteristics of the industry:

**Table 7: Fan Industry Characteristics**

Characteristic	Value
Number of units	450
Total Installed Capacity	9.5 - 10 Million Fans
Current Production	8 Million Fans
Contribution to National Exports	0.20%
Contribution to GDP	0.27%
Capital Output Ratio	
Sector Employment	25-30,000
Skilled to Unskilled Ratio	
Capital Labor Ratio	6 workers/Million (Rs)

Total Estimated Investment	Rs 5.0 Billion
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Source: BOI Reports, CMI Data and PEFMA interviews

Out of the 450 companies only 5-6 companies can be categorized as large scale manufacturing units. These units have in house capacities to conduct most of the production processes inside the unit and are also characterized with higher levels of investment and more modern technology. Tier 2 companies are numbered somewhere between 40-50 and have medium sized units and in house capacities to conduct major portion of the production process, however, lacks in investment and modern technology. The remainder can be categorized as Tier 3 companies with small operations, high degree of outsourcing and outdated machinery. The average age of the machinery employed is between 5-10 years.

The above composition suggests that the industry is dominated by small firms and as such does not benefit from economies of scale. This is a critical reason why the fan industry in Pakistan is not able to compete on costs with its international competitors. The average capacity of a typical firm is around 200-300 Fans/day which is extremely low as compared to Chinese counterparts where firms average productivity is 45-50,000 Fans/day.

- *The strategy to address the issue of scale economies is to promote mergers and consortium based production in the industry. This can happen by encouraging the industry to move towards standardization in their production processes, usage of common parts and sharing information. Joint sourcing of materials and joint productions can result in firms benefitting from scale economies.*

The numbers in the table above indicate that the capacity utilization ratio for the industry is over 80%. The industry representatives informed that utilization even in peak periods was less than 100% due to lack of materials and power shortage. This number however is misleading as the industry currently operates seasonally. Figure 10 below suggest that industry only operates to full production capacity in the first five months of the year. From July onwards the operations fall to a quarter of the total installed capacity. Some of the larger manufacturers have diversified into making washing machines, geysers and some of the large units have even diversified into making motorcycles.

The issue highlighted above is a critical impediment for the industry. This seasonal production is not only an impediment to investment but is also draining out the skilled workers from the industry. The workers have little incentives to train for an industry that only provides employment for 5 months during the year. The seasonality is affecting the productivity and deterioration of skills in the industry.

**Figure 10: Capacity Utilization over typical 12 month period**



**Source: Board of Investment, Pakistan**

- *The strategy to address the above issue is to assist the industry diversify exports into countries with opposite weather cycles to Pakistan. The critical markets where the sector should diversify include Australia and the USA. Feasibility studies for entry into the US and Australian markets are required which can evaluate the capacity of the industry and the market terms and requirements at which the fan industry can penetrate these markets.*

The presence of above pattern is dominant as around 10% of the total installed units are currently exporting. The remaining companies have informed that they are not exporting as local demand is quite strong and offer better prices. Others have also stated that reason for not exporting is inadequate systems and information. These units have not upgraded their production processes to comply with requirements of the export industry. This involves not having ISO, CE, SASSO etc. and other certification requirements. Additionally, some of the companies reported lack of working capital/finance as an impediment to export.

- *The strategy to address the above issue is to create awareness about export procedures and requirements, including assistance on developing systems to achieve international standards and compliance requirements. Additionally, the government must lobby with the State Bank for developing better SME credit products.*

Even with the exceeding shortage of skilled workers in the industry and seasonality effects the worker productivity has been consistently improving over the last ten years. Figure 11 below suggest that output per worker has been rising over the last several years.

**Figure 11: Annual Output / Worker**



Source: Punjab Bureau of Statistics

The industries performance is highly dependent on the availability of materials and parts required for fan manufacturing. Most of the materials and parts are available, however, firms have raised concerns on price volatility, variability in supply and quality issues.

Local sales are mostly carried out on credit basis through national level dealers and wholesales. Some of the larger units have also established their own display and sales centres. The exports are normally ex-factory. Some form of marketing and branding is practiced by the industry, however, still stays a weak area for the industry.

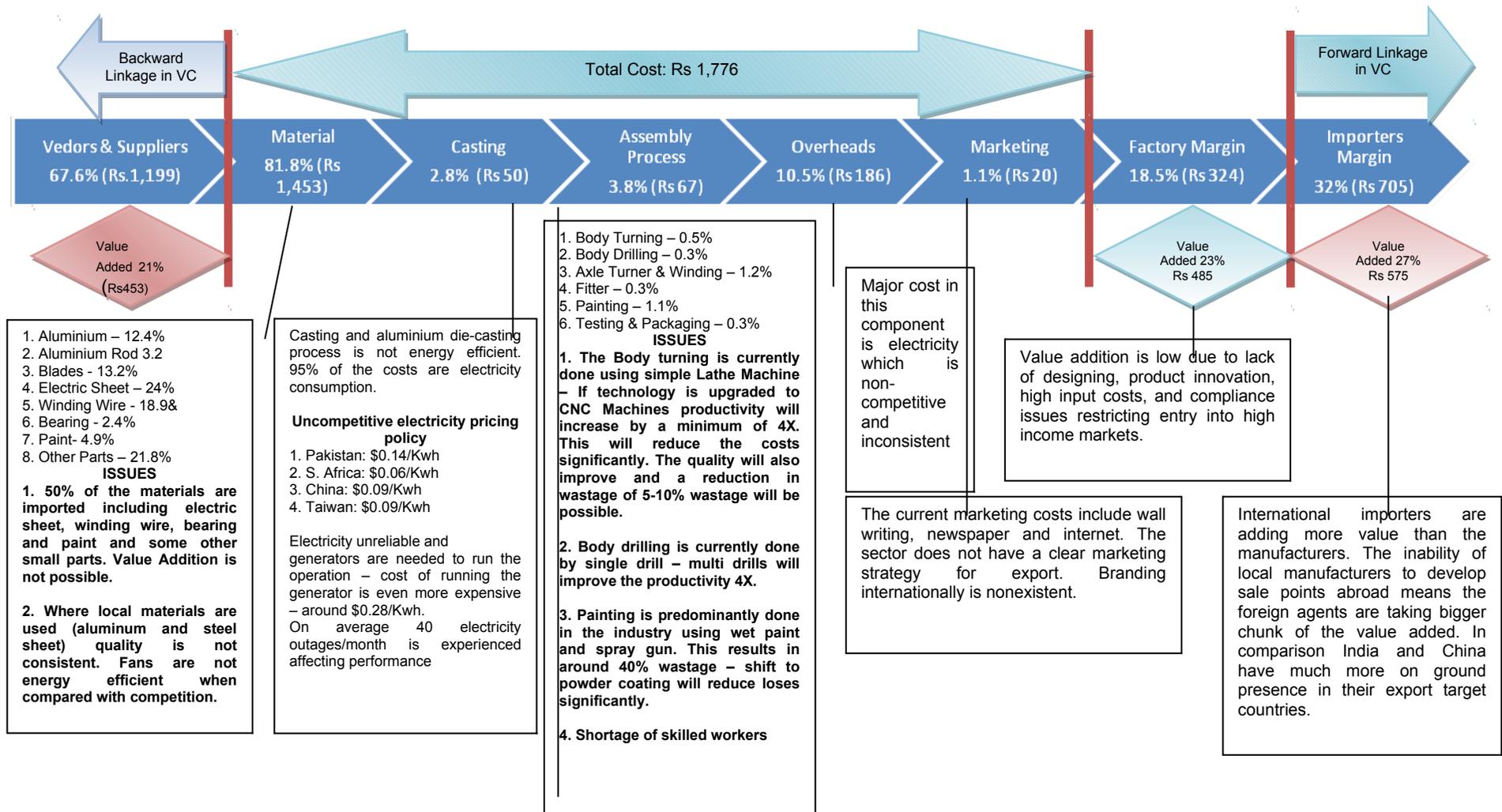
#### 4.4 Value Chain & Productivity Analysis

Value Chain analysis tool is employed to explain the specific issues faced by the producers of the fan industry. Where data is available analogies with reference to the global value chains are also made to identify critical weaknesses. The analysis points out that there are several supply side constraints as well as weaknesses in value addition. It must be emphasized that the value chain presented below represents what is typical for the industry. It is possible that some larger firms may be slightly better placed and some small ones slightly adversely placed than the representation presented below. However, the numbers provided below have been verified by industry representatives.

The overall structure of the value chain suggests that industry typically adds 20% in value addition of around Rs 450 per fan. The vendors are also adding almost same amount of value addition, however the importers take the major bulk of the value addition.

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**Value Chain for Fan Industry: Illustrated Product is Deluxe Model Ceiling Fan**



Crown Agents

#### 4.4.1 Material

The value chain analysis above depicts that over 80% of the costs represents the material and parts required to produce the fan. Out of this 50% of the materials are normally imported. The heavy reliance on materials results in volatile performance as minor changes in prices of parts and materials result in significant cost variability. The high value also suggests that there is little value addition / cost savings opportunities that are available. Moreover, as compared with international competitors such as China the local industry is at a disadvantage due to lack of research and development in materials. China has been able to diversify its production of materials required for fan manufacturing moving into PVC, composites of metals etc. Pakistan on the other hand is still relying on pure materials which are not cost effective.

- *The strategy to address the issue is to facilitate the linkage between the industry and research and development institutions. The industry should lay out their requirements about materials and the research institutions should develop newer materials that are cost effective. Furthermore, mergers should be encouraged to increase firm size so that greater production process is internalized. Additionally, standardization of parts should be encouraged in the industry. Moving to common parts will imply that large scale production is possible which will assist in reducing costs.*

#### 4.4.2 Melting & Aluminium Die Casting

The first major in house process after material procurement is melting and die-casting of aluminium. The process is reasonably efficient except for costs and irregularity of electricity. This increases the costs of production and also the inconsistency in die making. Currently 5-6% of losses occur at this stage due to irregular quality. The vertical integration at this point in the value chain is the die casting industry. Gujranwala has developed strong capacity in die making and casting which adequately supports the industry. TUSDEC has also recently opened up 'tools and die making' center in Gujranwala which can adequately support the fan industry in the region

- *The strategy to address this issue is to resolve the problem of electricity shortage and to provide training to workers working on die casting.*

#### 4.4.3 Assembly Process

Assembly process which is the main portion in terms of work head in a typical factory contributes only 3.8% to value addition. The portion predominantly represents wages paid to workers working on various machines. The main issue in this segment of the value chain is the low productivity due to inadequate upgradation of technology. More specifically, each process in the Pakistan industry uses an older technology as compared to its counterparts. For example, the current technology used for body turning is lathe machine, if technology is upgraded to CNC machines the productivity will increase by at least 4 times. Similarly, shifting drilling technology to multiple drilling will increase production 3 times. For pedestal fans currently majority of the industries use manual coiling techniques, moving to automatic coil inserters

will increase productivity by 5 times. The change in technology will not increase productivity but will also increase quality and performance of the product. When considering global value chains, China's production processes are much more efficient and highly productive. The Chinese fan manufacturers on average produce 45-50,000 Fans/ day as compared to the average firm in Pakistan only making around 200-300 fans/day. The current levels of productivity are extremely low not only due to lack of modern technology but also due to weak production process flow management. The assembly line in factories need to be rationalized so that the existing set ups achieve better technology.

Moreover, another critical area in assembly process is the painting cycle of fans. Over 90% of the firms are using spray paint technology with wet paint. This technique has a high wastage ratio. Around 40% of the paint is wasted and furthermore, this techniques environmentally hazardous also. The industry needs to move to more efficient techniques, such as electrostatic powder coating paint. This technology is not expensive and provides much better results in terms of quality and avoids wastage.

- *The strategy to address the issue of inadequate technology upgrade is to make it feasible for the firms to invest. The current impediment to investment in technology is significantly high rates of interest and access problems for SMEs. The government should facilitate the sector by establishing cost sharing schemes for technology upgradation, where government can pick up some of the costs of mark up due. Furthermore, a study may be conducted to evaluate the current performance of technology and most optimal shift required to maximize net gains. This study can give more specific recommendations on what should be the most efficient shift in technology given current industry capacity.*
- *The industry should also be provided assistance to move to better production flow management, better inventory control systems and stronger productivity and production monitoring. In addition, the industry should jointly visit more productive factories in China to learn about the organization layout of the larger units, the level of technology, product diversification and standardization techniques. This exercise should benchmark the Pakistan Fan industry relative to China and draw out important lessons where improvements can be made.*

#### 4.4.4 Overall Value Addition

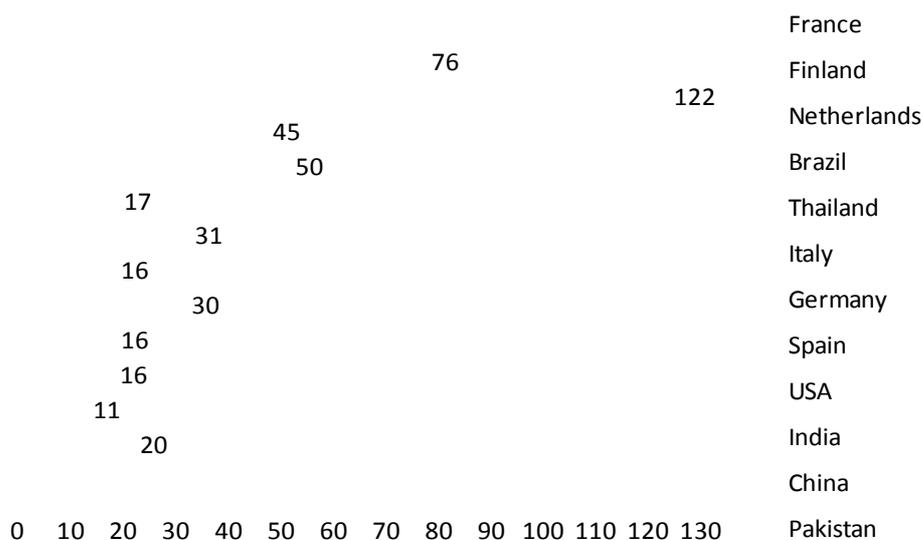
The current value addition is low due to high content of input and low price fetched by the product in the market. The VCA above reflect that the average price of a Pakistani fan (ceiling) is around US\$25<sup>5</sup>. This number goes down to US\$20<sup>6</sup> if we take the overall average export price. In comparison, fans from countries such as Finland, France, Brazil etc are fetching much higher export prices. Chart xx below provides a comparison of per fan export price of various countries.

**Chart 12: Average Export Price of Fans (HS 8414.51) US\$**

<sup>5</sup> Based on UNIDO survey and interviews with industry

<sup>6</sup> UN Commodity Trade Statistics

Crown Agents



Source: UN Commodity Trade Statistics

The information above shows that whereas Pakistan does reasonably well as compared to China, India, US, Spain and Germany, the prices fetched by Pakistani fans are much lower than those produced in Italy, Finland, Brazil and France. This difference in price is mainly due to better designs, better quality, marketing and branding. Some of the high value added ceiling fans sell for around US\$500-600 in the US retail market. This analysis presents an opportunity and a threat. The industry should not only focus on producing and exporting more fans, in fact, it should focus more on value addition and making better design and innovative fans that fetch higher prices. Given the nature of the industry value addition seems only possible if Pakistan begins to make fans for high income markets.

- The strategy to address this issue is to provide exposure and learning opportunities to industry. The industry through PEFMA should link up with design centers, companies specializing in upcoming fashion trends and market information hubs. This should enable the industry to start thinking about better designs, innovation and creating diverse product range. Currently, the industry is focused in producing fans that are used a basic utility good. The consumers will never be willing to pay higher prices for these fans, in fact, as the incomes of economies grow the demand for these basic fans will decline. If the industry has to add for value it will have to target high income markets, where fans are a fashion item and not a basic utility. Given the industries existing capabilities and understanding of fans technology the jump to fashion fans should not be difficult. The industry has a depth of skill in reverse engineering and it can easily move into developing more fashion orientated designs.*

However, developing fashion orientated fans is only part solution, as the industry will then have to upgrade its production processes, techniques and will have to meet certain quality and standards requirement to get appropriate certifications that will allow them to sell in high income markets such as USA and the EU. This is one area

where the industry currently lacks a lot of capacity. Some of this capacity issues is related to lack of finance and some due to lack of awareness.

## 4.5 Competitiveness of the Sector

The competitiveness of the sector depends on how well the sector is placed relative to its competitors. We have taken a structured approach to discuss the critical factors impacting the competitiveness of the fan industry.

### 4.5.1 Export Market Competiveness

Pakistan fan industry has experienced rapid export growth over the last five years. Starting from exports of less than US\$10 Million, Pakistan is now exporting around US\$35 Million worth of fans every year. However, the current export market of Pakistan is concentrated in low value or low income countries. Chart below shows the current export pattern of Pakistan fan export.

**Figure 13: Export Markets of Pakistan Fans 2009 (%)**

- United Arab Emirates
- Yemen
- Saudi Arabia
- Sudan
- Bangladesh
- Other reporters

Source: UN Commodity Trade Statistics

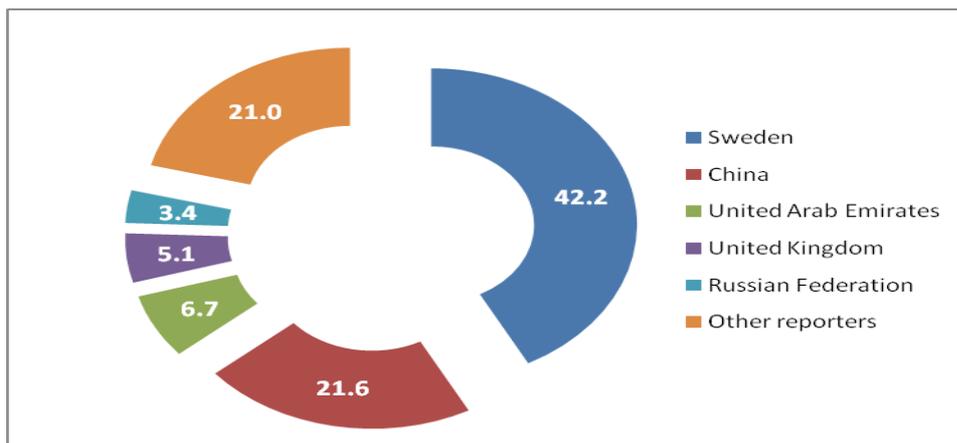
In comparison Finland, which is fetching the highest prices for its Fans has a completely different trade market. Over 42% of Finish fans are going to Sweden which has a per capital income of US\$40,000<sup>7</sup>.

**Figure 14: Export Markets of Finland Fans 2009 (%)**

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<sup>7</sup> CIA World Fact Book, 2009

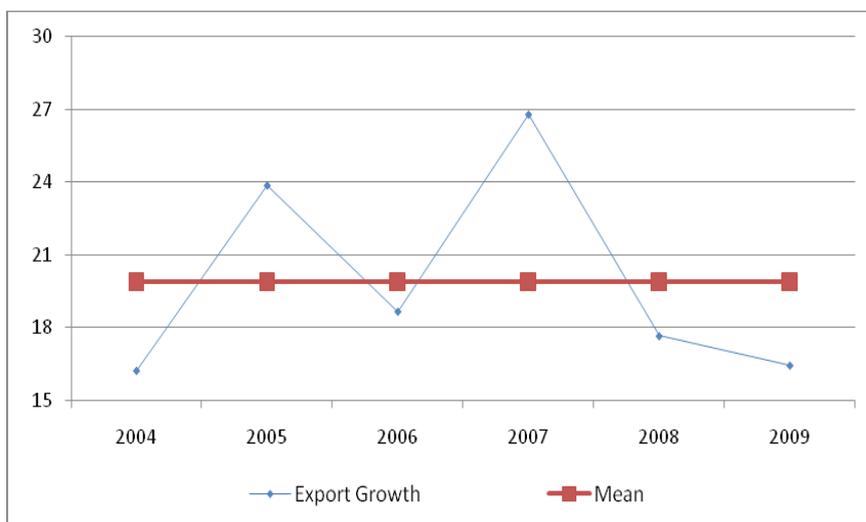
Crown Agents



Source: UN Commodity Trade Statistics

If we analyze the global trade, Pakistan has shown strong performance in terms of growth. The chart below presents the export growth of Pakistan Fan industry.

Figure 15: Growth of Pakistan Fan Exports (2004-09) %

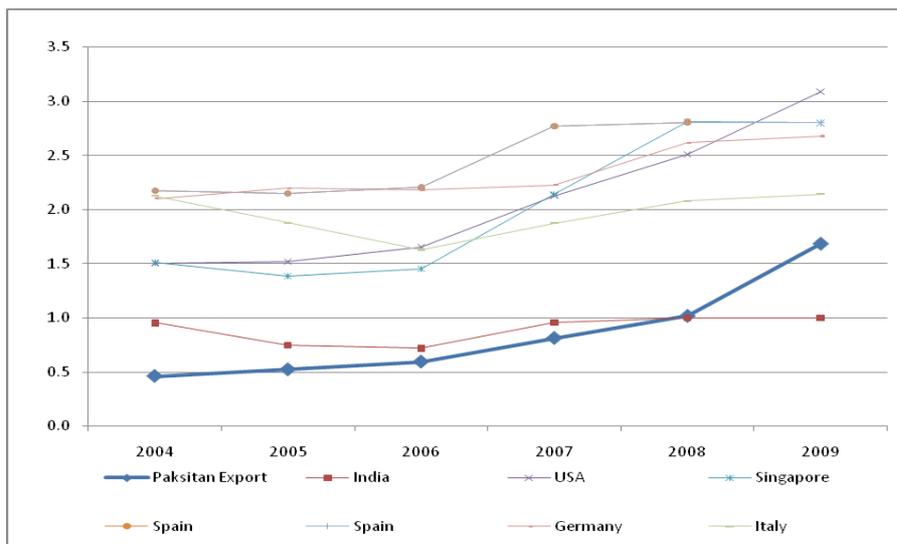


Source: UN Commodity Trade Statistics

The increased growth rate in exports has resulted in rising share of Pakistan's industry in world fan trade. The chart below shows the changing shares in fan trade globally. We have omitted the share of China on purpose as China on average has maintained greater than 70% of the market share. Showing China on the chart will result in all other countries collapsing to x-axis. Recently, Pakistan's share has exceeded that of India.

Figure 16: Country Shares in Fan Exports (2004-2009) %

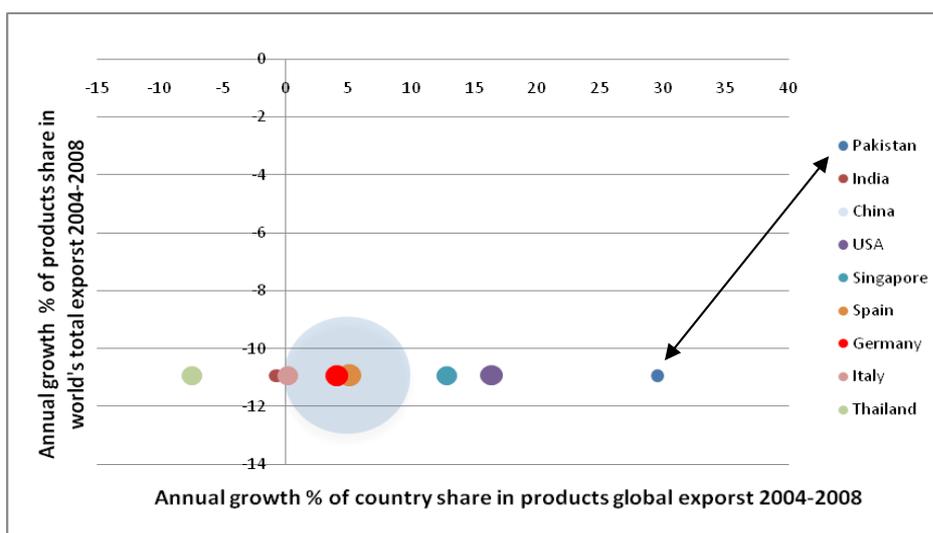
TRADE RELATED TECHNICAL ASSISTANCE (TRTA II) PROGRAMME



Source: UN Commodity Trade Statistics

When analyzing export market competitiveness it is also essential to look at the overall industry's competitiveness in the world trade. In Chart xx, the vertical axis measures the worldwide growth in the export of fans, as a share of total world exports, while, the horizontal axis measures the growth in the export of product fans for a country as a share of total world export of fans. If the country's product is on the right hand upper quadrant (competitive quadrant), it shows that the product is gaining in its international competitiveness. This is because its share in the export market for product is rising at a time when worldwide share of the product in total world exports is rising. The size of the bubble represents the size of the industry. Therefore, the more products a country has in the 'competitive quadrant' the stronger is its international competitiveness. The data on fans suggest that none of the countries are in competitive quadrant as fan trade globally is shrinking.

Figure 17: Positioning of Major Fan Exporter's 2004-2008



Source: UN Commodity Trade Statistics

Crown Agents Pakistan's growth has accelerated significantly and is currently ahead of all its competition. Given the shrinkage in market share of Fans globally this growth is both an opportunity and a threat. It is an opportunity as when the other more mature global industry shrinks their size to meet changing trends, Pakistan can increase its absolute share in the fan market. It is a threat as overall industry is shrinking globally so over the long run growth will stagnate. However, the small size of the Pakistan industry (depicted by the size of the bubble) suggests that industry has not as well as it should have. Looking at the numbers, Germany, US, and Spain are selling fans in export markets at comparable prices with Pakistan, but their shares are greater than Pakistan. Pakistan has access to a greater and a cheaper labor force in comparison to these countries yet it has stayed behind in gaining market share.

#### 4.5.2 Factor Market Conditions

The basic infrastructure of industrial setup exists in Gujrat and Gujranwala. Both of the cities have favorable indicators in literacy (81.4% in Gujrat and 77.4% in Gujranwala), health (In Gujrat 45% population has easy access to public health facilities and remaining 55% use private health; the split is 20:80 in Gujranwala) and access to basic infrastructure relative to average indicators of Punjab. Gujrat has an unemployment rate of 15.5%, whereas the rate of unemployment in Gujranwala is 7.5%. Both these numbers are greater than the average of Pakistan which is around 3.0%<sup>8</sup>. However, when comparing these numbers with international sectors against which Pakistan is competing, the quality of the provision of these basic factors in those countries is much superior. The level of primary and secondary education is particularly weak resulting in labour input that is difficult to train. Hence, where as Pakistan has a large enough pool of young labour force, whether this translates into a competitive advantage is questionable.

- *The basic factors including quality of education, health facilities, infrastructure provision, sanitation facilities need to improve in these cities for them to compete o better terms in global value chains. The strategy should not be to improve the numbers of schools or hospitals or road – the strategy should be to have better governance systems so that service deliver is efficient and the quality is regulated and strictly monitored.*

The fan industry also lacks in competitiveness due to inadequacy of specialized factors such as modern technology, training institutes and research centers. The availability of capital is not only difficult but is also on the expensive side. Compared to other major players in the global fan market, (China, India, Singapore, Thailand, Italy etc.) Pakistan is far behind in technology and modern production processes. As discussed above this lack of technology results in inadequate productivity and higher costs of production. The impediment to achieving better technology is not only lack of capital but also lack of knowledge and appropriate skills to use modern technologies. The level of skills is low impeding investment into modern machinery.

The industry has access to Fan Development Institute, however, the capacity of this institute to do meaningful research and product development is fairly limited. The institute currently works as a service center, provides basic testing and certification facilities in partnership with Intertek. The institute compares unfavorably to the

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<sup>8</sup> Multiple Indicator Cluster Survey (MICS); Punjab 2007-08

research and training facilities that are available in countries which compete with Pakistan in International markets. Similarly, the inadequacy of worker skills is further enhanced as there is no specific training institute for fan workers.

- *The strategy to address the above issues is to build capacity of the FDI to do better product research and development. The FDI should be linked up with the Gujrat Engineering University and they should develop joint programmes to do active research on fan development and modern technologies. PEFMA should be the information sharing and dissemination platform. Moreover, as currently there are no fan specific training institutes available, FDI should work with TEVTA (Punjab) to jointly develop a training institute at FDI premises. TEVTA should be able to provide trainers and new technology, while PEFMA can contribute land and building. FDI will also have to build capacity to develop linkages with international institutes in fan technology so that they are able to better access information and technology change.*

#### 4.5.3 Demand Conditions

According to general competitiveness framework the sophistication of local customers is an integral reason why companies are forced to innovate and then succeed abroad. In the case of fan's industry this factor is reasonably strong, as we are aiming to compete in segments where there is strong local demand. The sophistication of the local demand is however limited when compared to economies such as France, Finland, Italy and Brazil who are producing more sophisticated products. The factor has slightly improved as incomes have risen in recent times and consumers have started demanding better products. Innovation's such as sun heater convertor fan; humidity fans etc. are example of recent innovations by the industry.

The export demand also varies significantly, from highly sophisticated to low value end products. Pakistan is currently only catering for the low end of the demand market. The Western economies are willing to pay significantly high prices for Fans if they meet the new fashion trends and fit in well the décor of houses and building. As an example companies such as CasaBlanca, Montecarlo etc. have fan models that are selling for over US\$500 in the US market.

#### 4.5.4 Context for Firm Strategy and Rivalry

Leaving the 5-6 large firms aside there is strong rivalry amongst the small & medium firm in the industry. This strong rivalry has had a negative impact on the performance of the industry. Price war behavior is quite a common practice. This intense competition has kept export margins low and has resulted in low levels of investment. There is hardly any foreign ownership in the industry. China made an attempt to enter the local fan market, however, was not successful. The reason for this being that the industry has already got strong roots in local market. Some of the industry also reported that the reason for China's failure in Pakistan's market was due to small fan manufacturers competing on price by providing sub-standard fans. Pakistan generally has liberal policies on investment, however, the fan industry has not benefitted from much FDI and JV's are nonexistent. The top 5-6 companies have captured around 40% of the local market and also have a major share in the export markets. These are the firms that have made more investments and have better access to modern technologies and better productivity levels. Moreover, due to

Crown Agents seasonal trade of fans within the country opportunities for scale economies have not been explored so far. However, the sector now feels the need to expand firm size due to large potential in export markets.

#### 4.5.5 Related and Supporting Industries

In many ways, the performance of an industrial sector is a reflection of the support that it is getting from its suppliers and vendors. The main supporting industries for the sector include; (i) guard makers; (ii) rotor stator; (iii) aluminum blades; (iv) aluminum rods; (v) enameled copper wire; (vi) casting industry; (vii) training and research institutes; (viii) packaging industry; and (ix) marketing and branding agencies. The industry is reasonable satisfied with the work of major vendors, however, the lack of support for research and development institutions, marketing and branding support and weak packaging industry are major impediments to competitiveness.

There is no capacity in the industry, nor is any support linked to the industry which can work on product designs, product development, quality and standards and marketing of products. The individuals firms make most of the effort to reverse engineer designs and use expensive and limited marketing techniques. Hardly, any firm in the industry receives direct feedback from end consumers. Due to high degree of informality and small size the access to banking facilities is also fairly limited.

The strategic actions presented above are all developed to address the issues of competitiveness facing the industry.

#### 4.6 Quality and Standards

The industry generally feels that improving quality and standards is extremely important. The Fans standards are normally two types; performance and safety. There are no defined quality or safety standards for Fans in Pakistan. This practice has led to inefficiencies in the system. First, lack of quality and standards result in customary production techniques and a variety of different part being used by the industry. Quality is difficult to maintain when there are non-standard parts being employed. Majority of the industry feels that quality and standards can be improved by making a shift towards the use of common parts.

- *The strategy to address the issue above is to promulgate domestic standards on quality. A rating system should be developed at the platform of PEFMA and each fan manufacturer should be rated based on that. Furthermore, industry should be assisted to move towards the use of common parts.*

#### 4.7 Testing Requirements

UNIDO under its TRTA I programme conducted a survey of the Fan industry to assess its testing requirements and capacity to do so. The Survey conducted by UNIDO indicated that the following tests were required:

Table 8: Tests performed on Fan Products

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

The current survey done in the Inception Phase of TRTA II, identified some additional tests being performed which include; (i) Sound level test; (ii) Baring Noise test; (iii) Winding test, (iv) Phase current test and (v) Insulation resistance test. The overall level of awareness about the tests being carried out was found to be high in previous survey and the results are similar under the current survey as well. The number of respondents aware of the tests was 83.3% two year ago and now this number has risen to over 90%. The mean score of responses on awareness was \_\_\_\_\_.

All fan manufacturers reported that they have in-house testing facilities to conduct most of the tests. The tests for which the factories do not have in-house capacity included; (i) air delivery, (ii) temperature rise test, and (iii) sound level tests. Most of these tests are done by FDI, which has a link with Intertek which acts as the certifying body.

The previous survey reported that the use of qualified staff for conducting tests was not found to be common in fans industry. Only 4 respondents out of a total of 30 had specific staff for conducting tests. The current survey also portrays a similar picture as none of the respondents in the sample had any qualified staff.

Moreover, none of the firms reported to be using any foreign labs, 100% of the respondents were of the view that between PCSIR, FDI and Intertek all the testing capacity was available. The costs of the tests were rated to be on the higher side. The average cost of tests required for local sale costs between Rs.3,000-5,000/ on the other hand the tests required for export markets costs in the range Rs.5,000-40,000.

Overall, the findings indicate that the sector is adequately aware of all the testing requirements. The firms that are exporting are more aware and have invested in more in-house facilities to perform required testing. The firms in the sample who are not exporting are aware of the tests but only perform basic safety and performance

Crown Agents tests. 30% of these respondents also have 100% in-house capacity to perform basic tests. The remainder of the tests are adequately covered by FDI, PCSIR and Intertek. FDI tests are not certified, while those of PCSIR and Intertek are accredited.

- *As the size of exports expand from the sector FDI laboratory may have to be upgraded and its capacity being built to perform all the tests and also to manage greater work load. For the short term the sector is adequately supported to conduct its testing requirement.*

#### 4.8 Compliance Status Certification Capacity

The findings here show a clear divide between the firms who are currently exporting and those that are not. The firms who are exporting are fully aware of all the certification requirements, mainly CE for Europe; UL for the USA; SASSO for Saudi Arabia; SABS for South Africa; SONCAP for Nigeria and SIRIM in Malaysia and Sri-Lanka. However, those not exporting are not fully informed. The awareness of international certification requirements is perceived to be higher than what it was two years ago.

X% of the forms reported compliance with .....

Where awareness is not an issue financing is reported as the biggest constraint by the industry. The costs for getting UL mark is reported to be over US\$10,000 as a one off payment and then around US\$3,000 per product on an annual basis.

- *The recommendation here is to create further awareness on certifications and compliance requirements with greater focus on UL marking as that is still the weakest area. In addition, support may be provided on costs sharing basis to firms to upgrade their systems and production processes so that they are meet certification requirements.*

#### 4.9 Access to Markets

The sector feels positively about entering newer markets especially where there are possibilities of higher value added. However, the major constraints identified as a result of survey findings were lack of information on new markets and limited capacity meet quality standards compliance requirements.

#### 4.10 Policy Capacity & Support

The survey conducted by UNIDO shows that no major policy support is required by the sector in terms of restrictions or difficulty to export. However, two recommendations have been strongly proposed by the sector:

1. The Fan industry should exempted from sales tax on same basis on which bicycles have been expected. The industry strongly suggests that as fans are basic utility items they should not have sales tax.
2. The government should review the duty draw back rates to provide level playing field and also reduce the processing times.

#### 4.11 Intellectual Property Rights

X% of the respondents suggested that they were using trade marks to protect their designs and products. However, over 90% were of the opinion that agencies lacked capacity in enforcing these rights. Respondents were not interested in IPO's mainly due to lack of enforcement.

#### 4.12 Recommended TRTA Interventions

The following recommendations are made for TRTA II programme:

5. Using the platform of PEFMA to arrange a study tour to China on cost sharing basis.
6. Conduct a feasibility study of the US and the Australian market and develop recommendations to upgrade the industry to meet the requirements of these markets. If the markets are feasible then provide experts who can assist the sector get compliance for these markets. Further promote CE Marking and provide technical assistance to firm to get CE Marks.
7. Conduct an analysis of the industry to make recommendations on feasible technology shifts to optimize returns.
8. Work with NPO and PEFMA to provide a fan expert on cost sharing basis to evaluate and make recommendations on existing productivity constraints due to weak production floor management.

### 5. Cutlery & Hunting Equipment Industry

#### 5.1 Overview

The cutlery and the hunting equipment industry is mainly clustered around the skirts of Wazirabad. Over 96% of the countries production is cantered at Wazirabad. The sector comprises over 400 SMEs, of which 250 are cutlery manufacturers and the remainder 150 is involved in the manufacturing of hunting equipment and swords. The industry produces on average 1.3 million sword & daggers and around 3.0 million cutlery pieces a year with an estimated value of Rs 6-7 billion. Out of the total production, approximately 95% of swords and hunting equipment is exported, whereas, only 25% of the tableware cutlery is exported<sup>9</sup>. The industry belongs to the light engineering industry category, and is one of the industries that have existed prior to independence.

Besides small and medium units, a few units are large and have a 90% integrated system. Most of the larger and medium sized firms are exporting, however, the smaller units usually supply to commercial exporters or local wholesalers. The main raw material used in the production is 'steel'. Around 80% of this steel is manufactured locally and the remaining 20% is imported from Germany and Japan. A recent innovation in the cluster is the development of Damascus steel – which is used for the manufacturing of hunting knives.

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<sup>9</sup> UNIDO Field Survey and Board of Investment, Pakistan Light Engineering Sector

Crown Agents For the purpose of trade; kitchenware cutlery (HS Code: 8215, 821591, 821510, 821520) and non-kitchenware cutlery (HS Code: 8208, 8211, 8212 and 8214) are defined differently.

The sector employs around 10-15,000 thousand workers. However, employment is volatile as most factories operate in the informal sector with high degree of temporary and contractual employment. Over the last four years the exports from the sector has stayed stagnant at the level of US\$50 million. Currently only 20-25% of the industry cutlery manufacturers are exporting, whereas, over 90% of the knives, blades and hunting equipment manufacturers are exporting.

Exports make up only a small fraction of world trade in cutlery, swords and hunting equipment, which amounts to over \$11 billion. This is one sector where Pakistan has developed capabilities to penetrate high value / high income markets such as Germany, USA, France, Belgium etc. The average export price of goods made in Wazirabad is around \$25-27/Kg (Steel), which is much higher than what Chinese products fetch (US\$3-5 (Composite material)). However, the price is lower than some of the more sophisticated producers such as Germany and Switzerland.

The sector, whereas, has achieved reasonable export performance growth in the recent years has suffered from intense competition from China. The major impediments of the sector are low levels of productivity, inadequate technology upgrade and shortage of skilled staff. Moreover, most of the companies operate without any brands with only a couple moving to branding of their products. Furthermore, the industry in the years to come will face higher compliance requirements, especially the cutlery manufacturers, who would be required to meet standards on use of 'food grade materials'. Currently not much compliance or testing requirement exists and only a few companies adhere to ISO standards. As a result of the UNIDO's benchmarking exercise we have also identified that firms have indigenously developed products for the export markets. Additionally, the surveys conducted also suggest that current export is much below potential due to low levels of education and lack of understanding to export. The scale of operations is also a problem and firms find it harder to compete with competitors especially China.

## 5.2 Contribution to National Economy

The Cutlery & Hunting Equipment sector is a key micro sector of Pakistan with significant vertical linkages with other sectors of the economy. The sector contributes in multiple ways to the national economy. It offers pro-poor employment creation opportunities, income generation, foreign exchange and social development by strengthening cluster development in and around Wazirabad. It offers direct employment to around 10-15,000 people. This scale of employment is far below its potential as the industry currently faces a stiff competition from China, unhelpful government policies, energy crises which have resulted in over 300 units to close down in the last few years.

**Table 9: Contribution of Cutlery & Hunting Equipment Industry to National Economy**

Indicator	Value
To GDP(%)	0.11%
To Direct Employment (Numbers)	10-15,000

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<b>To Indirect Employment (Numbers)</b>	30-45,000
<b>To Exports (%)</b>	0.25%

Source: Pakistan Cutlery & Stainless Utensils Manufacturers & Exporters Association, Pakistan Economic Survey 2008-09 and UN Commodity Trade Data Base

It is estimated that industry is currently producing 3 million cutlery pieces and 1.2 million knives, swords, daggers etc. worth over Rs.6 Billion<sup>10</sup>. This figure implies that the sector contributes 0.11% to the national GDP. This is not significantly large, it, however has a wide range of supporting industries such as steel, wood, leather, casings, machine vendors, etc. and thus potential reverberations in economy is far greater than what is represented by the figure above. Pakistan Cutlery & Stainless Utensils Manufacturers % Exporters Association indicates that one employment in industry creates 3 indirect employments elsewhere. Since employment in the cutlery and hunting equipment industry is around 10-15,000, which is 0.20% of the total manufacturing employment, adding 30-45,000 indirect employment in the industry makes it to go up to 0.8% of total manufacturing employment.

The sector saw a down fall in exports over the last few years; however, since 2009 things have again started to improve. Chart xx below shows that foreign exchange earnings of the sector are consistently on the rise. For the most recent year (2009) the exports were almost at US\$50 Million. This has increased Pakistan's share in world exports to over 0.4%. The sector contributes 0.25% to Pakistan's total exports. Below we have provided trade figures of all the important categories in the cutlery and stainless steel trade categories to provide an aggregate trend. The later analysis will present specific details of the key products from Pakistan.

Table 10: Pakistan & World Exports in US\$ Million and Pakistan Export Share (%) 2005-2009

HS Code	2005	2006	2007	2008	2009
<b>8211</b>	Pakistan: 9.2	Pakistan: 8.3	Pakistan: 8.7	Pakistan: 9.9	Pakistan: 9.3
	World: 1,262.8	World: 1,434.5	World: 1,947.3	World: 1,790.2	World: 1,181.4
	Pakistan's Share: 0.73%	Pakistan's Share: 0.58%	Pakistan's Share: 0.45%	Pakistan's Share: 0.55%	Pakistan's Share: 0.79%
<b>8214</b>	Pakistan: 9.9	Pakistan: 14.0	Pakistan: 25.0	Pakistan: 21.2	Pakistan: 25.1
	World: 620.7	World: 653.2	World: 739.2	World: 750.0	World: 514.0
	Pakistan's Share: 1.6%	Pakistan's Share: 0.58%	Pakistan's Share: 3.4%	Pakistan's Share: 2.8%	Pakistan's Share: 4.9%
<b>8215</b>	Pakistan: 9.1	Pakistan: 2.9	Pakistan: 2.6	Pakistan: 3.6	Pakistan: 1.6
	World: 1,984.4	World: 2,109.5	World: 2,370.9	World: 2,376.5	World: 1,590.5
	Pakistan's Share: 0.46%	Pakistan's Share: 0.14%	Pakistan's Share: 0.11%	Pakistan's Share: 0.15%	Pakistan's Share: 0.10%

<sup>10</sup> Estimates provided by Pakistan Cutlery & Stainless Utensils Manufacturers & Exporters Association

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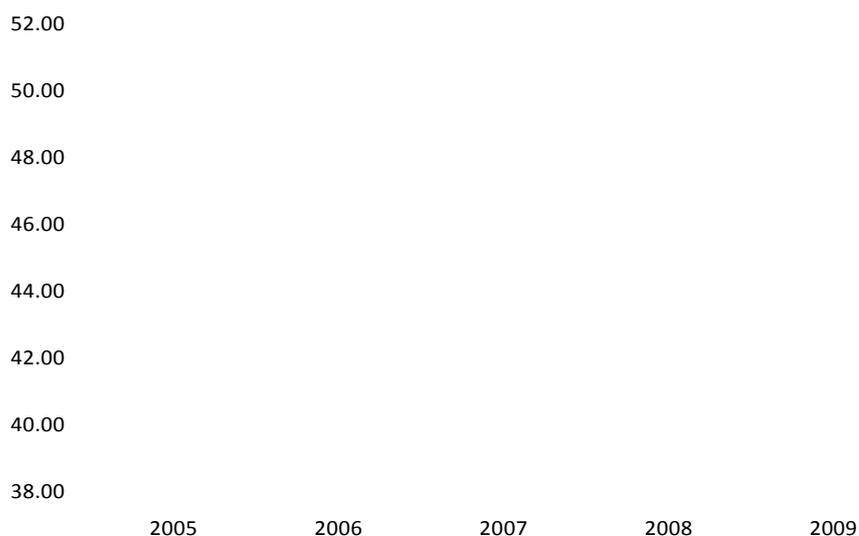
<b>8208</b>	Pakistan: 0.65 World: 1,739.8 Pakistan's Share: 0.04%	Pakistan: 0.35 World: 1,868.8 Pakistan's Share: 0.02%	Pakistan: 0.38 World: 2,184.4 Pakistan's Share: 0.02%	Pakistan: 0.41 World: 2,470.7 Pakistan's Share: 0.02%	Pakistan: 0.45 World: 1,511.2 Pakistan's Share: 0.02%
<b>9307</b>	Pakistan: 1.3 World: 30.5 Pakistan's Share: 4.4%	Pakistan: 0.35 World: 24.6 Pakistan's Share: 1.4%	Pakistan: 0.44 World: 33.8 Pakistan's Share: 1.3%	Pakistan: 0.2 World: 47.8 Pakistan's Share: 1.2%	Pakistan: 0.15 World: 22.5 Pakistan's Share: 2.3%
<b>9507</b>	Pakistan: 0.2 World: 1,851.0 Pakistan's Share: 0.01%	Pakistan: 0.2 World: 2,035.9 Pakistan's Share: 0.01%	Pakistan: 0.1 World: 2,429.4 Pakistan's Share: 0.00%	Pakistan: 0.2 World: 2,536.4 Pakistan's Share: 0.01%	Pakistan: 0.15 World: 1,673.0 Pakistan's Share: 0.01%
<b>732393</b>	Pakistan: 7.7 World: 3,335.7 Pakistan's Share: 0.2%	Pakistan: 10.5 World: 3,652.5 Pakistan's Share: 0.3%	Pakistan: 6.8 World: 4,033.2 Pakistan's Share: 0.2%	Pakistan: 4.5 World: 4,036.2 Pakistan's Share: 0.1%	Pakistan: 3.8 World: 2,836.9 Pakistan's Share: 0.13%
<b>821210</b>	Pakistan: 1.0 World: 1,344.1 Pakistan's Share: 0.1%	Pakistan: 1.8 World: 1,368.6 Pakistan's Share: 0.1%	Pakistan: 2.4 World: 1,636.4 Pakistan's Share: 0.2%	Pakistan: 2.7 World: 2,048.2 Pakistan's Share: 0.1%	Pakistan: 3.8 World: 1,066.1 Pakistan's Share: 0.3%
<b>821220</b>	Pakistan: 3.5 World: 1,372.6 Pakistan's Share: 0.3%	Pakistan: 4.2 World: 1,655.5 Pakistan's Share: 0.3%	Pakistan: 4.0 World: 1,224.7 Pakistan's Share: 0.3%	Pakistan: 5.0 World: 1,489.3 Pakistan's Share: 0.33%	Pakistan: 3.8 World: 0.807 Pakistan's Share: 0.65%

HS Code	
<b>8211</b>	Knives with Cutlery, Blades, Serrated not in 8202
<b>8214</b>	Other articles of cutlery
<b>8215</b>	Spoons, Forks, Ladles, Cake Server, Fish Knives etc.
<b>8208</b>	Knives & Cutlery Blades
<b>9307</b>	Swords, cutlasses, bayonets
<b>9507</b>	Fishing & Hunting Equipment
<b>732393</b>	Table Kitchen items of stainless steel
<b>821210</b>	Razors
<b>821220</b>	Safety Razor Blades

Source: UN Commodity Trade Statistics

The data suggests that Pakistan's has been able to develop capabilities to supply in a majority of commodities, however, the scale and share of markets stays small or insignificant. This presents with both an opportunity and a threat. It is an opportunity as the market is large enough to allow Pakistani exporters to expand their shares and increase export earnings. It is a threat because, if Pakistan does not upgrade its production and improve efficiency, it may lose even the existing market shares to new entrants such as Viet Nam.

Figure 18: Pakistan's Cutlery & Hunting Equipment sector Exports (US\$)



Source: UN Commodity Trade Statistics

### 5.3 Characteristics of the Industry

The cutlery and hunting equipment industry is mainly clustered in and around Wazirabad with some production also taking place in Gujranwala, Sialkot and Dir. 95% of the countries production is centred at Wazirabad. The sector comprises over 400 SMEs, of which 250 are involved in cutlery manufacturing, whilst the remaining are involved in production of hunting knives, swords etc. The industry produces on average 4.3 million different types of products with the value estimated at over Rs 6 billion. The table below presents the main characteristics of the industry:

Table 11: Fan Industry Characteristics

Characteristic	Value
Number of units	400
Total Installed Capacity	7.5 – 8.0 Million pieces
Current Production	4.3-4.5 Million pieces
Contribution to National Exports	0.25%
Contribution to GDP	0.11%
Capital Output Ratio	
Sector Employment	10-15,000
Skilled to Unskilled Ratio	
Capital Labor Ratio	6 workers/Million (Rs)
Total Estimated Investment	

Source: BOI Reports, CMI Data and Field interviews

Out of the 400 companies only 10-15 companies can be categorized as large sized manufacturing units within the sector (relative basis). These units have in house capacities to conduct most of the production processes and are also characterized with higher levels of investment and more modern technology. Tier 2 companies are numbered somewhere between 40-50 and have medium sized units and in house capacities to conduct major portion of the production process, however, lacks in investment and modern technology. The remainder can be categorized as Tier 3 companies with small operations, high degree of outsourcing and outdated machinery. The average age of the machinery employed is between 10-15 years.

Crown Agents The above composition suggests that the industry is dominated by small firms and as such does not benefit from economies of scale. This is a critical reason why the cutlery industry in Pakistan has not been able to compete on costs with its international competitors – and China has been able to easily replace Pakistani products in traditional markets. The average capacity of a typical firm is around 50-60 Cutlery/day and 25-30 swords, hunting equipment/day which is extremely low as compared to Chinese counterparts where firms average productivity is thousands per day.

- *The strategy to address the issue of scale economies is to promote mergers and consortium based production in the industry. This can happen by training the industry for joint sourcing of materials and going after joint orders. In order to promote this strong contract enforcement is also required so that firms can develop trust on joint contracts. The industry will have to open up within the sector and understand that the competition is not within but is external. The strategy should also be to focus in those products where Pakistan has a niche, for example hand made products and where it is difficult for China to enter. The sector should focus more on high value items where the competition is less fiercer and the local industry can capitalize on low cost labor advantage. The strategy to enhance trade should be to focus on markets where Germany, Sweden and France have bigger shares and Pakistan can compete on better terms due to its low cost base.*

The numbers in the table above indicate that the capacity utilization ratio for the industry is between 50-60%. The industry representatives informed that utilization is less than 100% due to lack of materials and power shortage. However, capacity utilization varies on the products being manufactured. The baseline survey done under the TRTA II provides variable results. The understanding of the entrepreneurs about capacity utilization is inadequate. Capacity utilization is normally misunderstood as current production, which varies on the orders being placed. The number 50-60% represents the closest figure to the actual capacity utilization.

- *The strategy to address the above issue is to provide trainings to the entrepreneurs using the Pakistan Cutlery Association platform on measuring capacity utilization gaps. The production processes should be streamlined to improve utilization and more effective use of existing resources.*

The capacity utilization figures vary more in the cutlery industry as there is greater variety of products being manufactured and only 15-20% of the firms are currently exporting their produce. The reliance on the domestic market is much stronger for the cutlery manufacturers. The most common reason for this is the lack of knowledge to export and problems with quality and finance. Currently, compliance issue is not a big impediment as products being produced do not require any significant testing or certification. Lack of working capital and inadequate support from micro finance agencies or SME financing agencies is a major impediment as the supplier's credit is usually three times more expensive than bank credit. However, for cutlery, if the industry has to move into greater value added it will require food grade stainless steel and will also require certifications.

- *The strategy to address the above issue is to create awareness about export procedures and requirements, including assistance on developing systems to*

*achieve international standards and compliance requirements. Additionally, the government must lobby with the State Bank for developing better SME credit products.*

The industries performance is highly dependent on the availability of raw materials which predominantly comprise steel. Firms have raised concerns on price volatility, variability in supply and quality issues regarding the raw material currently available. Some firms were also of the opinion that material bank may be established that can ensure consistent availability of good quality material. However, the idea presented is not feasible as it will require a lot of financial support and is most likely not sustainable.

- *The strategy to address the above issue is to educate the sector on joint sourcing and storage of materials. Some of the firms in Wazirabad has already moved to this model and have been able to successfully overcome the problem regarding materials. Networking in the industry need to improved for better results.*

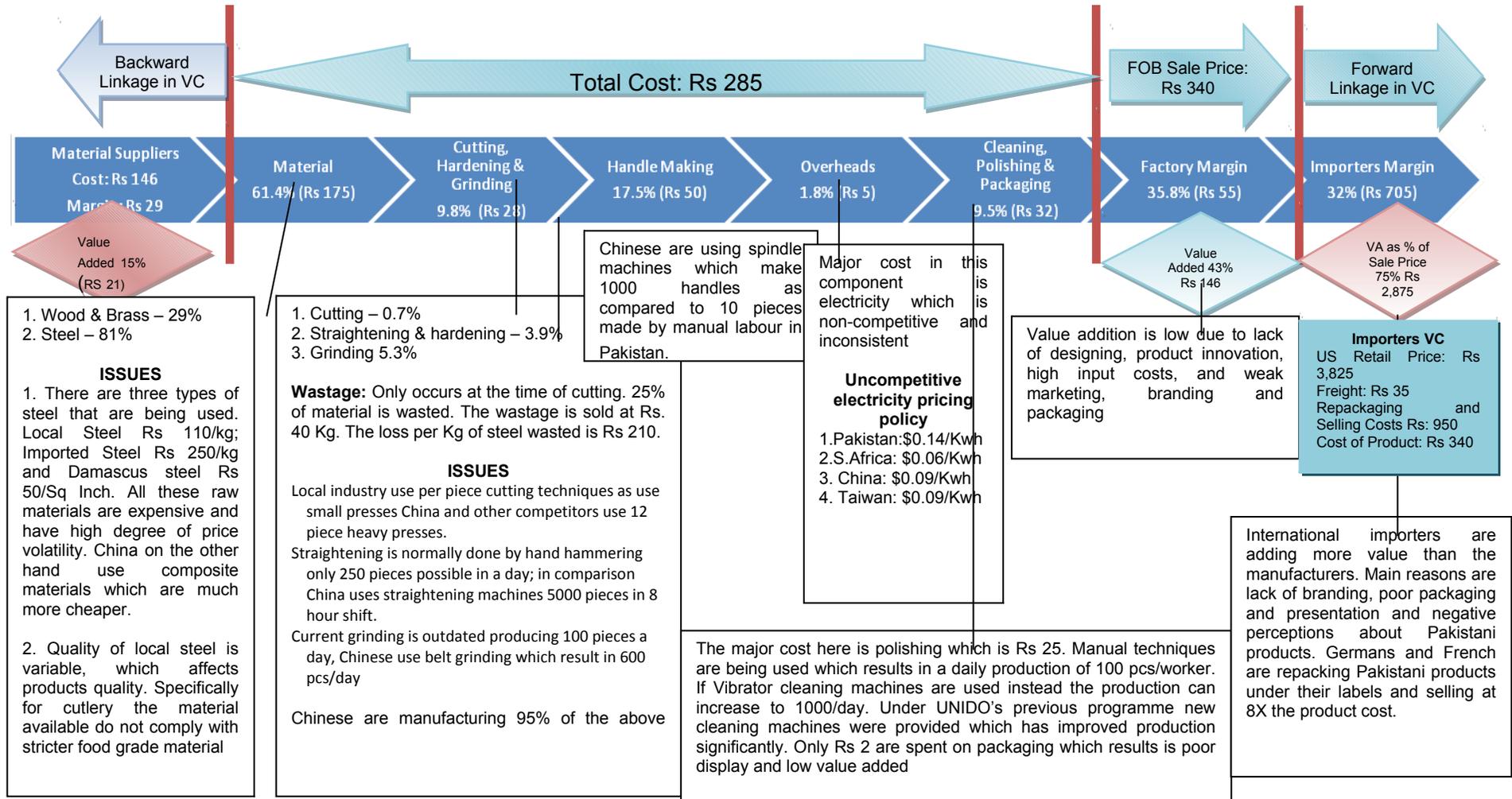
The level of marketing, branding and packaging stays weak within the sector.

#### **5.4 Value Chain Analysis**

Value Chain analysis tool is employed to explain the specific issues faced by the producers of the industry. Where data is available analogies with reference to the global value chains are also made to identify critical weaknesses. The analysis points out that there are several supply side constraints as well as weaknesses in value addition. It must be emphasized that the value chain presented below represents what is typical for the industry. It is possible that some larger firms may be slightly better placed and some small ones slightly adversely placed than the representation presented below. The numbers provided below have been verified by industry representatives.

The overall structure of the value chain suggests that industry typically adds 43% of ex-factory sale price in value addition in the tune of around Rs 145 per dagger. The vendors are also adding around 15% in basic raw materials; however the importers take the major bulk of the value addition.

**Value Chain for Cutlery & Hunting Equipment Industry: Illustrated Product is 12 Inch Dagger**





Crown Agents

### 5.4.1 Material

The value chain analysis above depicts that over 60% of the costs represents the material and parts required to produce the dagger knife. Out of this 70% of the cost is for the steel used. Three different types of steel are currently being used. Locally manufactured which costs Rs. 110/Kg, imported steel which costs Rs. 250/Kg and Damascus Steel which is the most expensive and costs Rs 50/Sq Inch. The above analysis refers imported steel daggers. Although the local steel is low in cost it mostly do not meet the quality standards that are required by foreign buyers. The finish of the product is poor if local steel is used. Most of the local steel is used by the cutlery manufacturers as they are selling in local markets predominantly. The local steel do not qualify as 'food grade' steel hence cannot be used in making cutlery for imported markets.

Moreover, the availability of steel is also an issue. The stocks and prices are quite variable resulting in pricing problems for the industry. Damascus steel is one of the success stories of the sector. Damascus steel is the highest quality steel for hunting knives, swords and similar equipment. The sector has developed capacity to produce its own Damascus steel. Some of the larger units are manufacturing their own Damascus steel and are able to enter global product market at much favourable terms.

In comparison, China which is the leader in global trade of cutlery and similar instruments has a competitive advantage due to availability of alternative low cost materials. For instance, the average export price of Chinese cutlery per Kg is US\$3.5, whereas of Pakistan is US\$ 20. The main difference is that Chinese have captured a major market share by competing on low costs and high turnovers. Their strong research and development capacity in alternative materials have given them a clear advantage in the market which is difficult to beat.

- *The strategy to address the issue is to facilitate the linkage between the industry and research and development institutions. The industry to should lay out their requirements about materials and the research institutions should develop newer materials that are cost effective. Furthermore, mergers should be encouraged to increase firm size so that greater production process in internalized. The idea of networks and consortium operations should be looked at in greater detail.*

### 5.4.2 Cutting, Straightening, Hardening & Grinding

The production process after procurement of material requires several processes. The metal is first cut into pieces of required shape. This is done by using die press. Then hardening and heat treatment is performed, then hand hammering for straightening and finally grinding. Most of these techniques use old less productive technology. Comparison with the Chinese value chain suggests that following:

- Pakistani industry use one piece die press for cutting, in comparison the Chinese and other competitors such as Germany, France etc. use 12 piece heavy die press. Hence, their process is 12 times more productive.

- Pakistani industry use hand hammering for straightening purpose, the Chinese counterparts use automatic straightening machine. The hand hammering technique can process up to 250 pcs/day and in comparison the automatic machine straightening processes 5,000 pcs in an 8 hour shift.
- Similarly, grinding is done using an open grinder in Pakistan, in comparison, Chinese use belt grinders. The local practice can only process 100-125 pcs/day as compared to belt grinding that can process around 600 pcs/day.

Another critical comparison of value chains here is that Chinese manufacture 95% of the machinery used in the production process locally. The manufacturers are able to purchase these machinery at a fraction of the cost of European models. Local firm in Pakistan has to rely on importing these machines which are quite expensive. Hence, the backdrop of having no support engineering industry leads to a significant competitive disadvantage.

Moreover, electricity is the major input in all of the above production processes. Shortage of electricity is a critical impediment to competitiveness.

- *The strategy to address this issue is to critically evaluate the technology deficiency of the sector. Once a plan for the upgrade is developed, the government should facilitate the acquisition of new technology by developing a financial product, may be through TUSDEC or NPO etc. However, it is quite clear that local industry cannot compete with the Chinese in scale; hence the strategy should be to move into those sectors where the competition is less fierce and high value addition and trade expansion is possible. For instance, the Pakistani industry should try and capture markets of high cost countries such as Germany, France, Switzerland etc. One way of doing this is for the government to facilitate to joint ventures and partnerships with famous brands in Germany, France etc. which are interested in shifting their production to cheaper locations. This can also result in technology transfer.*

For the cutlery sector the issues are exactly identical. They also lack in critical technology that cannot be acquired due to small scale of the firms.

### 5.4.3 Handle Making

Handle making is another critical area as it contributes 17% to value added and 29% of the material costs. Handle making is a critical value driver of the products as it makes a visible impact on the quality of the product. No matter how good the quality of the blade if the handle is not of a good quality the product will not fetch a high price. Again due to technology deficiency, productivity is low. Chinese are using spindle machines that can produce 1000 handle a day, as compared to manual process which can only produce 10/day. However, the shift to this newer technology has a cost, as handmade handles fetch a much higher price in the market as compared to machine made.

- *The industry should be assisted to evaluate the feasibility of making the shift from handmade to machine made handles. There was not enough time in the current project to suitably identify this.*

#### 5.4.4 Polishing, Cleaning and Packaging

Finishing of the products is the weakest area in the local value chain. Some of the firms have shifted to automatic cleaning machines which have improved the quality of the cleaning and also the speed. However, generally the sector relies on manual labour doing the cleaning work. This process is slow and also has some environmentally hazardous effects. Similarly, the polishing process is manual as compared to Chinese firms which use vibrator machines. With current practices one worker is able to polish a maximum of 100 pcs/day and in comparison vibrator machine technology can process 1000 pcs/day.

Packaging is the most neglected area. There is currently no packaging industry that can cater for the needs of the cutlery and the hunting equipment and knives products. The packaging available in the local market is of very poor quality and detracts a lot of value from the product. Countries such as Germany and France import a lot of products from Pakistan, refinish and repackage them and then sell them under their brand at around 8x the price.

- *For the industry to stay competitive it will have to improve its finishing and packaging. Higher prices are fetched by those products that are visibly appealing and not necessarily by its quality. Unless, the local the industry is able to improve its capacity to sell its products it will not be able to add higher value.*

#### 5.4.5 Overall Value Addition & Productivity

The industry as a whole suffers from productivity issue. This has resulted both due to inadequate investment in technology and also a lack of availability of skilled labour. In addition, a major drawback in the value chain is the predominance of the micro scale firms. 80% of the 400 SMEs working in the sector are informal. This high degree of informality results in lack of access to finance, beneficial trade policies etc. The scale of majority of the firm is so small that production layouts are extremely poorly articulated. There are high degrees of wastage both in terms of time and resources. The sector on the whole is not organized to compete with major competitors. Finally, the sector suffers from inadequate value addition due to weak branding and marketing. Almost all the firms supply unbranded products to international buyers, who then stamp with their brands and are able to cash on the branding and marketing. Historically, there has been no support provided to the sector by either the provincial or the federal government to assist them with branding and marketing activities.

- *The strategy to address this issue is to provide training courses on marketing and branding. The government should facilitate development of marketing and a branding strategy for the sector. International journalists should be invited to witness the capabilities of the industry and write in a balanced manner on the success of the sector and the quality of the output. Similarly support should be provided for common branding and marketing of the products being manufactured in Wazirabad. The Wazirabad brand must be formally established and details about the quality and standard requirements*

*should be clearly articulated. In addition, the sector marketing case study may be given to an academic institution such as LUMS to come up with an implantable cost effective marketing plan for the sector.*

## 5.5 Competitiveness of the Sector

The competitiveness of the sector depends on how well the sector is placed relative to its competitors. We have taken a structured approach to discuss the critical factors impacting the competitiveness of the cutlery and hunting equipment industry.

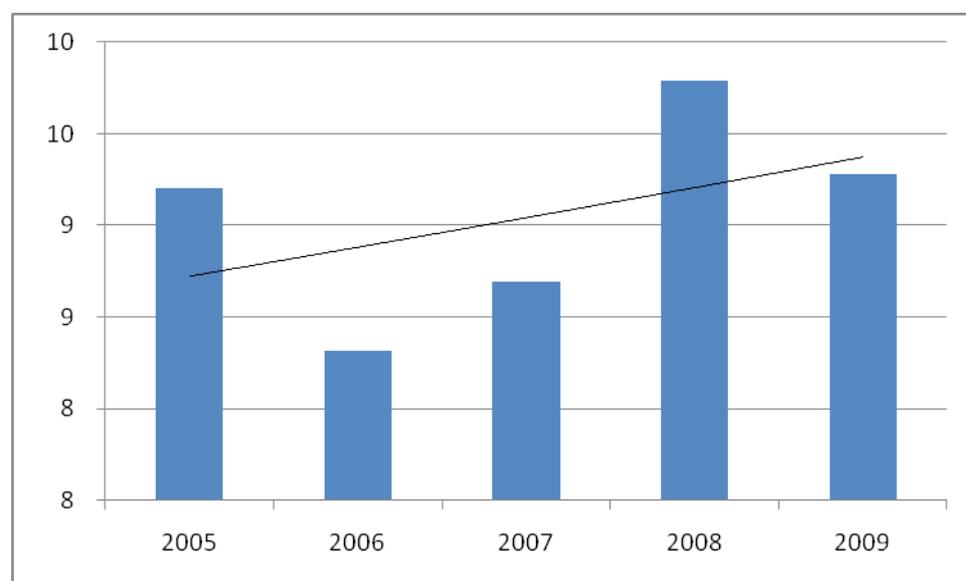
### 5.5.1 Export Market Competitiveness

To make concrete and specific recommendations we have broken down the analysis by focusing on those sectors where Pakistan already has a competitive advantage. The discussion below will focus on specific products following the HS Code definitions provided above.

HS Code	
8211	Knives with Cutlery, Blades, Serrated not in 8202

The average export market size of this category is around US\$1.5 Billion. Pakistan's current share in this market is only 0.8% amounting to around US\$10 Million. The figure below shows Pakistan has had a variable performance in this sector. The size of exports fell in 2006 but then again gradually picked up to fall again in 2009. The liner trending suggests that growth is expected to increase.

**Figure 19: Pakistan's exports in Product 8211 (2005-2009)**

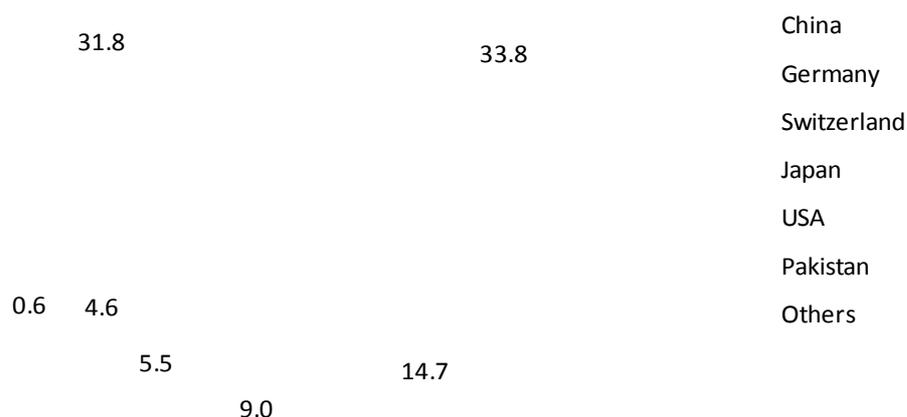


Source: UN Commodity Trade Statistics

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The figure below shows the market shares for the product 8211.

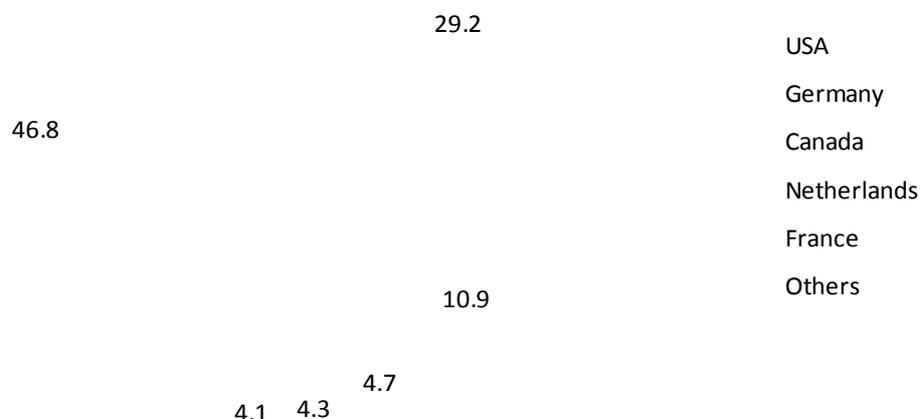
**Figure 20: Average % Export Shares of Countries in Product 8211 (2005-2009)**



**Source: UN Commodity Trade Statistics**

China is clearly the market leader in this category followed by Germany and Switzerland. However China's strategy is based on numbers rather than high value added products. On the other hand Germany and Switzerland are focused on higher value added. Consequently, China's trade volumes are much greater than its revenue share in the market. In terms of scale Pakistan is unable to compete with China both in terms of size and costs. The major importing economies of the above product category are provided in the chart below:

**Figure 21: Average % Export Shares of Countries in Product 8211 (2005-2009)**



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ce: UN Commodity Trade Statistics

When analyzing export market competitiveness it also essential to look at the overall industry's competitiveness in the world trade. In Figure 22, below the vertical axis measures the worldwide growth in the export of product 8211, as a share of total world exports, while, the horizontal axis measures the growth in the export of product 8211 for a country as a share of total world export of 8211. If the country's product is on the right hand upper quadrant (competitive quadrant), it shows that the product is gaining in its international competitiveness. This is because its share in the export market for product is rising at a time when worldwide share of the product in total world exports is rising. The size of the bubble represents the size of the industry. Therefore, the more products a country has in the 'competitive quadrant' the stronger is its international competitiveness. The data on product 8211 suggest that none of the countries are in competitive quadrant as trade for 8211 as a proportion of overall exports have fallen.

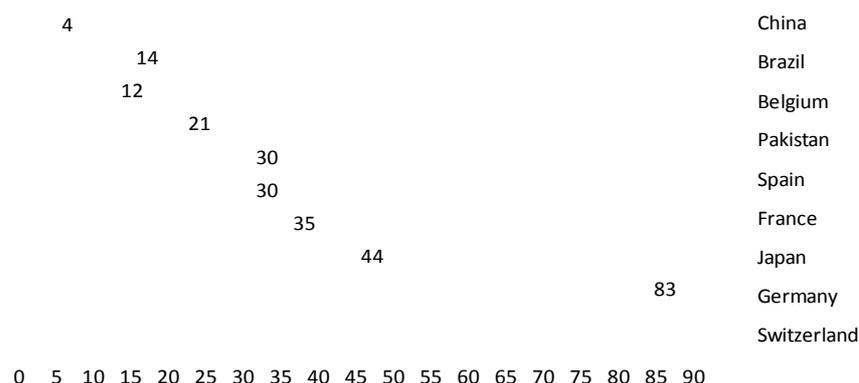
Figure 22: Positioning of Major Product 8211 Exporter's 2005-2009



Source: UN Commodity Trade Statistics

Crown Agents However, Japan and USA have experienced strong growth suggesting that they have been gaining market share. Pakistan’s growth rate is positive but relatively much less to major players in the market. The problem for Pakistan is the small size of its trade. It is nowhere near to nay of the major players in the market. However, if we look at the above chart light of the pricing information provided below the data suggests an opportunity for Pakistan.

**Figure 23: Average Export Price of Product 8211 US\$ (2008-09)**

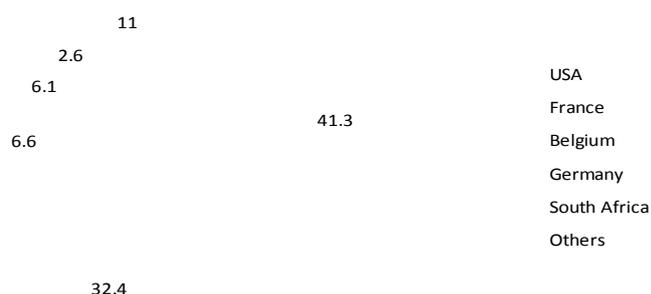


**Source: UN Commodity Trade Statistics**

In terms of price Pakistan operates much favourably to China. This suggests that Pakistan is not directly competing with China, due to China’s focus on low value high turnover products. So as such China is not a threat to Pakistan. What Pakistan should to capitalize on is to gain market shares from more sophisticated producers such as Switzerland, Germany, Japan, France etc. All these countries have higher costs of production than Pakistan, especially labour costs. Pakistan can compete with these countries more fruitfully rather than trying to compete with China. Pakistan will not be required to invest significantly in scale, instead, investments can be made in sophisticated technologies, improving quality and finishing, improving marketing and branding – these changes can assist Pakistan to gain quick market shares from current high cost producers.

The above observation is further endorsed by looking at the charts below. The markets where currently Pakistan and Switzerland are selling are not very different. In other words Pakistan has already developed capabilities to compete the best products in the best markets. All it needs now is a push in the right detection and Pakistan can rapidly increase its market share in this product.

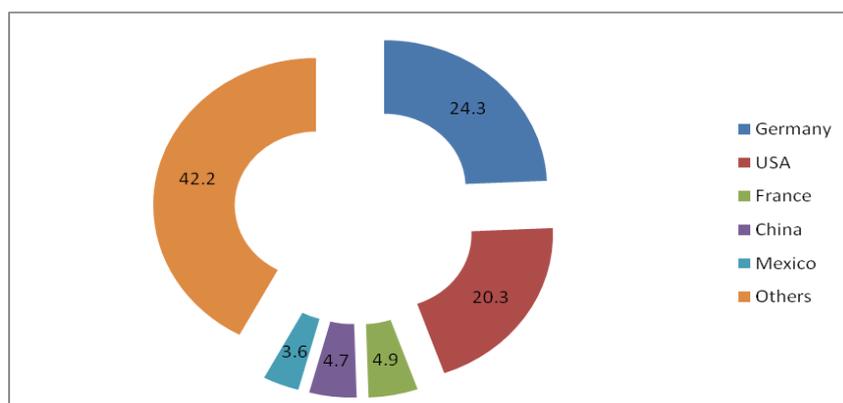
**Figure 24: Export Markets of Pakistan for Product 8211 2009 (%)**



Source: UN Commodity Trade Statistics

This opportunity not only exists in the product category 8211, in fact the statistics of the remaining major product categories also suggest a similar trend. The discussion below takes a similar approach to further strengthen the argument made earlier.

Figure 25: Export Markets of Switzerland for Product 8211 2009 (%)

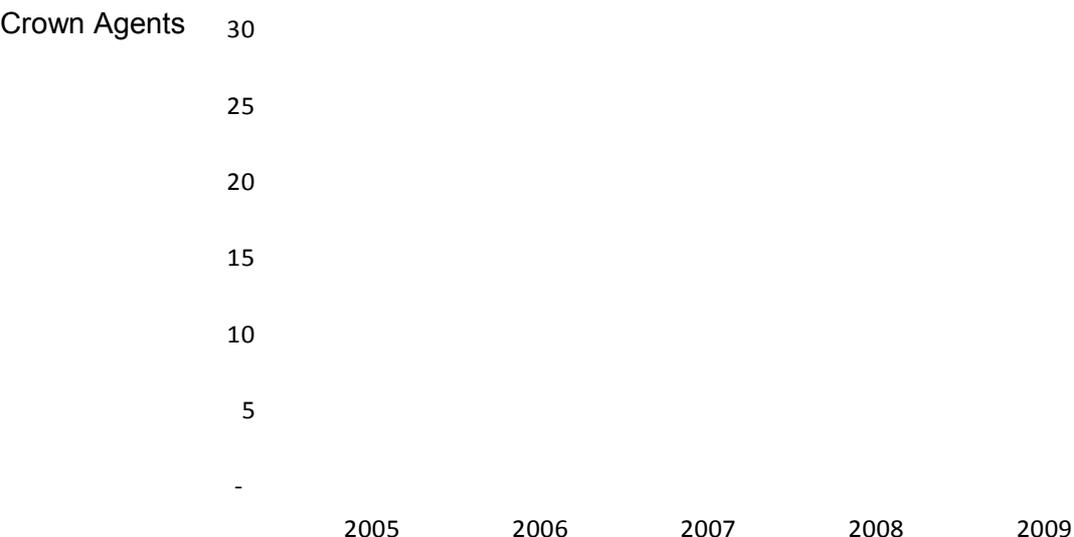


Source: UN Commodity Trade Statistics

HS Code	
8214	Other articles of cutlery

The average export market size of this category is around US\$655 Million. Pakistan's current share in this market was 4.8% amounting to around US\$25 Million in 2009. The Figure below shows Pakistan has had a gradually improving variable performance in this sector. The size of exports fell in 2008 but then again picked up in 2009. The liner trending suggests that growth is expected to increase.

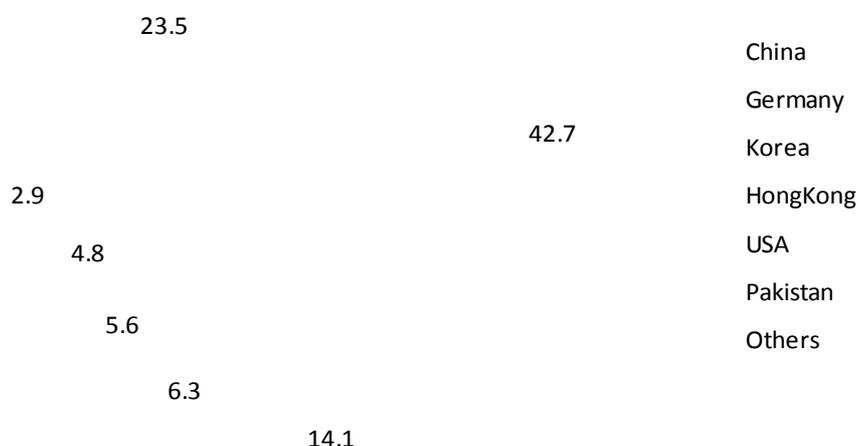
Figure 26: Pakistan's exports in Product 8214 (2005-2009)



Source: UN Commodity Trade Statistics

The chart below shows the market shares for the product 8214.

Figure 27: Average % Export Shares of Countries in Product 8214 (2005-2009)



Source: UN Commodity Trade Statistics

China is clearly the market leader in this category followed by Germany and Korea. However China’s strategy is based on numbers rather than high value added products. On the other hand Germany is focused on higher value added. Consequently, China’s trade volumes are much greater than its revenue share in the market. In terms of scale Pakistan is unable to compete with China both in terms of size and costs. The major importing economies of the above product category are provided in the chart below:

Figure 28: Average % Export Shares of Countries in Product 8214 (2005-2009)

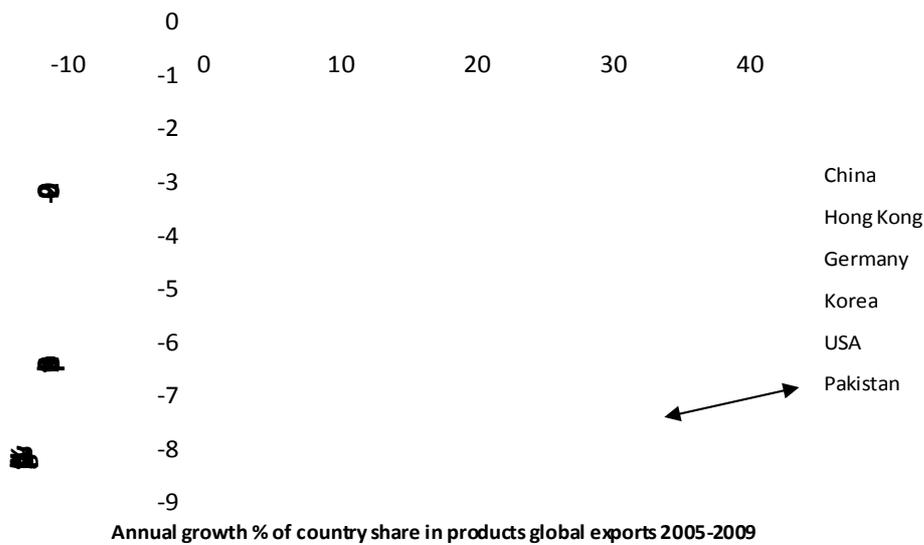


**Source: UN Commodity Trade Statistics**

When analyzing export market competitiveness it is also essential to look at the overall industry's competitiveness in the world trade. In Chart xx, below the vertical axis measures the worldwide growth in the export of product 8214, as a share of total world exports, while, the horizontal axis measures the growth in the export of product 8214 for a country as a share of total world export of 8214. If the country's product is on the right hand upper quadrant (competitive quadrant), it shows that the product is gaining in its international competitiveness. This is because its share in the export market for product is rising at a time when worldwide share of the product in total world exports is rising. The size of the bubble represents the size of the industry. Therefore, the more products a country has in the 'competitive quadrant' the stronger is its international competitiveness. The data on product 8214 suggest that none of the countries are in competitive quadrant as trade for 8214 as a proportion of overall exports have fallen.

**Figure 29: Positioning of Major Product 8211 Exporter's 2005-2009**

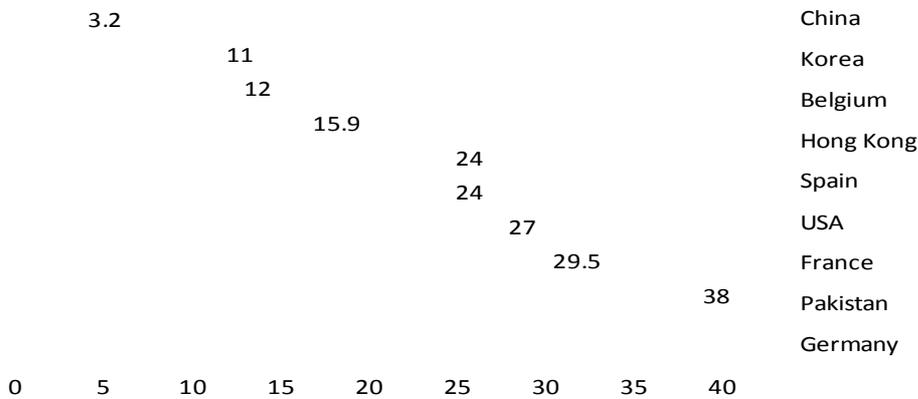
Crown Agents



Source: UN Commodity Trade Statistics

However, has experienced strong growth suggesting that it has been able to gain a larger market share. If we look at the above chart light of the pricing information provided below the data suggests an opportunity for Pakistan.

Figure 30: Average Export Price of Product 8211 US\$ (2008-09)

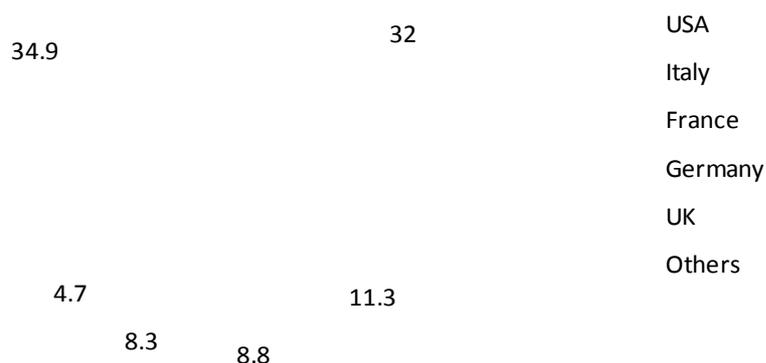


Source: UN Commodity Trade Statistics

In terms of price Pakistan operates much favourably to most of the countries considered above. Hence, the perception that China is the critical competitor may not be correct. Where China has been able to absorb a critical market share it has not been able to charge a higher price for its products. What Pakistan should to capitalize on is to gain market shares from more sophisticated producer such as Germany, USA, France etc. All these countries have higher costs of production than Pakistan, especially labour costs. Pakistan can compete with these countries more fruitfully rather than trying to compete with China. Pakistan will not be required to invest significantly in scale, instead, investments can be made in sophisticated technologies, improving quality and finishing, improving marketing and branding – these changes can assist Pakistan to gain quick market shares from current high cost producers.

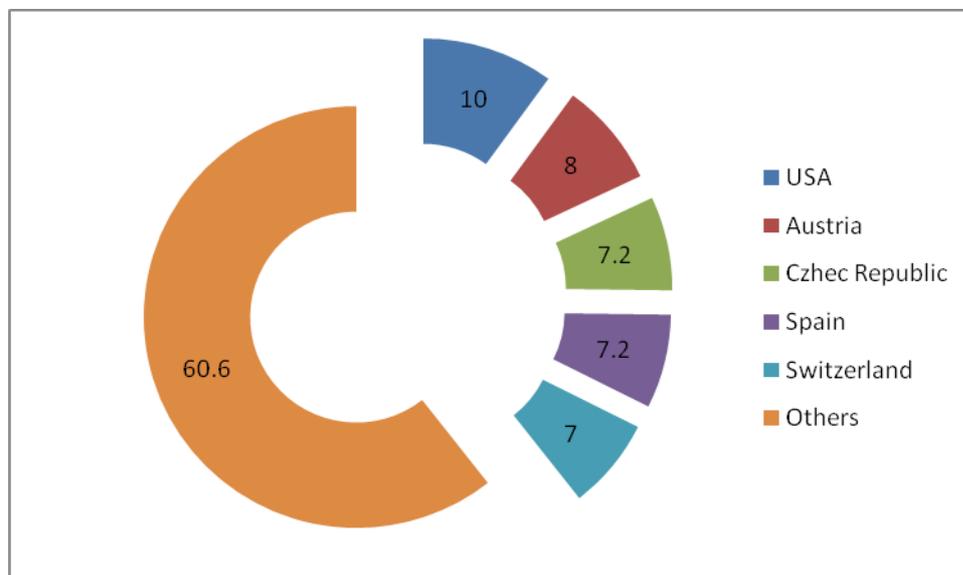
The above observation is further endorsed by looking at the charts below. The markets where currently Pakistan and Germany are selling are not very different. In other words Pakistan has already developed capabilities to compete the best products in the best markets. All it needs now is a push in the right direction and Pakistan can rapidly increase its market share in this product.

**Figure 31: Export Markets of Pakistan for Product 8214 2009 (%)**



Source: UN Commodity Trade Statistics

**Figure 32: Export Markets of Pakistan for Product 8214 2009 (%)**



Source: UN Commodity Trade Statistics

To avoid repetition of arguments the data on remaining products is provided as an Annex to the Report.

## Crown Agents **5.5.2 Factor Market Conditions**

The basic infrastructure of industrial setup can be considered inadequate in Wazirabad. Most of the industrial development activity has normally benefitted neighboring cities of Gujranwala and Gujrat. However, given close proximity of Wazirabad to Gujranwala and Gujrat we have used the indicators of these cities to depict the situation in Wazirabad. Both of the cities have favorable indicators in literacy (81.4% in Gujrat and 77.4% in Gujranwala – based on our surveys and interviews we feel that level of education in Wazirabad would be lower than that of these two cities), health (In Gujrat 45% population has easy access to public health facilities and remaining 55% use private health; the split is 20:80 in Gujranwala) and access to basic infrastructure relative to average indicators of Punjab. Gujrat has an unemployment rate of 15.5%, whereas the rate of unemployment in Gujranwala is 7.5%. Both these numbers are greater than the average of Pakistan which is around 3.0%<sup>11</sup>. However, when comparing these numbers with international sectors against which Pakistan is competing, the quality of the provision of these basic factors in those countries is much superior. The level of primary and secondary education is particularly weak resulting in labour input that is difficult to train. Hence, where as Pakistan has a large enough pool of young labour force, whether this translates into a competitive advantage is questionable.

- *The basic factors including quality of education, health facilities, infrastructure provision, and sanitation facilities need to improve in these cities for them to compete on better terms in global value chains. The strategy should not be to improve the number of schools or hospitals or roads – the strategy should be to have better governance systems so that service delivery is efficient and the quality is regulated and strictly monitored.*

The cutlery industry also lacks in competitiveness due to inadequacy of specialized factors such as modern technology, training institutes and research centers. The availability of capital is not only difficult but is also on the expensive side. Compared with other major players in the global market, (China, Germany, Switzerland etc.) Pakistan is far behind in technology and modern production processes. As discussed above this lack of technology results in inadequate productivity and higher costs of production. The impediment to achieving better technology is not only lack of capital but also lack of knowledge and appropriate skills to use modern technologies. The level of skills is low impeding investment into modern machinery.

The industry has access to Cutlery Institute, however, the capacity of this institute to do meaningful research and product development is fairly limited. The institute compares unfavourably to the research and training facilities that are available in countries which compete with Pakistan in International markets. Similarly, the inadequacy of worker skills is further enhanced as there is no specific training institute for workers.

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<sup>11</sup> Multiple Indicator Cluster Survey (MICS); Punjab 2007-08

- *The strategy to address the above issues is to build capacity of the Cutlery Institute and to do better product research and development. The cutlery institute should be linked up with the Gujrat Engineering University and they should develop joint programmes to do active research on product development and modern technologies. The Cutlery association should be the information sharing and dissemination platform. Moreover, as currently there are no specific training institutes available, the association should work with TEVTA (Punjab) to jointly develop a training institute at TEVTA service center in Wazirabad. TEVTA should be able to provide trainers and new technology and bring in international experts to train people on newer more productive techniques. The Cutlery Association will also have to build capacity to develop linkages with international institutes in cutlery product development so that they are able to better access information and technology change.*

#### **Demand Conditions:**

According to general competitiveness framework the sophistication of local customers is an integral reason why companies are forced to innovate and then succeed abroad. In this aspect the sword and hunting equipment industry is 100% export focused, whereas cutlery industry generates 85% of its sales in the local market. However, the segment of the local market which is catered by the cutlery industry is highly price conscious. The consumers in the local markets are not willing to pay high price and are always looking for low price products. This is a critical reason why the industry has not been able to jump up the value curve even with massive domestic demand.

This structure of the local demand has led to little or product development. The industry continues to produce with some exceptions traditional design cutlery using low cost and below standard material and hence is unable to compete in the international markets.

The industry seems to be doing reasonable well in the export market which mainly comprise hunting knives, swords and daggers. Pakistani products normally fetch higher prices as compared to majority of other countries. There is significant demand for high end products in the market and if the industry can enhance its productivity without compromising on quality then it will be able to gain a greater level of market share.

- *The strategy to address this issue is conduct surveys on domestic market trends and demand. This will assist in gathering information on various preferences and market segmentation strategies can be applied. Moreover, the industry must be facilitated to work more closely with large retail stores such as MACRO, METRO and Hyper Star. This will assist the producer get better prices for their products and hence will result in improvement of quality. For export markets some form of branding is absolutely necessary, for example the cutlery produced in Pakistan can be branded as 'picnic cutlery' in high income markets.*

### Crown Agents **5.5.3 Context for Firm Strategy and Rivalry**

The structure of the industry is intensely competitive. There is strong rivalry among firms of varying sizes which has had a negative impact on the performance of the industry. Price war behaviour is a common practice. This intense competition has kept export margins low and has resulted in low levels of investment. There is no foreign ownership in the industry. Pakistan generally has liberal policies on investment, however, the industry has not benefitted from much FDI and JV's are nonexistent. The top 5-6 companies have captured around 25% of the export market. These are the firms that have made more investments and have better access to modern technologies and better productivity levels. However, the sector now feels the need to expand firm size due to large potential in export markets.

### **5.5.4 Related and Supporting Industries**

In many ways, the performance of an industrial sector is a reflection of the support that it is getting from its suppliers and vendors. The main supporting industries for the sector include; (i) steel manufacturers and metal importers; (ii) wood and other materials for handle making; (iii) small parts; (iv) casting and die making industry; (v) training and research institutes; (vi) packaging industry; and (vii) marketing and branding agencies. The industry suffers significantly due to weak research and development capacity in the materials industry. The failure of research institutions in Pakistan to come up with more diverse type of metals has affected the overall competitiveness of sector considerably. The European and the Chinese counterparts are leaps ahead in terms of material development, quality and material grades. Furthermore, as highlighted in the value chain above the industry also suffers a great deal due to lack of marketing and branding support and weak packaging industry.

There is no capacity in the industry, nor is any support linked to the industry which can work on product designs, product development, quality and standards and marketing of products. The individuals firms make most of the effort to reverse engineer designs and use expensive and limited marketing techniques. Hardly, any firm in the industry receives direct feedback from end consumers. Due to high degree of informality and small size the access to banking facilities is also fairly limited.

The strategic actions presented above are all developed to address the issues of competitiveness facing the industry.

## **5.6 Quality and Standards**

The industry generally feels that improving quality and standards is extremely important. Currently there are no quality and standard guidelines that exist in the industry. Quality and standards for exports are normally dictated by the exporters whereas, no quality and standards requirements exist for domestic markets. The quality is normally denoted by the finish of the product if we talk about the sword and the dagger/knife industry. The finish of the product includes the smoothness of the blade, proper hardness, fitting of the handle, the material used for the handle, shine of the product and packaging. The weakest area here remains quality packaging. As discussed earlier in the report there are no quality packaging companies available in and around Wazirabad. Coming to the Cutlery sector, quality is again denoted by the finish of the product and the metal used for making cutlery.

Use of non-magnetic stainless steel for making tableware is extremely important. The basic purpose is to prevent it from rust as these objects will come into contact with food items. Most of the time cutlery manufacturers use the steel made in Gujranwala, which is not of suitable quality. The major quality and standard issue is that the industry is not using food grade steel which is essential to maintain quality of the products. Finally, non availability of certain machines, like cleaning machines, automatic vibrator polishing machines, organ welding machines and gold plating machines impedes the industry in achieving the finished quality of the product.

- *The strategy to address the issue is to improve technological set up of the industry. Common facility centres may be established, or networks/groups of firms must be created where expensive technology could be installed on a cost sharing basis with functional and level playing operational conditions. In addition, the industry must collaborate actively with research institutions working on metallurgy and also with Pakistan Steel Mill to develop better quality steel that can provide better finish and quality to the products. The troika linkage between the industry, steel mill and metallurgy researchers is extremely important for the industry to move up the value curve.*

## 5.7 Testing Requirements

UNIDO under its TRTA I programme conducted a survey of the sector and identified the following testing requirements for the sector:

- Metal hardness
- Metal composition test
- Gauge
- Tempering

Under the recent survey the findings are exactly identical. There are limited testing requirements that need to be performed by the industry. The most common is the metal hardness and the metal composition test. The overall awareness on the requirement of tests is sufficiently high. Over 80% of the respondents claimed that they were well informed about the testing requirements. In terms of testing facilities, majority of the cutlery manufacturers do not possess any in-house testing facilities. Only the very few big firms have some form of in-house equipment to perform some basic tests. Use of specialised quality assurance staff is not common in the sector, none of the forms reported to have specialised quality control staff. Quality control is normally performed by the factory owner himself.

Most of the tests conducted are either done in technical institute Sialkot or the PCSIR laboratory in Lahore. Almost all forms (100%) reported that the cost of tests at PCSIR were extremely high (Rs 3,000-5,000 per test). However, the industry is satisfied with the quality of the tests performed.

- *Although currently the sector feels that testing is not a major concern, it is felt that as the sectors tries to regain its market share especially in the tableware and cutlery the requirements of tests will increase further. The sector must have access to more information and training regarding the international testing requirements so that they start building capacity to meet future requirements.*

## Crown Agents **5.8 Compliance Status Certification Capacity**

The sector currently faces minimal compliance requirements. 20% of the forms reported awareness to ISO 9001 certification whereas the remaining were not informed about any form of certification requirement. None of the companies completing the forms had any compliance, the major reasons reported were finance (100%) and lack of awareness (100%). Around 20% of the respondents reported that they have heard about CE marking, however, they are not informed about its requirements or process. They also reported that no such certifications were being asked for by any of their buyers. Over 70% of the forms reported that they would want to know more about CE Mark and other certifications. Some of the forms (15%) also emphasised strongly on the requirements of food grade raw material for the products that were being manufactured. Over 85% of the forms reported that they will be interested in getting training on certifications and compliance issues that are specific to the cutlery and hunting equipment industry and not general training. So, overall it is felt that whereas the sector currently is not facing any major problem in terms of compliance and certifications, but as no domestic compliance exists, it may face difficulties in future as TBTs become more and more stringent.

- *The strategy to address the issue is to provide training to the sector that is specific to cutlery and hunting equipment requirement. An information resource centre must be created at the Cutlery Association which can keep the sector abreast of upcoming changes in requirements of export markets. The cutlery association should also be provided technical assistance so that it can work with the provincial government to set up domestic standards and compliance mechanism. This will help putting in place procedure and operations that will make it easier for firms to meet any compliance requirements by exporters in the future periods.*

## **5.9 Access to Markets**

The sector feels positively about entering newer markets especially where there are possibilities of higher value added. However, the major constraints identified as a result of survey findings were lack of information on new markets and limited capacity to export. The education level in the sector is extremely low and business structure is highly family integrated. There is no exposure of the sector to outer markets with few exceptions. 60% of the forms in the cutlery sector reported that they were not exporting as they have no information on how to export. Similar, the sector feels shy of going out to explore newer markets due to the language barriers. In addition, sector has limited resources to observe trade patterns, pricing information and linkages in international markets.

- *The strategy to address the above issues will require exposure visits of the sector to new destinations. Joint sourcing of warehouses or display centres in critical markets abroad. The sector should be facilitated to hire to or develop linkages with trade agents in critical markets. Furthermore, working with PIFFA export training must be provided to the sectors. Finally, business training, market information analysis and english training courses must be offered at the platform of Cutlery Association to build sustainable capacity in the sector to export.*

### **5.10 Policy Capacity & Support**

None of the forms reported problems with the pre-shipment inspections or other specific trade regulation. However, two proposals were forcefully made for policy support from the government.

1. All the labour payments and interface with government must be restricted to one window. The charges for social security, EOBI and other labour related issues should just be deducted at source (for example x% of export invoice may be deducted by bank)
2. The duty draw back rates should be rationalised in light of international practices so it offers level playing field for local producers and the speed of the process should be improved.

### **5.11 Intellectual Property Rights**

None of the respondents suggested that they were using trade marks to protect their designs and products. Only one form reported that the company has been trying to get a trademark for last three years but the application is still under process. Over 95% were of the opinion that agencies lacked capacity in enforcing these rights. Respondents were not interested in IPO's mainly due to lack of enforcement.

### **5.12 Recommended TRTA Interventions**

The following recommendations are made for TRTA II programme:

6. Arrange a study tour of China and Vietnam. The focus of the tour to China should be observe and learn about economies of scale production. The Vietnam tour should be benchmarking tour to learn how Vietnam has become a major player in the world exports over the last 3 years. The tours may be arranged from the platform of Cutlery Association and must be developed on a cost sharing basis.
7. Awareness seminars and trainings on sector specific testing and compliance requirements.
8. A detailed technology gap study of the sector to come up with an up gradation plan for the most optimal technology shift. This technical assistance should focus on how to improve the technology of the sector such that it can replace market shares of high end producers such as Germany, Switzerland and France.
9. Working with NPO a productivity and factory layout expert may be provided to the firms to upgrade their production processes. A branding and marketing expert may also be provided to develop common brands and joint marketing. TARTA II can also fund an international journalist who can write about the success stories of the sector in international media.
10. Trainings should also be provided to do better accounting and inventory management.

## 6. Surgical Instruments Industry

### 6.1 Overview

The surgical instruments industry is mainly clustered in and around the skirts of Sialkot. Over 99% of the countries production is centered at Sialkot. The sector comprises over 2300 companies, of which around 30 can be considered large and the remainder can be split as 150 units of medium sized and remaining as small. The industry produces on average over 150 million pieces a year with an estimated value of around Rs 22 billion. Out of the total production, approximately over 95% is exported<sup>12</sup>. The industry belongs to the light engineering industry category, and is one that has specialized in skill and stable export market share.

Besides small and medium units, a few units are large and have a 90% integrated system. Most of the larger and medium sized firms are exporting, however, the smaller/vendor units usually supply to commercial exporters/traders. The main raw material used in the production is 'steel'. Around 60% of this steel is manufactured locally and the remaining 40% is imported from Germany mostly.

For the purpose of trade; four broad categories can be defined where Pakistan is supplying in the export markets. The categories include; (i) HS Code 9018 – Instruments for medical, surgical and dental; (ii) HS Code 9021 – Orthopaedic appliances; (iii) HS Code 9022 – Equipment using X-rays, alpha, beta, gamma rays. The exports of Pakistan predominantly fall in the category 9018.

The sector employs around 100,000-150,000 workers. However, employment is volatile as there is high degree of temporary and contractual employment. Over the last four years the exports from the sector has grown by just under 48% to get to US\$245 million in 2009.

Pakistani exports make up only a small fraction of world trade in surgical and medical device industry, which amounts to over \$113 billion (just for above 4 HS Codes). This is one sector where Pakistan has developed special capabilities to penetrate high income markets such as Germany, USA, France, Belgium etc. The average export price of goods made in Sialkot is around \$1.5-2.5 (Note: some products sell for much higher prices – the price quoted is the average trade price for disposable products), which is much higher than what Chinese products fetch (US\$0.35 – in disposable products). However, the price is lower than some of the more sophisticated producers such as Germany and France.

The sector, whereas, has achieved reasonable export performance growth in the recent years has suffered from lack of product diversification, inadequate shift out of low value disposable instruments to high value sophisticated products and uncertain business environment. The major impediments of the sector are low levels of productivity, inadequate technology upgrade and shortage of skilled staff. The production process value chain analysis suggests several productivity detractors. Moreover, most of the companies operate without any brands with only a couple moving to branding of their products. Furthermore, the industry in the years to come will face higher compliance requirements, especially as the industry tries to diversify into more value added products and enter into more sophisticated

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<sup>12</sup> UNIDO Field Survey

markets. Compliance, testing and certifications are going to be critical for the the surgical industry to move up the value curve. Some firms have developed basic design capabilities and often experiment by bringing in newer designs into the market.

## 6.2 Contribution to National Economy

The surgical instruments sector is a key SME export sector of Pakistan with significant vertical linkages with other sectors of the economy. The sector contributes in multiple ways to the national economy. It offers pro-poor employment creation opportunities, income generation, foreign exchange and social development by strengthening cluster development in and around Sialkot. It offers direct employment to around 100-150,000 people. This scale of employment is far below its potential as the industry currently faces a stagnant situation and unhelpful business conditions, ad hoc government policies, energy crises which have resulted in smaller units to close down or reduce production in the last few years.

**Table 12: Contribution of Surgical Instruments Industry to National Economy**

Indicator	Value
To GDP(%)	0.42%
To Direct Employment (Numbers)	100-150,000
To Indirect Employment (Numbers)	400-450,000
To Exports (%)	1.21%

Source: Pakistan Cutlery & Stainless Utensils Manufacturers & Exporters Association, Pakistan Economic Survey 2008-09 and UN Commodity Trade Data Base

It is estimated that industry is currently producing 150 million pieces worth over Rs.22 Billion. This figure implies that the sector contributes 0.42% to the national GDP. This is not significantly large, it, however has a wide range of supporting industries such as steel, chemicals, machine parts and a large vendor base and thus potential reverberations in economy is far greater than what is represented by the figure above. The Surgical Instruments Manufacturing Association of Pakistan indicates that one employment in industry creates 3-4 indirect employments elsewhere. Since employment in the surgical industry is around 100,000-150,000, which is 1.5% of the total manufacturing employment, adding 300,000 indirect employment in the industry makes it to go up to 4.5% of total manufacturing employment.

The sector saw a down fall in exports in 2005 and 2006; however, since then things have again started to improve. Chart xx below shows that foreign exchange earnings of the sector are consistently on the rise. For the most recent year (2009) the exports were almost at US\$250 Million. This increase has however not translated any increase in Pakistan's share in world exports which has stayed constant at 0.2% over the last five years. The sector contributes 1.2% to Pakistan's total exports. Below we have provided trade figures of all the important

Crown Agents categories in the surgical and medical device trade categories to provide an aggregate trend. The later analysis will present specific details of the key products from Pakistan.

**Table 13: Pakistan & World Exports in US\$ Million and Pakistan Export Share (%) 2005-2009**

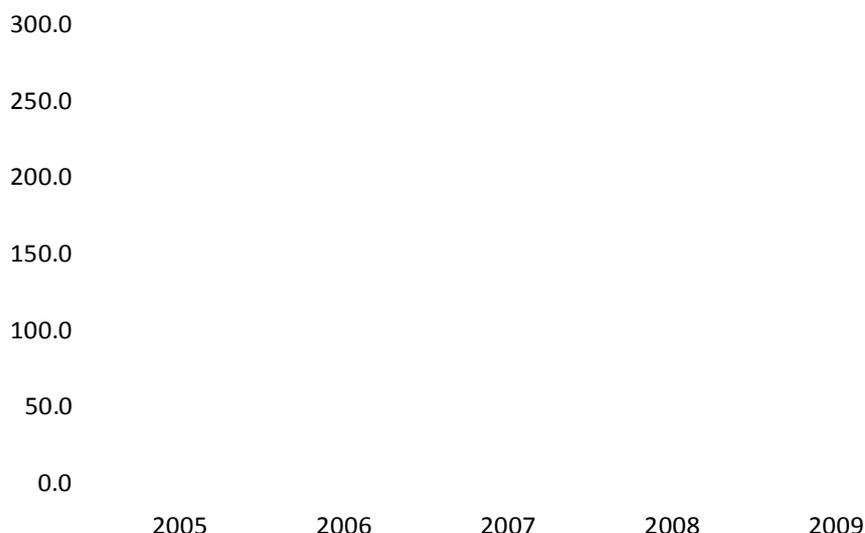
HS Code	2005	2006	2007	2008	2009
<b>9018</b>	Pakistan: 178	Pakistan: 164	Pakistan: 230	Pakistan: 270	Pakistan: 250
	World: 58,126	World: 61,761	World: 68,963	World: 80,423	World: 63,981
	Pakistan's Share: 0.3%	Pakistan's Share: 0.3%	Pakistan's Share: 0.3%	Pakistan's Share: 0.3%	Pakistan's Share: 0.4%
<b>9021</b>	Pakistan: 0.6	Pakistan: 1.9	Pakistan: 0.3	Pakistan: 0.2	Pakistan: 0.3
	World: 23,954	World: 27,217	World: 30,565	World: 36,601	World: 33,206
	Pakistan's Share: 0%				
<b>9022</b>	Pakistan: 0.0	Pakistan: 0.0	Pakistan: 0.7	Pakistan: 0.2	Pakistan: 2.2
	World: 13,512	World: 15,604	World: 18,345	World: 19,826	World: 13,806
	Pakistan's Share: 0%				
<b>9402</b>	Pakistan: 01	Pakistan: 0.2	Pakistan: 0.5	Pakistan: 0.1	Pakistan: 0.3
	World: 1,838	World: 2,074	World: 2,410	World: 2,906	World: 2,216
	Pakistan's Share: 0.0%				

HS Code	
<b>9018</b>	Instruments etc for medical, surgical, dental
<b>9021</b>	Orthopaedic appliances
<b>9022</b>	Equipment using X-rays, alpha, beta, gamma rays
<b>9402</b>	Medical, dental, surgical & veterinary furniture

**Source: UN Commodity Trade Statistics**

The data suggests that Pakistan's has been able to develop capabilities to supply in a majority of commodities, however, the scale and share of markets stays small or insignificant. This presents with both an opportunity and a threat. It is an opportunity as the market is large enough to allow Pakistani exporters to expand their shares and increase export earnings. It is a threat because, if Pakistan does not upgrade its production and improve efficiency, it will keep on fighting in a small low value added market.

**Chart 33: Pakistan’s Surgical Instruments sector Exports (US\$)**



Source: UN Commodity Trade Statistics

### 6.3 Characteristics of the Industry

The surgical instruments industry is mainly clustered in and around Sialkot. 98% of the countries production is centered at Sialkot. The sector comprises over 2300 companies, of which around 30 can be considered large and the remainder can be split as 150 units of medium sized and remaining as small. The industry produces on average over 150 million pieces a year with an estimated value of around Rs 22 billion. The table below presents the main characteristics of the industry:

**Chart 14: Fan Industry Characteristics**

Characteristic	Value
Number of units	Over 2300
Total Installed Capacity	225-250,000 Million pieces
Current Production	150 Million pieces
Contribution to National Exports	1.21%
Contribution to GDP	0.41%
Capital Output Ratio	
Sector Employment	100,000-150,000
Skilled to Unskilled Ratio	
Capital Labor Ratio	10 workers/Million (Rs)
Total Estimated Investment	Rs. 12 Billion

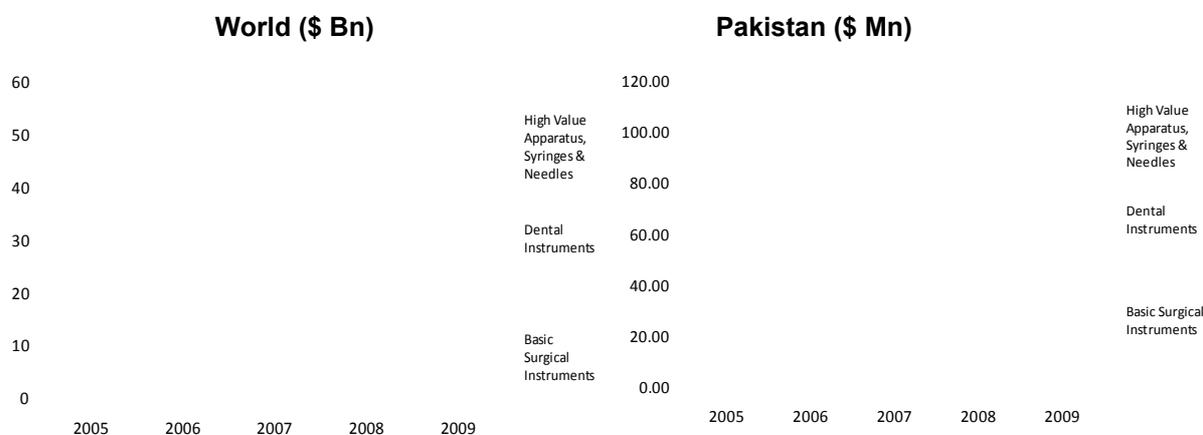
Source: BOI Reports, CMI Data and Field interviews

The figure below provides the overall setup of the sector. The total firms can be divided in three tiers. The tier 1 firms are the ones that are technically advanced and have exports over Rs.100 Million. These are technically advanced firms with lot of mechanization. These are also the firms which have shifted some of their production out of the disposable instruments and moved into more sophisticated products such various medical devices. Tier 2 and Tier 3 firms are predominantly involved in making basic surgical components.



Pakistan has only grown slightly in basic instruments and the industry capacity to supply more sophisticated equipments is fairly low.

Figure 34: Product Split of World Exports (\$ Bn) & Pakistan Exports (\$Mn) (2005-09)



Source: UN Commodity Trade Statistics

- The strategy to address the issue is to upgrade the industry to shift into production of medical devises and more sophisticated products. This will only happen if the government creates a facilitative environment for businesses to feel more comfortable to invest. The other way to encourage this shift is to attract international companies and investors to invest in Pakistan. These more advanced companies will bring in better technologies, better production techniques and put more pressure on the existing private sector to move into more sophisticated production. The Government should also facilitate or create opportunities for joint ventures with international companies to result in transfer of technology.*

The numbers in the table above indicate that the capacity utilization ratio for the industry is over 65%. The industry representatives informed that utilization is less than 100% due to lack of materials, lack of orders and power shortage. However, capacity utilization varies on the products being manufactured. The baseline survey done under the TRTA II provides variable results. The understanding of the entrepreneurs about capacity utilization is also inadequate, with 60% of the forms reporting weak understanding of the concept. Capacity utilization is normally misunderstood as current production, which varies on the orders being placed. The number 65% represents the closest figure to the actual capacity utilization.

- The strategy to address the above issue is to provide trainings to the entrepreneurs using the Surgical Association platform on measuring capacity utilization gaps and productivity gaps. The production processes should be streamlined to improve utilization and more effective use of existing resources.*

The produce is mostly exported with only 15% of the forms reporting some sales in domestic markets. The major reason for not selling in the domestic market was weak and slow procurement processes of the public health entities and limited demand of the private sector hospitals. This pattern of trade has resulted in limited contact of the industry with the end users of the products. Industries operate through bulk buyers/traders in export markets and have virtually no demand in the

Crown Agents local market, hence lack critical input/feedback from the end consumer. This has resulted in lack of product improvement, lack of new designs and innovation.

- *The strategy to address the above issue is to facilitate the industry in creating linkages with international hospitals, local hospitals and doctors and surgeons. This link is critical for industry to improve product development, quality and innovation.*

The industries performance is highly dependent on the availability of raw materials which predominantly comprise steel. Firms have raised concerns on price volatility, variability in supply and quality issues regarding the raw material currently available. Some firms were also of the opinion that material bank may be established that can ensure consistent availability of good quality material. However, the idea presented is not feasible as it will require a lot of financial support and is most likely not sustainable. Furthermore, this problem is more common for small scale firms as larger firms are importing their materials in large quantities.

- *The strategy to address the above issue is to educate the small sector on joint sourcing and storage of materials. Small firms work together as a group and buy materials in bulk benefitting from economies of scale.*

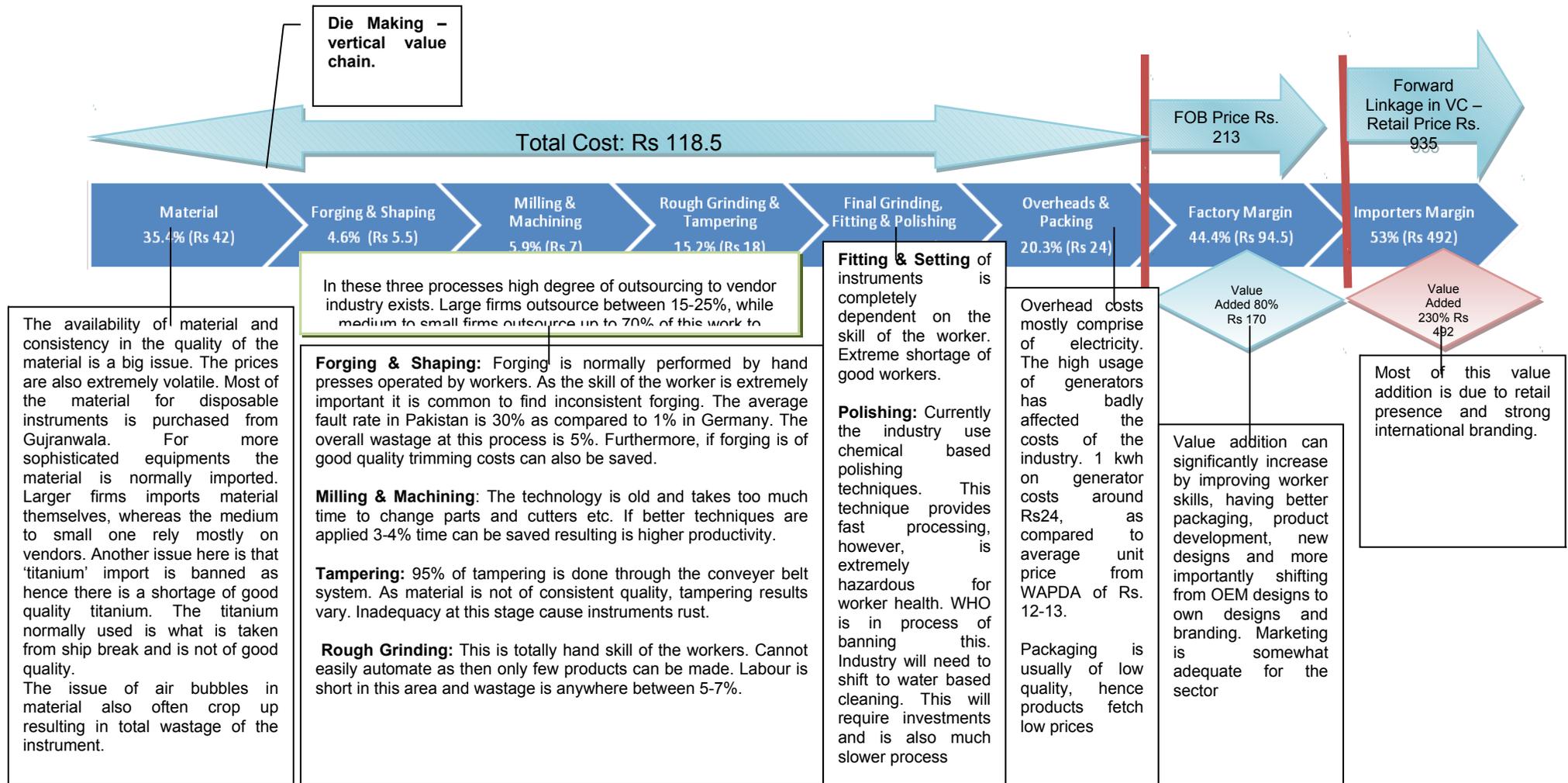
The level of marketing, branding and packaging stays weak within the sector.

#### 6.4 Value Chain & Productivity Analysis

Value Chain analysis tool is employed to explain the specific issues faced by the producers of the industry. Where data is available analogies with reference to the global value chains are also made to identify critical weaknesses. The analysis points out that there are several supply side constraints as well as weaknesses in value addition. It must be emphasized that the value chain presented below represents what is typical for the industry and use an illustrated product to demonstrate that. It is possible that some larger firms may be slightly better placed and some small ones slightly adversely placed than the representation presented below. The numbers provided below have been verified by industry representatives.

The overall structure of the value chain suggests that industry typically adds 80% of ex-factory sale price in value addition in the tune of around Rs 160 per forceps. The retailers in the foreign markets are adding the maximum value which is around 3 times more than the producer. The main reason for this is branding and direct contact with the end user and market.

**Value Chain for Cutlery & Hunting Equipment Industry: Illustrated Product is 5.5Inch Forceps**



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### 6.4.1 Material

The value chain analysis above depicts that over 35% of the costs represents the material and other inputs required to manufacture a forceps. A major portion of this cost is the steel used. Two different types of steel are currently being used. Locally manufactured which costs Rs. 110/Kg and imported steel which costs Rs. 250/Kg. The above analysis refers to imported steel forceps. Although the local steel is low in cost it mostly does not meet the quality standards that are required by foreign buyers. The finish of the product is poor if local steel is used and rusting is a common issue due to non-uniform tempering. Some industry has raised concern about the quality of the local steel as not conforming to 'health' grade steel.

Moreover, the availability of steel is also an issue. The stocks and prices are quite variable resulting in pricing problems for the industry. Large firms normally import large quantities whereas the small ones have to rely on supply from the vendor industry. Especially in the case of reusable instruments which are made entirely from imported stainless steel, the firms have to import steel from Japan, France and Germany. In most of the cases, the lead time is two to three months, which results in the firms not being able to fulfil their orders and eventually the customers turning away from them. Due to this huge lead time, the price of raw material varies substantially and the Sialkot firms are not able to quote any specific prices for a long period, due to which the firms are not able to successfully do their costing.

In comparison, Germany which is the leader in global trade of surgical and medical instruments has a competitive advantage due to availability of high quality steel. For instance, the average export price of Chinese cutlery per Kg is US\$3.5, whereas of Pakistan is US\$ 20. The main difference is that Chinese have captured a major market share by competing on low costs and high turnovers. Their strong research and development capacity in alternative materials have given them a clear advantage in the market which is difficult to beat.

- *The strategy to address the issue is to facilitate the linkage between the industry and research and development institutions and steel industry to work on improving quality and composition of the locally produced steel. The industry should also work with academia and steel mills to develop newer materials that are cost effective. Furthermore, mergers/networking should be encouraged to increase firm size so that greater production process is internalized. Some corners of the industry have also recommended the establishment of a material bank, however, this paper can only recommend that the feasibility of such an idea should be explored in great detail initially before entering into such a venture. A material bank would normally require a significant amount of capital investment and is not sustainable by design due to lack of operational modalities.*

### 6.4.2 Production Process

**Forging & Shaping:** Forging is normally performed by hand presses operated by workers. As the skill of the worker is extremely important it is common to find inconsistent forging. The average fault rate in Pakistan is 30% as compared to 1% in Germany. The overall wastage at this process is 5%. Furthermore, if forging is of good quality trimming costs can also be saved. This is a critical point of the overall production process as the errors made at this point are not reversible.

**Milling & Machining:** The technology is old and takes too much time to change parts and cutters etc. If better techniques are applied 3-4% time can be saved resulting in higher productivity.

**Tampering:** 95% of tampering is done through the conveyer belt system. As material is not of consistent quality, tampering results vary. Inadequacy at this stage cause instruments rust. This is again a critical point in the production process as inconsistent tampering will result in rusting and corrosion of disposable instruments.

**Rough Grinding:** This is again a process dependent on hand skill of the workers. This process cannot be easily automated, as automation will require giving up production of the large range of products currently being produced. The availability of skilled labour is a critical problem in this area and wastage is anywhere between 5-7%.

The declining level of the availability of the skilled workers for all the processes has been highlighted as a critical impediment by the sector. For the last hundred years, the surgical instruments and medical devices industry of Sialkot has been employing the informal model of training, i.e. the transfer of skills from father to son, or from one generation to the next. In some cases, job seekers would work as apprentices for the experienced craftsmen, in order to acquire the manual skill.

There is currently no formal training and research centre in Sialkot which caters to the training needs of the industry. As the statistics show, the industry is currently involved in the manufacture of conventional surgical instruments which are made out of locally made steel; most of the processes are out sourced, and are performed by vendors sitting in the small sweat-shops located in and around the city of Sialkot. These shops mostly employ informally trained workforce or new job seekers who work as apprentices. The industry is not ready to move into high-tech, higher value surgical goods because of the absence of technical and research centers in Sialkot.

- *To address this issue a proper surgical training school is required to be established. Some of the basic skills that this institute should be able to provide include:*

**Worker Trainings in:**

- Plastic Injection Molding
- Computer Aided Design
- Computer Aided Manufacturing – Milling
- Computer Aided Manufacturing – Turning
- Quality Assurance
- CNC Surface Grinding
- CNC EDM
- CNC Wirecut
- Rapid Prototyping
- 3D Scanning
- Laser Welding
- Laser Marking
- Laser Cutting
- Press Forming
- Forging
- Material Testing
- Pre-cleaning / Washing and Disinfection
- Sterilization
- Packaging of Medical Devices
- Medical Device Testing
- Heat Treatment
- Corrosion Prevention
- Industrial Coating
- Programmable Logic Control
- Welding
- Basic Machine Maintenance
- Basic Electrical Technology

### **Management Level Training**

- Factory floor management
- Foreman
- Inventory control managers
- Quality control staff

### **Manufacturing Demonstration**

- Industrial High-Tech Coating
- Heat Treatment
- Corrosion Prevention
- Advanced Machining Technologies
- Material Testing and Evaluation

**Research / Innovation (Product & Materials Development)** – in collaboration with local research institutes and steel manufacturers

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- *The proposed school should also serve as a knowledge base for the surgical instruments industry, through its collection of journals and informational books on upcoming manufacturing standards (ISO, DIN etc), latest technologies in manufacturing, high-tech operation and surgical techniques and other related updates.*

In addition the following strategic actions are required to upgrade the productivity and efficiency of the surgical instrument industry.

### **Industrial High Tech Coating**

The demand of European and American customers for protective coatings (e.g. nitrite coatings) on surgical instruments and medical devices has been increasing. Currently, Pakistan Council for Scientific and Industrial Research (PCSIR) and a few small scale companies in Lahore offer coating services, which do not suffice the coating needs of the industry. In most of the cases, the coating equipment of these firms is technologically not up to the internationally required standards.

- *The strategy to address these issues is use existing infrastructure (SIMTEL, SMDC etc) to provide a state of the art industrial coating facility. This facility will be housed on the premises of the most viable setup; so that the surgical instruments industry of Sialkot may avail this facility to obtain the coatings required by the European and American markets, which will therefore fetch much higher value for their products.*

### **Corrosion Prevention Facility**

Corrosion is one of the major issues faced by the surgical goods industry in the manufacture of single use and reusable surgical instruments made in Sialkot. The instruments exported to the markets sometimes suffer from the occurrence of rust formation in their joints and hinges. This is mainly due to there being a lack of research centers which can advise and facilitate the industry as to which grades of raw material should be used to make specific types of instrument, which chemicals should be used to perform the process of passivation, etc.

- *The strategy to address the above issue is ensure provision of state of the art corrosion prevention facility as a common resource/ knowledge base for the industry, in terms of providing information and facilities regarding the usage of appropriate raw materials and chemical treatments in the manufacture of surgical instruments. This can be worked out at the level of the Surgical Association.*

### **6.4.3 Overall Value Addition & Productivity**

If we were to break down the value chain and analyze the critical weaknesses in value addition and productivity design, then main impeding factors would be declining level of skilled workers entering into the industry, volatility in price and quality of materials, inefficient production layouts, lack of product development,

inability to sell as a Pakistani brand and risk averse nature of the industry resisting the shift to more value added products.

As suggested above one of the major weaknesses of the Sialkot industry is the limited diversification of products. Almost all of the manufacturer's are competing in the same product line, which makes the supply excessively greater than the demand and reduces the profit margins significantly.

- *One key initiative that can be taken to resolve these issues is to establish a research center which caters to the requirements of the sector by acting as an incubation facility for new products and materials. Products from the medical devices and healthcare industry can be selected based on their suitability for adoption by the industry. These products can be designed and developed at the research center and validation can be performed at such a facility. The industry should then be invited to adopt these advanced products for production and technical assistance such as facility requirement, production methodology and specification of machinery should be facilitated as well.*

Similarly, there is a strong need to research and develop advanced materials and production processes. The world surgical instruments and medical devices industry is going through a rapid transition from steel to advanced polymers and composite materials for the manufacturing of instruments. These instruments are not only cost effective, but also light in weight, robust and ideal for single and multiple uses. Moreover, advanced coatings have been developed which make the instruments electrically insulated for electro-surgical procedures. The industry needs a credible resource that can do research on these technologies and processes and make them available for production in Sialkot.

- *The strategy to improve Industry Marketing & Branding*

Currently there are not set of rules and regulations governing the standards of the industry. There is no watch dog that can monitor the negative activities in the industry. The industry should be made to agree on a uniform code of conduct which is essentially mutually accepted set of rules, which any firm subscribing to the code of conduct, will abide by. This code of conduct will eventually translate into a quality seal which the firms can put on their product. This stamp will differentiate the products from the rest and as verification; the names of the member firms can be posted on a surgical association web-site. The surgical association can be an instrument that can steer this process. The website should contain a detail of all the quality standards which will be followed by the member firms. The firms who subscribe to this quality seal will very easily be able to charge a premium on their products. The surgical Association can facilitate the firms in obtaining the membership for the firms subscribing to the code of conduct and also in the maintenance of the web-portal containing the names of the member firms and the details of the code of conduct.

- *The strategy to Promote Industry Image*

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The image of the Sialkot Surgical Instruments industry needs to be enhanced in order for it to increase its credibility in the international market and fetch higher profits. This image enhancement can be done through the following:

- Electronic Media
- Industry directory and other print materials
- Advertisement in international medical journals

### **Electronic Media**

Brief industrial videos, depicting good manufacturing practices of the Sialkot firms will be shown on high profile electronic media channels in order to remove blemishes like child labor and poor work environment, from the industry's image.

### **International Journalists**

The international journalists can be invited to Sialkot and requested to write in a balanced manner on the success stories of the Sialkot industry in international medical and health care journals.

- *The strategy to enhance productivity and value addition is clear. The industry will have to improve working conditions and attract more trained workers. The production lines need to be realigned to maximize efficiency and the production will have to shift from basic instruments to high tech apparatus where this shift is backed by strong marketing and branding.*

## **6.5 Competitiveness of the Sector**

The competitiveness of the sector depends on how well the sector is placed relative to its competitors. We have taken a structured approach to discuss the critical factors impacting the competitiveness of the Surgical Industry.

### **6.5.1 Export Market Competitiveness**

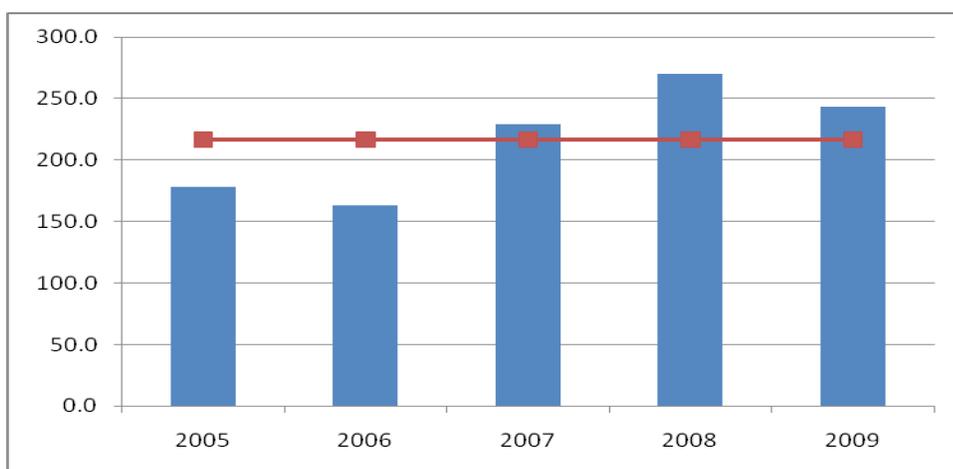
To make concrete and specific recommendations we have broken down the analysis by focusing on those sectors where Pakistan already has a competitive advantage. The discussion below will focus on specific products following the HS Code definitions provided above.

HS Code	
9018	Instruments etc for medical, surgical, dental

The average export market size of this category is around US\$ 64 Billion. Pakistan's current share in this market is only 1.3% amounting to around US\$242 Million. The

Chart below shows Pakistan has had a variable performance in this sector. The size of exports fell in 2006 but then again gradually picked up to fall again in 2009. The mean exports over the last five years have been above US\$200 Million.

**Figure 34: Pakistan's exports in Product 8211 (2005-2009)**

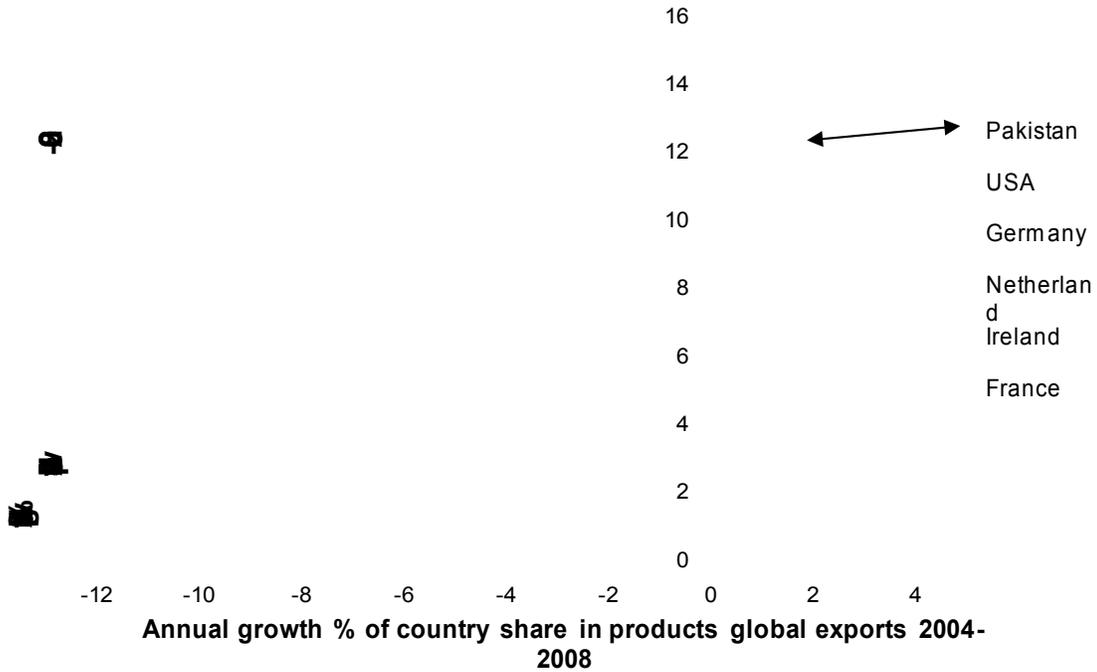


**Source: UN Commodity Trade Statistics**

The export competitiveness analysis of this sector suggests that Pakistan is doing reasonably well in term so export competitiveness as suggested by the chart below.

**Chart 35: Export Competitiveness of Product 9018 (2004-08)**

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Source: UN Commodity Trade Statistics

The chart above shows that Pakistan has positive growth in a product sector that is growing positively in total world exports. In other words, the exports of Pakistani Surgical instruments are rising simultaneously to a rise in the share of surgical relative to the total world exports. The issue in the above diagram is the small size of the exports from Pakistan (The size of the bubble represent the size of the industry for that economy). Furthermore, the problem becomes even clear when we compare the product split of the above (9018) category. The charts below present the comparison. The comparison suggest that 96% of the Pakistan’s exports comprise of basic surgical instruments comprising manly of disposable products. The exposure to dental (4.03%) and high value apparatus (0.45%) is absolutely minimal. The split of world exports are much more diverse, with the largest sector being high value apparatus (52.6%) then basic surgical instruments (42.9%) and lowest share is for dental products (4.5%). This anomaly provides evidence of the discussion above on the lack of diversification and value addition by the Pakistani firms.

Chart 36: Product Split Comparison of 9018 – Pakistan and World Exports (%)



Source: UN Commodity Trade Statistics

To keep analysis focused on Pakistan below we have conducted export competitiveness analysis on two sub-categories of the product code 9018.

HS Code	
901890	Instruments, appliances for medical, etc science

The average export market size of this category is around US\$29.4 Billion. Pakistan’s current share in this market is around 0.8% amounting to around US\$233 Million in 2009. The Chart below shows Pakistan has had a gradually improving variable performance in this sector. The size of exports fell in 2006 but then again picked up in 2007 to yet see a down fall in 2009. The liner trending suggests that growth is expected to increase.

Figure 37: Pakistan’s exports in Product 901890 (2005-2009)



Source: UN Commodity Trade Statistics

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The chart below shows the market shares for the product 901890.

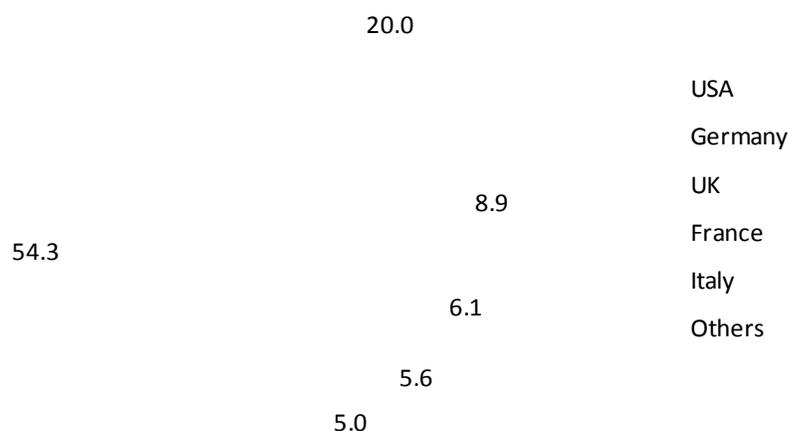
**Figure 38: Average % Export Shares of Countries in Product 901890 (2005-2009)**



**Source: UN Commodity Trade Statistics**

USA and Germany are clearly the market leaders in this category followed by France, Belgium and Mexico. The Pakistan's average share over the last five years has been around 0.7%. Both Germany and USA are producing the high end products in this market fetching much higher prices. Both these economies are also exporting the instruments purchased from Pakistan, but repackaged and labelled in Germany and USA. The major importing economies of the above product category are provided in the chart below:

**Figure 39: Average % Export Shares of Countries in Product 901890 (2005-2009)**



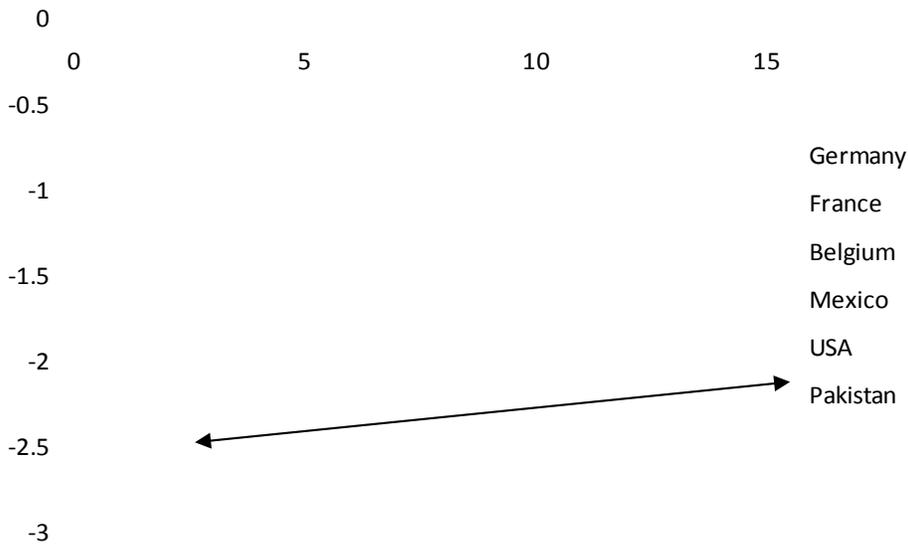
**Source: UN Commodity Trade Statistics**

When analyzing export market competitiveness it also essential to look at the overall industry's competitiveness in the world trade. In Chart xx, below the vertical axis measures the worldwide growth in the export of product 901890, as a share of total world exports, while, the horizontal axis measures the growth in the export of product 901890 for a country as a share of total world export of 901890. If the country's product is on the right hand upper quadrant (competitive quadrant), it shows that the product is gaining in its international competitiveness. This is because its share in the export market for product is rising at a time when worldwide share of the product in total world exports is rising. The size of the bubble represents the size of the industry. Therefore, the more products a country has in the 'competitive quadrant' the stronger is its international competitiveness. The data on product 901890 suggest that none of the countries are in competitive quadrant as trade for 901890 as a proportion of overall exports have fallen.

**Figure 40: Positioning of Major Product 901890 Exporter's 2005-2009**

TRADE RELATED TECHNICAL ASSISTANCE (TRTA II) PROGRAMME

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Source: UN Commodity Trade Statistics

The size of the sector and the growth is lowest for Pakistan in the group of countries compared above. The data presents an opportunity as Pakistan can increase its size of absolute exports by replacing some of the market shares of USA and Germany.

Figure 41: Average Export Price of Product 8211 US\$ (2008-09)

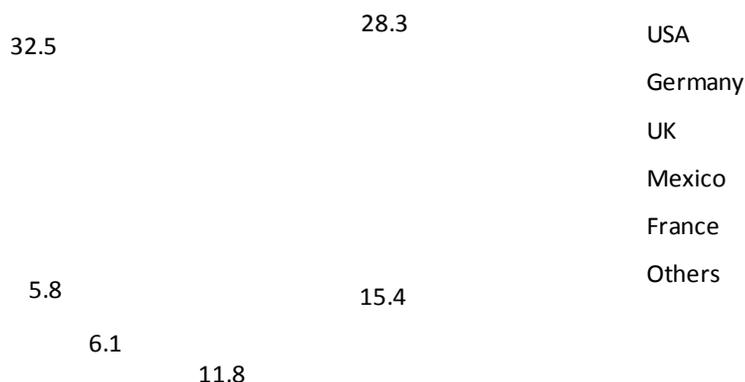


Source: UN Commodity Trade Statistics

The data on prices for countries with the largest shares in the product group was not available. However, for comparison we have shown prices fetched on average by Pakistan and other countries exporting similar products. Pakistan lags behind South Africa, but compares favourably to other countries of the group including China, India, Malaysia. This somewhat suggest that the niche of the Pakistani products in world markets.

The above observation is further endorsed by looking at the figure below. The markets where currently Pakistan is selling its products is Germany, USA, UK, France etc. All these countries are high income countries and hence the potential to pay high prices exist. Pakistan should capitalize on this opportunity by moving into higher value added products purchased by these countries.

**Figure 42: Export Markets of Pakistan for Product 901890 2009 (%)**



Source: UN Commodity Trade Statistics

HS Code	
901849	Instruments & appliances used in dentistry

The average export market size of this category is around US\$3.0 Billion. Pakistan’s current share in this market is around 0.3% amounting to around US\$8.7 Million in 2009. The Chart below shows Pakistan has had a gradually improving variable performance in this sector. The size of exports fell in 2006 but picked up in 2007 to yet see a down fall in 2009. The liner trending suggests that growth is expected to increase.

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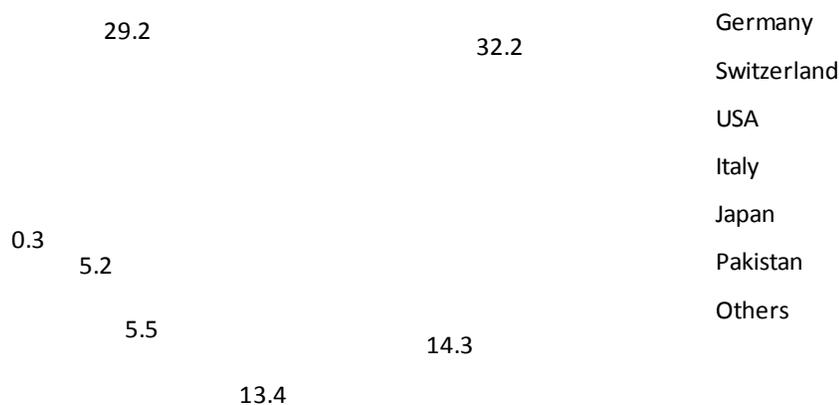
**Figure 43: Pakistan's exports in Product 901849 (2005-2009)**



**Source: UN Commodity Trade Statistics**

The chart below shows the market shares for the product 901849.

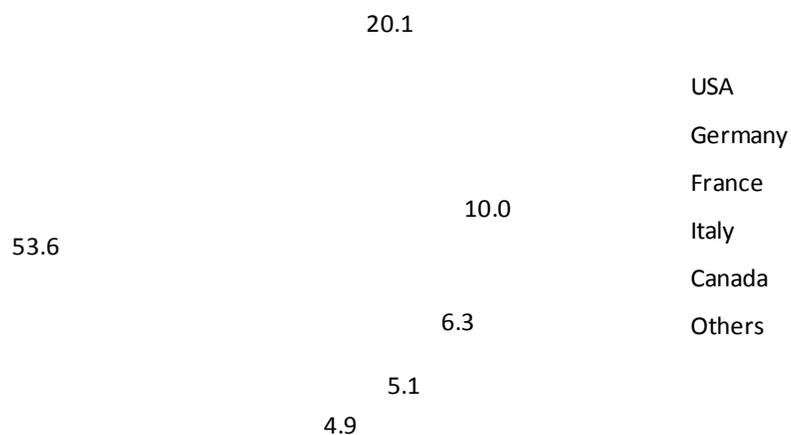
**Figure 44: Average % Export Shares of Countries in Product 901890 (2005-2009)**



**Source: UN Commodity Trade Statistics**

Germany and Switzerland are clearly the market leaders in this category followed by USA, Italy and Japan. The Pakistan's average share over the last five years has been around 0.3%. Both Germany and Switzerland are producing the high end products in this market fetching much higher prices. The major importing economies of the above product category are provided in the chart below:

**Figure 45: Average % Export Shares of Countries in Product 901849 (2005-2009)**

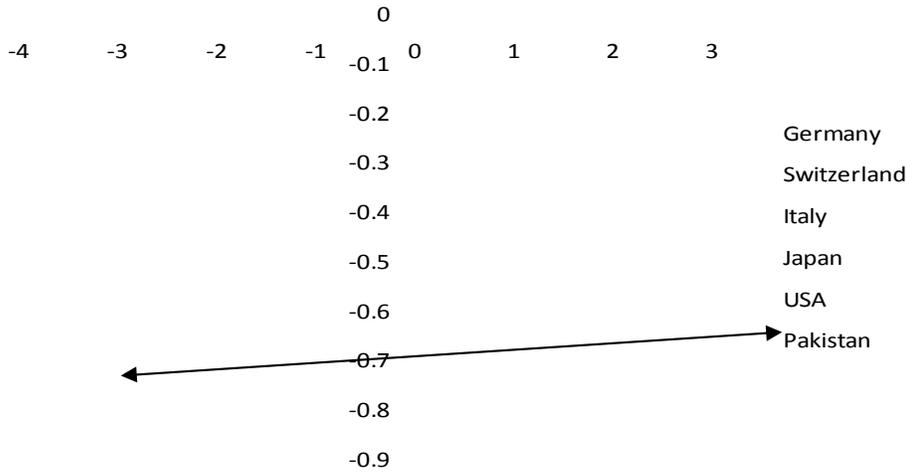


**Source: UN Commodity Trade Statistics**

When analyzing export market competitiveness it is also essential to look at the overall industry's competitiveness in the world trade. In Chart xx, below the vertical axis measures the worldwide growth in the export of product 901849, as a share of total world exports, while, the horizontal axis measures the growth in the export of product 901849 for a country as a share of total world export of 901849. If the country's product is on the right hand upper quadrant (competitive quadrant), it shows that the product is gaining in its international competitiveness. This is because its share in the export market for product is rising at a time when worldwide share of the product in total world exports is rising. The size of the bubble represents the size of the industry. Therefore, the more products a country has in the 'competitive quadrant' the stronger is its international competitiveness. The data on product 901849 suggest that none of the countries are in competitive quadrant as trade for 901849 as a proportion of overall exports have fallen.

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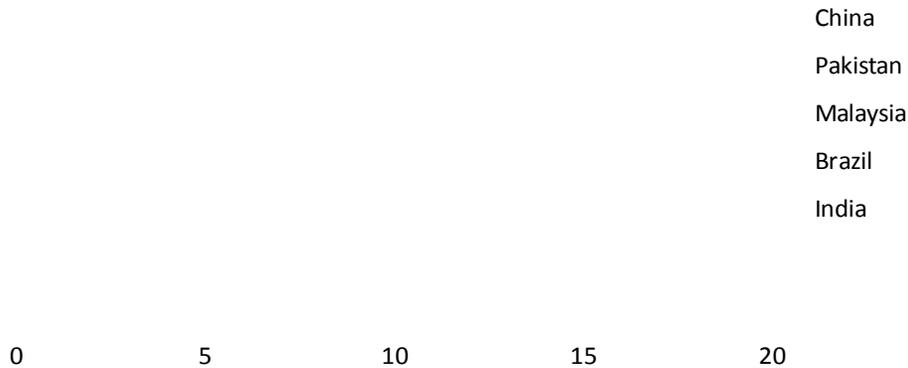
**Figure 46: Positioning of Major Product 901849 Exporter's 2005-2009**



**Source: UN Commodity Trade Statistics**

The size of the sector and the growth is lowest for Pakistan in the group of countries compared above. This is serious threat to Pakistan as Pakistan is already a minor component of the total market and moreover is losing its share quickly as well.

**Figure 47: Average Export Price of Product 901849 US\$ (2008-09)**



**Source: UN Commodity Trade Statistics**

The data on prices for countries with the largest shares in the product group was not available. However, for comparison we have shown prices fetched on average by Pakistan and other countries exporting similar products. Pakistan lags behind India, Brazil and Malaysia, but compares favourably to other countries of the group

including China. This comparison is not significantly important as Pakistan is still a very small component of the over world trade in this segment.

### 6.5.2 Factor Market Conditions:

The basic infrastructure of industrial setup can be considered adequate in Sialkot, it being one of the largest manufacturing and exporting hub of Pakistan. The city has significantly benefitted from this industrial activity and the city has its own dry port and private sector established and owned air port. The road infrastructure has also improved, however, the modernity of the city has not kept up pace with the development of industry and exports. This is a big threat to Sialkot because as incomes increase consumers desire more leisurely and modern living styles and if the cities does not develop this infrastructure; strong migration can take place. This is said to be happening in Sialkot. The city of Sialkot will have to upgrade its infrastructure and improve the liveability element, otherwise it faces a migration of new generation entrepreneurs out of the city. This can be disastrous for any industrial city as observed internationally. The literacy rate in Sialkot is 76%, which is lower than that of Lahore, health (62% population has easy access to public health facilities and remaining 32% use private health) and access to basic infrastructure indicators are slightly better relative to average indicators of Punjab. Sialkot has an unemployment rate of 10.3% which is greater than the average of Pakistan which is around 3.0%<sup>13</sup>. However, when comparing these numbers with international sectors against which Pakistan is competing, the quality of the provision of these basic factors in those countries is much superior. The level of primary and secondary education is particularly weak resulting in labour input that is difficult to train. Hence, where as Pakistan has a large enough pool of young labour force, whether this translates into a competitive advantage is questionable.

- *The basic factors including quality of education, health facilities, infrastructure provision, sanitation facilities need to improve in Sialkot for it to compete on better terms in global value chains. The strategy should not be to improve the number of schools or hospitals or roads – the strategy should be to have better governance systems so that service delivery is efficient and the quality is regulated and strictly monitored.*

As discussed above the sector also lacks in competitiveness due to inadequacy of specialized factors such as modern technology, training institutes and research centers. The availability of capital is not only difficult but is also on the expensive side. Compared to other major players in the global surgical instrument and medical device market, (Germany, USA, Switzerland etc.) Pakistan is far behind in technology and modern production processes. As discussed above this lack of technology results in inadequate productivity and higher costs of production. The impediment to achieving better technology is not only lack of capital but also lack of knowledge and appropriate skills to use modern technologies. The level of skills is low impeding investment into modern machinery.

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<sup>13</sup> Multiple Indicator Cluster Survey (MICS); Punjab 2007-08

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The industry has access to SIMTEL and SMDC, however, the capacity of these institutes to do meaningful research and product development is fairly limited. The institutes compares unfavourably to the research and training facilities that are available in countries which compete with Pakistan in International markets. Similarly, the inadequacy of worker skills is further enhanced as there is no specific training institute for workers.

- *The strategy to address the above issues is to rebuild SMDC as a PPP venture between TEVTA and the private sector so that the center is able to provide meaningful support to industrialists who are planning on making a shift for basic to high tech surgical instruments. In addition, a school of training for surgical workers is extremely important. This school should not only focus training basic production workers but also foreman's, engineers, managers, inventory controllers and quality control staff.*

### 6.5.3 Demand Conditions

According to general competitiveness framework the sophistication of local customers is an integral reason why companies are forced to innovate and then succeed abroad. In this aspect the surgical instrument industry is 100% export focused and hence it fails to benefit from the demand of the local customer. The industry feels that the local markets are filled with significant amount of procurement delays and corruption, whereas the private sector demand is not significant. Hence, traditionally the industry has relied on exports. The demand in the export markets over the recent years have shifted from basic to more sophisticated products, this has provided an easier market for the basic instruments made in Pakistan as there are no competitors internationally. However, the industry needs to realize that whereas a stable demand may stay for basic instruments over the next several years the market shares the prices people are willing to pay or it will shrink over time.

### 6.5.4 Context for Firm Strategy and Rivalry

The structure of the industry is intensely competitive. There is strong rivalry among firms of varying sizes which has had a negative impact on the performance of the industry. Price war behaviour is a common practice. This intense competition has kept export margins low and has resulted in low levels of investment. There is no foreign ownership in the industry. Pakistan generally has liberal policies on investment, however, the industry has not benefitted from much FDI and JV's are nonexistent. The top 5-6 companies have captured around 25% of the export market. These are the firms that have made more investments and have better access to modern technologies and better productivity levels.

### 6.5.5 Related and Supporting Industries

In many ways, the performance of an industrial sector is a reflection of the support that it is getting from its suppliers and vendors. The main supporting industries for

the sector include; (i) steel manufacturers and metal importers; (ii) chemicals; (iii) machinery; (iv) casting and die making industry; (v) training and research institutes; (vi) packaging industry; and (vii) marketing and branding agencies. The industry suffers significantly due to weak research and development capacity in the materials industry. The failure of research institutions in Pakistan to come up with more diverse type of metals has affected the overall competitiveness of sector considerably. The European and the Chinese counterparts are leaps ahead in terms of material development, quality and material grades. Furthermore, as highlighted in the value chain above the industry also suffers a great deal due to lack of marketing and branding support and weak packaging industry.

There is no capacity in the industry, nor is any support linked to the industry which can work on product designs, product development, quality and standards and marketing of products. The individuals firms make most of the effort to reverse engineer designs and use expensive and limited marketing techniques. Hardly, any firm in the industry receives direct feedback from end consumers.

The strategic actions presented above are all developed to address the issues of competitiveness facing the industry.

## 6.6 Quality and Standards

The industry generally feels that improving quality and standards is extremely important. The health care industry normally places very degree of importance for the quality and standards that need to be maintained by the products. The current impediments to quality control normally occur due to inadequate quality of raw material and inconsistent forging and milling. The industry is highly reliant on the vendors with outsourcing typically varying between 30-70%. It is extremely difficult to ensure that quality is maintained at all points especially when the process has to pass through vendors. It has been reported that vendor practices are not all honest and in many instances raw materials have been replaced or heat treatment has been inadequate. The overall wastage as a result of quality issues is 5% along the value chain. Larger units have put in place quality check points and also designated specialised quality control to monitor these practises.

- *The strategy to address the issue is to train the workers and the vendors about the nature of the product and its potential use. The workers working on the product must be aware that this product is most likely going to be saving a human life hence maintaining quality is not only financially rewarding but is also a social responsibility.*

## 6.7 Testing Requirements

There are certain testing requirements which start from the composition of the material, material hardness test and grade of the material. All these tests have been defined at protocols for trade under the health care industry. The level of awareness in this regard is extremely high and 100% of the forms reported that they were getting their products tested adequately. Firms have so testing facilities in house, other normally use SIMTEL or PCSIR. The basic tests which do not require the laboratory to be certified use SIMTEL, whereas the other more sophisticated tests

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are performed at PCSIR, SGS and Intertek. 80% of the respondents are suggested that they only conducted the minor tests about product definitions here in Pakistan and the buyers in external markets would then do the other tests and certification necessary for the product. This is a serious value drainer as doing those tests and certification in Pakistan would fetch much better prices.

Some future testing requirements foreseen by the sector for which laboratory capacity does exist in Pakistan include; (i) Sterility Test, (ii) Bio Burden testing and (iii) EO residual testing. There is no lab in Pakistan that can certify sterility test results. Some 30% of the forms reported that these tests would become extremely important as regulations and the product mix change in the industry.

- *The strategy here is to create more awareness among the sector about the all possible tests that may be required and emphasise on the need of getting these tests at certified laboratories. This is extremely important for value addition.*

## 6.8 Compliance Status Certification Capacity

The awareness about compliance and certification requirements is extremely high in this sector. 100% of the firms interviewed responded that they were compliant with CE Marking, GMP, ISO 9001, ISO13485, NID etc. However, some were critical of the actual capacity of compliance. 40% of the forms reported that compliance was merely achieved in terms of paper work and actual on floor implementation of compliance requirements was weak. Some 80% reported that the moving to GMP compliance was quite helpful as it increased the productivity several times.

- *The sector still feels that more information and awareness is required to meet certification challenges. 70% of the forms satiated that they would require technical assistance to physically apply some of the certification requirements that were only being adhered to in papers.*

## 6.9 Access to Markets

The sector feels positively about entering newer markets especially where there are possibilities of higher value added. However, the major constraints identified as a result of survey findings were lack of information on new markets and limited capacity to innovate and brand.

## 6.10 Policy Capacity & Support

None of the forms reported problems with the pre-shipment inspections or other specific trade regulation. However, two proposals were forcefully made for policy support from the government.

3. All the labour payments and interface with government must be restricted to one window. The charges for social security, EOBI and other labour related

issues should just be deducted at source (for example x% of export invoice may be deducted by bank)

4. The duty draw back rates should be rationalised in light of international practices so it offers level playing field for local producers and the speed of the process should be improved.

### **6.11 Intellectual Property Rights**

Only 20% of the respondents suggested that they were using trade marks to protect their designs and products. Over 95% were of the opinion that agencies lacked capacity in enforcing these rights. Respondents were not interested in IPO's mainly due to lack of enforcement.

### **6.12 Recommendations for TRTA II**

The following recommendations are made for TRTA II programme:

9. Awareness seminars and trainings on sector specific testing and compliance requirements and testing requirements.
10. Working with NPO a productivity and factory layout expert may be provided to the firms to upgrade their production processes. This may be made part of the 'surgical industry competitiveness' project being implemented by NPO.
11. Work with TEVTA on refining and implementing the PC-1 on surgical training school.

## **7. Sports Goods Industry**

### **7.1 Overview**

The sports products as developed in Sialkot can be mainly categorized into hard-core sports goods (balls, bats, sticks....), protective goods especially gloves and other related items e.g. sportswear, badges.

Approximately 80% of the exports in sporting goods category is fetched alone by three sub-sectors: Soccer ball, Gloves and Sportswear. In sub-sectors sportswear and gloves, indeed most of the manufacturing activities are accomplished inside the factory premises while soccer ball manufacturing is exceptional in the sense that one of the very important process: STITCHING is usually outsourced and is concentrated in a radius of 60 km around the city.

#### **7.1.1 Evolution of Cluster**

According to a myth, the sport goods industry started in Sialkot because an English man broke his tennis racket that was repaired by a local craftsman. Skilled manpower, presence of large supply chain of British army and strong international

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business relationships especially with British colonies are regarded as one of the main reasons for export growth from Sialkot.

The presence of large supply chain of British Army (who used to source saddlery goods, leather goods, army uniforms & surgical items), presence of skilled labour working in allied sectors (as wood, metal, leather etc) and abundant supply of raw material (Sialkot is located at the foothills of HIMALIYA that was known as the best place to grow trees needed for making cricket bats and hockey sticks), are considered as a few primary reasons for the competitiveness of this sector.

In 1947, Sialkot became part of Pakistan, and the skilled craftsmen kept on improving their skills, quality, production and marketing techniques that lead to the inclusion of Sialkot sporting goods in Global Value Chains. The goods exporting trend kept on multiplying until Sialkot became the premier supplier of hand stitched soccer balls during FIFA World Cups and hence major international sporting brands selected Sialkot as the outsource destination.

### 7.1.2 A quick snapshot

The Sports Goods cluster is scattered over the whole city and adjoining areas. Certain statistics<sup>14</sup> with respect to the sporting goods cluster Sialkot (as gathered from various different sources) present an estimated overview of the sporting goods sector as follows:

- More than 300 (active members) firms are registered with Pakistan Sports Goods Manufacturers & Exporters Association (PSGMEA);
- More than 20,000 firms are registered with Sialkot Chamber of Commerce & Industry;
- The annual export is more than USD 300 million in 2008-09<sup>15</sup>;
- More than 1200 firms are exporting sports goods from Sialkot;
- Around 0.2 million workforce is involved in the sector.

The study underhand focuses primarily on Soccer ball, Gloves and Sportswear. These three sub-sectors are chosen due to their importance and potential in exports, employment generation, poverty alleviation, gender involvement etc.

## 7.2 SPORTSWEAR

Sportswear includes all garment products excluding nightwear, underwear, swimwear, lingerie and work or utility wear. Examples include jerseys (basketball, cycling, football), hoods, T-shirts, polo shirts, track suits, jogging suits, karate uniforms etc.

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<sup>14</sup> These statistics are the result of one-to-one interactions, meetings and databases of Sialkot chamber / relevant association

<sup>15</sup> Source: SCCI

Sportswear is a very promising / potential sub-sector and was developed as an “off shoot” of sports goods cluster. Initially the buyers used to purchase sports goods from Sialkot while sportswear were usually sourced from other countries as South Korea, Taiwan, USA etc. As the apparel industry diminished from these countries, buyers already satisfied with sport’s products from Sialkot asked the local exporters to produce sportswear as well. And thus the sub-sector took off and established its worth in the global market.

A unique feature of the cluster is that many firms (originally manufacturing sporting goods) have got engaged in sportswear business as well. This diversification has not only introduced a new dimension in sporting goods business but has also helped to leverage out risks into more than one product lines.

### **7.3 National scenario**

At national level the sportswear demand is experiencing a growth trend. The purchase decision is usually made on the basis of income and awareness level. It is usually used in two respects: as i) causal wear and ii) relating to sports purposes. A number of multinational brands have opened up their outlets in bigger cities while the business of non-brands is also on the rise. Furthermore, factory outlets are also recording an increasing interest of local customers.

‘Around 5% of low quality sportswear production is sold in the national market’ commented an entrepreneur.

### **7.4 Current scenario of the cluster**

Renowned brands as Addidas, Nike, Micassa, Puma, Mitre, Select, Umbro, Lotto, Diadora, Decathlon, Wilson, etc are sourcing their supplies from Sialkot. The average export growth rate for the past 3 years was very low. Salient features of the cluster are outlined as follows:

- More than 18,000 labour is associated with the sub-sector.
- There are 200 registered members of Pakistan Hosiery Manufacturers Association (PHMA) Sialkot;
- There are 163 registered members of Pakistan Ready Made Garments Manufacturers & Exporters Association (PRGMEA) Sialkot;
- The cluster is spread in a radius of 3 kilometers in Sialkot.

Cluster’s exports were USD 56 million during the FY 2008-09. The export statistics are shown below as:

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**Table 15: HS Codes**

Product	HS Code	Exports 2005-06 (USD million)	Exports 2006-07 (USD million)	Exports 2008-09 (USD million)
Sportswear	6103, 6104, 6105, 6112, 6211	85	87	56

**Figure 43: Exports of Sportswear US\$ (Mn)**



## 7.5 Cluster Actors

The main cluster actors can be divided into two broad categories:

### 7.5.1 Manufacturers

Approximately more than 300 manufacturers are involved in the production of different kinds of sports apparels. It is important to note that embroidery is the main function that is outsourced while all other production activities are usually performed in the factory premises.

### **7.5.2 Makers**

In the cluster there are round about 150 small makers who are involved in stitching activities of different kinds of uniforms and apparels. Usually exporters outsource bigger order sizes to them that they cannot manage in their own manufacturing concerns. Similarly, traders (individual and buying houses) engage these makers for the fulfilment of export demands. They are very important actor of the cluster as some entrepreneurs highlighted that almost 50% of the manufacturing activity in the cluster is carried upon by makers.

### **7.5.3 SWOT Analysis**

#### **7.5.3.1 Strengths**

- Dynamic and reliable linkages in international markets;
- Customized products by focusing on niche marketing;
- Flexibility in production runs with quick turnaround time;
- Ability to complete big orders with in the time frame by outsourcing;
- Strong logistics infrastructure i.e. Dry port and Airport;
- Entrepreneurial culture leading towards exports;
- Government incentives on R&D activities;
- Most companies are QMS certified.

#### **7.5.3.2 Weaknesses**

- Concentration in few geographical markets (international);
- Absence of garment institute in the cluster;
- No fabric development center in cluster;
- Family oriented business approach;
- Absence of R&D facilities in the cluster;
- Less focus on local market;
- Absence of standardized production processes;
- Poor working conditions coupled with compliance issues;
- Absence of quality service providers in the clusters;
- Lack of designing skills;
- Lack of branding and usage of traditional selling techniques;

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- Low education level of workers;
- High turnover of workers.

### 7.5.3.3 Opportunities

- Presence and services provision by various institutions public or private to the cluster;
- Development of performance garments;
- Changing consumer behaviour towards health & fitness;
- Exploration of new markets;
- Joint ventures with international stakeholders;
- Changing dynamics of China.

### 7.5.4 Threats

- Decreasing price in international market;
- New strategies of International competitors like Bangladesh;
- Entry of India in international markets;
- Imposition of social, environmental, technical & compliance barriers to trade;
- REACH complied materials for European market;
- Domestic/international political situation.

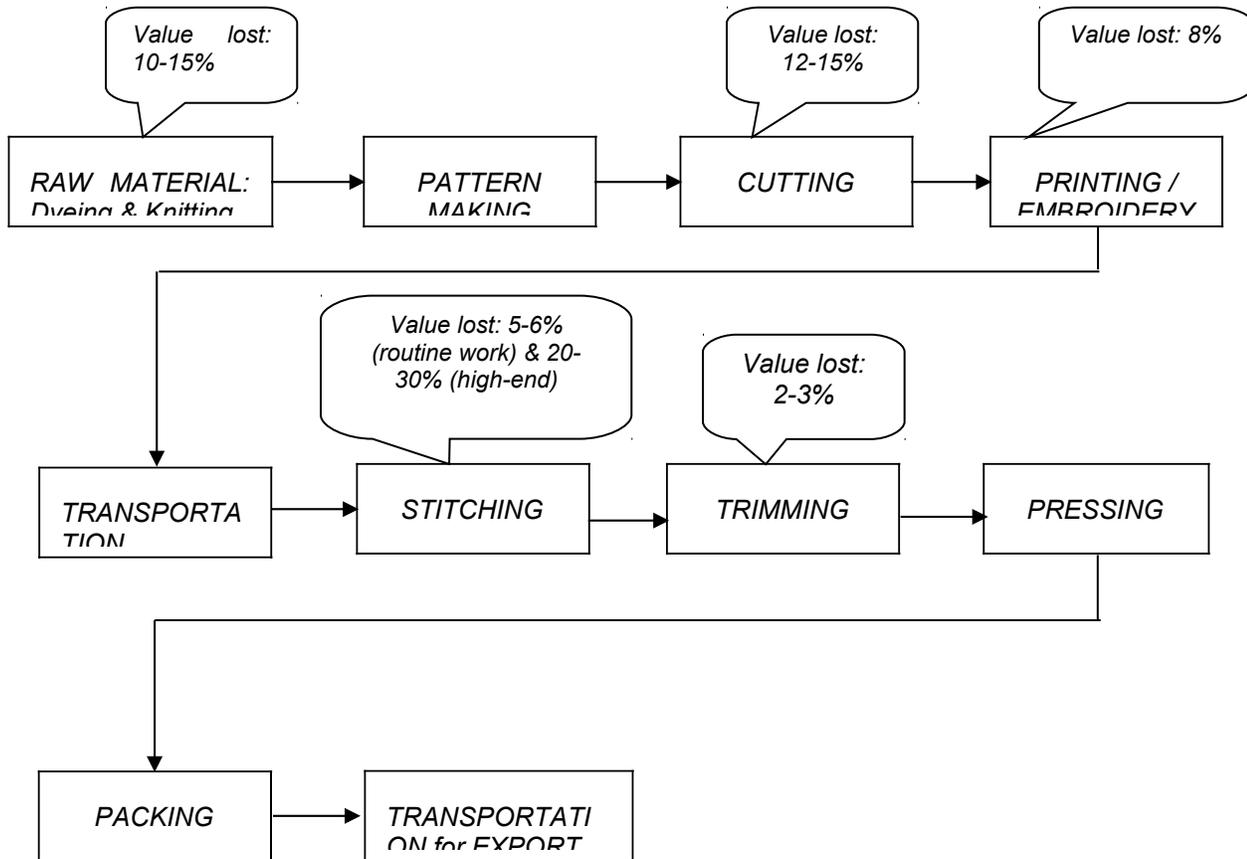
## 7.6 Value Chain

Key gaps in all areas of the value chain have been identified during the analysis phase of this report. It must be noted that the results are primarily based on one-to-one interviews, interactions with various stakeholders and observations of the operations. The study has highlighted the following facts that need immediate attention to tackle:

- 10-15% value is lost at raw material stage (it does not include the export value lost due to unavailability of raw material);
- 15% value is lost at cutting stage mainly due to problems in pattern making;
- 8% value is lost at printing / embroidery process due to lack of modern facilities;

- 5-6% value is lost in stitching of routine garments while where the workload is diversified; this value lost can be as high as 20-30%.

The value chain is produced below as:



## 7.7 Assessment of Quality

Quality holds an important place in the entrepreneurial culture of Sialkot. Ever since the city entered international markets, this value being strengthened day by day. More often the entrepreneurs have defined the quality as: 'customer satisfaction' and 'adherence to the product specifications'. It starts with provision of raw materials as conforming to the specifications. 'Quality' raw materials availability is one of the major area of concern for the entrepreneurs. International customers divert to other sourcing destinations mainly due to unavailability of fabrics / yarn and different standardized accessories. 'Shrinkage' problem is normally experienced which is linked to the yarn. There is an immense need to improve the quality of raw material sourcing. Then comes the dyed fabric: dyeing facilities are very poor with respect to sportswear. Dyeing services are mostly outsourced from Faisalabad and Lahore. Issues involved with dyeing are fading of fabric colour, colouring

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requirements, timely delivery etc. Additional quality improvement can be achieved by procuring sportswear designing skills and expertise.

### **7.7.1 Pattern Making**

Production operations began with making the pattern of the garment. Pattern making is usually done manually however some firms had installed their own CAD based pattern making machines with plotters. (The major reason of the manual work is because of the small and different orders). Quality issue associated with manual work is wastage of fabric as the cutting operation entirely depends upon pattern making. Shortage of skilled and trained operators is the quality problem faced by the cluster.

### **7.7.2 Cutting**

Cutting process is the cutting of the fabric into layers to be stitched together to make the desired product. In this process fabric is laid and spread and then cut by the electronic cutters. Small and cottage level industries do the cutting with scissors; they can manage it because the order size was quite small. 12-15% fabric wastage is usually experienced here as highly skilled professionals are needed for the job. Hence there is a need to impart professional training and awareness to the workers through foreign experts.

### **7.7.3 Printing / Embroidery**

Except small scale operations, larger and complicated printing / embroidery jobs are usually outsourced in the cluster. Quality problems are experienced with printing materials and desired outcomes thereof. With the advancements in technology and demands of customers, modern facilities for embroidery and sublimation printing is needed for the cluster.

### **7.7.4 Stitching**

Stitching is the major activity in garment production and is considered the most labour intensive area. Medium and large firms follow “chain” system of stitching where one garment is made on a number (4-6) machines thus each worker stitches only some portion of garment. The traditional style is single unit stitching where all apparel is stitched on one machine. Small and cottage size units still follow the traditional one machine stitching approach. The quality problem faced here is higher rate of rejection and amount of rework which can be as high as 25-30%. The solution to the problem is to develop an institute and bring foreign consultant to train on stitching skills / techniques and produce Master Trainers.

Outsourcing of stitching to vendors is also a common practice especially among large firms. Usually basic products in bulk orders fetching lower price were outsourced.

### 7.7.5 Quality standards

Almost all the interviewed units were ISO 9001:2000. Apart from QMS requirements, every effort is made to produce goods on time and free of defects. During the production operations, quality checks were maintained at material, pattern making, cutting, printing / embroidery, stitching and finishing stages. The cluster is in dire need of relevant BISE standard because all manufacturing is based on imitation and mocking other local competitors. The standard will provide basic knowledge & understanding of garment and thus will be a basic source of improvements in quality, productivity, value-addition etc.

The above discussion is summarized below as:

Sr. No	Process	Prioritize (High/Low)	What improvement exact you need?
1	Garment Manufacturing	High	Need BSI Garment standard
2	Dyeing	High	Need dyeing facility as CFC
3	Pattern Making	High	<ul style="list-style-type: none"> <li>• Need institute to impart knowledge and training</li> <li>• Need foreign expert to train from pattern making to stitching</li> </ul>
4	Cutting	High	-do-
5	Printing/Embroidery	High	<ul style="list-style-type: none"> <li>• Need sublimation printing facility as CFC</li> <li>• Need modern embroidery machine</li> </ul>
6	Stitching	High	<ul style="list-style-type: none"> <li>• Need institute to impart knowledge and training</li> <li>• Need foreign expert to train from pattern making to stitching</li> </ul>
7	Trimming	Low	
8	Pressing	Low	

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9	Packing	Low	Need labour training

### 7.7.6 Benchmark Activities

The following activities are benchmarked to improve the quality standards of the firms:

- Visit Brands stitching centers to adopt their systems;
- Visit good units in Turkey / China;
- Visit sportswear institute in China / Thailand.

## 7.8 Assessment of Compliance

The respondents have referred compliance as 'Achieving certification', 'getting products Tested' and 'Labour Laws' while a few has also included 'Corporate Social Responsibility' in the definition. It has been recorded unanimously that the driver behind compliance needs is customer / importer. Currently in Sialkot, the enterprises were pursuing different CSR models to address the social needs of stakeholders briefed below as:

### 7.8.1 Social Accountability (SA 8000)

The enterprises in Sialkot are adopting this certification to manage and systemize the social benefits to the labour.

### 7.8.2 Labour laws

Majority of the enterprises are conforming to the rules and regulations as prescribed under the labour laws of Pakistan. Other entrepreneurs possess their own understandings and follow customized social agendas by indulging in individual internal & external activities as well as collective ones. Most of the interviewed enterprises are contributing towards certain social projects as initiated under the umbrella of Sialkot Chamber of Commerce & Industry (SCCI). These projects are outlined below as:

- Child Labour Elimination Program (CLEP);
- Sialkot Medial Complex (SMC);
- The Light (school for mentally handicapped children);
- Universal Primary Education Program

- Sialkot city development package.

Compliance activities as performed by the respondents during various processes are tabled below as:

<b>Sr. No</b>	<b>Process</b>	<b>Compliance activity</b>
1	Raw material	Testing
2	Pattern Making	Precautions
3	Cutting	Precaution and other safety measures
4	Printing/Embroidery	Testing
5	Stitching	safety measures and precautions
6	Trimming	Precautions
7	Pressing	Precautions
8	Packing	Precautions

In sportswear cluster, ISO 9000 was identified as the most important certification requirement. Now requirement for social certification SA 8000 was also observed. It was 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. Nearly all the entrepreneurs interviewed possessed ISO 9000 certifications and any compliance requirement with respect to certification was not observed.

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Overall awareness on testing requirements is proportional to the firm size and export revenue. Most common testing practice is use of in-house or local laboratories. Testing was performed for internal quality assurance and meeting customer's requirements. It must be noted that when tests are carried through foreign testing bodies, costs are usually paid by the customer. In-house or local tests are rather simpler tests and they are usually performed by the manufacturer whether or not required by the customer. Following chart represents different tests conducted for the sportswear:

Type of Testing	Where is testing carried out			Testing Body & Location
	Testing (in-house)	Local Testing Body	Foreign Testing Body	
Abrasion resistance		( √ )		CPC <sup>16</sup> Sialkot
Shrinkage		( √ )	( √ )	T.T.I Lahore
Colour fastness		( √ )	( √ )	T.T.I Lahore
Crock test		( √ )		CPC Sialkot
pH test		( √ )		CPC Sialkot
Light Fastness		( √ )		CPC Sialkot
Seam test		( √ )	( √ )	T.T.I Lahore
Fiber content		( √ )	( √ )	T.T.I Lahore
Perspiration		( √ )		T.T.I Lahore
Azo dyes			( √ )	SGS Lahore, CPC Sialkot
Carcinogenic dyes		( √ )		CPC Sialkot
Heavy metal			( √ )	CPC Sialkot, SGS

<sup>16</sup> Cleaner Production Center

				Hong Kong
Accessories strength test			( √ )	SGS Lahore
Printing test	( √ )			
REACH test			( √ )	SGS Hong Kong

In conclusion with respect to compliance, cluster firms are in need of BISE standard and testing directives. Quite a few numbers of entrepreneurs have also mentioned perceived difficulties in REACH certification for sportswear especially shipped for European destinations. Therefore there is immense need to work with material vendors to develop REACH certified materials and REACH test directive is also needed. Moreover, there is also need to develop complied printing materials together with vendors. Similarly, 'Up-graded machinery', 'skill development' and 'international certifications' are the compliance requirements as remarked by the respondents.

## 7.9 Assessment of Value addition & Productivity

The entrepreneurs referred 'Value addition' mainly to: 'Introduction of new technology', 'Product design', 'Product innovation' while a few also preferably included 'Packaging' and 'Process development' in the list. Possible areas / interventions are narrated below as:

### 7.9.1 Raw Material

The major concern of the respondents was the availability of desired fabric in the cluster. Men made fibers were mainly used in the construction of sportswear: examples include polyester, rayon, nylon etc. (Sialkot industry primarily depends upon polyester fiber). With the advent in technology, the introduction of newer versions of fabrics has entirely changed the concept of sportswear. World is now demanding 'performance garments' that depends on fabric. The characteristics may include: water absorption, durability, stretch, breathable, anti-bacterial function etc. "Chinese products fetch greater price because their fabric is far more advanced than us" remarked an entrepreneur. Export orders are mainly denied due to unavailability of fabric in the market. Therefore, there is an absolute need of 'Fabric Development Center' in Sialkot as customer is not ready to pay developmental cost of fabric.

### 7.9.2 Product Design

It is another area where Sialkot seriously lacks professional skills and know-how. The design is send by the buyers which is then copied and required garments are produced. The designs are usually send by brands or large customers who have

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their own design departments. Others ask for innovative designs from the manufacturer and due to lack of designing facilities & skills, the customers divert to other sourcing destinations. 'Smaller customers usually ask for designs and they roughly account to 70% of the exports' commented an entrepreneur. In this context, there is need to introduce design facilities while creating international linkages and hiring a professional foreign designer to impart requisite designing skills to the cluster.

### 7.9.3 Machinery requirement

As the result of feedback (individual inputs) regarding technology, following machines have been identified to add value to the enterprises: Knitting machines, Embroidery machine, garment Cleaning machine, Clipping machine, Stitching machines (double needle), Plotters, Automatic Printing machine, GGT machine.

### 7.9.4 Printing

Sublimation printing facility is needed for the cluster as CFC.

### 7.9.5 Pattern Making to Packing

Foreign expert are needed to train the workforce on all production processes starting from pattern making till packing. Designing of packaging also needs fresh development through professional consultants.

The above discussion is summarized below as:

Sr. No	Process	Prioritize (High/Low)	What improvement exact you need?
1	Material	High	Need Fabric Development Center
2	Designing	High	<ul style="list-style-type: none"> <li>• Need design facilities and develop linkages</li> <li>• Need foreign designer to impart training</li> </ul>
3	Technology	High	Need new machinery as prescribed above
4	Printing	High	Need sublimation printing facility as CFC

5	Garment Manufacturing	High	Need foreign expert to train from pattern making to packing
6	Garment Manufacturing	High	Need Sample development & Knitting center in the cluster

### 7.9.6 Benchmark Activities

The following activities are benchmarked with the view to add value and develop capacities of entrepreneurs:

- Visit R&D facilities in China;
- Develop linkages with famous sportswear designers.

### 7.9.7 Productivity

The interviews revealed that productivity related issues are linked to: 'Lower Worker productivity', 'Shortage of skilled workforce', 'High wastage in production' and 'High rework and non-conformance'. A single worker can produce 3-4 track suits in one day while this productivity level can be enhanced to the figure of 6-7 suits/day/worker through productivity experts / institution and incorporating new machinery. To start with there is dire need of requisite BSI standard which serve as the basis of every productivity & quality improvement effort. In this respect the following recommendations were forwarded:

Sr. No	Process	Prioritize (High/Low)	What exact improvement you need?
1	Garment Manufacturing	High	Need technical institute to identify & rectify problems of production, value addition, technology & skill training
2	Garment Manufacturing	High	Need BSI garment standard
3	Garment Manufacturing	High	Need foreign technical expertise to improve pattern making and stitching performance

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4	Garment Manufacturing	High	Reduce time from stitching to packing through foreign consultancy
5	Technology	High	Need new machinery as prescribed above
6	Garment Manufacturing		Need to conduct Time n Motion study through expert

In conclusion, the interview's trend showed that entrepreneurs are interested to target their productivity, quality and value addition concerns through TRTA II.

### 7.10 Access to Markets

The three regional groupings that are important from Pakistan's growth point of view are: Latin American countries as Brazil, Colombia, Mexico etc; African countries as South Africa, Nigeria, Madagascar, Kenya etc; non-traditional European markets including those belonging to former Soviet bloc, Scandinavian countries, Greece etc. In terms of market diversification, countries like USA, Japan, Germany, Saudi Arabia, UK etc accounted for 53% of our total exports in the last decade, whereas in 2007-08 this share was reduced to around 4.4%, revealed a commerce ministry report. It is very important to learn that new opportunities are emerging since some of our competitors like China, are losing their competitive edge due to high input costs. Therefore the manufacturers need to exploit this opportunity by entering into joint ventures with Chinese companies and setting up of production facilities in specific zones in collaboration with the counterparts.

The survey highlighted that most of the interviewed entrepreneurs were dealing with customers dominantly in Europe and USA markets. While those who were suppliers of brands, had worldwide presence and acceptability. About 50% of the respondents had their separate marketing departments while 'direct sales' through trade delegations or personal visits was recorded as the most significant marketing approach employed by the entrepreneurs. Some 20% of the entrepreneurs shared to target markets using their own brands with substantially less investment and vigour. Even larger companies were observed relying on R&D, knowledge and marketing of established international brands rather than taking on the risk of launching their own brands. Family owned businesses, lack of funding & knowledge and competition by established brands were observed as a few reasons behind this approach. Even the enterprises with their own brands were not willing to expand the scope of self-brands and in most cases, sales volume of their own brand was not more than 10-15% and that too to the lower market segment.

The enterprises with independent marketing departments were quite keen and positive to receive marketing training from institutions like LUMS (Lahore University of Management Sciences). They were willing to contribute in-kind and in-cash

resources for the purpose and requested to create linkages for the same. Following themes were identified as consulted during the interactions to improve the access to markets and realize the market diversification plans of enterprises:

- Strengthen the export oriented clusters through technological revolution;
- Improve Quality in production and service provision;
- Develop human resources with reference to technical skills;
- Provision of raw materials on controlled prices;
- Reduce cost of capital;
- Ensure Compliance;
- Warehousing facilities: new and existing markets;
- Improve country's business image;
- Signing Free Trade Agreements with our trade partners.

### **7.10.1 The Strategy**

In light of the above diagnosis, value chain and SWOT analysis the following strategic themes have evolved to work upon:

#### ***7.10.1.1 Work force development***

Output:

- Develop garment institute;
- Garment City;
- Foreign garment expert.

#### ***7.10.1.2 Improve product quality***

Output:

- Support required for BSI Garment standard;
- Garment City;
- Support for sublimation printing, dyeing facility;
- Place strong emphasis on quality of product, packaging and presentation;

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- Need foreign expert to train from pattern making to stitching;
- Please see details in relevant assessment section.

### **7.10.1.3 Enhance productivity and R&D activities**

Output:

- Provision of design expert, fabric development center and technology up gradation as CFC;
- Increased information sharing between the industry;
- Higher value added garments;
- Foreign garment experts;
- Attach foreign productivity experts;
- Please see details in relevant assessment section.

### **7.10.2 Emphasis more on proactive marketing**

Output:

- Market access and export diversification;
- Explore local market;
- Access to value added markets;
- Improve security situation;
- Please see details in relevant assessment section

## **7.11 Policy Capacity and Support**

Today Pakistan is faced with the most difficult economic situation, both on external as well as internal fronts.

### **7.11.1.1 EXTERNAL FRONT**

The most difficult issues include:

- Doubling of international oil prices;
- Slowdown in U.S economy and turmoil in the international financial markets thereby reducing demands for our exports.

**7.11.1.2 INTERNAL FRONT**

Challenges on internal front made it difficult for exporters to fulfil their export orders on time and at a competitive price included:

- 
- Power shortages and resultant load shedding of electricity and natural gas;
- Rising costs of manufacturing especially raw materials;
- Increasing competition in export markets;
- Security situation and travel advisories of foreign governments discouraged importers to continue sourcing from Pakistan;
- Long term structural issues as labour skills, efficiency and poor infrastructure.

With respect to infrastructural services as mentioned in the questionnaire, drafted below is the table indicating response (AVERAGE) of the respondents:

<b>Infrastructure service</b>	<b>Efficiency</b>	<b>Access</b>	<b>Affordability</b>
Electricity	<b>1</b>	<b>4</b>	<b>2</b>
Financial (Banking, financial)	<b>4</b>	<b>4</b>	<b>2</b>
Telecommunications (Fixed lines, mobile)	<b>4</b>	<b>4</b>	<b>3</b>
Internet services	<b>5</b>	<b>4</b>	<b>4</b>
Transportation (Rail, road)	<b>3</b>	<b>4</b>	<b>3</b>

Load shedding of electricity and high interest rates were the major areas of the concern highlighter by the interviewees. The businessmen suggested that part of Export Development Funds may be diverted to the business community with backward and forward linkages with export-oriented industries. They also suggested that entrepreneurs must get maximum electricity and gas—and if load shedding becomes inevitable it must be done under a pre-announced schedule so that the manufacturers could reschedule their work hours. Furthermore, they recommended that the government must support for the activities as deliberated in quality,

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productivity, value-addition and compliance aspects. Similarly certain issues with respect to the service providers as freight forwarders and custom agencies are needed to be addressed by the government.

A few technical barriers to trade are also indicated keeping in view the sub-sector. Lack of R&D facilities on raw materials and development facilities for REACH complied raw materials are the major domestic constraints in this connection. It may be noted that REACH compliance is increasingly becoming necessary to export to European Union.

### **7.12 Intellectual Property Rights**

The feedback of the interviewees with respect to Intellectual Property Rights is as follows:

Majority of the entrepreneurs have never the intellectual property (IP) system to:

(i) protect technologies or designs (by acquiring patents or IP rights on industrial designs)

(ii) obtain new technologies (by acquiring licenses from other technology holders)

(iii) gain revenues by licensing out own patented technologies.

Therefore no concern was shown by the respondents with respect to Intellectual Property Rights (IPRs).

## 7.13 GLOVES & MITTEN

### 7.14 Overview

Glove is a type of garment used for covering the hands. Gloves have separate sheaths or openings for fingers and thumb. If there is an opening but no covering sheath for fingers it is a fingerless glove. Gloves covering the entire hand containing one section for thumb and the other section for four fingers are called mittens.

The history of this sub-sector is connected with the introduction of cricket game and the manufacturing of cricket bat in Sialkot. The requirements of cricket game also included the "batting gloves", "wicket keeper gloves" and "inner gloves". Similarly during the 2nd world war, a variety of gloves got introduced like "baseball gloves", and in 1956 special varieties of gloves for winter sports like: ice-hockey gloves, ski gloves were introduced. And thus gradually Sialkot became the centre of gloves manufacturing activities for all the glove categories. The products are mostly consumed in the international market and have got international recognition owing to the superior qualitative features of the product. About 80-90% of total glove manufacturing activity is hosted by Sialkot while limited manufacturing is also carried out in Lahore and Karachi.

Gloves can be classified into three main types: Fashion gloves (e.g. dress glove), sports gloves (e.g. motor bike glove) and safety gloves (e.g. industrial glove). Fashion gloves are normally made from high quality leather whereas the safety gloves are made from low quality and split leather. Within leather gloves are included items such as fancy glove, industrial glove, sports glove, mittens and textile fabric glove. Gloves are also made from cotton & rubber: an export split is presented as follows.

YEAR	LEATHER (pairs)	EXPORT (PKR)	COTTON (pairs)	EXPORT (PKR)
2007-08	5, 799, 209	13,332,023,000	16, 811, 577	4,861,481,000

**Source:** Government of Pakistan, Statistics Division Federal Bureau of Statistics

Out of the total figures as shown above, the contribution of Sialkot is approximately 80 to 90%.

### 7.15 Current scenario of the cluster

In Sialkot the gloves cluster is scattered over the whole city. Renowned brands such as ad Wilson, Addidas, Nike, AIBA, All-Star are already sourcing from different firms in Sialkot. It is very noteworthy to highlight that some domestic brands have gained worldwide recognition. They included Nexo, Greenhill etc. Salient features of the cluster are outlined as follows:

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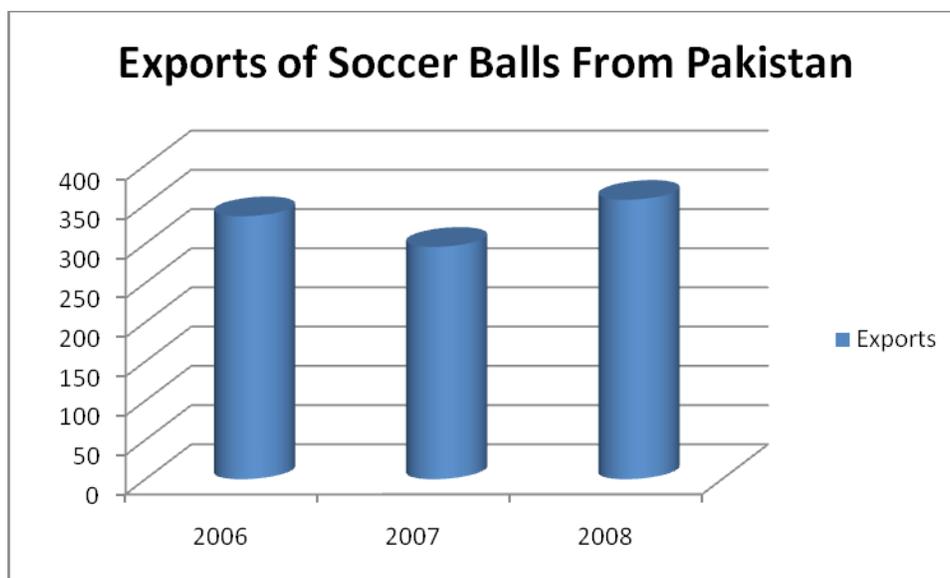
- About 250 firms are registered with Pakistan Gloves Manufacturers & Exporters Association (PGMEA);
- Informal estimates determine that there are more than 400 glove manufacturers;
- Approximately USD 304 million worth of glove sub-sector;
- Around 20,000 labour is associated with the sub-sector.

The export statistics are tabled below as:

Product	HS Code	Exports 2006 (USD million)	Exports 2006 (USD million)	Exports 2008 (USD million)
Gloves	4015.11, 4015.19, 4203.21, 4203.29 6116, 6216	335	296	356

Source: UN Comtrade

Figure 45: Exports of **(ALI PLEASE CHECK THIS IS WRONG)**



### 7.16 Cluster Actors

The main cluster actors can be divided into two broad categories:

### 7.16.1 Manufacturers

There are more than 300 manufacturers are involved in the production of different kinds of gloves. They usually undertake all manufacturing activities inside factory premises. However in case of larger order size or general / ordinary gloves, the stitching activity was mainly outsourced.

### 7.16.2 Makers

There are more than 350 small units of makers who were involved in stitching of gloves.

### 7.16.3 SWOT Analysis

#### Strengths

- Availability of skilled and low cost labour;
- Reliable linkages in international markets and in supply chain;
- Established leather and cotton industry;
- Presence of Leather Product Development Institute and Cleaner Production Center in the cluster;
- Presence of other infrastructural facilities;
- Presence of Sialkot chamber and gloves association;
- Flexibility to meet market requirements;
- Increasing reputation for quality.

#### Weaknesses

- Unavailability of relevant quality standard (BSI standard);
- High cost of production;
- Low worker productivity;
- Price competition among local producers;
- New materials not available in the cluster;
- Lack of R&D and modern technology in the cluster;
- Lack of designing skills and facilities;
- Increasing semi-skilled workforce;
- Absence of quality service providers (area specific) in the cluster;
- Traditional marketing and selling approaches;
- Frequent power shortages.

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**Opportunities**

- Newly emerging markets of Middle East, Far East and Central Asian Republics;
- Decreasing competition from China and other countries in Scandinavian states due to high health and safety requirements;
- Growing international market;
- Joint ventures with international stakeholders;
- Rising domestic market potential.

**Threats**

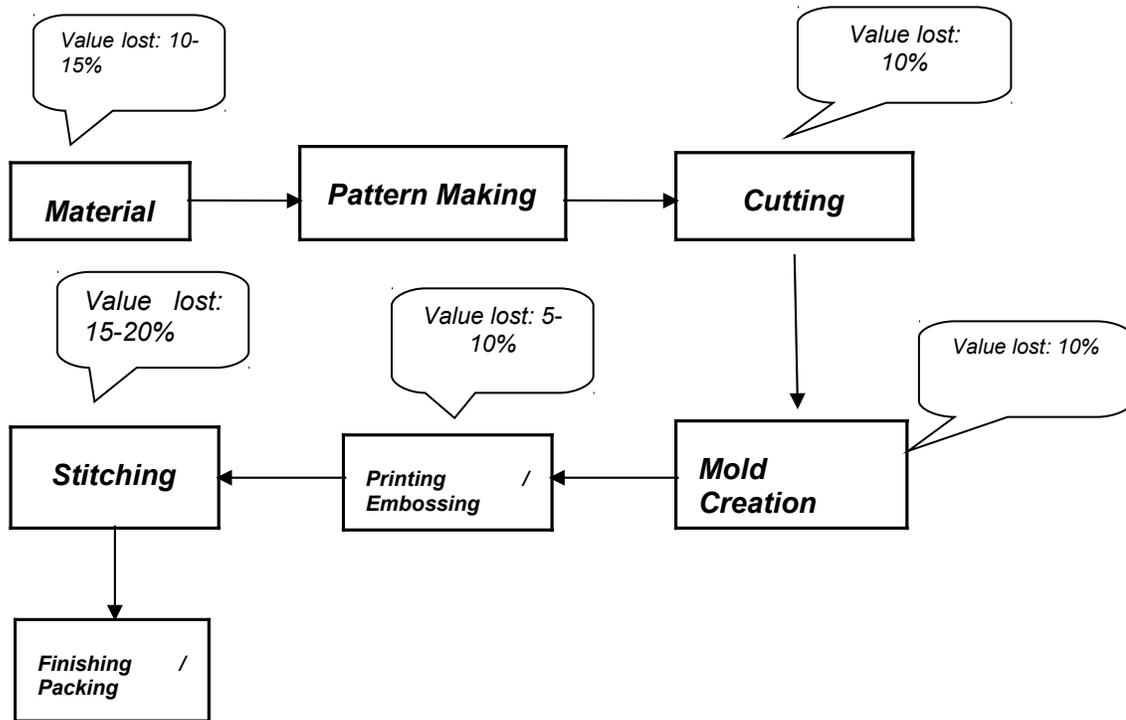
- High tariffs in European destinations;
- Reduced consumer demand due to international financial crisis;
- Security situation and country image;
- Increasing competition with China, India and Eastern Europe;
- Increasing prices of raw materials;
- Imposition of social and environmental standards.

**7.17 Value Chain**

Key gaps in all areas of the value chain have been identified during the analysis phase. It must be noted that the results are primarily based on one-to-one interviews, interactions with various stakeholders and observations of the operations. 'Actual value is lost in gloves where we have no material and technical expertise (i.e. in stitching)', commented an entrepreneur. The study has highlighted the areas where considerable portion of value is lost:

- 10-15% value is lost at raw material stage due to application of traditional methods;
- 10% value is lost at cutting stage mainly due to problems in pattern making;
- At molding stage, 10% value is lost due to application of non-standardized techniques;
- 15-20% value is lost in stitching due to abundance of semi-skilled labour and primitive methods.

A detailed value chain diagram of glove pair is pasted below as:



### 7.18 Assessment of Quality

Quality holds an important place in the entrepreneurial culture of Sialkot. Ever since the city entered international markets, this value being strengthened day by day. The orders catered by Sialkot are of two types: 1) smaller quantities (price-based), 2) quality-based export orders.

More often the entrepreneurs have defined the quality as: 'adherence to the product specifications'. Similar to the sportswear, sub-sector gloves is in dire need of relevant BS1<sup>17</sup> standard because all manufacturing practices are traditionally based on imitation rather than actual research. The standard will provide basic knowledge & understanding of glove and thus will serve as a basic source of improvements in quality, productivity, value-addition etc.

Furthermore it should be noted that the interventions as mentioned below may overlap i.e. one single intervention may address all aspects at the same time. Outlined below are the various remarks by interviewees:

<sup>17</sup> British Standard Institute

### 7.19 Pattern Design

The process of glove manufacturing starts with the receipt of sample / specifications from the customer and / or design developed by the designing department. In case of developing self designs, additional quality improvement can be achieved by introducing gloves related designing skills / expertise and matchmaking with local / foreign design institutes.

### 7.20 Pattern Making

Pattern Making is an art' narrated an entrepreneur. Based on specifications received, a sample pair of glove is prepared and sent to customer for approval. On satisfaction of the customer and requisite order placement, the production operations began with making the pattern of glove. Pattern making is usually done manually: pattern master first prepares the pattern on chart paper and then on straw board sheet, which will then be used in cutting department. However some firms had installed their own CAD based pattern making machines with plotters while the same facility is also available as CFC<sup>18</sup> in the cluster. Quality issue associated with manual work is wastage of material as the cutting operation entirely depends upon pattern making. Sizing and fitting of gloves are the major areas of concern as these are linked to the pattern. Improvement in workmanship is the solution forwarded by entrepreneurs.

### 7.21 Cutting

By using the patterns prepared, the workers cut the materials with the help of knives. In case of large quantities, press machines with metal dyes are applied. A cutter usually cuts 50 to 70 pairs of glove per day based on eight work hours. Approximately 10% material wastage is usually experienced here as highly skilled professionals are needed for the job. Hence there is a need to impart professional training and awareness to the workers through foreign experts. Moreover there is need to introduce modern cutting press as CFC in the cluster.

### 7.22 Mold Creation

Inside mold creation is a very technical job that needs higher level of skills. It is usually performed manually. Approximately 10% or even higher percentage of value is lost at this stage. It results in non-standardized shape of gloves. In addition to skills improvement programs, injection molding facilities may be introduced in the cluster as CFC to tackle the aforementioned problem.

### 7.23 Stitching

Stitching is the major activity in glove production. Small and most medium firms employ 'batch' system of production where a single worker produces the whole

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<sup>18</sup> Common Facility Center

product. Large and a few medium units firms follow “chain” system of stitching where each worker stitches only some portion of glove. The quality problem faced here is higher rate of rejection and amount of rework which can be as high as 10-15%. The solution to the problem is to bring foreign consultant to train on stitching skills / techniques and produce Master Trainers.

Generally stitching activity of common gloves is outsourced to makers especially by the large and medium sized firms. During the stitching process, accessories are added which mainly include lining material, foams, Velcro, hooks / clips and labels.

### 7.24 Inspection

After the completion of stitching process, quality inspection is carried out. During the process it is ensured that the product entirely complies with the specifications. Moreover, extra threads and fibres are also trimmed during the process.

Almost all the interviewed units were ISO 9001:2000. Apart from QMS requirements, every effort is made to produce goods on time and free of defects. During the production operations, quality checks were maintained at material, pattern making, cutting, printing / embossing, mould creation, stitching and finishing stages.

The above discussion is summarized below as:

Sr. No	Process	Prioritize (High/Low)	What improvement need?	exact you
1	Glove Manufacturing	High	Need BSI standard	Glove
2	Pattern Making	High	<ul style="list-style-type: none"> <li>• Need institute to impart knowledge and training</li> <li>• Need foreign expert to train on pattern making</li> </ul>	
3	Cutting	High	<ul style="list-style-type: none"> <li>• Need foreign expert to train on cutting techniques</li> <li>• Need modern Cutting press</li> </ul>	
4	Mold Creation	High	<ul style="list-style-type: none"> <li>• Need injection molding as CFC</li> <li>• Need foreign expert to train on mold creation</li> </ul>	
5	Stitching	High	<ul style="list-style-type: none"> <li>• Need institute to impart knowledge and training</li> </ul>	

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			<ul style="list-style-type: none"> <li>• Need foreign expert to train on stitching</li> </ul>
6	Finishing	Low	Need labour training
7	Packing	Low	Need labour training

### 7.24.1 Benchmark Activities

The following activities are benchmarked to improve the quality standards of the firms:

- Visit good units in Turkey / China;
- Visits and linkages creation with leather institute in Karachi;
- Visit glove institutes (pattern making, stitching) in China.

### 7.25 Assessment of Compliance

The respondents have referred compliance as 'Achieving certification', 'getting products Tested' and 'Labour Laws' while a few has also included 'Corporate Social Responsibility' in the definition. The respondents shared to focus more than 90% on the compliance activities as: 'labour welfare', 'health care', and 'environment – cleaner production'.

"For American buyers, compliance is certification, but European buyers are more concerned with labour, factory, machines, testing, etc." mentioned an entrepreneur.

It has been stated unanimously that the driver behind compliance needs is customer / importer. Currently in Sialkot, the glove manufacturers were pursuing different CSR models to address the social needs of briefed below as:

#### 7.25.1.1 Social Accountability (SA 8000)

The enterprises in Sialkot are adopting this certification to manage and systemize the social benefits to the labour.

#### 7.25.1.2 Labour laws

Majority of the enterprises are conforming to the rules and regulations as prescribed under the labour laws of Pakistan.

Other entrepreneurs possess their own understandings and follow customized social agendas by indulging in individual internal & external compliance activities as well as collective ones. Most of the interviewed enterprises are contributing towards certain

social projects as initiated under the umbrella of Sialkot Chamber of Commerce & Industry (SCCI). These projects are outlined below as:

- Child Labour Elimination Program (CLEP);
- Sialkot Medial Complex (SMC);
- The Light (school for mentally handicapped children);
- Universal Primary Education Program
- Sialkot city development package.

In addition to SCCI, Cleaner Production Center (CPC) is also playing very crucial role to fulfil the compliance needs of the sub-sector. Detailed below are a few clips in this regard:

CPC is a common facility co-funded by Trade Development Authority of Pakistan (TDAP), Norwegian Government and Pakistan Gloves Manufacturers & Exporters Association (PGMEA) with the objective to support leather goods manufacturers in overcoming their problems related to the production environment to combat the intensive pollution threats caused by the tanneries in the region.

Under this project beside two ISO 17025 accredited laboratories for chemical & physical testing, a Chrome Recovery Plant have also been established in Sialkot, which serves the purpose of reducing pollution from effluents produced by the tanneries in the cluster.

Compliance activities as performed by the respondents during various processes are tabled below as:

<b>Sr. No</b>	<b>Process</b>	<b>Compliance activity</b>
1	Raw material	Testing
2	Pattern Making	Precautions
3	Cutting	Precaution and other

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		safety measures
4	Printing	Testing
5	Stitching	Safety measures and precautions
6	Finishing	Precautions
7	Packing	Precautions

According to the interview results, many of the enterprises were ISO certified while a few possessed CE Mark, or were in the process of further social certifications.

Overall awareness on testing requirements is proportional to the firm size and export revenue. Most common testing practice is the use of local laboratories. Testing was performed for internal quality assurance and meeting customer's requirements. It must be noted that when tests are carried through foreign testing bodies, costs are usually paid by the customer. Following chart represents different tests conducted for the sportswear:

Type of Testing	Where is testing carried out			Testing Body & Location
	Testing (in-house)	Local Testing Body	Foreign Testing Body	
Sizing & Fitting		( √ )		CPC Sialkot
Abrasion Test		( √ )		CPC Sialkot
Water vapour permeability		( √ )		CPC Sialkot
Water vapour absorption		( √ )		CPC Sialkot
Colour test		( √ )		CPC Sialkot

Tear resistance test		( √ )		CPC Sialkot
Puncture resistance test		( √ )		CPC Sialkot
Blade cut test		( √ )		CPC Sialkot
Chromium hexa test		( √ )		CPC Sialkot
Tixirty test		( √ )		CPC Sialkot
Azo dyes			( √ )	SGS Lahore
Accessories test			( √ )	SGS Lahore
Heavy metal test			( √ )	PCSIR Lahore / SGS
REACH test (potential)			( √ )	Potential

In conclusion with respect to compliance, cluster firms are in need of BSI standard. Quite a few numbers of entrepreneurs have also mentioned difficulties in REACH & CE certified materials for gloves. Therefore there is immense need to work with material vendors to develop REACH & CE certified materials. Moreover, there is also need to develop complied printing materials together with vendors. Similarly, 'Up-graded machinery' (as there is no testing machine for motorbike glove) and 'international certifications' are the compliance requirements as remarked by the respondents.

## 7.26 Assessment of Value addition & Productivity

The entrepreneurs referred 'Value addition' mainly to: 'Introduction of new technology', 'Product design', 'R&D activities' / 'Product innovation' while a few also preferably included 'Process development' in the list. Possible areas / interventions are narrated below as:

### 7.26.1 Raw Material

The major concern of the respondents was the availability of desired materials in the cluster. Leather, plastic and rubber were mainly used in the production of gloves. (In Sialkot leather is largely used in the production of fashion and sporting gloves.). With

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the advancements in technology, the introduction of newer versions of fabrics and other items such as protections, padding, lining and insulation materials have entirely changed the customer demands. “China is more competitive due to her R&D facilities in materials. Their materials are far most soft, elastic and economical than us” remarked an entrepreneur. Fabrics like: Cordura, Taslan, Taffita etc, protection materials include: rubber, PVC, Kavlор etc, padding include: foams (Neoprene), EVA etc, while insulations like thinsulate are the latest developments used increasingly in glove manufacturing. ‘Unavailability of raw materials result in lead time problems and even cancellation of orders’ highlighted by the entrepreneurs. In this regard, it is recommended to bring material experts from China to determine material consumption in Sialkot and develop linkages with vendors. This practice will create a long-term impact on quality as well as productivity. (Activity can be initiated in collaboration with PGMEA<sup>19</sup>).

### 7.26.2 Pattern Design

The process of glove manufacturing starts with the receipt of sample / specifications from the customer and / or design developed by the designing department. (The sample includes specifications of raw material, design details, accessories and all other necessary information). The interviews suggested that approximately 60-70% of the buyers use to demand new designs from the manufacturer. ‘The buyers tend to divert to other sources when they are not satisfied with the raw material and designing skills’ shared by the entrepreneurs. So there is need to introduce foreign design expertise with other facilities and develop linkages with international designers for the purpose.

### 7.26.3 Development of new gloves

R&D support is needed to develop fashion glove, golf glove, ski glove etc. In this case scenario, foreign glove experts are required to impart technical knowledge / skills and provide training to the workers.

### 7.26.4 Technology / machinery requirement

As the result of feedback (individual inputs) regarding technology, following machines have been identified to add value to the enterprises: Two needle stitching machine, Four needle stitching machine, Sacaving machine, Small split machine, Zig zag piping machine, Bar Tick machine, Laser Cutting machine. Moreover, new embossing techniques are required in the cluster.

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<sup>19</sup> Pakistan Gloves Manufacturers and Exporters Association

### 7.26.5 Pattern Making to Stitching

Foreign expert are needed to train the workforce on all production processes starting from pattern making till packing. Moreover there is need to develop glove institute to train unskilled / semi-skilled workforce on all production operations.

### 7.26.6 Process Development

A few enterprises have sought support in introducing and improving the line system operations in their firms through foreign professionals.

The above discussion is summarized below as:

Sr. No	Process	Prioritize (High/Low)	What improvement exact you need?
1	Material	High	Need foreign material experts
2	Designing	High	<ul style="list-style-type: none"> <li>• Need design facilities and develop linkages</li> <li>• Need foreign designer to impart training</li> </ul>
3	Product innovation	High	Need foreign technical experts to develop new gloves
4	Technology	High	Need new technology / machinery as prescribed above
5	Glove manufacturing	High	<ul style="list-style-type: none"> <li>• Need foreign expert to train from pattern making to packing</li> <li>• Need glove institute</li> </ul>
6	Process development	High	Need foreign expert to develop line system
7	Printing		R&D is needed on printing materials

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### 7.26.7 Benchmark Activities

The following activities are benchmarked with the view to add value and develop capacities of entrepreneurs:

- Visit R&D facilities in China;
- Visit design facilities in China and develop linkages;
- Visit high-end production firms in China / Thailand.

### 7.27 Productivity

The interviews revealed that productivity related issues are linked to: 'Lower Worker productivity', 'Shortage of skilled workforce', 'High wastage / rework in production' and 'Lack of modern / emerging technologies'. In Sialkot gloves are mostly produced in batches thus resulting in issues with respect to efficiency, time management and quality. Batch system of production is usually undertaken by makers, small and medium manufacturers. While in case of many larger firms and few medium firms, chain system of production is followed. The respondents revealed following productivity figures as achieved through chain system:

Boxing glove (simple): 40-50 pair/day/worker  
 Cycling glove (simple): 30-40 pair/day/worker  
 Motorbike glove: 10-12 pair/day/worker

To start with there is dire need of requisite BSI standard which serve as the basis of each productivity & quality improvement effort. In this respect the following recommendations were forwarded:

Sr. No	Process	Prioritize (High/Low)	What exact improvement you need?
1	Glove Manufacturing	High	Need BSI glove standard
2	Glove Manufacturing	High	Need foreign technical expertise to improve productivity from pattern

			making to stitching
3	Technology	High	Need new machinery as prescribed above
4	Stitching	High	Need foreign expert to develop line system
5	Glove manufacturing	High	Need glove institute to tackle productivity & quality concerns
6	Glove Manufacturing		Need to conduct Time n Motion study through expert

In a nut shell, the interview’s trend showed that entrepreneurs are interested to target their value addition, productivity and quality concerns through TRTA II.

### 7.28 Access to Markets

The three regional groupings that are important from Pakistan’s growth point of view are: Latin American countries as Brazil, Colombia, Mexico etc; African countries as South Africa, Nigeria, Madagascar, Kenya etc; non-traditional European markets including those belonging to former Soviet bloc, Scandinavian countries, Greece etc. In terms of market diversification, countries like USA, Japan, Germany, Saudi Arabia, UK etc accounted for 53% of our total exports in the last decade, whereas in 2007-08 this share was reduced to around 4.4%, revealed a commerce ministry report. It is very important to learn that new opportunities are emerging since some of our competitors like China, are losing their competitive edge due to high input costs. Therefore the manufacturers need to exploit this opportunity by entering into joint ventures with Chinese companies and setting up of production facilities in specific zones in collaboration with the counterparts.

Gloves manufacturing is a very potential growing business with respect to world trade. Export figures show that China is the largest exporter while Pakistan, India, Germany etc are included in the top ten exporting countries in the world. Similarly USA, Germany, Japan, France, Canada, UK etc are the top importers in the world. The survey highlighted that most of the interviewed entrepreneurs were dealing with customers dominantly in Europe and USA markets as they are the major importers of sports gloves. While those who were suppliers of brands, had worldwide presence and acceptability. About 60% of the respondents had their separate marketing departments while ‘direct sales’ through trade delegations or personal visits was recorded as the most significant marketing approach employed by the entrepreneurs.

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It is very noteworthy to highlight that some domestic brands like Nexo, Greenhill etc have gained worldwide recognition. Some 30% of the entrepreneurs shared to target markets using their own brands with understandingly lower risk profiles. 'First we are doing internet (E-bay) selling, than we will proceed to direct sales by presenting our product catalogues and than if we get serious feedback from the market we will invest in branding', the marketing approach was laid out by an entrepreneur. Even larger companies were observed relying on R&D, knowledge and marketing of established international brands rather than taking on the risk of launching their own brands. Family owned businesses, lack of funding & knowledge and competition by established brands were observed as a few reasons behind this approach.

The enterprises with independent marketing departments were quite keen and positive to receive marketing training from institutions like LUMS (Lahore University of Management Sciences). They were willing to contribute in-kind and in-cash resources for the purpose and requested to create linkages for the same. Following themes were identified as consulted during the interactions to improve the access to markets and realize the market diversification plans of enterprises:

- Strengthen the export oriented clusters through technological revolution;
- Improve quality in production and service provision;
- Develop human resources with reference to technical skills;
- Provision of raw materials on controlled prices;
- Reduce cost of capital;
- Ensure compliance;
- Warehousing facilities: new and existing markets;
- Improve country's business image;
- Signing Free Trade Agreements with our trade partners.

### 7.28.1 The Strategy

In light of the above diagnosis, value chain and SWOT analysis the following strategic themes have evolved to work upon:

#### 7.28.1.1 Work force development

*Output:*

- *Develop glove institute;*
- *Foreign technical expert expert.*
- *Glove City.*

#### 7.28.1.2 Improve product quality

*Output:*

- *Support required for BSI Glove standard;*
- *Improve domestic raw material;*
- *Support for sublimation mold creation & cutting facility;*
- *Place strong emphasis on quality of product, packaging and presentation;*
- *Need glove institute and foreign experts;*

- *Promotion of joint ventures;*
- *Please see details in relevant assessment section.*

### **7.28.2 Enhance productivity and R&D activities**

*Output:*

- *Gloves City;*
- *Promotion of joint ventures;*
- *Provision of design expert & center, material expertise and technology up gradation as CFC;*
- *Increased information sharing between the industry;*
- *Higher value added gloves;*
- *Foreign glove technical experts;*
- *Attach foreign productivity experts;*
- *Please see details in relevant assessment section.*

### **7.28.3 Emphasis more on proactive marketing**

*Output:*

- *Market access and export diversification;*
- *Access to value added markets with new products;*
- *Delegation / single country exhibitions;*
- *Improve security situation;*
- *Please see details in relevant assessment section.*

## **7.29 Policy Capacity and Support**

Today Pakistan is faced with the most difficult economic situation, both on external as well as internal fronts.

### **EXTERNAL FRONT**

The most difficult issues include:

- *Doubling of international oil prices;*
- *Slowdown in U.S economy and turmoil in the international financial markets thereby reducing demands for our exports.*

### **INTERNAL FRONT**

Challenges on internal front made it difficult for exporters to fulfill their export orders on time and at a competitive price included:

- *Power shortages and resultant load shedding of electricity and natural gas;*
- *Rising costs of manufacturing especially raw materials;*
- *Increasing competition in export markets;*
- *Security situation and travel advisories of foreign governments discouraged importers to continue sourcing from Pakistan;*
- *Long term structural issues as labour skills, efficiency and poor infrastructure.*

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With respect to infrastructural services as mentioned in the questionnaire, drafted below is the table indicating response (AVERAGE) of the respondents:

<b>Infrastructure service</b>	<b>Efficiency</b>	<b>Access</b>	<b>Affordability</b>
Electricity	<b>1</b>	<b>4</b>	<b>2</b>
Financial (Banking, financial)	<b>3</b>	<b>4</b>	<b>2</b>
Telecommunications (Fixed lines, mobile)	<b>3</b>	<b>4</b>	<b>3</b>
Internet services	<b>4</b>	<b>4</b>	<b>4</b>
Transportation (Rail, road)	<b>4</b>	<b>4</b>	<b>4</b>

Load shedding of electricity and high interest rates were the major areas of the concern highlighted by the interviewees. The businessmen suggested that entrepreneurs must get maximum electricity and gas—and if load shedding becomes inevitable it must be done under a pre-announced schedule so that the manufacturers could reschedule their work hours. Furthermore, they recommended that the government must support for the activities as deliberated in quality, productivity, value-addition and compliance aspects. The respondents deliberated 'Invest more in infrastructure', 'Improve law and order and security conditions', 'Improve power and water shortage', 'R&D support' and 'Assist in improving worker skills' as the areas where government should intervene to encourage entrepreneurs to invest in the business.

Similarly certain issues with respect to the service providers as freight forwarders and custom agencies are needed to be addressed by the government. These issues include:

- On-time delivery;
- Proper handling of containers;
- Hidden charges;
- Discount in market freight rates;
- Unnecessary sample drawing;
- In-time clearance of shipments etc.

A few technical barriers to trade are also indicated keeping in view the sub-sector. Lack of R&D facilities on raw materials especially CE mark protective materials are the major domestic constraints in this connection. It may be noted that REACH compliance is increasingly becoming necessary to export to European Union. Therefore availability of REACH complied raw materials may become a potential threat to glove exports.

### **7.30 Intellectual Property Rights**

The feedback of the interviewees with respect to Intellectual Property Rights is as follows:

Majority of the entrepreneurs have never the intellectual property (IP) system to:

- (i) protect technologies or designs (by acquiring patents or IP rights on industrial designs)
  
- (ii) obtain new technologies (by acquiring licenses from other technology holders)
  
- (iii) gain revenues by licensing out own patented technologies.

Therefore no concern was shown by the respondents with respect to Intellectual Property Rights (IPRs).

### **7.31 SOCCER BALL**

Balls can be categorized into non-inflatable and inflatable balls. The non-inflatable balls include hollow balls (e.g. tennis ball) and solid balls (e.g. cricket, hockey, baseball, etc). Inflatable ball includes soccer ball, hand ball, volley ball, beach ball, rugby, etc. Soccer ball is the most demanded type in this category.

Soccer ball itself can be distinguished on the basis of usage and technology explained as follows:

### 7.31.1.1 Usage wise categorization

- Professional match balls: These soccer balls are developed for top level international professional matches. They usually have some type of organizational approval such as the FIFA (Federation Internationale de Football Association).
- Match ball: Match balls are usually designed for use in club or league level matches.
- Training / Practice / Camp ball: Training balls are used for the daily practice sessions of soccer players. They are less expensive as compared to match balls.
- Promotional ball: Promotional balls are the most heavily traded category in soccer balls as they are produced to promote a brand name, organization or event.
- Indoor ball: Indoor soccer balls have the same size configurations as the outdoor balls and contribute to a lesser extent in international trade.
- Futsal soccer ball: The main difference between a futsal ball and a typical soccer ball is that the bladder is filled with foam which makes the ball heavier and less bouncy. It is used to play on hard surfaces.

### 7.31.2 Technology wise categorization

- Hand stitched: This ball is produced by skilled labour hands that do not use any kind of machinery except a wooden vice that holds panels of soccer ball. Core competence of Sialkot lies in the hand stitched ball. They are stitched with a polyester or similar thread that ensures tighter and stronger seams as they are meant to be deployed in international or national matches.
- Machine stitched: Low-priced promotional balls are mostly machine-stitched, as they do not require high quality and performance in the field as required in case of hand-stitched balls.
- Glued: Lower-end, practice and promotional balls generally have the panels glued together onto the lining. These offer a harder feel and are generally less expensive and less durable than stitched balls.
- Thermally molded: This is the latest technology of soccer ball manufacturing under sole copyrights of Adidas who introduced Roteiro ball and later Teamgeist ball in FIFA World Cup 2006.

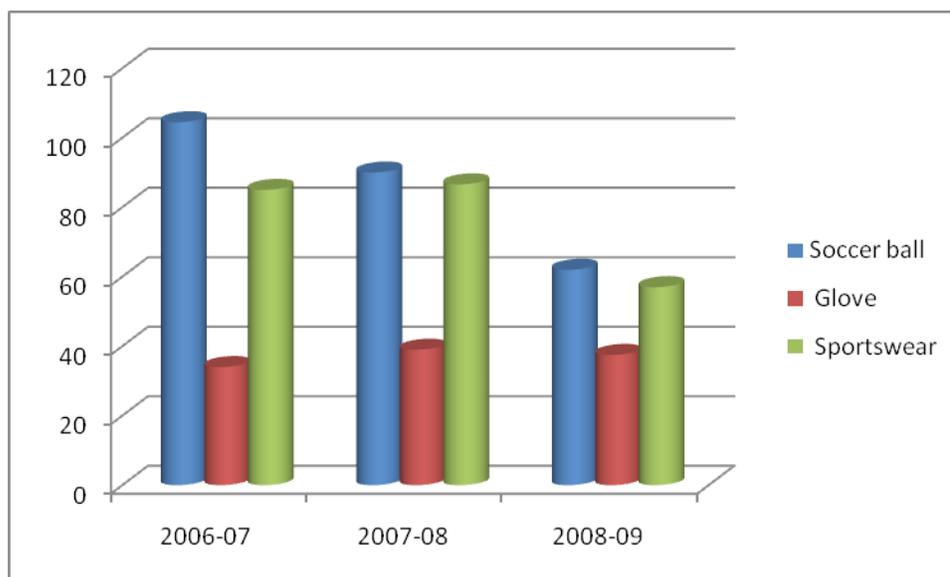
As far as the soccer ball industry is concerned, it started in 1918, when the first soccer ball supplied by British army personnel was re-stitched in Sialkot, which was further followed by its local production. The presence of large supply chain of British army and strong international business relationships especially with British colonies were

considerable factors for the export growth of Sialkot. In 1922, a soccer ball manufacturing company from Sialkot was awarded the 'British Empire Export Award' for supplying soccer balls to the British army. Recent statistics show that the contribution of soccer ball to the national exports were of the tune of US\$ 62 million during 2008-09 from Sialkot as shown below:

Product	Exports 2006-07 (USD million)	Exports 2007-08 (USD million)	Exports 2008-09 (USD million)
Soccer ball	104.5	90	62
Glove	34	39	37.5
Sportswear	85	86.6	57

Source: Sialkot Dry Port

ALI YOU NEED TO FIX THE DIAG BELOW



### 7.32 Current scenario of the cluster

Sialkot sports goods sector is an established name in the world of sports goods. Soccer ball topped the list and captured 37-42% share in the international market. Many of world fame brands like Nike, Puma, Adidas, Micassa, Grays, Select, etc. have established their supply chains of premium quality match ball and practice ball with the vendors from Sialkot. The cluster also entertains large quantities of other

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types of soccer balls including practice ball and promotional ball. Salient features of the cluster are outlined as follows:

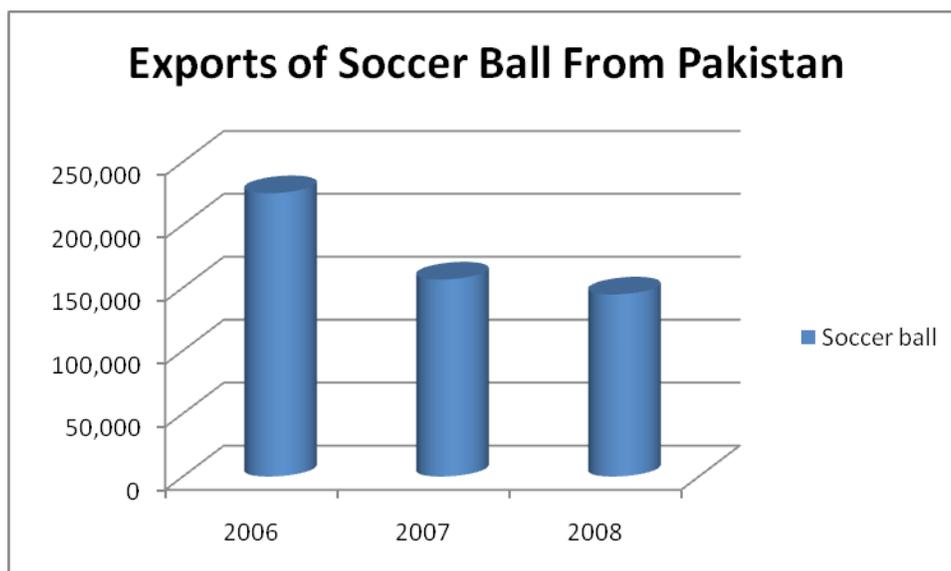
- More than 1100 firms are registered with Pakistan Sports Goods Manufacturers & Exporters Association. (Most of the enterprises are involved in inflatable ball manufacturing);
- Stitching is the major activity in soccer ball manufacturing which is mostly outsourced to villages around Sialkot (stitching activity is spread to even distant cities such as Gujranwala, Sargodha etc);
- There are more than 2300 registered soccer ball stitching units;
- More than 100,000 labour<sup>20</sup> is associated with the sub-sector.

The export statistics are shown below as:

Values in 000 USD

Product	HS Code	2006	2007	2008
Soccer ball	950662.10	225,178	156,603	144,732

Source: UN Comtrade



Europe, USA, Africa and South American states are major export destination for soccer ball.

<sup>20</sup> This statement is an estimation based on interviews, visits and meetings with PSGA

### 7.33 Cluster Actors

**Manufacturers:** They can be further categorized into three groups<sup>21</sup>:

- Large enterprises (20 enterprises in the cluster)

Large units are highly specialized in producing larger volumes of match and practice balls for international brands and produce all kinds of ball both with respect to technology and usage. They also outsource their stitching to specific sub-contractors (vendors or makers).

- Medium enterprises (50+ enterprises in the cluster)

Medium enterprises usually work for clubs, regional brands and whole-sellers; and have specialized in producing practice and promotional balls. They do not establish their own stitching centers due to inconsistency of orders, hence sub-contract stitching to the sub-contractors (vendors or makers).

- Small and/or micro enterprises (400+ enterprises in the cluster)

This largest segment of the cluster produces low priced practice and promotional balls for exporters in domestic and foreign markets. They are also referred as 'Press Makers'<sup>22</sup> in local language.

#### **Subcontractors (Makers or Vendors)**

There are more than 300 subcontractors producing soccer balls and other sports products for larger manufacturers and exporters. In some cases, they also handle small export orders directly.

#### **Stitchers**

Stitchers are the most important stakeholder in the value chain of inflatable ball. As it is completely a manual process, therefore is highly dependent on the availability of the man power with unique skill of stitching. The stitchers are basically home-based workers, either they earn solely or partially from stitching. The chain of stitching starts from the manufacturer, the order is given to sub-contractor who in turn contracts the stitching operation to the stitchers.

#### **Exporters**

There are two types of categories of exporters in the soccer ball cluster. Specialized exporters deal with a single product whereas general exporters export almost

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<sup>21</sup> As per definition of Large, Medium and Small Enterprises – finalized by Small and Medium Enterprise Development Authority (SMEDA), Government of Pakistan.

<sup>22</sup> A sub-contractor with some technological facilities, e.g. cutting press

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everything depending upon the customer. Exporters are not involved in the manufacturing activity; rather they simply engage their own network of micro or small enterprises for execution of their orders.

### 7.33.1 SWOT Analysis

#### Strengths

- Availability of skilled labour in abundance;
- Presence of large enterprises;
- Independent stitching facilities;
- Being a major export zone, the cluster highly attracts government's attention;
- Presence of visionary & active Chamber of Commerce & Industry;
- Presence of international agencies and NGOs working for development of industry and community;
- Foreign exposure of entrepreneurs;
- Strong business relations with multinational brands;
- Highest international market share of soccer ball and major in other sports goods.

#### Weaknesses

- Highly dependent on buyers;
- Local brands are less competitive internationally;
- No collective R&D at local level and no testing facility;
- Traditional methods of printing, lamination and cutting;
- Non-compliance to labour laws due to less awareness & inefficient monitoring system;
- Weak supply chain of raw material;
- Non-mechanization of production operations;
- High cost of product;
- Lack of designing skills;
- Switching of labour to other trades due to comparatively lower wage rate of stitching,

#### Opportunities

- Focus on other technologies for soccer ball;

- Public / private focus on international branding;
- Diversification of raw material development at local level
- Support of Government and international agencies on compliance;
- Joint ventures with international stakeholders.

### Threats

- Becoming incompetent due to decreasing trend of price in international market and increase in production overheads;
- Increased use of mechanized ball in international tournaments;
- Sacking of business by brands due to non-compliance;
- Buyers' pressure for CSR compliance coincided with reluctance to pay the compliance cost;
- Cut-throat competition by local and international counter-parts;
- Weak supply chain of materials not sufficient for meeting current and increasing future demands of phthalate-free raw material;
- Increasing gap between trends of brand value (higher) and product value (lower);
- Domestic/international political situation.

### 7.34 Value Chain

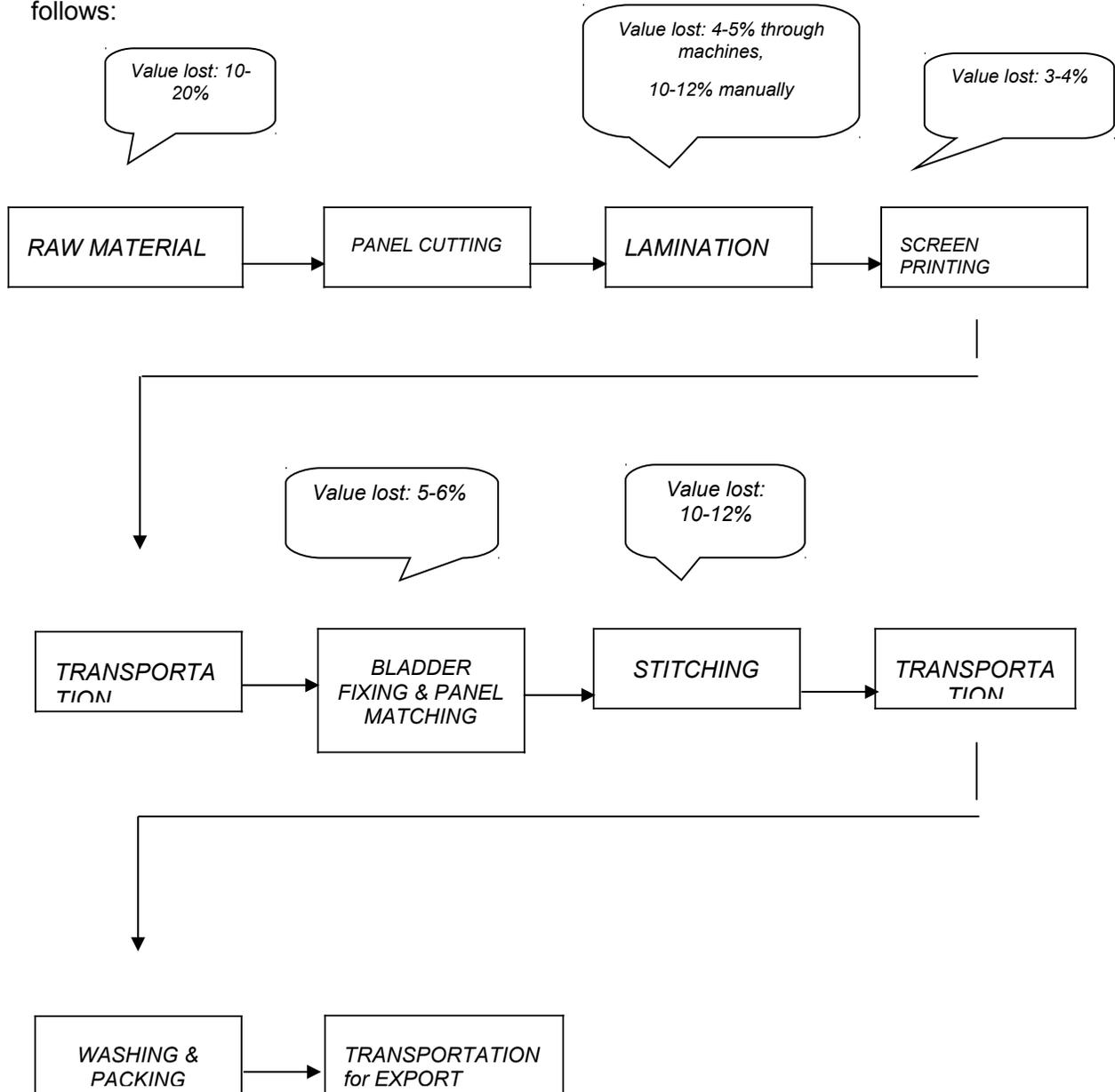
Key gaps in all areas of the value chain have been identified during the analysis phase of this report. It must be noted that the results are primarily based on one-to-one interviews, interactions with various stakeholders and observations of the operations. The study has highlighted the following facts that need immediate support to tackle:

- 10-20% value is lost at raw material stage due to high cost, non-standardization and lack of R&D on materials;
- Lamination is done manually and through machines: 4-5% value is lost during machine lamination (tolerable) and 10-12% value is lost in manual procedure;
- In screen printing, value lost is 3-4% that is more or less acceptable;
- 5-6% value is lost in bladder fixing & panel matching due to slackness / negligence of workers (it does not include export value lost due to high cost of bladder);

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- In stitching, value lost is 10-12% mainly due to non-mechanization of process.

A detailed value chain diagram of training hand stitched ball is pasted as follows:



### 7.35 Assessment of Quality

Quality holds an important place in the entrepreneurial culture of Sialkot. Ever since the city entered international markets, this value being strengthened day by day. The orders usually catered by Sialkot are of two types: 1) match / training balls (quality-based & large volumes), 2) promotional balls (price-based). In case of promotional balls, most manufacturers have applied manual methods resulting in higher costs and time delays while main competitors as China has taken major share due to machine stitching. The quality policy of Sialkot was narrated by an entrepreneur in the following words: 'Price is bargain able but there is no compromise on quality'.

The entrepreneurs have defined quality as 'adherence to customer specifications' and realizing these standards is the quality. There is another interesting comment of the entrepreneur regarding the subject: 'Quality is directly proportional to cost while costs are increasing due to inflation'. This section starts with the availability of raw materials: in this case scenario the availability of quality raw materials i.e. latex, rexene etc is one of the concerns of manufacturers. In the quality perspective, the following recommendations are forwarded (Furthermore it should be noted that the interventions as mentioned below may overlap i.e. one single intervention may address all aspects at the same time):

#### **Pre-processing**

Pre-processing comprises of a series of processes which are done at the premises of manufacturer. They include: panel cutting, lamination, screen printing and bladder fixation. A brief description of the process and quality problems linked up is described as follows:

- **Cover:** The surface of soccer ball is made up from synthetic leather which is typically made from PU (polyurethane) and PVC (poly vinyl chloride). Promotional soccer balls are usually constructed with Polyvinyl Chloride (PVC) covers.
- **Panels:** The number of panels -- the different segments that make up the outside covering of the ball -- varies for each design. A 32-panel ball is most commonly used in professional matches. Other traditional designs are 18 and 26-panel constructions: panels can be stitched, glued or thermally molded together.
- **Lining:** Material thickness plays a vital part in the quality of hand-stitch soccer balls. Multiple layers of lining are placed between the cover and the bladder. These layers are composed of polyester and/or cotton laminated together. Professional soccer balls usually have four or more layers of lining while promotional or practice balls often contains less layers of lining.
- **Bladder:** It holds the air and is usually made from latex, butyl or PU.

The first stage is to roll out the material to be used for the outer cover of the ball. Quality problems encountered here are higher costs, non-standardization and lack of R&D on materials. The way forward is the formation of some public / private

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mechanism to control prices especially during the peak production period, joint production of material e.g. bladder as CFC, R&D center to develop more economical materials and formation of 'Raw Material Bank'.

Then come the stage of panel cutting and lamination. 'Lamination is the most labour intensive work in the factory and the production capacity depends on it' stated an entrepreneur. The quality problems linked with cutting and lamination are the material wastages and time delays. Process of lamination and cutting must be automated (as CFC) to resolve these issues.

The panels are printed with required graphics after cutting operations. The problems arise here due to wastages of ink. The quality solution to the printing problem is to provide screen printing as CFC. Availability of CE complied inks in case of promotional balls is also an issue that can be tackled by working with ink manufacturers.

Then the panels are matched as per design of ball and loosely packed containing exact number of panels and bladder (attached with a panel). Now the balls are ready to be sent to stitching centers for stitching.

### **Stitching**

Stitching – the most important production process is outsourced in case of most medium and large manufacturers. It is normally done at stitchers' place which may be a purposely built stitching center or any place where stitcher's do their task. Some large & medium enterprises have established their stitching centers in different villages where they employ either one or both genders, under enterprise or sub-contractor's supervision. The quality problem faced here is higher amount of rework and time delays which can be as high as 10-12%. Even before that the major concern is that the training nursery is lost: ('40% labour is less in stitching', shared by entrepreneur). The solution to the problem is to develop training mechanism for soccer ball so that the gap between supply and demand of workforce may be shortened and mechanizing the process of stitching by associating appropriate consultant to the job. Similarly training of workers is needed in case of machine stitching.

Hand stitching is not required in case of glued or thermo molded ball. Moreover, majority of promotional ball has now moved to machine stitching instead of manual work.

### **Washing and packing**

After receipt of inflated balls from stitching center, the balls are inflated for twenty four hours so that they can attain a proper spherical shape as well as any errors can also be detected. The stitched balls are then inspected for quality, washed, dried, deflated and packed for shipment.

Almost all the interviewed units were ISO 9001:2000. Apart from QMS requirements, every effort is made to produce goods on time and free of defects. During the production operations, quality checks were maintained at material, cutting & lamination, printing, stitching and finishing stages.

The above discussion is summarized below as:

Sr. No	Process	Prioritize (High/Low)	What improvement exact you need?
1	Soccer ball Manufacturing	High	<ul style="list-style-type: none"> <li>• Raw Material Bank facility;</li> <li>• R&amp;D center;</li> <li>• Joint production facility as CFC.</li> </ul>
2	Cutting	High	Need modern cutting facility as CFC
3	Lamination	High	Need automatic facility as CFC
4	Printing	High	Need to mechanize existing process
5	Stitching	High	<ul style="list-style-type: none"> <li>• Need mechanization through consultant;</li> <li>• Institutionalize labour training.</li> </ul>
6	Washing	Medium / Low	Need to mechanize through consultant

### Benchmark Activities

The following activities are benchmarked to improve the quality standards of the respondents:

- Visit best soccer ball factories in the world;
- Bring machine stitching consultants from China / Thailand;
- Visit printing facilities in China and bring consultant.

### 7.36 Assessment of Compliance

The respondents have referred compliance as 'Achieving certification', 'getting products Tested', 'Child Labour Abolishment' and 'Corporate Social Responsibility' while a few has also included 'getting members of international bodies' in the compliance definition. It has been recorded unanimously that the driver behind compliance needs is customer / importer. Currently in Sialkot, the enterprises were pursuing different CSR models to address the social needs of stakeholders briefed below as:

- Select Anwar Khawaja Health & Education Programme (SAHEP)

SAHEP is a unique example of buyer-vendor coordination to upgrade the health and education of the working community.

- Fairtrade Labeling Organization (FLO)

FLO Certification is being pursued by a number of enterprises in Sialkot to address the social, environmental and economical needs of the respective labour / community.

- Social Accountability (SA 8000)

The enterprises in Sialkot are adopting this certification to manage and systemize the social benefits to the labour.

- Global Brand Oriented Models

A few large enterprises were following various Codes-of-Conduct as prescribed by their respective buyers to realize their socially responsible attitude.

Other entrepreneurs possess their own understandings and follow customized social agendas by indulging in individual internal & external activities as well as collective ones. Majority of the interviewed enterprises are contributing towards certain social projects as initiated under the umbrella of Sialkot Chamber of Commerce & Industry (SCCI). These projects are outlined below as:

- Child Labour Elimination Program (CLEP);
- Sialkot Medial Complex (SMC);
- The Light (school for mentally handicapped children);
- Universal Primary Education Program
- Sialkot City Development Package.

Compliance activities as performed by the respondents during various processes are tabled below as:

Sr. No	Process	Compliance activity
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TRADE RELATED TECHNICAL ASSISTANCE (TRTA II) PROGRAMME

1	Raw material	Activities are undertaken under as laid out in adopted CSR model
2	Panel Cutting & Lamination	-do-
3	Printing	-do-
4	Bladder fixing & panel matching	-do-
5	Stitching	-do-
6	Washing & packing	-do-

In soccer ball cluster, ISO 9000 was identified as the most common type of certification. While increasing number of firms are also trying to achieve more certifications as SA 8000, FLO etc. (The certification trend depends on the customer and CSR model followed).

The level of awareness with respect to testing requirements is considerably high in case of soccer ball. Most common testing practice is use of in-house or in case of suppliers; materials are usually certified if required. It must be noted that tests are performed by manufacturers who are FIFA certified while others do not perform any test whether in-house or through any laboratory. Testing was performed for internal quality assurance and meeting customer's requirements. In-house or local tests are rather simpler tests and they are usually performed by the manufacturer whether or not required by the customer. Following chart represents different tests conducted for the soccer ball:

Type of Testing	Where is testing carried out			Testing Body & Location
	Testing (in-house)	Local Testing Body	Foreign Testing Body	
Circumference	( √ )			
Air Retention	( √ )			
Water absorption	( √ )			
Weight test	( √ )			

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Shooter test	( √ )			
Ultra violet test		( √ )		CPC <sup>23</sup> Sialkot
Printing test		( √ )		CPC Sialkot
Rebound test	( √ )			
Tensile strength test		( √ )		CPC Sialkot

In conclusion with respect to compliance, there is need to develop complied materials together with vendors. Another potential compliance requirement that emerged during the interviews was the availability of hazardous-free materials and availability of STR licensed materials. For this sake the respondents have suggested to work with raw material provider. Moreover, entrepreneurs have recommended the establishment of FIFA approved testing laboratory in the cluster.

### 7.37 Assessment of Value addition & Productivity

The entrepreneurs referred 'Value addition' mainly to: 'Process development', 'Product innovation', 'Introduction of new technology' and 'Product design'. The term 'Product innovation' must not be confused with the general concept i.e. developing a new product. But here it is directly related with the introduction of new technology i.e. soccer ball is needed to be manufactured using other technologies as well. Possible areas / interventions are narrated below as:

#### Raw Material

The respondents were quite critical of the material availability situation in the local market. The materials for professional balls were usually imported. The solution as suggested by the respondents was the formation of some public / private mechanism to control prices especially during the peak production period and technical support for formation of 'Raw Material Bank'. In addition, the cluster lacked bladder production facility as CFC thus rendering manufacturers uncompetitive. For promotional ball, we need support for bladder production in order to compete price with China and Thailand' shared an entrepreneur. The mentioned practices will create a long-term impact on quality as well as productivity.

#### Soccer ball design

Starting from 16-panel, inflating-tube-fitted, laced, the spherical shaped leather ball has now developed into more sophisticated 32-panel, water resistant, spherical soccer ball available in multiple colored printed designs. Besides introduction of certain tools & techniques in the cluster, the buyers have greater edge in product design / development as most of the research and development (R&D) in this domain has

<sup>23</sup> Cleaner Production Center

been driven by them. The process of manufacturing starts with the receipt of sample / specifications and design details from the customer. The interviews suggested that approximately 70-80% of the buyers used to demand new designs from the manufacturer. 'The buyers tend to divert to other sources when they are not satisfied with the raw material and designing skills especially in case of promotional ball. Number of normal customers is high and they require new designs' shared by the entrepreneurs. Designing skills are required at two levels: printing and number of panels. So there is need to introduce foreign design expertise with other facilities and develop linkages with the international R&D experts for the purpose.

**Development of soccer ball using modern technologies**

We need technological revolution: match ball is thermo molded while entry ball is machine stitched' commented an entrepreneur. As the result of feedback (individual inputs) regarding technology, R&D support is needed for stitching hydraulic machines and thermal molded machines. Moreover, latest cutting, lamination and printing facilities are needed to be introduced as CFC.

**Process Development**

Majority of the enterprises have sought support in mechanizing their production operations especially cutting, lamination, stitching and washing through local or foreign professionals.

The above discussion is summarized below as:

Sr. No	Process	Prioritize (High/Low)	What improvement exact you need?
1	Material	High	<ul style="list-style-type: none"> <li>Raw Material Bank facility;</li> <li>Bladder production facility</li> </ul>
2	Designing	High	<ul style="list-style-type: none"> <li>Need design facilities and develop linkages</li> <li>Need foreign designer to impart training</li> </ul>
3	Product innovation by technological support	High	Need new technology / machinery as prescribed above
4	Process development	High	Need local / foreign expert to mechanize processes

**Benchmark Activities**

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The following activities are benchmarked with the view to add value and develop capacities of entrepreneurs:

- Visit machine stitch facilities in China / Thailand and develop linkages;
- Visit design facilities in China and develop linkages;
- Visit thermal molded ball factories in China / Thailand.

### **Productivity**

The interviews revealed that productivity related issues are linked to: 'Lower worker productivity', 'Shortage of skilled workforce', 'High wastage / rework in production'. An average estimation, as stated by the entrepreneurs, revealed that a single male worker can produce 3-4 match balls in one day while same worker can produce 4-5 training balls per day (of course depending on the materials used and layers of the ball). It is important to note that females usually do not participate in the stitching of match balls. They are engaged usually in lower quality segment. The productivity level can be enhanced to the figure of 7-8 balls/day/worker by simple mechanization of all processes specially stitching through local / foreign expert. The training of existing and potential workers needs to be institutionalized as particularly emphasized by various respondents. The current system at hand is conventional trainer-assistant<sup>24</sup> system, where new comers are trained on shop floors. Similarly there is also need for the training of workers on machine stitching. Certain entrepreneurs have specific productivity improvement projects that needed support. Furthermore the cluster is in need of automated infrastructure to enhance labour productivity.

In this respect the following recommendations were forwarded:

<b>Sr. No</b>	<b>Process</b>	<b>Prioritize (High/Low)</b>	<b>What exact improvement you need?</b>
1	Soccer ball manufacturing	High	Need technical institute to train the existing and potential workers
2	Soccer ball manufacturing	High	Need mechanization of production operations
3	Productivity improvement projects (individual)	High	Need technical support

<sup>24</sup> *ustaad-shaagird*; *ustaad* being the trainer and *shagird* being the trainee

Summarizing the overall discussion, the interview's trend showed that entrepreneurs are interested to target their productivity, quality and value addition concerns through TRTA II.

### **7.38 Access to Markets**

The three regional groupings that are important from Pakistan's growth point of view are: Latin American countries as Brazil, Colombia, Mexico etc; African countries as South Africa, Nigeria, Madagascar, Kenya etc; Traditional and non-traditional European markets including Scandinavian countries, Greece etc. In case of soccer ball, regions including Middle East & Far East and Central Asian Republics are emerging potential markets. In terms of market diversification, countries like USA, Japan, Germany, Saudi Arabia, UK etc accounted for 53% of our total exports in the last decade, whereas in 2007-08 this share was reduced to around 4.4%, revealed a commerce ministry report. The manufacturers need to enter into joint ventures with Chinese companies and set up the production facilities in specific zones in collaboration with the counterparts.

Export figures show that Germany, USA and Nederland are the top three soccer ball importers from Pakistan. The survey highlighted that most of the interviewed entrepreneurs were dealing with customers prominently in European and Latin American markets. While those who were suppliers of brands, had worldwide presence and acceptability. About 60% of the respondents had their separate marketing departments while 'direct sales' through trade delegations or personal visits was recorded as the most significant marketing approach employed by the entrepreneurs. It is very noteworthy to highlight that about 40% of the respondents were also dealing in their own brands like ALITRA, Expert, Remington etc. Larger companies who were engaged in manufacturing activities for top level international brands like NIKE, addidas, Puma, Select were producing soccer balls for respective clients only. Whereas other manufacturers were found using their own brands or customer's brand. However, whatever the case may be, selling under self-brand is not more than 10-15% of the total sales<sup>25</sup>.

Following themes were identified as consulted during the interactions to improve the access to markets and realize the market diversification plans of enterprises:

- Strengthen the export oriented clusters through technological revolution;
- Improve quality in production and service provision;
- Develop human resources with reference to technical skills;
- Provision of raw materials on controlled prices;
- Reduce cost of capital;
- Ensure compliance;

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<sup>25</sup> Findings are based on interviews and statements of different stakeholders

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- Warehousing facilities: new and existing markets;
- Improve country's business image;
- Signing Free Trade Agreements with our trade partners.

### 7.38.1 The Strategy

In light of the above diagnosis, value chain and SWOT analysis the following strategic themes have evolved to work upon:

#### **Work force development**

*Output:*

- *Develop soccer ball institute;*

#### **Improve product quality**

*Output:*

- *Improve raw material availability;*
- *Support for automated infrastructure;*
- *Technical support for mechanization of stitching;*
- *Please see details in relevant assessment section.*

#### **Enhance productivity and value addition**

*Output:*

- *Need mechanization of production operations;*
- *Need process development experts;*
- *Provision of design expert & center, material facilities and technology up gradation as CFC;*
- *Please see details in relevant assessment section.*

#### **Emphasis more on proactive marketing**

*Output:*

- *Market access and export diversification;*
- *Access to value added markets with new designs and materials;*
- *Improve security situation;*
- *Please see details in relevant assessment section.*

### 7.39 Policy Capacity and Support

Today Pakistan is faced with the most difficult economic situation, both on external as well as internal fronts.

#### **EXTERNAL FRONT**

The most difficult issues include:

- Doubling of international oil prices;

- New ‘Corporate Social Responsibility’ standards are imposed by customers;
- Slowdown in U.S economy and turmoil in the international financial markets thereby reducing demands for our exports.

### INTERNAL FRONT

Challenges on internal front made it difficult for exporters to fulfill their export orders on time and at a competitive price included:

- Power shortages and resultant load shedding of electricity and natural gas;
- Rising costs of manufacturing especially raw materials;
- Increasing competition in export markets;
- Security situation and travel advisories of foreign governments discouraged importers to continue sourcing from Pakistan;
- Long term structural issues as labour skills, efficiency and poor infrastructure.

With respect to infrastructural services as mentioned in the questionnaire, drafted below is the table indicating response (AVERAGE) of the respondents:

<b>Infrastructure service</b>	<b>Efficiency</b>	<b>Access</b>	<b>Affordability</b>
Electricity	<b>1</b>	<b>4</b>	<b>1</b>
Financial (Banking, financial)	<b>3</b>	<b>4</b>	<b>2</b>
Telecommunications (Fixed lines, mobile)	<b>3</b>	<b>4</b>	<b>3</b>
Internet services	<b>5</b>	<b>5</b>	<b>4</b>
Transportation (Rail, road)	<b>2</b>	<b>3</b>	<b>3</b>

Load shedding of electricity and high interest rates were the major areas of the concern highlighter by the interviewees. The businessmen suggested that entrepreneurs must get maximum electricity and gas—and if load shedding becomes inevitable it must be done under a pre-announced schedule so that the manufacturers could reschedule their work hours. Furthermore, they recommended that the government must support for the activities as deliberated in quality, productivity, value-addition and compliance aspects. The respondents deliberated ‘Invest more in infrastructure’, ‘Improve law and order and security conditions’, ‘Improve power and

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water shortage' and 'Assist in improving worker skills' as the areas where government should intervene to encourage entrepreneurs to invest in the business.

The respondents shared that there is serious lack of professional consultancy services in the cluster. Similarly certain issues with respect to the service providers as freight forwarders and custom agencies are needed to be addressed by the government. These issues include:

- On-time delivery;
- Unavailability of containers;
- Discount in market freight rates;
- Expeditious clearance of export shipments etc;

A few technical barriers to trade are also indicated keeping in view the sub-sector. Lack of R&D facilities on raw materials especially CE mark approved materials are the major domestic constraints in this connection. STR licensed Rexene is required to export to USA. So work is needed to be done with local manufacturers. Moreover no FIFA approved testing facility is available locally.

### **Intellectual Property Rights**

The feedback of the interviewees with respect to Intellectual Property Rights is as follows:

Majority of the entrepreneurs have never the intellectual property (IP) system to:

- (i) protect technologies or designs (by acquiring patents or IP rights on industrial designs)
- (ii) obtain new technologies (by acquiring licenses from other technology holders)
- (iii) gain revenues by licensing out own patented technologies.

Therefore no concern was shown by the respondents with respect to Intellectual Property Rights (IPRs).

## **8. Textile Industry**

We have studied four sectors in the textile industry of Pakistan, namely Knitwear, Cotton Fabric, Garment and Woven. Below each of the product analysis is presented separately.

## 8.1 Knitwear

### 8.2 Overview

Around 17 Million tones of knitted textile are produced worldwide, this accounts for one third of global textile market. Experts are predicting the growth rate of this particular sector at 25% for the coming ten years with total production around 21 Million tones.

The situation in Pakistan with respect to cotton production is already not in the favor of local manufacturers of knitwear producers. Cotton production in Pakistan in current year is recorder at 12 million bales while the estimated quality for local consumption is estimated to be at 15 million bales thus creating a gape of 3 million bales. Due to the increase in demand of yarn in international market, there is a sharp increase in the exports of yarn thus creating a shortage as well as sharp increase in price of yarn. Currently Government has tried to control the exports of yarn by first imposing quota restriction and then export duty of 15% at the export of yarn from Pakistan.

The industry has established its strong presence in cities where spinning sector is already present. Spinning sector produces yarn which is the main basic raw material for the production of knitwear products. The knitwear production industry is present majorly in four cities of Pakistan namely Karachi, Lahore, Sialkot and Faisalabad. There are 300 units in Karachi, 190 units in Faisalabad, 180 units in Lahore.

Pakistan has been the suffering from poor law and order situation for last many years which has its marginal negative impacts on its economy. International regular buyers had cancelled their visit to Pakistan due to the law and order situation in the country and exporters have to visit other countries to finalize the deals. New customers are diverting towards other countries in the region resulting in the slow rate of exports in this category from Pakistan. The current financial slump all over the world has affected this subsector also.

Non availability of electricity and gas is adding more cost to the total cost of production as well as more time is need for completing the export orders. The increasing cost of utilities is also affecting the manufacturers and exporters negatively making them even more uncompetitive in the international market.

This sector is export oriented as well as catering the needs of the local domestic market as well. The industry faces traditional competition from other countries like China and Thailand in local domestic market due to imports of knitwear products at lower rates. The international competitor of Pakistan includes China, Bangladesh and India.

### 8.3 Contribution to National Economy

Knitwear industry in Pakistan made tremendous progress in last four decades especially from 2002 to 2008. At present there are about 12,000 knitting machines in Pakistan producing around 1.4 Billion pieces. Exports from Pakistan from this sub

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sector grew from 911 Million USD in 2000-01 to 1.74 Billion USD in 2008-09. Due to the law and order situation in Pakistan this segment of textile is being affected very badly, existing customers are coming to Pakistan and exporters have to go their country for meetings and finalizing the deals. New customers are diverting towards other sources present in the region. There is shortage of world wide production of cotton due to lesser production of cotton in china, due to which exporters of yarn (major raw material of knitwear articles) are getting better prices and more orders from foreign buyers as compared to previous year. Therefore exporters of yarn are exporting yarn to foreign buyers which has created shortage in local market.

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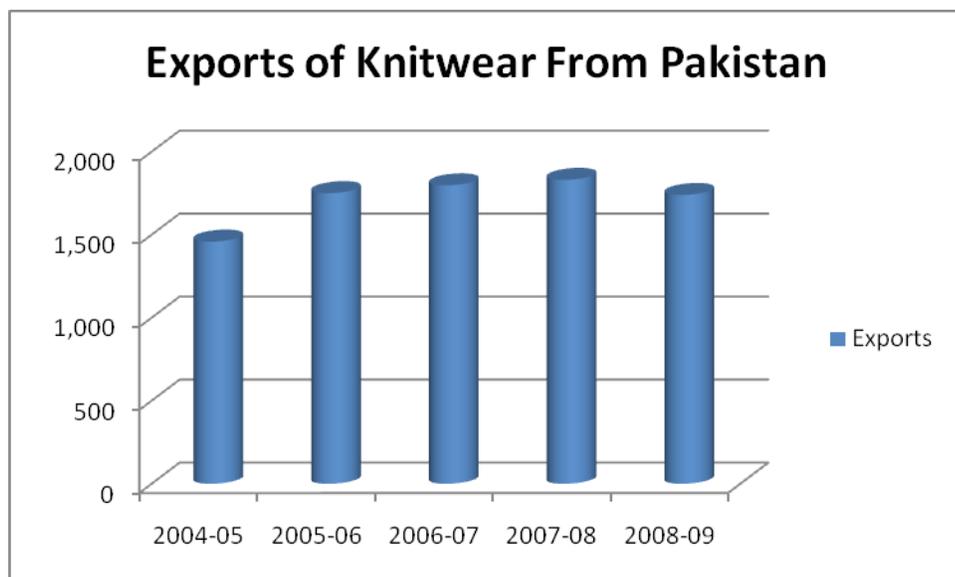
Load shading of electricity and gas in the country is also creating problems for the manufacturers and exporters of knitwear. Due to the energy crises in the country, the manufacturers are finding it even more difficult to meet the order dates and generally have to operate in additional shifts to complete the production. This factor is not only adding more cost of labor but also increasing the time for production. Cost of electricity is also on rise making manufacturers and exporters of knitwear uncompetitive in the international market.

Knitwear products of Pakistan are known for their fine quality in American and European markets. It is highly value added item, earning much value able foreign exchange per KG of cotton converted in finished garment for the country. The exports from Pakistan are described in table below:

VALUE IN Million USD

<b>Years</b>	2004-05	2005-06	2006-07	2007-08	2008-09
<b>Exports</b>	1,459	1,751	1,798	1,831	1,740

Source TDAP



USA, U.K, Germany and the Neather Land are the top four trading partner forPakistan. Exports to these countries are shown in the table 02.

Country	2008-09	2007-08	2006-07
<b>U.S.A</b>	1,069,214	1,074,347	1,144,244
<b>UK</b>	176,130	142,326	156,937
<b>Germany</b>	72,217	74,284	62,280
<b>The Netherlands</b>	70,589	73,748	79,987

Source TDAP

### 8.4 Structure of the Industry

Knitwear industry grew at a very fast rate from 2002 to 2007. In 2005 there were 1183 units in Pakistan. There were 400 units in Karachi alone, Faisalabad was the 2nd largest city of knitwear producers with 300 units, Lahore was on 3rd position with 247 units and Sialkot was on 4th position with 237 knitwear manufacturing units. In 2009 ranking of the cities with respect to number of units is same, there are 300 units in Karachi, 190 units in Faisalabad, 180 units in Lahore and 170 units in Sialkot manufacturing knitwear products<sup>26</sup>. War on terrorism, law and order in the country and

<sup>26</sup> Source: PHMA

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increasing costs of raw materials and utilities were the main reason for decline and closure of the industry. There are three types of producers of knitwear.

- Vertically Integrated Units
- Medium Units
- Small units

Some of units closed in these cities were big brands like Hussaini, King and Zainab (in Karachi) and Sara, Ammar, Highnoon, Klass, Navena and Angora in Lahore. These were the state of the art units (mostly vertically integrated). Closure of these bigger units also gave birth to many small units.

Vertically integrated units operate on larger scale and all operations from knitting to finishing and packaging is done under one roof to have the desired standards of quality and performance. Some of the medium units have their in house dyeing and knitting facilities while other medium and all smaller units out source major operations like knitting and dyeing are out sourced to commercial knitting and dyeing units in the area thus creating economics activities for the allied industrial sectors.

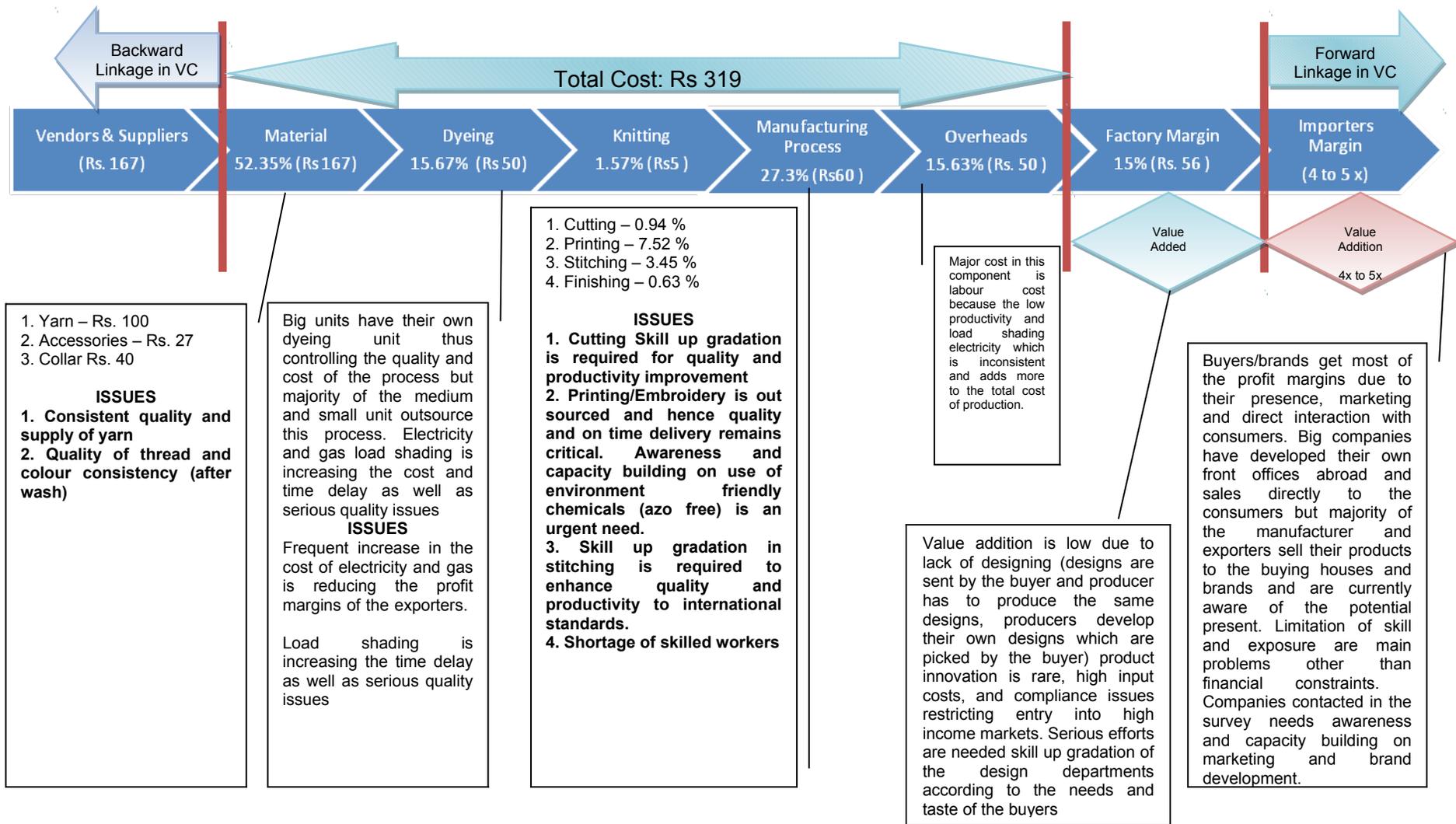
### **8.5 Value Chain Analysis**

Knitwear in Pakistan is regarded as a highly competitive sector with respect to the quality of its products. The foreign exchange earned via the sale of knitwear from one bale of cotton is around \$1600 – about 7 times that of the profit earned by exporting one bale of cotton.

Knitwear goods exported from Pakistan are known for their fine quality in European and American markets. It is highly value-added item, earning much valuable foreign exchange per kg cotton converted into finished garments. A series of new finishing processes have been incorporated with improved shades, texture and luster. Some of the bulk export items, which have gained popularity, are 100% cotton T-shirts, vests, slippers, children's pajama suits, sports shirts, undergarments, bathing suits, knitted garments and knitted tabulator or flat fabrics.

Following is the value chain analysis of knitwear product

## Vale Chain of Knitwear: (Illustrated Product is Regular Collar Shirt)



## Materials

The above Value Chain Analysis shows that cost of material used accounts for 52% of the total cost of production for collar T Shirt of export quality. Major raw material used for the production of knitwear product is yarn. There are quality problems in yarn which are inherent in it due to contamination of cotton. Good quality yarn is manufactured locally but consistent supply of yarn is one of the issues faced by the manufacturers and exporters of knitwear products. The world wide production of cotton crop has decline in current year which has resulted in high demand of yarn in the international market as compared to previous years. Yarn exporters are getting better price for the yarn in Pakistan. The sharp increase in the exports of yarn from Pakistan to our competitors like China, Bangladesh and other countries has resulted in the shortage as well as high increase in the cost of yarn for the local manufacturers. One of the other reasons for the increase of yarn in the local market is the inconsistent supply of electricity due to the energy crises in the country. The rise in the price of yarn is also attributed to the increase in the cost of electricity. The overall impact on the value adding sectors like knitwear is that the cost of raw material varies rapidly making it more difficult for the local manufacturers and exporters to meet the target price.

Government is trying to control the exports of yarn to ensure the availability of yarn is sufficient quality for the local manufacturers of high value added product and has through imposing quota restrictions and other regulatory measures. Recently 15% export duty has been imposed on the export of yarn due to which the yarn manufacturers has stopped their production and protesting against the imposed duty.

- *The strategy to resolve this issue is to develop mechanism to keep the supply as well as price of yarn at steady level for the local manufacturers and exporters of knitwear producers to convert the yarn into more value added knitwear products which fetch far better prices in the international market. There should also be consistent supply of electricity for yarn manufacturers to help them reduce the cost of production. R & D should also be there to develop new types of yarn to produce higher value added knitwear products.*

## Manufacturing

The manufacturing process includes the following sub processes;

- Knitting
- Finishing of Fabric
- Bleaching/ Dyeing of Fabric
- Cutting of Fabric
- Printing

- Stitching & Sewing
- Clipping & Trimming
- Buttoning/ Zippers/Riveting
- Finishing of product

When yarn is received at the factory it is knitted on machines and the output is knitted fabric. The knitting process is all mechanized and quality of fabric entirely depends upon the technology used. The technology used in Pakistan is from 2 to 5 years old. However some of units contacted in the survey use technology which is from 5 to 10 years old.

Output of the knitting section is raw fabric; this raw fabric is further processed to improve the quality and finish. After finishing of fabric it is sent to bleaching section for removal of any oil and dirt stains on the fabric after. The raw fabric is then sent for dyeing.

## **Dyeing**

The most critical process of knitwear manufacturing is dyeing of fabric. Vertically integrated units have in house dyeing facilities due to which they have better control of the dyeing process. Most of the medium and small units out source this process to the commercial dyeing units present in the area. This results in loose control of process at their ends. Dyeing is a batch process. It needs consistent supply of electricity and natural gas to maintain the temperature at desired levels. Sudden change in temperature results in high shade variations which ultimately results in wastage of whole dye lot as well as time delays and other monetary losses. Technology used for the dyeing of fabric is changing rapidly producing consistent and better quality dyed fabric. Due to the economical crises, law and order situation in the country, the dyeing units has reduced their investment in technological up gradation.

The importers are becoming more demanding about the chemicals being used for dyeing with respect to the impact of these products while using them as well as disposing of these chemicals after usage in to the local drainage systems. They demand use of more environment friendly chemicals and dyes usage in the processing of fabric.

Some of the importers now demand the manufacturers and exporters of knitwear products to use certified dyeing units. The cost has to be born by the manufacturers and exporters resulting in increase in cost of product.

- *The strategy for resolving this issue is to up grade the human resource skills of existing commercial dyeing units on adoption of modern techniques for dyeing. Development and use of more environment friendly dyes and chemicals is also very important. There is also a need for technology up gradation of this segment for making this industry more competitive in the international market and comply with the international standards.*

After bleaching and dyeing the fabric is cut into pieces according to the pattern made. These pieces are sent for printing (if required), these parts are then stitched together for making the knitwear. The product is then trimmed for unwanted threads after which it is sent to the accessory section where accessories like buttons, rivets or zippers are attached to it. The garment is then finally checked for quality and packed as per requirements of the buyer. The issues in the process are described in details in quality, value addition and productivity section of this report.

### 8.6 Export Competitiveness of the Sector

Knitwear sector has its history from 1980s in Pakistan. Strong spinning industry, availability of raw material, low cost work force, Govt. Incentives and devaluation in international market were the basic reasons for the rapid growth of the textile industry export oriented as well as catering the needs of the local domestic market. The textile industry faces traditional competition from other countries like China and India in the local domestic market due to imports of knitwear products at lower prices. The main international competitor of Pakistan includes China, Bangladesh and India.

Buyers/brands get most of the profit margins due to their presence, marketing and direct interaction with consumers. Big companies have developed their own front offices abroad and sales directly to the consumers but majority of the manufacturer and exporters sell their products to the buying houses and brands and are currently aware of the potential present. Limitation of skill and exposure are main problems other than financial constraints. Companies contacted in the survey needs awareness and capacity building on marketing and brand development.

Global trends of exports of knitwear machinery indicate that heavy investments were made in imports of latest technology from around the world from 2003 to 2007, the decrease of global shipments of textile machinery was less pronounced in the segment of electronic flat knitting machines. Global shipments in 2008 were down by 7% to 20,300. The bulk of shipments went to Asia (88%) with Europe absorbing 10.5%.

Once more China was the biggest single investor in electronic flat knitting machines receiving 8,970 machines (44%) followed by Hong Kong with 7,110 (35%), Italy with 1,120 (6%), Turkey with 760 (4%) and Cambodia with 620 (3%). Pakistan imported mainly automatic flat and circular knitting machines of different brands.

Import of various flat knitting machines into Pakistan decreased from 1,592 units valued Rs 1,028 million in 2006-07 to only 684 numbers valued Rs 479 million in 2007-2008, thus showing decline of 53% in terms of value.

#### Imports of Knitting Machinery into Pakistan

Machines	2007-08		2006-07		2005-06	
	Quantity	Value	Quantity	Value	Quantity	Value
Circular Knitting	456	418.46	1000	907,13	1,188	1,040.27

Machines						
Flat Knitting Machines	228	60.53	592	120.66	401	50.10
Total	684	478.99	1,592	1,027.79	1,589	1,090.37

Quantity: Numbers, Value: Rs. Million<sup>27</sup>

Import of flat knitting machines into Pakistan is given in Table above. The decision of the government to withdraw customs duty on the import of textile machinery and equipment will accelerate industrial development, generate employment and boost manufacturing process in the textile sector.

Thus there exists a strong infrastructure and pole of latest equipments with respect to manufacturing of knitwear products in the country and need to strengthen the sub sector with respect to issues mentioned in the report later on.

### 8.7 Quality and Standards

Knitwear production is a very complex process and raw material (yarn) being an organic product varies in quality. The industry comprises of small and medium units in majority. There are few large units (left after the economic crisis) which are vertically integrated units doing all the processes in house to ensure quality and in time delivery of the export orders.

The first step after procurement is yarn dyeing, dyeing requires strict quality control is required to control the shades and tone of the required color. Delays in delivery and shade variation are the common problems faced by the knitwear manufacturers.

Most of the units outsource dyeing process to commercial dyeing units present in the vicinity. All other processes like knitting, cutting, stitching and finishing is processes are done in- house. Almost all small units and majority of medium units outsource printing/embroidery processes to the commercial service providers. So maintaining quality is very tough and effort taking task

Buyers are the main driving force behind certifications in this sub sector. The current survey indicates that small firms are mostly working with buying houses (both national and international) there for don't have or require certifications. Medium and large firms are exporting directly thus requires certifications. Firms generally have certifications like CTPAT, WRAP, KneeTex, ASTM and buyer specific standards.

Big brands and store chains have their own code of conduct and other specified (brand/company specified) standards and exporters have to implement these standards in order to work with these brand/companies.

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<sup>27</sup> Source: Pakistan Textile Journal

Crown Agents

- *Contamination in the cotton is the major source of quality defects in the finished products of knitwear. In order to resolve this issue, awareness and capacity building at the basic level is required. Dyeing is the most critical area in manufacturing of knitwear products. As the world market is becoming more and more conscious use of chemicals in the production of any product they use there for there are more demanding with respect to impact of these chemicals when they use these products as well as the effects of these chemicals on environment when they are disposed off into the drainage. There is a strong need of awareness and capacity building on use of more user as well as environment friendly chemicals used in the dyeing and printing of knitwear products. HR capacity building and technological up gradation is required to not only sustain and growth of the sector.*

Data from SPSS Expert

### 8.8 Compliance Status

In case of small and medium manufacturing and exporting units, most critical processes (dyeing, printing/embroidery) are outsourced and these processes involve treatment of material with chemicals and dyes. Developed countries are becoming more and more concern about social and environmental issues; therefore, they are adopting new standards regarding the social and environmental.

These standards have to be followed by the producers. In this sub sector the most critical issues is of waste water treatment plant. If companies have in-house dyeing facility they have to treat the waste water before they could dispose it off into local drainage system which adds further cost to total cost of production. In case the companies are outsourcing these activities to commercial dyeing units, these units are required to have waste water treatment plants.

- *Need awareness & skill up-gradation on compliance issues in production process. Technical/financial support is required to get compliance certifications to access high compliance demanding markets (especially European countries). There is also a strong need for capacity building and assistance (technical and financial) for addressing the issue of waste water treatment plant.*

Date from SPSS Expert

### 8.9 Testing & Certification Capacity

Tests are recommended by the importers and in most of the cases the buyer also indicates the testing body from which the exporters should get their product/s tested/certified on pre-defined parameters. Big companies have established their in-

house testing labs through which they keep checking the quality of material being processed from raw material to finished product.

The exporters use the local and well as foreign testing laboratories as per the requirement of the buyer. Laboratories which are mostly used by the exporters for testing and certifications include TTI, SGS, interText, PCSIR and Bureau Veritas. There are customers who require testing of products in their referred laboratories in other countries like India and Bangladesh. Time taken by local labs ranges from 3 to 5 days while time taken by the foreign laboratories ranges from one to 3 weeks. Tests carried out for testing knitwear are summarized in the table below (based on the survey findings)

Type of Testing	Where is testing carried out			Testing Body & Location
	Testing (in-house)	Local Testing Body	Foreign Testing Body	
Shrinkage		(√)	(√)	T.T.I Lahore
Colour fastness	(√)	(√)	(√)	T.T.I Lahore
Azo dyes			(√)	SGS Lahore
Heavy metal			(√)	SGS Hong Kong
Accessories strength test			(√)	SGS Lahore
Printing/embroidery test	(√)			SGS Lahore
Material Text		(√)	(√)	SGS Lahore
GSM test	(√)	(√)	(√)	T.T.I, Lahore SGS

Date from SPSS Expert

## 8.10 Value Addition & Productivity

Crown Agents

This segment of the textile sector produces the most high value added products. Companies contacted in the present survey attributed the value addition to the following aspects;

- Product design
- Product innovation
- Process development
- Introduction of new technology
- Adoption of new selling/marketing techniques

This Indicates higher level of awareness in this sub-sector. Majority of the companies invest on these aspects of value addition on “As and when required Basis”. Large companies have developed their own formal in house training systems to enhance the value addition depending upon the size and financial strength of the company while in case of medium and small units; some of the companies do have skill up-gradation programmes (informal) they depend heavily on other stake holders like Govt. agencies, NGOs working through donor funded projects. High turnover is one the major hindrance keeping the company very much considered while investing on the soft skills of the workforce.

Responding to the productivity issues faced by the manufacturers & exporters, following issues were highlighted by the respondents;

- Low worker productivity
- Lack of modern / emerging technologies
- Absence of proper operational procedures
- High wastage in Production
- High rework & non conformance

High turnover in the industry keeps the company restricted while investing on the skill up-gradation. The high turnover was also attributed to the presence of allied garments manufacturing and exporting companies as the skill difference required for both manufacturing processes is not very big.

Majority of the respondents agreed that there is huge gape between the productivity of workforce present in Pakistan as compared with the international standards. Rising cost of product (cost of inputs/utilities, raw materials) and decrease in the profit margins due to the tough competition from India, Bangladesh and China, they need skill up-gradation of the workforce on urgent basis to sustain and growth of their businesses.

Following table briefly describes the status of knitwear industry with respect to value addition and productivity;

TRADE RELATED TECHNICAL ASSISTANCE (TRTA II) PROGRAMME

Sr. No	Process	Prioritize (High/Low)	What exact improvement you need?
1	Yarn Dyeing	High	Need awareness and capacity building on modern dyeing techniques
2	Pattern Making	High	<ul style="list-style-type: none"> <li>• Need formal training on pattern making</li> <li>• Technology up gradation CAD/CAM</li> </ul>
3	Cutting	Low	Need training of cutting staff
4	Printing/Embroidery	High	<ul style="list-style-type: none"> <li>• Need awareness and training on modern printing techniques and use of environment friendly dyes and chemicals</li> <li>• Need technology up-gradation for in-house printing and embroidery facilities to have better control of the process</li> </ul>
5	Stitching	High	<ul style="list-style-type: none"> <li>• Need skill up gradation for better quality and productivity</li> <li>• Need foreign expert to train from pattern making to stitching</li> </ul>
6	Trimming	Low	<ul style="list-style-type: none"> <li>• Need skill up gradation for better quality and productivity</li> </ul>
7	Pressing	Low	<ul style="list-style-type: none"> <li>• Need skill up gradation for better quality and productivity</li> </ul>
8	Packing	Low	<ul style="list-style-type: none"> <li>• Need skill up gradation for better quality and productivity</li> </ul>

- *There is a need of skill up gradation of designers of the manufacturers and exporters of knitwear products to design products for specific markets. There is also need for skill up gradation of the whole manufacturing process to enhance quality and productivity to bring it to international standards.*

Date from SPSS Expert

### 8.11 Access to Markets

For large companies (mostly vertically integrated units) have got their independent marketing departments and they market their products through participation in national/international trade fairs as well as personal visits to the buyers abroad, there for access to the market is not an issue but for them. Medium and small units usually don't have separate established marketing department and this function is performed by the owners. Medium sized companies participate in national exhibitions and visit the buyer personally to market their products. Local and international buying houses are purchasing from them do marketing on their behalf.

While small units do most of their business through local buying houses and don't market their products in local or international exhibitions. Major issues faced by these companies are of financial constraints, awareness, marketing skills and lack of facilitation by the supporting institutes.

The main requirements of the manufacturer and exporters in this industry with respect to marketing are as under;

- *Need Awareness & capacity building on marketing and presentation skill for their products. Capacity building on brand development and branding of their brands is required. Need for exposure visits to potential markets like ..... are also required by the manufacturers and exporters to understand the market dynamics and to have first hand knowledge of the markets.*

### 8.12 Policy Capacity & Support

Today the manufacturers and exporters of knitwear from Pakistan face many challenges within and outside Pakistan. Within Pakistan there are many factors who have contributed towards the closure of the many big vertically integrated units as well as medium and small units. According to a report Pakistan Hosiery Manufacturers Association membership has decreased from 1,183 in 2005 to 840 units in 2009 which accounts for 30% membership loose. The remaining units are struggling for their sustainability. New investors are not investing in this industry any more. Some of the factors effecting knitwear industry within Pakistan are;

- War of Terrorism and law and order situation in the country
- Increase in the costs of raw materials and utilities
- In adequate supply of electricity and natural gas
- Shortage in the supply of yarn which is the basic raw material for the industry

Any changes in the price of raw material (yarn) or utilities (electricity & natural gas) increase the direct cost of production. The indirect effects of increase in the fuel prices

are more costs for generating electricity in house and transportation of raw material to the manufacturing units and delivering the finished goods to the port.

Majority of the manufacturers contacted in the current survey stated that they are load shading and increase in the prices of utilities (electricity and gas) are making them uncompetitive in the international market. Due to the inadequate supply of the electricity and natural gas to the industry they are unable to quote competitive prices to the international buyers as well as they are finding it more difficult to fulfill the current orders on time. These factors are sufficient enough for the buyers to place their orders to other countries like China, India and Bangladesh.

The interest rates of the commercial institutions (banks) have also gone up. In the current situation it is even more difficult for the manufacturers and exporters to run their businesses while availing the loans from the banks. Majority of the respondents said that there is no problem of telecommunication (Fixed lines, mobile) and internet services with respect to its access, efficiency and affordability. There is a considerable difference in the international fuel prices and fuel available within Pakistan. This fuel is used in not only transportation of raw materials to the manufacturing sites but also in the in house generation of electricity in case of load shading. Majority of the respondents said that fuel prices should also be decreased to reduce the cost of production.

Majority of the respondents were in the favor of the following actions should be taken by the Government;

- Improve law and order and security conditions
- Improve power and water shortage
- Improve governance
- Provide marketing and branding support
- Assist in improving worker skills
- Others

In others; most of the respondents said that there should be consistent policies above the knitwear industry and those policies should be enforced in its true spirit. There should also be strict check and balance on the prices of raw materials.

There are no major impediments with respect to fee/charges of agents, ports, rail transportation indicated by the respondents however Majority of the respondents indicated that road transportation and air transportation charges are increased due to increase in the fuel prices.

Majority of the respondents is satisfied with the efficiency of port infrastructure, air port infrastructure and warehousing/ trans-loading facilities.

### 8.13 Intellectual Property Rights

Knitwear industry in Pakistan is buyer driven, buyer places order and the local manufacturer produce the knitwear as per the requirements and demands of the buyer. The consignment is sent to the buyer as per the agreed terms and local manufacturer gets the price for his/product products.

Majority of the respondents were not aware of the Intellectual Property right facilities provided by Government Agencies and other doubts the capacity of these agencies in this regard.

Majority of the respondents did not contact any universities or research institutes to obtain solutions for their technical problems or to upgrade their technologies due to lack of confidence on these institutes in the past. But they are willing in such collaboration if capabilities of these institutes are upgraded.

### 8.14 Recommended TRTA Interventions

Following are the recommendations made for TRTA II Programme;

- Skill up gradation of the workforce in the production process specially stitching to improve quality and productivity
- Skill up gradation of designers (in house) to produce more value added garments for specific markets through foreign designers.
- Awareness and skill up gradation on modern dyeing techniques & use of more environment friendly chemicals in dyeing and printing processes
- Capacity building on marketing and brand development
- Exposure/marketing visit to potential European Countries on cost sharing basis to explore the potential markets for “Made in Pakistan Products”
- Publication of articles on Knitwear Products of Pakistan in International Textile Journals to promote made in Pakistan Products through international experts
- Capacity building of PHMA in establishing “Research & Development Wing” for the industry
- Capacity building of PHMA for sustainability of these initiatives and provision of these expertise to the mass target audience

## 8.15 Woven Garments Lahore

### 8.16 Overview

Pakistan is a major player in the garments export market from Asia being the 4th largest cotton producing country of the world. This sub-sector is a source of providing low cost jobs (direct & indirect) to a very large number of workers all over the country and it is contributing around 7.70% to the total textile exports from Pakistan.

At present Pakistan is fast losing its share in the global garment market because of high cost of production. Garments exports from Pakistan's traditional competitors in the region -Bangladesh, Sri Lanka, China and India -have picked up dramatically. Some attributed this high rise in their exports to hidden subsidies and incentives that the exporters of those countries are getting from their respective governments. Export of readymade garments from Pakistan decreased from 42 million dozens worth US \$ 1.59 billion in 2007-08 to only 30 million dozens worth US \$ 1.23 billion in 2008-09, thus showing decline of 23% in term of value<sup>28</sup>.

The apparel segment is the one of the highest value added link in the entire textile value chain. The global trade in the sector accounts for 53% of the total value of global textiles trade and is consistently growing since the last two decades.

USA and the European Union remain to be the largest markets for garments and other apparel products with a combined share of 73% in total global clothing trade. At present the major thrust of garments exports from Pakistan is on the USA market. The European Union is the second largest market for garment manufacturers from Pakistan.

Major concentration of this sub-sector lies in Karachi, Lahore & Sialkot with some units in smaller cities. According to the Pakistan Readymade Garments Manufacturer and Exporters Association ([www.prgmea.org](http://www.prgmea.org)) there are 283 members in North Zone covering Lahore, Sialkot and Faisalabad (Punjab side area) and 238 members in south zone covering Karachi city (Sindh province) of Pakistan. According to a report garment sector employs around 2 million people directly in the country.

Studies show that starting from cotton picking and storage, contamination is introduced in cotton due to non standardized methods. The low count yarn produced by the spinning industry and fabric produced on power looms by low skilled machine operators are the other causes of low quality. The apparel industry needs to improve quality, move up in the value chain, lay technological foundation, and strengthen global business operations to generate more employment opportunities as well as becoming a global player. Emphasis should be placed on the promotion of value added products, especially in new designs and products as other countries like Bangladesh has entered and proved its strength in the production of basic woven garments which was the primary strength of Pakistan.

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<sup>28</sup> Source: PTJ

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The allied industries providing raw materials and other services providing industries/sectors includes Financial institutes (banks), shipping, local transportation (for raw materials to the manufacturing units and from manufacturing units to the port), Insurance, machinery, dyes/chemicals, printing/packaging and testing laboratories. This industry is providing economic activities for these allied industries as well.

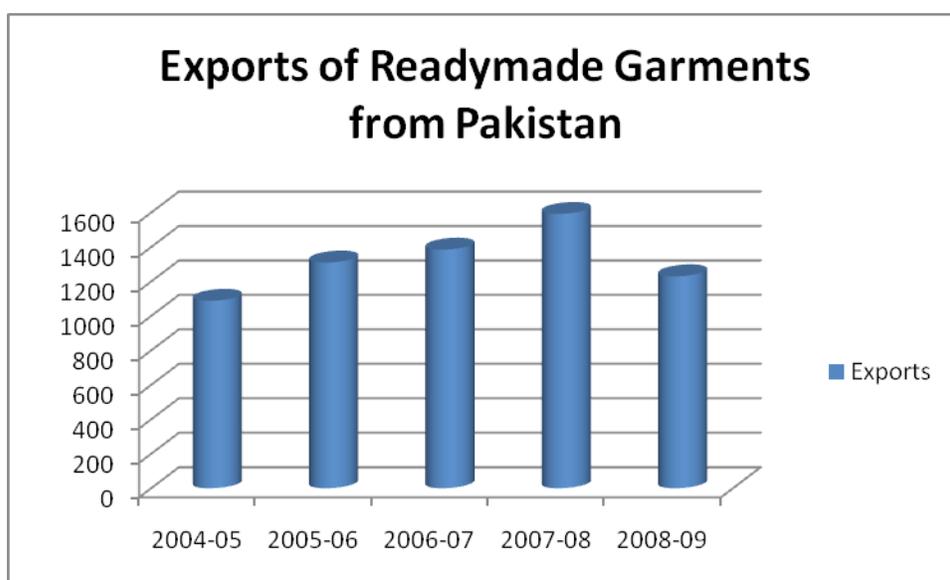
### 8.174.2 Contribution to National Economy

Garments industry is one of the most important sub-sectors in the textile sector of Pakistan. It contributes significantly to the country's GDP, exports as well as employment. It is, in fact, a major sub-sector in textile sector creating employment for people as well as earning valuable foreign exchange for the country being the value adding segment of overall textile sector. According to a report garment sector employs around 2 million people directly in the country.

VALUE IN Million DOLLARS

Year	2004-05	2005-06	2006-07	2007-08	2008-09
Exports	1088	1,310	1,385	1,592	1,230

Source TDAP



### 8.18 4.3 Structure of the Industry

The readymade garment industry in Pakistan generally operates on small, medium and large scale units most of them having 50 machines and below. Large units are present in the organized sector of the industry. According to an estimate about 75% of its units are in the unorganized sector and are established in small shops, flats and houses.

According to the Pakistan Readymade Garments Manufacturer and Exporters Association ([www.prgmea.org](http://www.prgmea.org)) there are 283 members in North Zone covering Lahore, Sialkot and Faisalabad (Punjab side area) and 238 members in south zone covering Karachi city (Sindh province) of Pakistan.

Initially the industry concentration was in Karachi due to the presence of spinning and weaving sector in the city, the industry shifted towards inside the country mainly due to the law and order situation in the city.

A leading company of denim based woven garments, "US Apparel" started in late 70's in Lahore but the formal evolution of the sector started in mid 80's. Period of growth was mid 90's when the banks opened up their policies and loans were easily available. Many units were set-up during and immediately after that period. Clustering in woven garments cluster Lahore was due to the presence of knitwear cluster in Lahore, which was backed-up by the strong spinning infrastructure and availability of yarn in this area. On one hand, stitching expertise developed through stitching units in knitwear and on the other hand, gray fabric was also available. On top of that political situation in Karachi in late 70's and early 80's forced many entrepreneurs to move from Karachi to Lahore.

In the 80's and 90's, the woven sector moved from low value added to the high value added products. Many spinning units / fabric producers integrated vertically and entered into the value added products. In the meantime, new avenues such as European markets opened up and the manufacturers-exporters initiated personal visits to these markets and a few of them also opened their own offices in these markets.

Different government incentives such as export rebates, export refinance, duty draw-backs and quota protections helped a lot in the growth of the cluster. Garments Cluster in Lahore was approximately 25 to 30 years old. The growth of the industry picked up in mid 90's when many commercial banks opened up their policies and offered soft /easy loans to set up new industry. Some of the main reason for growth of the cluster included:

- Availability of land
- Favourable political situation
- Law and Order situation

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- Availability of soft water
- In-expensive workforce
- Availability of good quality raw material

In the knitwear, mostly units were fully integrated whereas the woven units were more specialized and mainly based on the stitching set-ups.

Initially, the knitwear producers used to stay within their own domain and did not try to diversify. Due to the changing markets, knitwear producers diversified towards the woven garments manufacturing, established as independent units as part of their business expansion strategies.

### 8.19 Export Competitiveness of the Sector

At present Pakistan is fast losing its share in the global garment market because of high cost of production. Garments exports from Pakistan's traditional competitors in the region -Bangladesh, Sri Lanka, China and India -have picked up dramatically. Some attributed this high rise in their exports to hidden subsidies and incentives that the exporters of those countries are getting from their respective governments. Export of readymade garments from Pakistan decreased from 42 million dozens worth US \$ 1.59 billion in 2007-08 to only 30 million dozens worth US \$ 1.23 billion in 2008-09, thus showing decline of 23% in term of value.

This sub sector of the whole textile sector has a long history of more than 30 years in Pakistan. Availability of quality raw material, low cost work force and favourable policies and incentives by the Government were the basic reasons for the establishment, sustainability and growth of this industry in the country backed by the market dynamics of international markets.

The sector is highly export competitive due to the establishment of large cotton production in the country, presence of supporting industries like ginning, spinning, weaving. The industry provides jobs to around 2 million workers directly and its history of producer and exporters of low to medium quality apparel products all over the world.

According to Pakistan Readymade Garments Manufacturers and Exporters Association (PRGMEA) total of 7.5 Billion USD has been made in textile sector of Pakistan. Out of this 7.02% of the total investment was made in Garments and knitwear sectors.

During the last five years more than \$3.2 billion have been invested in the value-added sectors including in sewing machines, stitching, knitting, finishing and knitting processing. Pakistan imported large numbers of sewing machines from China, Japan and Singapore. Import of various sewing machines into Pakistan decreased from 175,158 numbers valued Rs. 2.05 billion in 2006-07 to only 44,582 numbers valued Rs. 0.85 billion, thus showing decline of 58% in terms of value. This decline in the imports of machinery was associated with the law and order situation, increase in the prices of raw materials and other internal factors within the country At present industry

enjoys the facilities of duty free import of machinery and income tax exemption. Import of sewing machines into Pakistan is given in the following table.

## 8.20 Value Chain Analysis

There are three types of garments (woven garments)

- Basic Garment
- Semi-Fashion Garments
- High Fashion Garments

Value addition for each product type would be different; however the general value analysis of 5 pocket basic denim jean is illustrated in the following page. Cost of the same product may vary from company to company and city to city as well because a manufacturer of woven garments generally procure fabric from Karachi so transportation of fabric from Karachi to Lahore adds additional charges as compared with the actual cost of the fabric. Price of same is less for the manufacturer of same product in Karachi as the transportation cost would be less due to transportation of fabric within the city. The value chain analysis shows that raw materials are the major source of cost in which the fabric used accounts for 60% of the total cost while accessories (threads, button, rivets, zipper and threads) accounts for 5% of the total cost of product under analysis<sup>29</sup>. Fabric and most of the accessories are available locally there for availability of raw material is generally not a constraint. However in peak seasons due to the shortage of yarn and heavy exports of fabric to foreign buyers in Bangladesh, China, Turkey and some countries in European Union local manufacturers faces difficulties with respect to cost and availability of fabric from weaving factories.

Cost of production (including processing, dry & wet processing and finishing) amounts to Rs. 114.21. These two processes are very critical in the manufacturing of woven garments and are discussed in detail in later part of the report. The survey indicated that most of the manufactures and exporters face problem in designing, processes as well as dry and wet processing. Bigger companies have in house as designers which produce designs for the up coming seasons for buyers in different regions of the world. They also have established designing and marketing departments in other countries where they have permanent or part time designers who develop designs for them for the coming seasons. Some large and medium sized companies have hired designer/s on part time basis that develop and deliver designs for them for the coming seasons. Majority of medium and small size companies employee local designers from technical training institutes or from the market to get the designs.

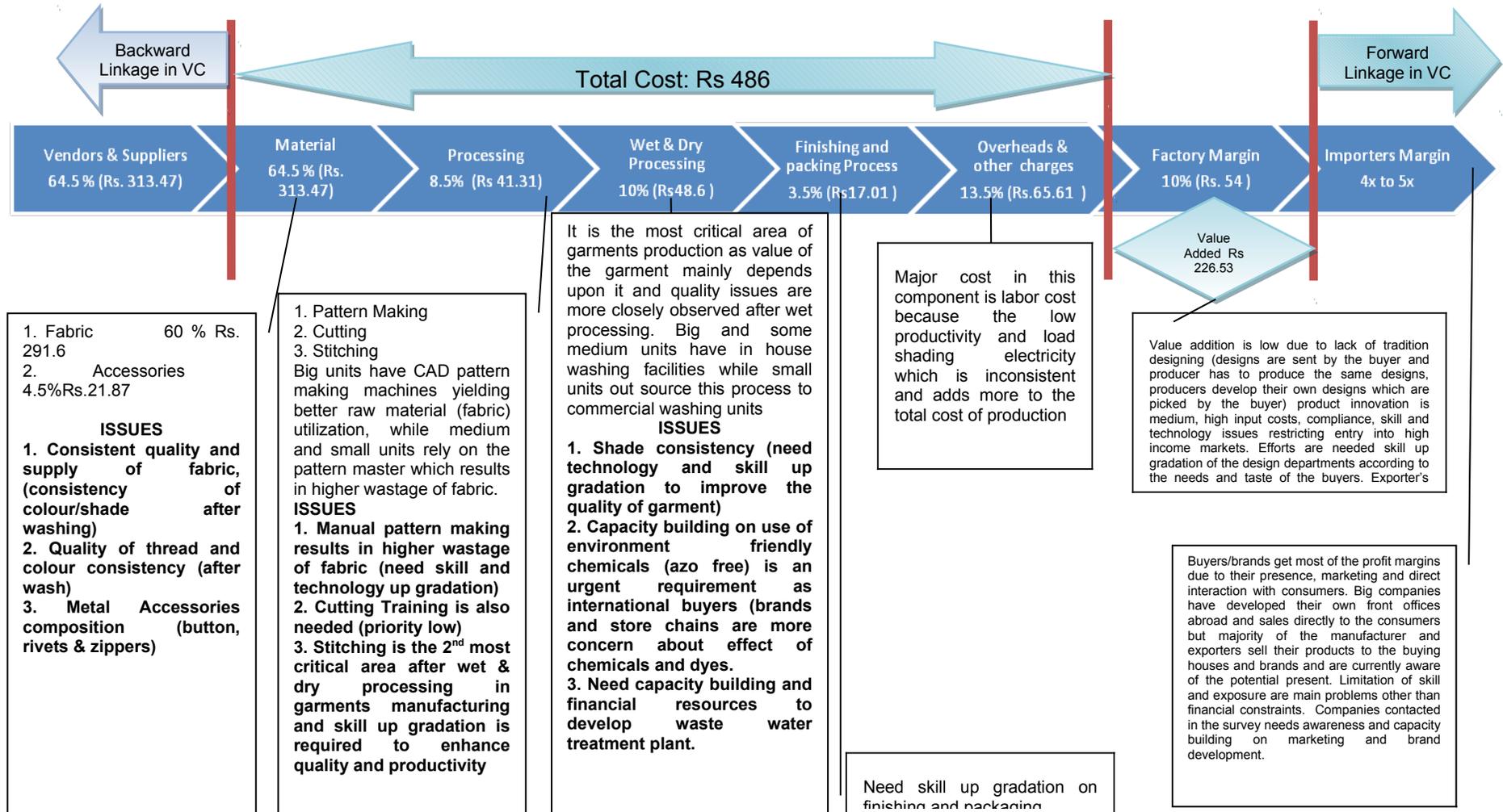
The survey also indicated the need for skill up gradation of the workers at floor, middle management and higher management levels to bring quality and productivity at international level. Increase in cost of production due to the law and order situation in the country, load shading of electricity and gas, increase in the cost of raw materials

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<sup>29</sup> Cost is of a typical 5 pocket basic denim jean produced in Lahore)

Crown Agents (especially woven fabrics) is driving these manufacturers and exporters towards effective and efficient production systems to sustain and grow.

## Value Chain of Woven: (Illustrated Product is Regular 5 Pocket Basic Denim Jean)



## 8.21 Assessment of Quality and Standards

Quality has different meaning and understanding in the woven garments. Small and medium level firms define quality according to the standards stated by their buyers. Large enterprises define quality as “Meeting and exceeding customers’ expectations”.

Buyers define quality of product in terms of fabric, style/fashion and finishes of garment. When talking about large orders the consistency of required shade and style matters a lot and it is one of the major areas of concern for the manufacturer and exporters in this sector.

Quality is strictly controlled at every stage from raw material to finished product. Following are the details of current quality measures taken at each stage of the value addition;

### **Fabric**

When fabric is received inside a unit, the rolls are manually checked for defects, some of the common defects are as follows;

- Spinning yarn contamination
- Weaving defect
- Dying defect
- Printing defect (in case of printed fabric)

Rolls are allotted with codes and fabric sample is taken from each of the roll. Sample from each roll is then washed to get the expected results after washing the garments that would be made out of fabric from these rolls.

Fabric showing similar results are cut together to have consistent quality garments.

### **Pattern Making & Cutting**

Small and medium sized firms employ pattern masters who draw and cut the pattern on hard card. Fabric is laid on cutting tables in the form of layers. Special care should be taken at this stage to lay the fabric in zero tension. The pattern is then placed on layers and pieces are cut with the help of scissors or electronic cutters.

Common problem at this stages are high wastage in fabric and variation in size (due to higher stretch/ loose layered fabric). Big firms use Computer Added Machines for designing and plotting of patterns called GGT.

G.G.T (Gerber Garment Technology) is a renowned name in garment manufacturing industry under the heading CAD/CAM. Pattern-making department is normally named G.G.T as a buyer confidence building measure to ensure quick, accurate and economical pattern making.

Some bigger companies' employee automated fabric laying and cutting machines to minimize the element of human error and reduce wastage at this stage.

Companies responded positively about the technological and skill up gradation in pattern making and cutting department.

## **Embroidery/Printing**

In case of ladies garments to be produced parts of the garments are sent for embroidery work. Some firms have the facility in house while majority of the firms outsource this part. Quality, speed, consistency of desired shade, cost and timely delivery of the work outsourced are the major concerns of the producers.

Skill up gradation and having this facility in house was demanded by most of the firms taking part in the survey.

## **Stitching**

Stitching is one of the most human intensive departments in garment manufacturing. Desired operations are done on each part to be stitched together and produce the garment. The stitching department uses middle management personals called the line supervisors in this department who perform multi tasking operations. They keep the production at the desired speed and maintain the quality and the same time.

Common problem in stitching are as follows;

- SPI (Stitch per inch)
- Broken Needle
- Uneven stitches
- Slip Stitches
- Puckering

Most of the problems hidden in the garment could not be found until it is washed. Quality, productivity, line balancing is the most common problem faced by this department. Majority of the firms participated in this survey highlighted the need for quality and productivity improvement in this department through skill development.

## **Quality Standards**

Woven Garment sector is one of the advanced and developed sectors in Pakistan working with importers from all over the world for a long period of time. The entrepreneurs have relatively greater exposure and better understanding and communication with the importers.

Quality standards required by importers changes from time to time and region to region. This creates financial and some times operational burden on the manufacturer depending upon the nature and requirements of the standard/certification.

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Small and medium sized firms work with importers who have lesser requirement for these standards and certification. While big firms who have the financial muscles and can invest on these certifications and quality standards go for bigger brands and importers.

Once the compulsion for the certification is there from a buyer the firm has only two choices a) to adopt/acquire the certificate or leave the buyer. As the market is open for the buyer to purchase the product from anywhere he/she wants, usually the buyer does not compensate the producer for the cost of compliance exerting more pressure on the producer resulting in the reduction of profit margin.

ISO 9001, ISO 14001, SA 8000, WRAP, SEDEX & REACH are some of the common certifications required by the importers. There are region specific as well as buyer specific certification requirements and in case if the producer is dealing with a brand there are brand specific standards/code of conduct that the producer has to follow putting more and more financial pressure on producer.

- *Strategy should be skill up gradation of the workforce through local technical training institutes on productions processes like pattern making, cutting, printing/embroidery, stitching, dry/wet processing & finishing of the garments. Some of the manufacturers and exporters also indicated the need of these trainings in house to reduce the impact of these trainings on their current production levels by reducing required time, cost and to increase the efficiency/effectiveness of these capacity building measures.*
- *Awareness and access to modern technologies in the area of stitching, embroidery/printing, dry & wet processing is also needed to encourage the manufacturers and exporters to up grade their existing technologies on self sponsored basis.*

## 8.22 Assessment of Compliance Status

Compliance is one of the major areas that need national and international support for the manufacturer and exporters of woven garments from Pakistan. In the present time regular certifications are not enough for the exporters of garments from Pakistan, exporters dealing with brands and store chains are facing compliance related problems right from raw material to finished product. Almost every brand has its own code of conduct which requires addition cost to comply. The compliance activities start with the selection of raw material (fabric & accessories) to the manufacturing process as well as the environmental issues. The most common challenging area of compliance is of waste water treatment plant indicated by most of the organizations participated in the survey.

The compliance activity starts from the procurement of raw materials to the manufacturing of garments and goes up to finishing of the product. Some certifications require also cover the treatment of effluents (waste and chemicals used) produced during the manufacturing of garments.

- *The strategy should be awareness creation and capacity building on compliance activities especially in establishment and operation of in house waste water treatment plants to cater the demands of compliance certifications required by the European brands/buyers.*

### 8.23 Assessment of Testing & Certification Capacity

Manufacturing of woven garments is a human intensive process and care is taken at every step of the process. Tests are carried out for most of the materials used. Types of test and components of product to be tested are decided by the customers/buyers.

Small firms who are working for the bigger firms (known as CMT Units) do not require any type of testing (in-house and/or local testing). These firms receives fabric from bigger firms with all the technical details of product (size and type of garments to be stitched, accessories with details) to be produced. They simply cut the fabric, stitch it and do the trimming and delivered it to the bigger firms where they add more value into the garments by dry and wet process and finishing of the product before exporting it. These units, therefore, do not require any type of testing or certifications.

There are firms which operates at lower volumes in selected export markets directly or through local and international trading agencies (buying houses). These firms process the garments till stitching and outsource embroidery (if required) and wet processing, finishing of the garment is done in-house. They get the required testing done in local and international laboratories referred by the buyers.

Medium and large conduct some tests in-house and advance tests in local and international laboratories referred by their buyers. International brands and store chains are the most demanding customers for them as they have more very strict policies and code of conduct developed by them and they use these standards in social marketing of their product.

These tests are summarized in the following table;

Sr. No.	Process/ Component	Types of Tests
1.	Fabric	Fabric testing, shrinkage, shade testing, color fastness, tensile & tear strength, Teflon coating test (for work wear), Azo tests,
2.	Embroidery / Printing	Colour Fastness, chemical tests

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3.	Wet Processing	Reach,
4.	Metal Accessories	Nickel, Chromium, Ferrous and Lead free testing

There is a test for packing carton strength but only few respondents indicated this test as a compulsion by the buyer.

Following table indicates the type of tests and their location of laboratories used by the manufacturers and exporter of woven garments;

Type of Testing	Where is testing carried out			Testing Body & Location
	Testing (in-house)	Local Testing Body	Foreign Testing Body	
Shrinkage	( √ )	( √ )	( √ )	T.T.I Lahore
Color fastness	( √ )	( √ )	( √ )	T.T.I Lahore
Tensile and tear test	( √ )	( √ )	( √ )	T.T.I Lahore
Embroidery/ Printing (Shade/color fastness)	( √ )	( √ )	( √ )	T.T.I Lahore, SGS Lahore
Accessories (Heavy metal testing)		( √ )	( √ )	T.T.I Lahore, SGS Lahore, Hong Kong
Wet Processing (REACH)		( √ )	( √ )	SGS Lahore, Hong Kong, BVCP Pakistan

Majority of the respondents showed confidence on the testing done in Pakistan by local (TTI) and international testing laboratories (SGS, BVCP). They indicated that foreign laboratories take more time and costs of these tests are very high.

- *The proposed strategy is to build the capacity of the local testing laboratories and provision of advance testing facilities in Pakistan to save time and cost. There should also a mechanism to reduce the cost of these testing to help the*

*manufacturers and exporters in order to improve their efficiency in meeting the testing requirements demanded by the international buyers.*

## 8.24 Assessment of Value Addition & Productivity

Woven Garments manufacturer and exporters are getting quality and productivity conscious. Intensive competition locally and in the international markets, increasing cost of production (raw material costs, utility costs) are the factors forcing manufacturers to bring their productivity at the international level as well as shift their production capacities toward higher value added garments production.

Intensive price competition from other countries like Bangladesh, China and India is making the situation for manufacturer and exporters from Pakistan even more critical. According to the respondents Governments of these countries are facilitating their manufacturers and exporters through hidden subsidies on utilities, labour policies and other shapes.

The survey findings indicated that manufacturer and exporters of woven garments associate value addition with 'product design', 'product innovation', process development' and 'introduction of new technology'. These finding clearly indicates that in this sub-sector the awareness about value addition is at high level and companies invests in these areas time to time and 'as and when required bases'. Skill up gradation of local designers was also identified in the survey.

Regarding the productivity part respondents indicated the current problems as 'low worker productivity', 'lack of R & D', 'high wastage in production', ' high rework and non conformance'. Firms usually invest on in-house training programmes but the scale of these training programmes are limited due to financial constraints and high turn over of the worker being trained.

Big firms have their own training programmes (in-house) while medium sized firms conduct skill up-gradation programmes on 'when required' basis while small scale firms don't conduct productivity up-gradation programmes and directly hires semi-skilled/ skilled workers.

This is high value adding sub-sector in textile sector and much is needed to be done in value addition and productivity improvement right from raw material to the production to finished garment. Stitching and wet/dry processing are the two major value adding areas where immediate support is needed to improve the quality and productivity. Following table briefly describes the processes and possible value addition in each process;

Sr. No.	Process	Value Addition
1	Fabric	Better quality & new types of fabric through R & D

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2	Pattern Making	Skill up-gradation of manual pattern makers to reduce rejections and technology up gradation to produce patterns on machines to improve pattern efficiency.
3	Cutting	Skill up-gradation for zero-tension fabric cutting and reduce the rate of rejection
4	Stitching	Enhance the productivity and quality of the garments being stitched
5	Wet & Dry Processing	Skill and technology up-gradation for new and better effects

- *The strategy should be capacity building of the technical training institutes on designing, stitching and dry & wet processing through local and international experts. The 2nd step should be strengthening the existing weak linkage and further linkage creation of these institutes with the mass target audience present in this sub-sector.*

### 8.25 Access to Markets

Marketing is the key area for any organization in order to sustain and grow. In this subsector even firms with low production capacity. Small firms in this sub sector mostly do their business through medium sized firms or national or international buying houses, therefore the owner of the firm do all the management functions by themselves. Medium sized firms have separate marketing departments but they don't have written annual marketing plans. They do, most of the time, personal selling through visit abroad. Large sized firms have established marketing departments with dedicated marketing personals to set of buyers based on the regional distribution or size of the production dedicated for each buyer.

Medium and large sized firms mostly do direct business with brands, Stores chains as well international buying houses and to a small portion with national buying houses. Most of the respondents said that they do marketing through personal visits which allows them to establish long term business relations with their buyers and a hand on experience about the performance of their product/s.

Most of the companies in this sub-sector do the marketing in two ways, i) Personal visit ii) Participation in national and international trade fairs/ exhibitions, some of the companies participates in trade delegation organized by TDAP, or association.

Some of the respondents said that they have their own brands but they don't have the financial and HR resources to market their brand on a large scale. Almost the entire

respondent responded positively on the need of awareness, exposure and training on marketing and brand development.

They said that they need to expand their existing market as well as explore new potential markets in the world for which they need assistance. They need capacity building in following areas;

- Gathering marketing intelligence
- Exposure of the potential markets
- Marketing of their product
- Brand Development and marketing it
- E-Marketing

The strategy should be capacity building in marketing and gathering marketing intelligence, capacity building on brand development & promotion of these local brands in the national and international markets (existing and potential) using personal visits, participation in local and international trade fairs as well as effective utilization of information technology (E-Marketing) to promote their brands/products. These capacity building seminars/training programmes should also include professionals from representative bodies like relevant chambers, associations and technical training institutes. The purpose of including professionals from these institutes is to build the capacities of these local institutions to impart awareness and training to mass target audience present in the whole sector. Exposure visits to existing and potential markets like Germany, Italy and Australia should also be arranged on cost sharing basis.

### **8.26 Policy Capacity & Support**

Almost all of the manufacturers and exporters contacted in the survey stated that their business growth has been badly affected by the load shedding of electricity and natural gas (natural gas is used by this industry to produce steam for maintaining higher temperature in the wet processing and steam ironing of the products). Some of the manufacturing units use natural gas is also used for producing electricity in case of load shedding. They were finding it most difficult to meet the target dates for most of their orders and hence had to face dissatisfaction by the buyers as well as bad reputation of their companies. In the case when the production is late the consignment is sent by air which absorbs majority of the profit margins.

The situation for them is already very crucial for them keeping in the law and order situation in the country, increasing prices of raw material and utilities. Cost of production with respect to costs of raw material and utilities is on rise making them uncompetitive in the international market and buyers are placing their orders in other countries like Bangladesh, Sri Lanka, China and India.

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Regarding the financial sector they are of the point of view that higher markup rates are not favorable for them and they are not willing to operate their businesses on finances from banks as the market situation is not favorable. They are satisfied with telecommunication and internet service providers with respect to efficiency, access and affordability of these services within the country.

Increase in fuel prices effect the cost of production directly with respect to road transportation of raw materials to the manufacturing units, transport of semi finished products for operations performed outside the manufacturing units & back (commercial printing/embroidery, dry & wet processing) as well as taking finished products to the port. Fuel is also used by these units to generate electricity in case of load shading to keep the manufacturing operations going. All of these factors adds more to the total cost of production.

Most of the respondents responded positively about the following actions to be taken;

- Invest more in infrastructure
- Improve law and order and security conditions
- Improve power and water shortage
- Improve governance
- Provide marketing and branding support
- Assist in improving worker skills
- Others

In others, they demanded for development and implementation of consistent policies and mechanisms of keeping check and balance system on the cost of raw materials being used by the industry. They said that prices are changing so rapidly that they are facing problems in quoting prices in the international market for their product/s. At the time of confirmation of export orders the quoted prices are changed in the local market which results loose in profit for them.

Some of the respondents said that Warehousing/trans loading service charges, road transport rates & high air freight rates are high. They showed satisfaction with respect to efficiency and quality of these service providers.

- *The strategy is to improve the law and order situation in the country so that international buyers could visit Pakistan as freely as they used visit Pakistan few years back. Improving the supply situation of utilities (electricity & natural gas) is also very important in order to not only earn valuable foreign exchange but also to sustain the livelihood of the workers associated directly and indirectly with this industry. Mechanism should be developed and implemented to keep check and balance the cost of raw materials within certain limits.*

### 8.27 Intellectual Property Rights

Majority of the industry is demand driven. Brands/Buyers place order and local manufacturers produce the garments and deliver it to the agreed port as per the terms and conditions of the agreement. Some of the medium sized units and bigger units have their brands but due to size limitation could not market those brands at the desired levels. On one hand most of them are not aware of the facilities being provided by national agencies and on the other hand they are doubtful about capacities of these agencies.

Majority of the organizations have not contacted with any Government organizations or universities to obtain for up gradation of their technologies at local level. They rely on marketing material available to them by different sources like personal contact by vendors with them, adds in the new letters of different organizations, international textile journals, peers and participation in local and international exhibitions. They are willing for such kind of technical collaboration with universities.

### 8.28 Recommended TRTA Interventions

Following are the recommendations made for TRTA II Programme;

- Skill up gradation of the workforce in the production process specially pattern making, stitching, embroidery/printing, dry & wet processing & finishing to improve quality and productivity and to bring it to the international level.
- Skill up gradation of designers (in house) to produce more value added garments for specific markets through foreign designers.
- Awareness and skill up gradation on more effective and efficient ways of production to reduce cost of production and improve profit margins.
- Awareness and skill up gradation on modern dyeing & washing techniques & use of more environment friendly chemicals in printing/embroidery, dyeing and washing processes
- Capacity building on marketing and brand development
- Exposure/marketing visit to potential countries like Italy, Germany and Australia on cost sharing basis to explore the potential markets for “Made in Pakistan Products”
- Publication of articles on Woven Garments from Pakistan in International Textile Journals to promote made in Pakistan Products through international experts
- Capacity building of PRGMEA to strengthen “Research & Development Wing” for the industry
- Capacity building of PRGMEA for sustainability of these initiatives and provision of these expertise to the mass target audience

## 8.29 Bed Wear Faisalabad

### 8.30 Overview

Bed Wear industry in Pakistan is one of the major contributing segments of the whole value chain of textile products. This segment heavily depends upon the spinning and weaving segments in terms of basic raw material (yarn). Any impact on these segments of spinning and weaving goes to not only bed wear but other value adding segments such as knitwear, hosiery, readymade garments and made ups. International economic crises directly affected the developing countries and their industries. Same is the case with this industry in Pakistan. However this industry is one of the major industries contributing towards the exports from Pakistan, it accounted for 9.60% of the total exports from Pakistan in 2009.

In case of Pakistan this effect is triggered by the War on Terror, law and order situation. Cost of doing business has rapidly increased and the major contributing factors are load shedding of electricity and gas and their costs, the fundamental of textile industry is cotton production which is being affected by the shortage of water, increase in the fuel/electricity.

Major manufacturing and exports are in Multan, Faisalabad, Karachi and Lahore. According to APBUMA<sup>30</sup> there are total 206 units registered with the association in which 102 member units in Multan, 43 units in Lahore, 38 units in Karachi and 23 units in Multan. The industry structure varies from city to city. Manufacturers and exporters in Karachi, Lahore and Faisalabad are more aware and deals mostly in high tech products while in Multan traditional bed wears are manufactured. Small and medium units are producing for local and foreign consumers while units in Lahore, Karachi and Faisalabad are export oriented.

Like other industries the bed wear is also experiencing shortfalls in raw material, increased cost of production resulting in decreased exports of bed wear from Pakistan. While competing countries like India, China and Bangladesh are getting direct benefits of the situation in Pakistan. Following table shows the decreasing export trends of bed wear from Pakistan (data from July- April 2007 to 2009).

(Values in 000 \$)

Year	2007-08	2008-09	Actual decrease	
			Value	% age

<sup>30</sup> All Pakistan Bed Sheets & Upholstery Manufacturers Association

Value	1,583,908	1,390,781	-193,127	12.19
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Source APBUMA Bulletin

The allied industries providing raw materials and other services providing industries/sectors includes financial institutes (banks), shipping industry, local transportation (for raw materials to the manufacturing units and from manufacturing units to the port), Insurance, machinery, chemicals used in printing, packaging and testing laboratories. This industry is providing economic activities for these allied industries as well.

### 8.31 Contribution to National Economy

Pakistan textile sector is by far the most important sector of the economy contributing 53.7% to export earnings and engaging 38% of labour force. At present it comprises of 521 textile units (50 composite units and 471 spinning units) with installed capacity of 11.83 million spindles and 198 000 rotors. Pakistan has the third largest spinning capacity of 7.6% in Asia after China and India and 5% of the global spinning capacity. The entire value chain represents production of cotton, ginning, spinning, weaving, dyeing, printing and finally garments manufacturing. Pakistan has emerged as one of the major cotton textile product suppliers in the world with a market share of about 28% in world yarn trade and 8% in cotton cloth. The value addition in the textile sector accounts for over 9% of GDP and its weightage in the quantum index of large-scale manufacturing is 20%. Bed wear accounted for 9.60% of the total exports from Pakistan

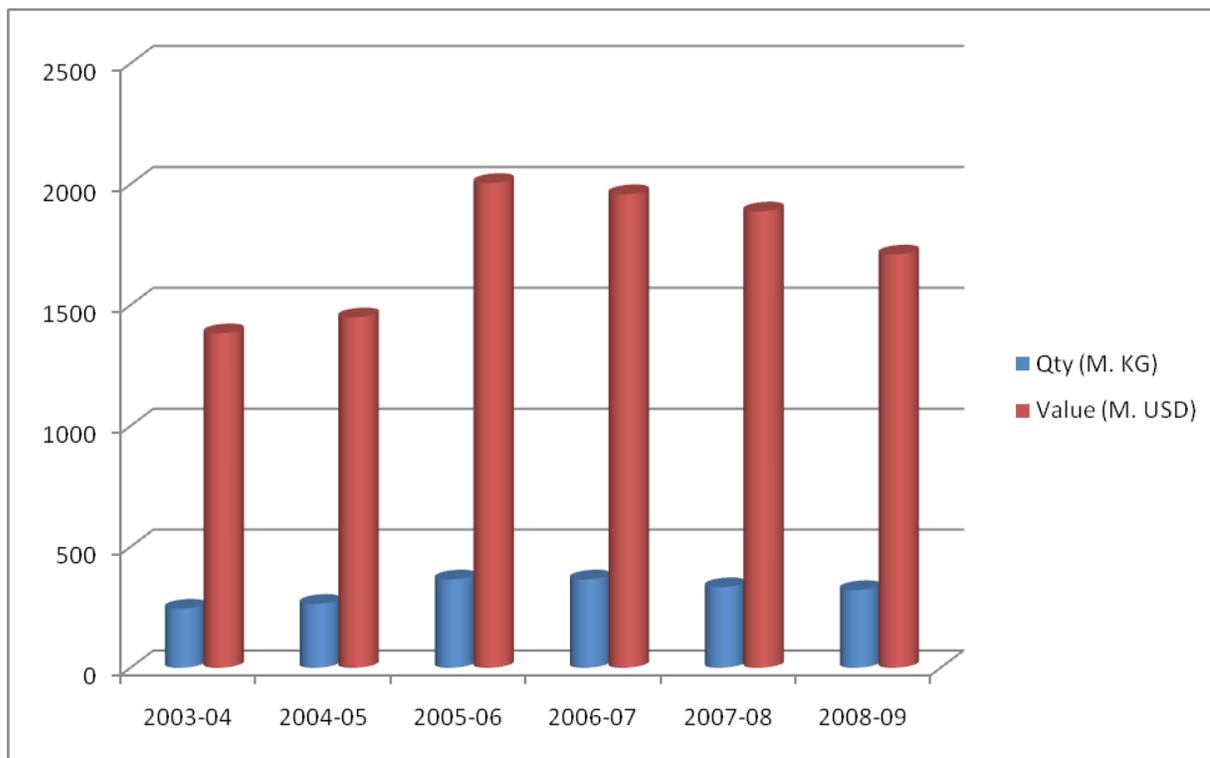
Due to the law and order situation in Pakistan this segment of textile is being affected very badly, customers are not coming to Pakistan and exporters have to go their country for meetings and finalizing the deals. Load shading of electricity and gas in the country is also very much discouraging, manufacturers and exporters are not able to meet the target dates and prices and losing export orders very rapidly.

Bed wear products of Pakistan are known for their fine quality in American, U.K and European markets. It is highly value added item, earning much value able foreign exchange per KG of cotton converted in finished garment for the country. The exports of bed wear from Pakistan are described in table given below

Year	2003-04	2004-05	2005-06	2006-07	2007-08	2008-09
Qty (M. KG)	244.207	264.442	365.237	365.232	333.249	321.249
Value (M. USD)	1383.334	1449.533	2005.409	1958.643	1887.609	1709.566

Source Textile Commission Organization

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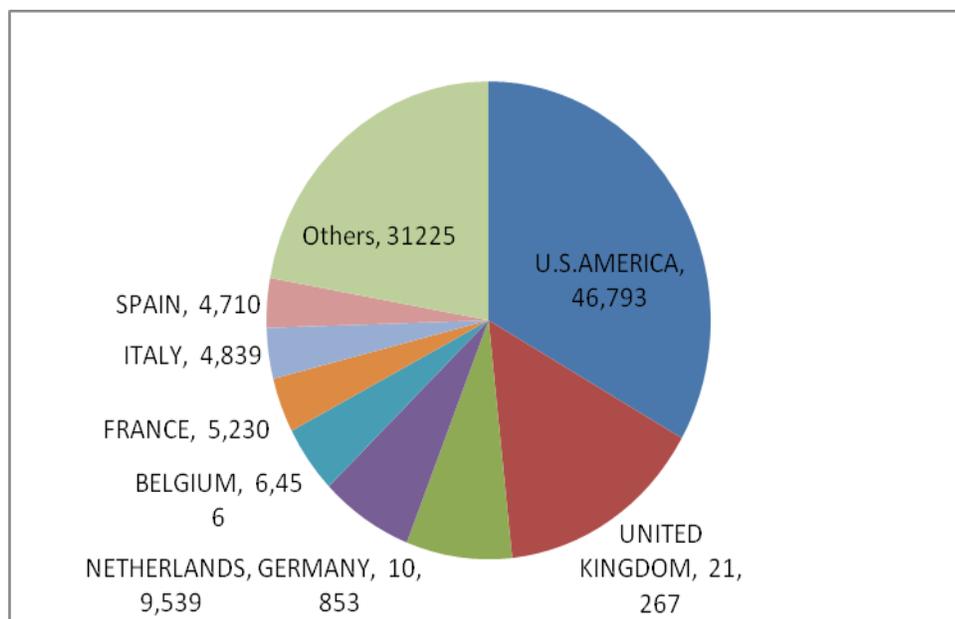


## Exports of Bed Wear from Pakistan

USA, Countries in European Union, U.K, are the top importing partner for Pakistan in bed wear. Exports to these countries (in 2009) are shown in the following table.

U.S.A	U.K	GERMANY	NETHERLANDS	BELGIUM	FRANCE	ITALY	SPAIN	Others
46,793	21,267	10,853	9,539	6,645	5,230	4,839	4,710	31225

Source TDAP



## Importing Countries of Bed Wear from Pakistan

### 8.32 Structure of the Industry

Major manufacturing and exports are in Multan, Faisalabad, Karachi and Lahore. According to APBUMA<sup>31</sup> there are 102 members in Multan, 43 members in Lahore, 38 units in Karachi and 23 units in Multan.

The industry structure varies from city to city. Majority of the manufacturers of bed wear is in the informal sector. The manufacturers and exporters in Karachi, Lahore and Faisalabad are more aware and deals mostly in high tech products while in Multan and Hyderabad traditional bed wears are manufactured. Small and medium units are producing for local and foreign consumers while units in Lahore, Karachi and Faisalabad are export oriented.

The bed wear industry may be large or small depending upon the number of operations carried out by a unit itself. It involves weaving/knitting, processing and stitching. A bed wear manufacturer may be buying fabric from outside and converting it into final product after processing it in-house. Or the processing is subcontracted and manufacturers are just cutting, stitching and packing in their own premises. Vertically integrated units are smaller in number and they operate in relatively upper market segments since it is easy to control the quality in a vertically integrated operation.

<sup>31</sup> All Pakistan Bed Sheets & Upholstery Manufacturers Association

Crown Agents

Pakistan is an important exporter of bed wear in the world. The main driver for the development of this industry in Pakistan is the existence of power looms sector. Most of the products in this sub-sector are made from low-density fabrics of wider widths. This fabric can be easily manufactured on power looms, which forms the major chunk of weaving industry of Pakistan. The cost of a low-density fabric is low compared to a fabric meant for garments. Processing of the fabric meant for bed wear is done through printing rather than dyeing. Printing is an easier and cheaper technology compared to dyeing. And it is also easy to control the quality of a print fabric compared to a dyed fabric.

Spinning is the first process in the cotton value chain that adds value to cotton by converting it into a new product i.e. from ginned cotton into cotton yarn. Since spinning is in the beginning of value chain, all the later value added processes of weaving, knitting, processing, garments and made-ups are dependent upon this process. The effect of a sub-standard yarn production by spinning can go right across the entire value chain. Availability of raw material in these cities triggered this segment and people present at spinning and weaving developed forward integration and came in to this segment of textile finished product/s.

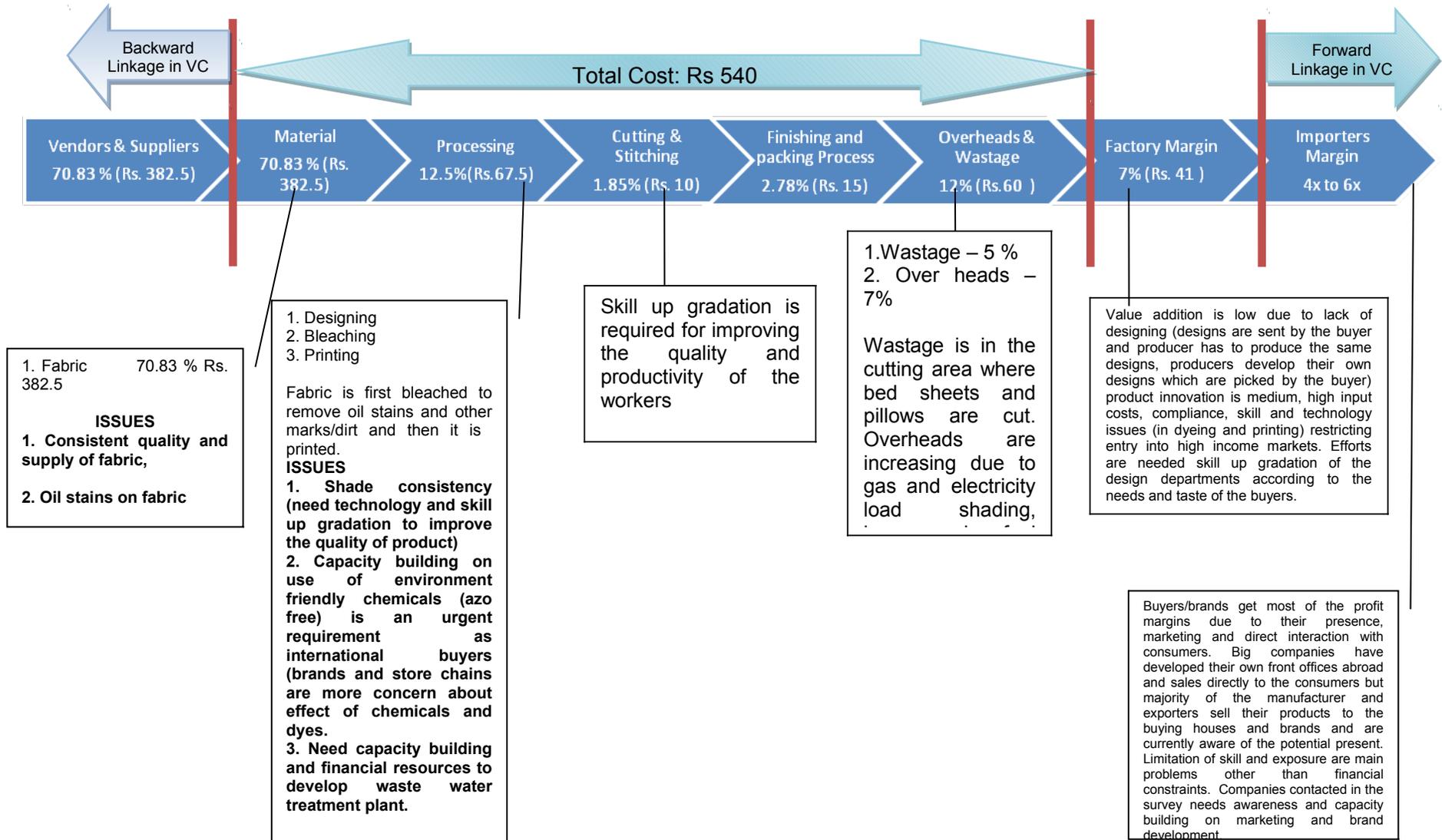
### 8.33 Value Chain Analysis

Value Chain Analysis of the bed wear (product under illustration is typical export quality bed one sheet and two pillow covers) shows that the 71% cost is associated with the raw material only, in most of the cases the manufacturer design, print, cut, stitch, finish and pack the product in his premises to have a stronger grip on the quality of the product. While in case of medium and majority of the small units the printing process is out sourced to the commercial printing units in the area. Cost of production is more as compared to the cost of production of same product in vertical integrated units as well as maintaining quality at desired levels also become a bit difficult.

Fabric used for the bed wear has low density and wider width as compared to the fabric used for manufacturing of garments. This fabric is weaved on power looms. Quality is affected by the skill of the worker operating the loom. Vertically integrated units have their own weaving setups and generally they sell fabric as well as value added bed wear products. The gray fabric is first bleached to remove any oil stains and dirt deposited on the fabric. Then the fabric is printed. The printed fabric is then cut and stitched to produce bed sheet and pillow covers.

The issues in each process are described in details in the later sections of this report

## Vale Chain of Bed Wear: (Illustrated Product is Regular Bed Wear)



### 8.34 Export Competitiveness of the Sector

#### 8.35 Quality and Standards

Quality and standards are dictated by the customers and they are the main driving force behind quality standards currently in practice in this segment. Quality is one of the major factors for buyers to purchase bed wear from Pakistan. Quality of bed wear is determined by the weight, feel, designing and finishing.

The exporters in Faisalabad usually describe the quality as meeting the standards set by their buyers. Manufacturers and exporters have made heavy investments and generally have new technologies (for production). If you have latest technology at your manufacturing facility then quality is not a big issue commented an entrepreneur. However there are quality problems in the raw material which needs extra processing. Oil stains in the fabric is one of them. Dyeing and printing are them regarded as the most critical quality issues.

Quality of the product is checked at each stage in both ways manually and in labs (in bigger units). Importers are adopting new standards with respect to performance and production thus a direct compulsion comes to the manufacturers to adopt the same.

The segment needs skill up gradation in the following areas;

- i) Designing
  - ii) modern dyeing and printing techniques through experts from foreign experts
  - iii) Stitching
- *The proposed strategy is skill up gradation of designers through international designing experts to produce designs according to the demands and needs of the specific markets. Stitching also needs up gradation to improve quality and productivity. Skill and technology up gradation on use of more environment friendly dye and chemicals used in the dyeing/printing process is the current as well as upcoming need of the industry.*

#### 8.36 Compliance Status

In Faisalabad bigger players in the market generally face no problem with respect to compliance issues but majority of medium and small units are being affected by the compliance issues. Manufacturers exporting to European Union countries are facing compliance issues especially waste water treatment plant. New standards like REACH (Registration, Evaluation, Authorization and Restriction of Chemicals) which aims to improve the protection of human health and the environment through better and earlier identification of intrinsic properties of chemical substances. Other major compliance area is waste water treatment plant which is increasing being demanded by the foreign buyers especially buyers from the European Union.

The survey revealed that majority of the buyers demand standards and certifications like, ISO 14000, SA 8000, Oeko-tex 100, AATTC and GOT. Big store chains and brands have developed their own standards/code of conduct which the manufacturers have to adopt.

- *The strategy would be capacity building of the existing institutes like Trade Development Authority of Pakistan which is providing facilitation of the above mentioned compliance certifications and develop local pole of experts to facilitate the local manufacturers and exporters to get these compliance certifications. Capacity building and facilitation in terms of technology and finances should also be provided for the industry to build and operation cost effective waste water treatment plants.*

### 8.37 Testing & Certification Capacity

Tests are recommended by the importers and in most of the cases the buyer also indicates the testing body from which the exporters should get their product/s tested/certified on pre-defined parameters. Big companies have established their in-house testing labs through which they keep checking the quality of material being processed from raw material to finished product.

The exporters use the local and well as foreign testing laboratories as per the requirement of the buyer. Laboratories which are mostly used by the exporters for testing and certifications include TTI, SGS, PTDF and PTI.

Some customers require testing of products in their referred laboratories in other countries like Hong Kong. Time taken by local labs ranges from 3 to 5 days while time taken by the foreign laboratories ranges from one to two weeks. Tests carried out for testing knitwear are summarized in the table below (based on the survey findings)

Type of Testing	Where is testing carried out			Testing Body & Location
	Testing (in-house)	Local Testing Body	Foreign Testing Body	
Shrinkage	( √ )	( √ )	( √ )	T.T.I
Colour fastness	( √ )	( √ )	( √ )	T.T.I
Rubbing		( √ )	( √ )	SGS Lahore
Tensile Strength			( √ )	SGS Hong Kong

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Printing	( √ )			SGS, PTI
Material Text		( √ )	( √ )	SGS, PTI
GSM test	( √ )	( √ )	( √ )	T.T.I, SGS

Majority of the manufacturers and exporters are satisfied with quality of the testing laboratories but they have concerns about the cost and time taken by the international laboratories for conducting these tests.

### 8.38 Value Addition & Productivity

This segment of the textile sector produces higher value added products. Companies contacted in the present survey associated value addition to the following aspects;

- Product design
- Product innovation
- Process development
- Introduction of new technology
- Adoption of new selling/marketing techniques

This indicates higher level of awareness in this sub-sector. Majority of the companies are vertically integrated. The trend is to develop a spinning and weaving unit initially and then integrate forwardly to produce more value added products like bed wear (home textile). Spinning and weaving involves heavy investment in machinery as compared with other textile sub sectors producing higher value added products, there for control of the production process is relatively stronger. Majority of the units surveyed reported to have developed and implemented policies and systems of

- Quality Management
- Production Management
- Productivity Measurement
- Human Resource Management
- Environment Management

Bigger firms having medium to long history of exports responded to the policies and systems of

- Energy Management
- Corporate Social Responsibility

But these two segments were not observed generally in medium and small firms. There is an increasing need for capacity building on energy management systems as well and companies are concern about saving energy to bring the cost of production down because of the increasing costs of utilities (electricity and natural gas).

The basic problem is inherent in the raw material being used. Two major problems identified by most of the responders are as follows;

- Contamination in yarn (raw material)
- Oil stains (weaving)

Responding to the productivity issues faced by the manufacturers & exporters, following issues were highlighted by the respondents;

- Low worker productivity (in stitching)
- Lack of modern / emerging technologies
- High wastage in Production
- Lack of R & D to develop new types of yarn

Following table briefly describes the status of bed wear industry with respect to value addition and productivity;

Sr. No	Process	Prioritize (High/Low)	What exact improvement you need?
1	Designing	High	<ul style="list-style-type: none"> <li>• Need skill up gradation on designing &amp; trend analysis of the importing countries</li> </ul>
2	Printing	High	<ul style="list-style-type: none"> <li>• Need awareness and training on modern printing techniques and use of environment friendly dyes and chemicals</li> </ul>
3	Stitching	High	<ul style="list-style-type: none"> <li>• Need skill up gradation for better quality and productivity</li> </ul>

- *The strategy should be skill up gradation of local designers to produce designs according to the requirements and taste of the buyers through designers from European Union countries. Technology up gradation is also required to use more environment friendly chemicals in printing. Skill up gradation in stitching to improve quality and productivity of the workers to reduce cost of production should be done.*

### 8.39 Access to Markets

For large companies (mostly vertically integrated units) have got their independent marketing departments and they market their products through participation in national/international trade fairs as well as personal visits to the buyers abroad, there for access to the market is not an issue but for them. Medium and small units usually don't have separate established marketing department and this function is performed by the owners. Medium sized companies participate in national exhibitions and visit the buyer personally to market their products.

Due to law and order situation in the country, most of the buyers have cancelled their visits to Pakistan; they prefer to meet the manufacturers and exporters at other places like U.A.E or in their own home country which adds more expenses to company's marketing activities. Major traditional buyers of bed wear from Pakistan include USA, U.K and countries in European Union.

The main requirements of the manufacturer and exporters in this industry with respect to marketing are as under

- Gathering marketing intelligence
- Exposure of the potential markets
- Marketing of their product
- Brand Development and marketing
- E-Marketing

Majority of the companies contacted for this survey showed their willingness for training and capacity building in the fields mentioned above. They were also showed their willingness for contribution in conducting these trainings. Lahore School of Economics was identified by the majority of the respondents for conducting such trainings.

*The proposed strategy is to build capacity in the following areas;*

- *marketing and presentation skills*
- *brand development and branding of products/brands*
- *e-marketing skills*
- *Exposure visits to existing as well as potential markets like U.K, Italy and Germany.*

### 8.40 Policy Capacity & Support

In the survey, all of the respondents indicated shortage and prices of electricity as the major issues after shortage of yarn. Load shading of electricity and natural gas is causing increase in time required for production on one hand and on other hand the cost of production is also increasing. Both of the factors are critical and making the

manufacturers and exporters uncompetitive in the international market with respect to time and cost of product. Majority of the respondents said that the cost of capital is very high for the due to the high mark up rates by banks and keeping in view the market situation, they need capital but can't afford such high mark up rates.

The survey findings indicate that majority of the manufactures and exporters faces no problem in usage of telecommunications and internet services with respect to efficiency, access and affordability.

Access and efficiency of transportation was reported satisfactory however due to increase in the prices of fuel, transportation cost has been increased.

Responding to the suggested steps to be taken by Government to encourage investment in bed wear, most of the respondents indicated the following steps;

- Improve law and order and security conditions
- Improve power and water shortage
- Improve governance
- Improve the judicial system including improvement in role of police
- Provide marketing and branding support
- Assist in improving worker skills
- Others

Declining law and order situation in the city has also becoming a concern for the owners as there are some cases in the recent past when owners or their close relatives like son have been kidnapped and huge amount of money was demanded for their safe release by the kidnapers.

In others, majority of the respondents said that there should be a strong mechanism of check and balance on the prices of raw materials and utilities (electricity and natural gas). Consistent supply of raw materials and utilities are very critical in sustaining this industry in such crucial situation in the country.

#### **8.41 Intellectual Property Rights**

No issues were identified by the manufacturers and exporters of bed wear with respect to Intellectual Property Rights (IPR) as majority of the manufacturers and exporters don't own brand. They said that they would be more interested in availing IPR services after they have developed their own brands. They feel that brand development needs heavy investments and specialized staff for development of their own brands and at present they don't have both of these requirements. How ever they demanded awareness and capacity building on brand development and marketing

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trainings. They also suggested Lahore University of Management Sciences (LUMS) as their choice for such kind of trainings and capacity building programmes

However majority of the respondents said that they have not utilized the services from any Government agency for resolving their technological issues or up gradation of technology. Majority of them use imported used machinery from countries where these industrial units are closing and were producing same type of products.

Majority of the respondents were agreed for such collaboration in future if provided by the match making opportunity.

#### **8.42 Recommended TRTA Interventions**

Following are the recommendations made for TRTA II Programme;

- Skill up gradation of the workforce in the production process specially pattern making, stitching, printing and finishing to improve quality and productivity and to bring it to the international level.
- Skill up gradation of designers (in house) through foreign designers to produce more value added bed wears for specific markets.
- Awareness and skill up gradation on more effective and efficient ways of production to reduce cost of production and improve profit margins.
- Awareness and skill up gradation on modern printing techniques & use of more environment friendly chemicals in printing processes
- Provision of support on designing, building and operation of economical waste water treatment plant
- Capacity building on marketing and brand development
- Exposure/marketing visit to potential countries like Italy, Germany and Australia on cost sharing basis to explore the potential markets for “Made in Pakistan Products”
- Publication of articles on Bed Wear Products of Pakistan in International Textile Journals to promote made in Pakistan Products through international experts
- Capacity building of APBUMA for sustainability of these initiatives and provision of these expertise to the mass target audience

## 8.43 Cotton Fabric

### 8.44 Overview

Pakistan is the fourth-largest cotton-producing country in the world and the whole textile industry is based on this local production of cotton.

In 2009 this sector accounted for 8.06% of total exports from Pakistan, total 1882.250 Million Square Meter cotton fabric worth of 1929.205 Million USD was exported while in the same time period in 2008 1920.268 Million Square Meter cotton fabric worth of 1929.205 Million USD was exported. The decline in the export of cotton fabric is attributed to many international and external factors.

This year Pakistan produced 13 million cotton bales, compared to 11 million bales last year. However, the estimated demand for cotton is of totals 15 million bales. This amounts to a deficit of two million bales to meet production demand. Law and order situation in the country forced most of the buyers to cancel their visits to Pakistan, load shading of gas and electricity added more difficulties to meet the export order prices and timelines. Another reason for this situation is the poor crop in China, which encouraged the local yarn manufacturers to export cotton & yarn to China resulting in further shortage of yarn in local market as well as increasing the cost of yarn for the local manufacturers and exporters of fabric and other value added manufacturers of more value added products like readymade garments and made ups.

According to All Pakistan Textile Mills Association (APTMA) 396 textile mills out of which 315 are spinning, 44 weaving and 37 composite units. These spinning mills have production facilities of texturing, mercerizing and dyeing of yarns; weaving mills have sizeable number of air-jet looms, and the composite mills have manufacturing facilities from spinning to finished textile products under one roof. The total installed capacity of APTMA member mills accounts for 9,661,366 spindles, 61,608 rotors, 10,452 Shuttleless/Air-jet Looms and 1897 conventional looms. The Association's members produce spun and open-end yarn, grey, printed dyed fabrics and bed linen.

Main concentration of this sector is in Karachi, Lahore and Faisalabad where big spinning sector is present producing the major basic raw material for cotton fabric production. This sector is at the middle of the whole textile value chain where it utilizes the yarn and produces cotton cloth to be used by the upper and higher value addition sectors and needs heavy capital investments. Investors generally starts their production as weavers and later integrates their units in forward direction and starts producing higher value added products like readymade garments, bed wears and made ups to increase their profit margins. According to a report there has been a total investment of Rs. 7.5 Billion in textile sector in which Rs. 1.143 Billion (15.23%) have been invested in weaving sector

Crown Agents

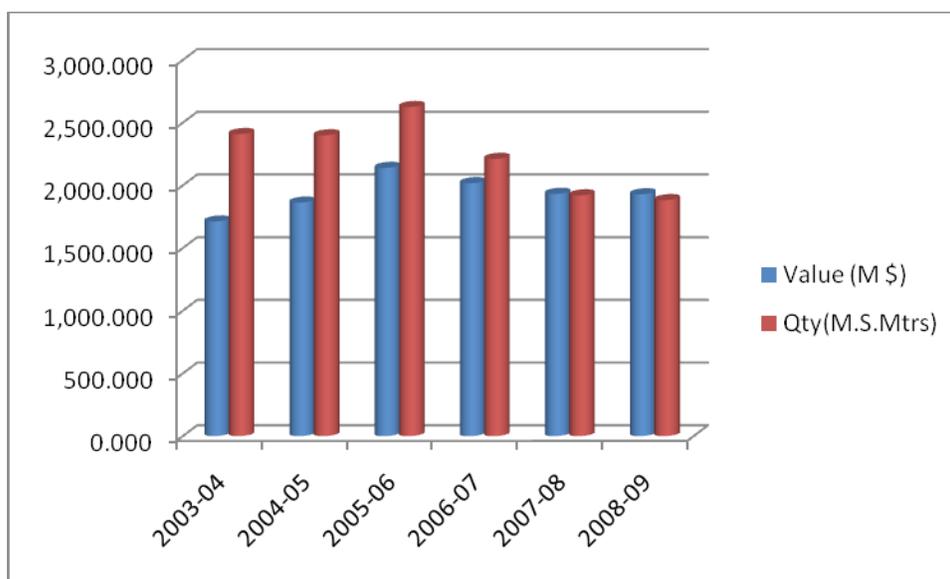
One of the main reasons of this sector establishment and sustainability is consumption of product from this sector (cotton fabric) in local market for domestic use as well as exports to other countries.

### 8.45 Contribution to National Economy

This sector of the textile industry accounts for 8.06% of total exports from Pakistan. In 2009 total 1882.250 Million square meter cotton fabric worth of 1929.205 Million USD was exported. This sector is not only providing direct jobs to workforce directly and indirectly to the workforce of other value adding segments like ready made garments, bed wear and other made up industries which mainly depends upon the cotton fabric as the major raw material. Export of cotton fabric from Pakistan is described in the table below;

Year	2003-04	2004-05	2005-06	2006-07	2007-08	2008-09
Value (M \$)	1,711.492	1,862.886	2,139.394	2,017.567	1,932.704	1,929.205
Qty (M. S. Mtrs)	2409.407	2399.458	2625.174	2211.182	1920.268	1882.25

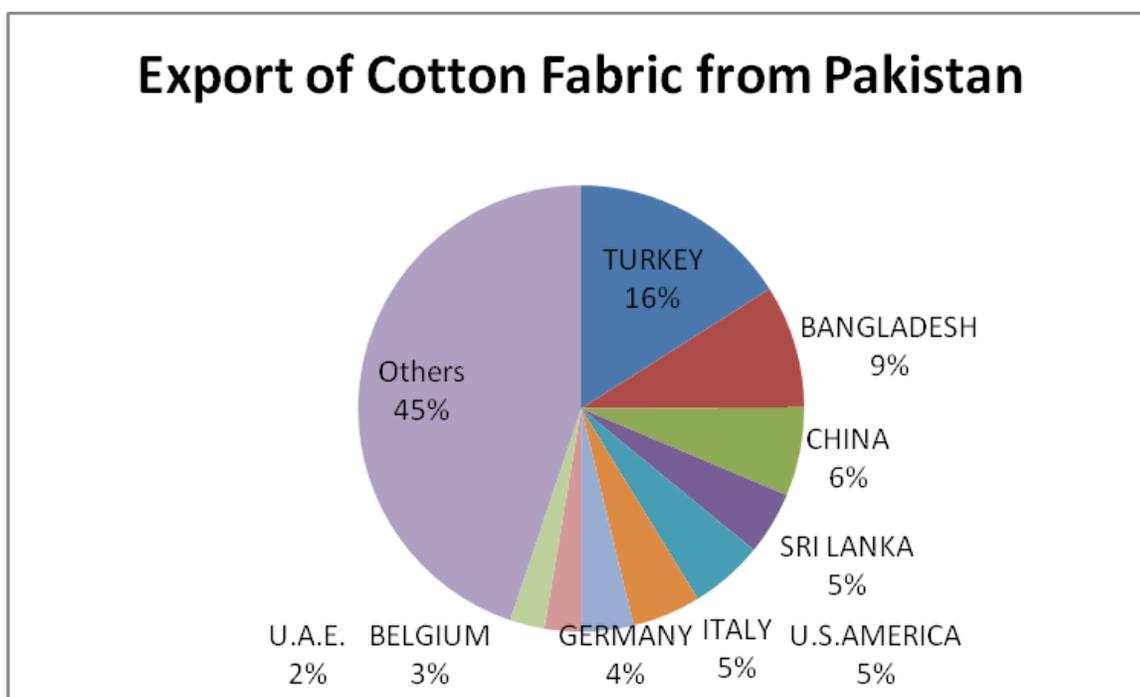
Source; Textile Commission Organization



### Export of Cotton Fabric from Pakistan

Turkey, China, Bangladesh, United States of America and Sri Lanka are the top five importing countries of cotton fabric from Pakistan. Following table shows the export destination of cotton fabric from Pakistan to the world;

Country	TURKEY	BANGLADESH	CHINA	SRI LANKA	U.S.AMERICA	ITALY	GERMANY	BELGIUM	U.A.E	Others
Exports	18,958	10,516	7,589	5,398	6,316	5,894	4,474	3,162	2,975	53,034
Age	16.02	8.89	6.41	4.56	5.34	4.98	3.78	2.67	2.51	44.82



Source: TDAP

### 8.46 Structure of the Industry

Weaving industry is concentrated in major cities of Karachi, Lahore and Faisalabad. According to All Pakistan Textile Mills Association (APTMA) 396 textile mills out of which 315 are spinning, 44 weaving and 37 composite units. These spinning mills have production facilities of texturing, mercerizing and dyeing of yarns; weaving mills have sizeable number of air-jet looms, and the composite mills have

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manufacturing facilities from spinning to finished textile products under one roof. The total installed capacity of APTMA member mills accounts for 9,661,366 spindles, 61,608 rotors, 10,452 Shuttleless/Air-jet Looms and 1897 conventional looms. The Association's members produce spun and open-end yarn, grey, printed dyed fabrics and bed linen.

This industry uses the output of spinning mills i.e. yarn and further process it to convert it into fabric which is the major raw material for other industries producing further value added products like garments and home textile. As this segment of the textile industry generally needs heavy investment therefore generally big investors, when building their production facilities, build their business plans in such a way that they keep room for forward integration and after running of their business in weaving sector comes in to production of either garments or home textiles which requires lesser investments but output gains more profit.

There are mainly three different sub-sectors in weaving industry

- Integrated Units
- Independent Weaving Units
- Power Loom Units

Both integrated and independent weaving sub sectors invested in the shuttle-less looms. This trend is likely to intensify in the country. The Power loom sub sector have modernized and shown a phenomenal growth over the last two decades. The growth of power loom sector is due to favorable market forces and support from the government. This sub sector is producing comparatively low value added grey cloth of mostly inferior quality. Major problems of the power loom sub sector are old technology, shortage of quality yarn and lack of institutional financing for its development from unorganized sub sector to an organized one.

### Production of Cloth

Cloth production is produced in formal setups like big industrial units generally known as Mill sector as well as in un-organized small and medium units generally called un-organized setups or Non-Mill sector.

Production of cloth in mill sector is reported while the production of cloth in non-mills sector is not reported and is therefore estimated. The production of cotton cloth had increased substantially during the last few years. This sector showed growth & thus served as the main strength for down stream sectors like Bed wear – Made-up & Garments. Following table shows the production of Mill and Non-Mill sector with percentage changes in 2007 to 2009 (July to March) in Pakistan

Production (M.Sq.Mtrs.)	July-Mar 2007-2008	July-Mar 2008-2009	% Age Change
Mill Sector	763.44	763.38	-0.01
Non Mill Sector	5963.86	5966.05	0.04
Total	6727.30	6729.44	0.03
Cloth Exports			
Quantity (M.Sq Mtr.)	1391.472	1580.999	13.62
Value (M.US\$)	1389.240	1522.638	8.90

Source: Textile Commission Organization

#### 8.47 Value Chain Analysis

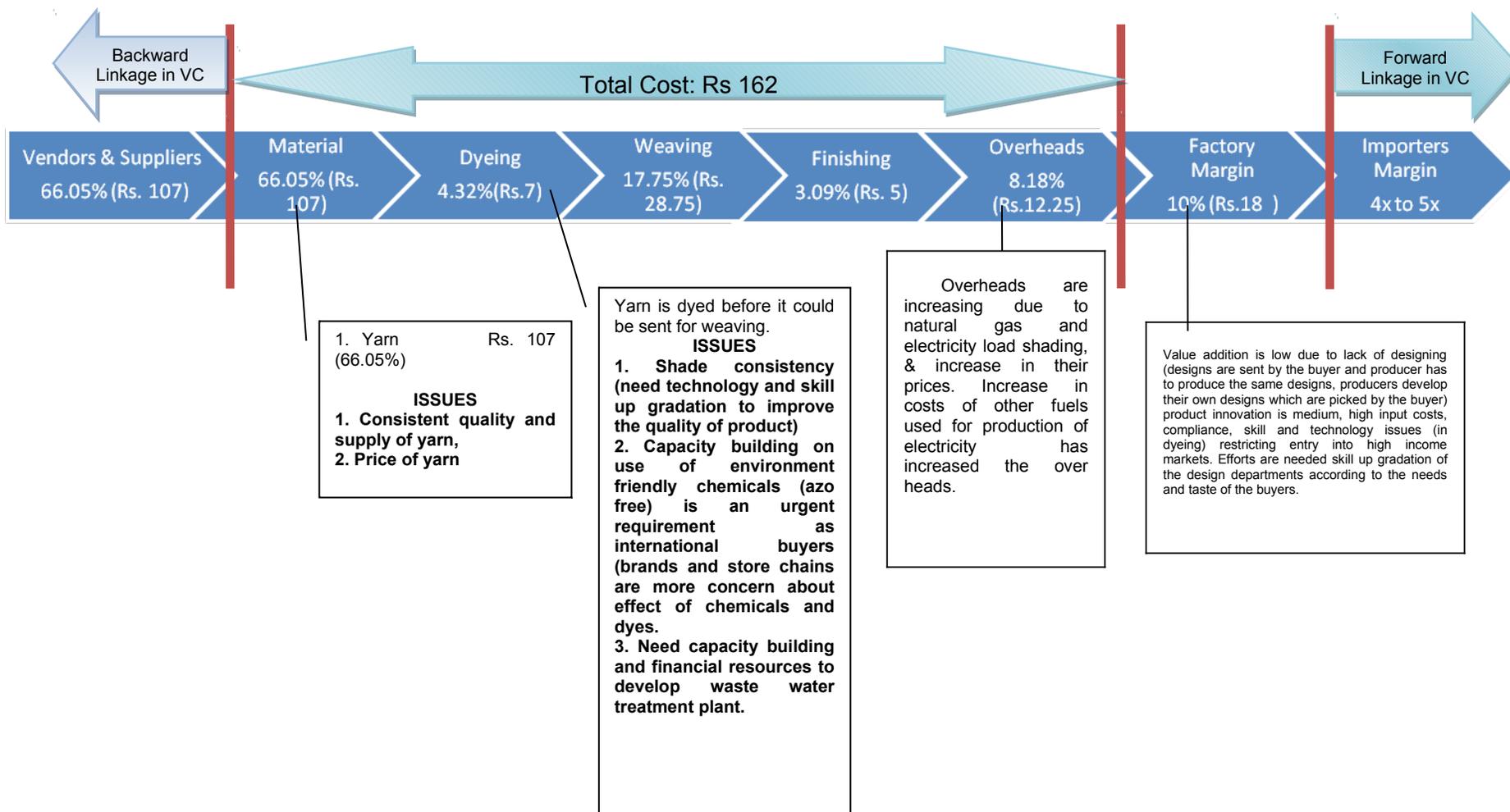
Value chain analysis is for regular heavy cotton fabric produced for exports as well as for manufacturers and exporters of value added garments. The cost can vary from company to company and city to city depending upon the size and location of the company.

Value chain analysis shows that the major cost is of raw material (yarn) which is locally available. In case of current product (heavy fabric) under observation it accounts for 67% of the total price of the product (per meter). The yarn is then sent for dyeing. Dyeing the most critical area in the production of cotton fabric as the performance of the product heavily depends upon it. The dyed yarn is then into the weaving section where the dyed yarn is weaved with un-dyed yarn according to the required structure of the fabric. The weaved fabric is then finished with the help of machines to remove any quality defects and give it the final finishing.

The issues in the process are discussed in detail in the later sections of this report

# Vale Chain Analysis of Cotton Fabric: (Illustrated Product Regular Heavy Cotton Fabric)

Crown Agents



## 8.48 Quality and Standards

This sector provides cotton fabric not only to foreign buyers but also to domestic fabric to manufacturers and exporters of more value added products. Domestic consumption therefore ensuring quality is a must for Producers are very much aware and conscious about the quality of their product/s.

Most of the respondents in the current survey described quality as “the requirements of our customers”. Majority of the producer’s rate quality as the top reason for their buyers to buy cotton fabric from them and the 2nd most important reason was their price followed by deliver in time. Yarn is the major raw material used for the production of cotton fabric; quality of cotton fabric mainly depends upon the quality of yarn. Quality of yarn is described in many technical aspects including count or fineness of yarn, its type and finishing. Contamination in cotton one of the major reason for quality defects in yarn which comes in the cotton fabric as an inherent defect.

In cotton production process quality of fabric depends upon the technology used for weaving. Human factors do effects the process but to a lesser extend. In case of gray fabric the yarn is simply weaved where as the production of dyed fabric requires dyeing of yarn first, this type of fabric is generally used by the manufacturers and exporters of woven garments. Gray fabric is used for the production of garments for the domestic market and it needs dyeing before selling it in to the local and international market. Big brands generally produce dyed or printed fabric and sell it local and international buyers.

Quality of yarn is tested before using it goes to the weaving section in case of gray fabric and in case of dyed fabric the dyed yarn is again tested according to quality testing labs (in house). The dyed yarn is then used in combination with other yarns (cotton and polyester) to produce the desired type of fabric.

The fabric is then finally tested before sending to buyers, tests are carried out in house as well as buyer specified labs (local and international). Following two major issues were identified;

- Availability of quality yarn (contamination free)
- Technology and skill up-gradation in dyeing

Contamination in the cotton needs awareness and skill up gradation at the very basic level. Quality problems in the later value chain are attributed to this single issue. Cotton from India has lesser contamination as compared with the cotton produced in Pakistan. Indian cotton is said to have 4 to 5 % contamination whereas Cotton produced in Pakistan is reported to have 8 to 9 % contamination.

Dyeing is one of the critical areas in the whole value chain of textile products. Almost every value added product of cotton is dyed or printed before it could be sold to buyers. Awareness, technology and skill up gradation is required in this sector for better dyeing /printing techniques and usage of more environment friendly chemicals is essentially requirement which needs immediate action.

Buyers/brands get most of the profit margins due to their presence, marketing and direct interaction with consumers. Big companies have developed their own front offices abroad and sales directly to the consumers but majority of the manufacturer and exporters sell their products to the buying houses and brands and are currently aware of the potential present. Limitation of skill and exposure are main problems other than financial constraints. Companies contacted in the survey needs awareness and capacity building on marketing and brand development.

Awareness, technology and skill up gradation for recovery of chemicals after bleaching and dyeing and printing are also needed not only to reduce the cost of production but also to preserve our environment.

#### 8.49 Compliance Status

There is high level of awareness in the cotton fabric sector regarding compliances, they associate compliances with the following factors;

- Labour Laws
- Corporate Social Responsibilities
- Health, hygiene and sanitary requirements
- Getting product tested in accredited labs
- Inspection of products / processes

Majority of them said that they are fully compliant and have the following polices and systems in place about;

- Human Resource Management
- Environment Management
- Production Management
- Corporate Social Responsibility

Some of the commonly implemented certifications include the following;

- ISO 9001
- ISO 14001
- SA 8000
- OEKO-TEX
- SEDEX
- IKEA Social standards

There are other certifications and code of conduct regarding processes and product performance that big brands have and producer and exporters have to implement these standards in order to export their products to these brands. If the company is exporting in more than countries or region then the company has to implement all the required standards which results in higher cost of compliance adding more cost in the cost of doing business.

The main compliance issue being faced by a majority of the sector is of waste water treatment plant. Buyers are becoming more and more conscious about the impacts on environment while producing these products there for they are gradually increasing their standards. Waste Water treatment plant is being demanded by majority of the big brands and major buyers. Due to limitation of resources and cost of building and operating these plants, cost of production goes even higher. The cost of production is already increasing due to shortage of yarn in the local market as well as the increase in price of yarn, at the same time cost of utilities (natural gas and electricity) is on rise

as well as load shading of these basic utilities are making local manufacturers and producers more un competitive with respect to price and deliver on time as compared with other exporting countries.

- *Capacity building, financial and technological needs are there for building and operating effluent treatment plants while technical and skill up gradation on use of more environment friendly dyes and chemicals as well as recovery of these chemical is needed.*

### **8.50 Testing & Certification Capacity**

Raw material (yarn) before dyeing and after dyeing is tested before it could be sent for weaving section. The cloth produced is also tested with respect to many aspects like quality, construction, shrinkage, softness, strength, weight per square meter, material, dyes and chemicals and performance like color fasting, dry fastness, light fastness, washing test, rubbing etc.

Most of the tests are done in house while advanced tests are carried out in local and international laboratories. Laboratories used for testing are SGS, ITS, NTS, BVCPS and TTI.

Type of test required is specified by the buyers and some buyers also specify the name and location of their preferred laboratories. Most of the respondent said that the cost of these tests is generally higher and time taken by local laboratories rages from 3 days to a week depending upon the type of tests requested.

### **8.51 Value Addition & Productivity**

This sector adds more value to yarn, according to a report the average unit price (in 2008) of cotton was 1.35USD/kg while the average unit price of yarn was 2.61USD/kg and the average unit price of cotton fabric was 8.14 USD/Kg indicating a value addition of 503% ass compared to raw cotton exported and 3 to 4 times as compared with yarn.

The respondents in the current survey relate value addition to the following aspects;

- Product design
- Product Innovation
- Process Development
- Introduction of new Technology

Most of the manufacturing units visited have clearly defined and implement the following systems

- Quality Management
- Production Management
- Environment Management
- Human Resource Management
- Productivity Management

This sector mainly depends upon the technology for the quality of the fabric being weaved while in dyeing the quality depends upon technology and skill of the workers equally. There for the sector needs awareness and access to the latest weaving technology and capacity building, skill up gradation in dyeing/ printing technology and processing techniques.

### 8.52 Access to Markets

Due to export orientation of this sector for a long time, majority of the units have separate marketing departments yet the marketing is done by the owners of the firms. They uses all marketing approaches to sell their products, bigger units sales their products mostly directly to the buyers or through international buying house while medium units uses direct sales to the buyers as well as sell to local and international buying houses.

Manufacturers and exporters of this sector are more active on marketing side and do their marketing through following channels (in order of the responses form the respondents)

- *Personal visits*
- *Participation in national and international trade exhibitions*
- *Through internet*

Only big brands uses printed material in for their marketing, while other firms uses printed promotional/marketing material in local and international trade fairs.

The manufacturers and exporters are aware of potentials associated with brands but consider brand development and branding as very expensive and risky task. Majority of the respondents said that they need training and capacity building in marketing skills.

Law and order situation in the country have forced many foreign buyers to cancel their visits to Pakistan and asked the exporters to come to some middle place like U.A.E or their country to conduct business, again this factor does not effect bigger players of the market but medium sized firms are being badly effected by this factor which is ultimately adding more costs to the business.

New buyers are not coming to Pakistan only traditional buyers are buying from Pakistan affecting the expansion of the sector. The major issue with made in Pakistan products is Pakistan is branded as “medium quality cheaper products country”. Following are the problems identified;

- *Image building of Made in Pakistan products as “High Quality Products”*
- *Exposure to potentials markets*
- *Skill up gradation on marketing*
- *Awareness and skill up gradation on brand development and branding*

- *Exposure visit to potential markets should be carried out to explore those markets. Skill up gradation of manufacturers and exporters on marketing skills at chamber or Association platform should be done. Awareness and capacity building, facilitation should be provided to the manufacturers and exporters to establish and promote their own brands at chamber or association platform*

### **8.53 Policy Capacity & Support**

The whole textile industry is has been suffering form decrease in export orders due to law and order situation in the country as majority of the regular and new buyers canceled their plans to visit Pakistan and place orders. The situation got even more critical due to the global financial crises whereas in Pakistan load shading of natural gas and electricity is not only effecting the production but also causing time delays in meeting the delivery dates which ultimately results in loss of order or penalties by the importers.

Due to any reason if the production is not in time, the producer have to send the consignment by air to cover the time delay in production. By sending the consignment by air, profit margin is reduced to almost no profit situation, however the producer if forced due to do so to not only fulfill his commitment but also to retain the buyer and to avoid financial penalties by the buyer.

- Load shading of natural gas and electricity in Pakistan is affecting the manufacturers and exporters in many ways including;
- Delay in productions (exporters are not able to meet the target dates)
- Cost of production is going up due to load shading of natural gas and electricity as manufacturer has to use generators to produce electricity to keep the production going but the cost of electricity is higher (as cost of fuels diesel/furnace oils is also increasing)
- Direct cost of production is increasing due to increase in the cost of raw materials as the raw material producing industries are facing the same problems
- Due to increase in raw material prices, cost of utilities and direct production costs, manufacturers and exporters are rapidly becoming uncompetitive in international markets and buyers are directing their orders to competitors like Bangladesh, China and India.

Majority of the respondents were in support of the following steps to be taken by the Government;

- Invest more in infrastructure
- Improve law and order and security conditions
- Improve power and water shortage
- Improve governance

- Crown Agents
- Provide marketing and branding support
  - Assist in improving worker skills
  - Others

In others, they indicated the need for development and enforcement of a mechanism of check and balance on the prices of raw materials and cost of utilities for this industry.

Manufacturers are of the point of view financial institutes (banks) have increased interest rates due to which they are unable to avail the services of banks especially in the current business situation in the country. They are satisfied with the telecommunication and internet service providers with respect to efficiency, access and affordability of the services being provided.

### **8.54 Intellectual Property Rights**

As cotton fabric is the raw material for many value added industries present at the other side of the whole textile value chain and is consumed for making apparels, bed wear and made ups, therefore they are not faced by so many problems with respect to Intellectual Property Rights (IPRs). More over the fabric is directly purchase from the manufacturing units and consumed in shorter periods of time.

Most of them have not contacted any universities for solving their technical issues or technological up gradation so far. They rely on marketing material available to them by different sources like personal contact by vendors with them, adds in the new letters of different organizations, international textile journals, peers and participation in local and international exhibitions. They are willing for such kind of technical collaboration with universities.

### **8.55 Recommended TRTA Interventions**

Following are the recommendations made for TRTA II Programme;

- Skill up gradation of the workforce in the production process specially weaving, and finishing to improve quality and productivity and to bring it to the international level.
- Skill up gradation of designers (in house) through foreign designers to produce more value added fabric for specific markets.
- Awareness and skill up gradation on more effective and efficient ways of production to reduce cost of production and improve profit margins.
- Awareness and skill up gradation on modern dyeing techniques & use of more environment friendly chemicals in dyeing processes
- Provision of support on R&D with respect to new fabric development, building and operation of economical waste water treatment plant
- Capacity building on marketing and brand development
- Exposure/marketing visit to potential countries like Italy, Turkey, United Kingdom, Italy, Spain and Russian States on cost sharing basis to explore the potential markets for “Made in Pakistan Products”

- Publication of articles on fabrics of Pakistan in International Textile Journals to promote made in Pakistan Products through international experts Capacity building of APTMA for sustainability of these initiatives and provision of these expertise to the mass target audience

## 9. Monitoring Indicators

Indicator	Current Value	Source	TRTA II Impact Indication
<b>Macroeconomic Indicators</b>			
<b>Contribution of Manufacturing Sector to GDP</b>	18.2% in 2008-09	Pakistan Economic Survey 2009	Overall growth of industry leading to higher employment and incomes
<b>Coefficient of deviation of the manufacturing sector over last 10 years</b>	129% for 10 years ending 2009	Pakistan Economic Survey and authors calculations	Reduction in volatility will increase mean performance and reduce volatility resulting in higher employment and wealth creation
<b>Ratio of Private Investment to GDP</b>	13.2% for 2009	Pakistan Economic Survey	Increase in private investment indicates improved business outlook and higher profitability
<b>Total Employment in Manufacturing Sector</b>	4.732 Million during 2008-09	Pakistan Economic Survey and authors calculations	Wealth creation and poverty reduction.
<b>Poverty Head Count</b>	22.3% during 2005-06	Pakistan Economic Survey	Overall impact on poverty
<b>Regional Indicators % of Population</b>			
<b>Literacy Rate 10+ years olds</b>	Faisalabad 65.9% Lahore 74.1% Gujrat 74.2% Sialkot 72.5%	MICS Report Punjab 2007-08	Decrease in poverty will indicate increasing literacy levels
<b>Preschool attendance</b>	Faisalabad 13.9% Lahore 25.4% Gujrat 18.3% Sialkot 21.2%	MICS Report Punjab 2007-08	Decrease in poverty will indicate higher attendance at pre-school
<b>Unemployment rate</b>	Faisalabad 5.3% Lahore 6.4% Gujrat 15.5%	MICS Report Punjab 2007-08	Decrease in unemployment rate will indicate higher employment and incomes

	Sialkot 10.3%		
<b>Household Possessions</b>	<p><b>Faisalabad</b></p> <ol style="list-style-type: none"> <li>1. Telephone 21.6%</li> <li>2. Computer 11.1%</li> <li>3. Internet 7.7%</li> <li>4. Fridge 46.3%</li> </ol> <p><b>Lahore</b></p> <ol style="list-style-type: none"> <li>1. Telephone 36.3%</li> <li>2. Computer 23.7%</li> <li>3. Internet 17.4%</li> <li>4. Fridge 74.5%</li> </ol> <p><b>Gujrat</b></p> <ol style="list-style-type: none"> <li>1. Telephone 35.5%</li> <li>2. Computer 14.4%</li> <li>3. Internet 10.8%</li> <li>4. Fridge 67.5%</li> </ol> <p><b>Sialkot</b></p> <ol style="list-style-type: none"> <li>1. Telephone 30.0%</li> <li>2. Computer 12.0%</li> <li>3. Internet 8.8%</li> <li>4. Fridge 57.7%</li> </ol>	MICS Report Punjab 2007-08	Increase in possessions of basic utilities will show improvement in incomes and poverty
<b>Product Level Indicators</b>			
<b>Cotton Fabric</b>	Exports Share of GDP: 2.4% - 2007-08 Average Export Price: \$1.04/Sq Mtr	TDAP and UN Commodity Trade Statistics – 2007-08 data.	Higher Share in GDP represent increased export competitiveness  Higher average export price will represent improved quality and higher value added
<b>Knit Wear</b>	Exports Share of GDP: 2.25% - 2007-08 Average Export Price: \$17.27/dozen		
<b>Made Ups</b>	Exports Share of GDP: 2.94% - 2007-08 Average Export Price: \$5.17/Kg		
<b>Sports Goods</b>	Exports Share of GDP: 0.36% - 2007-08		

	Average Export Price Football: \$39.74/dozen Average Export Price Gloves: \$35.14/dozen		
<b>Surgical Goods</b>	Exports Share of GDP: 0.31% - 2007-08 Average Export Price: \$1.39/piece		
<b>Fans</b>	Exports Share of GDP: 0.03% - 2007-08 Average Export Price: \$26/Fan		
<b>Cutlery &amp; Swords</b>	Exports Share of GDP: 0.07% - 2007-08 Average Export Price: \$8.50/piece		
<b>Value Addition Indicators</b>			
<b>Surgical Instruments</b>	75%	PACE Survey	Value addition represents the size of wages and profits.
<b>Cutlery</b>	50-65%		
<b>Fans</b>	25-30%		
<b>Productivity Indicators</b>			
<b>Surgical</b>	60% - Average Capacity Utilization	PACE Survey	Ratio of actual production to expected maximum production capacity.
<b>Cutlery</b>	50% - Average Capacity Utilization		
<b>Fans</b>	85-90% - Average Capacity Utilization		

## 10. Conclusion

## 11. Annexure

### 11.1 Survey Form

### 11.2 Additional Charts for Cutlery & Hunting Equipment Industry

<b>8215</b>	<b>Spoons, Forks, Ladles, Cake Server, Fish Knives etc.</b>
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Chart: Pakistan Exports in Product Category 8215 US\$ (Mn) (2005-2009)

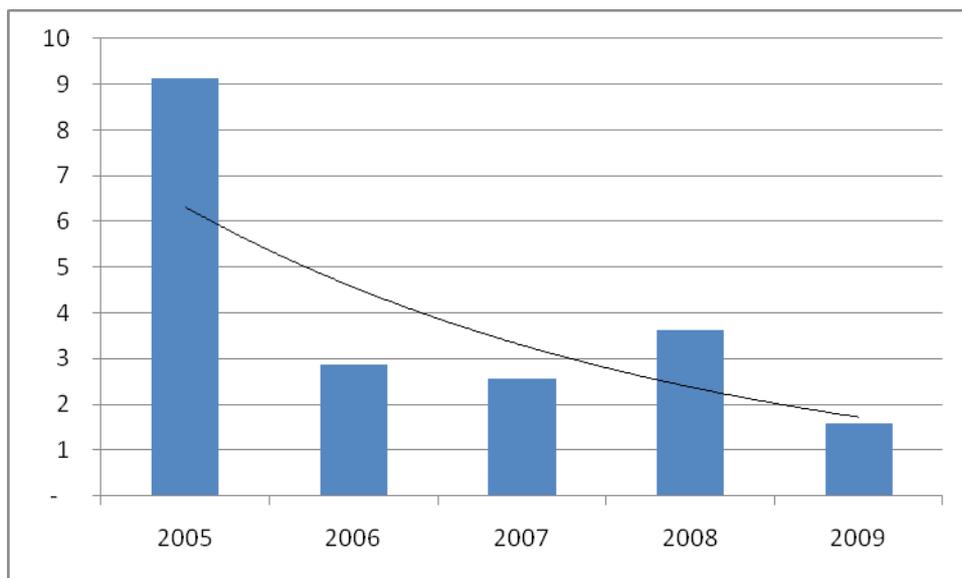
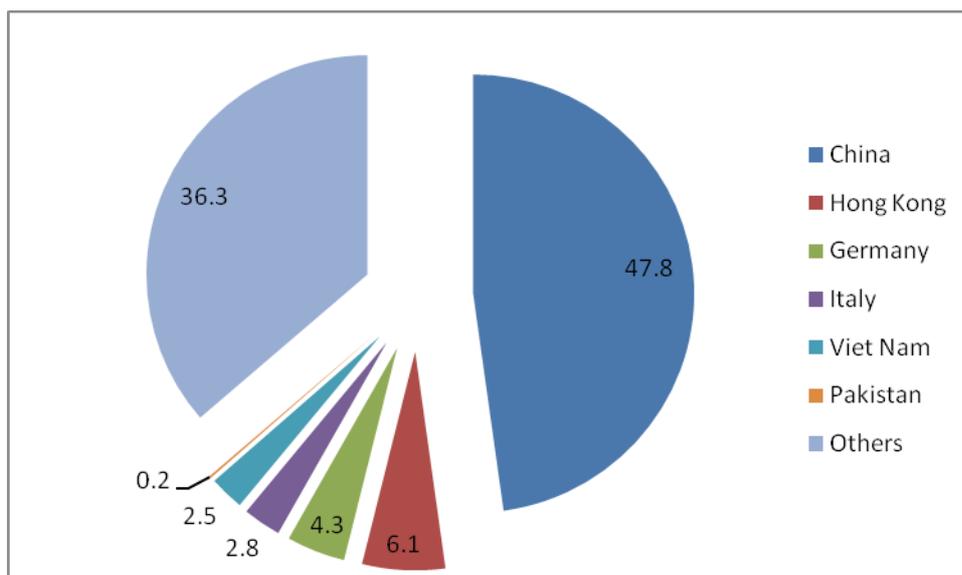
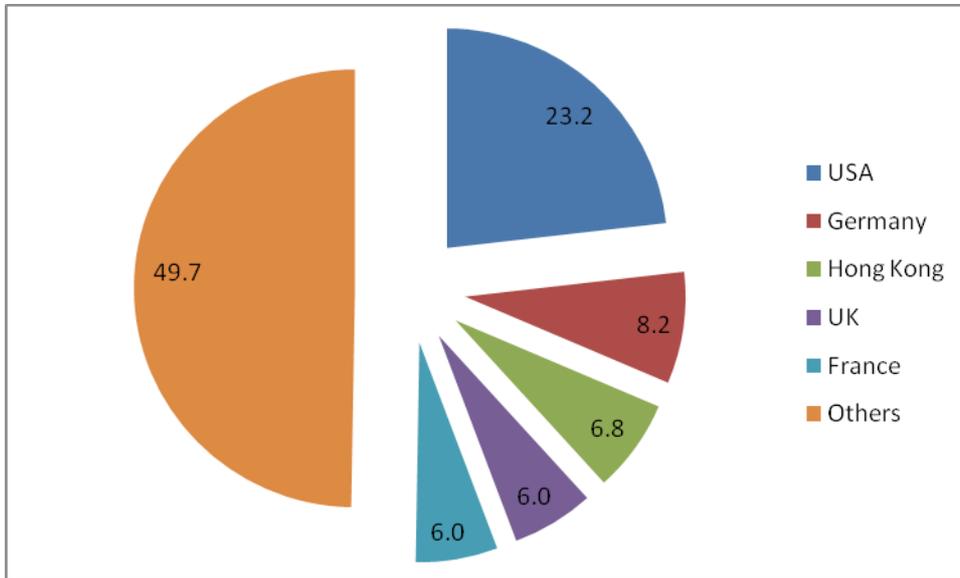


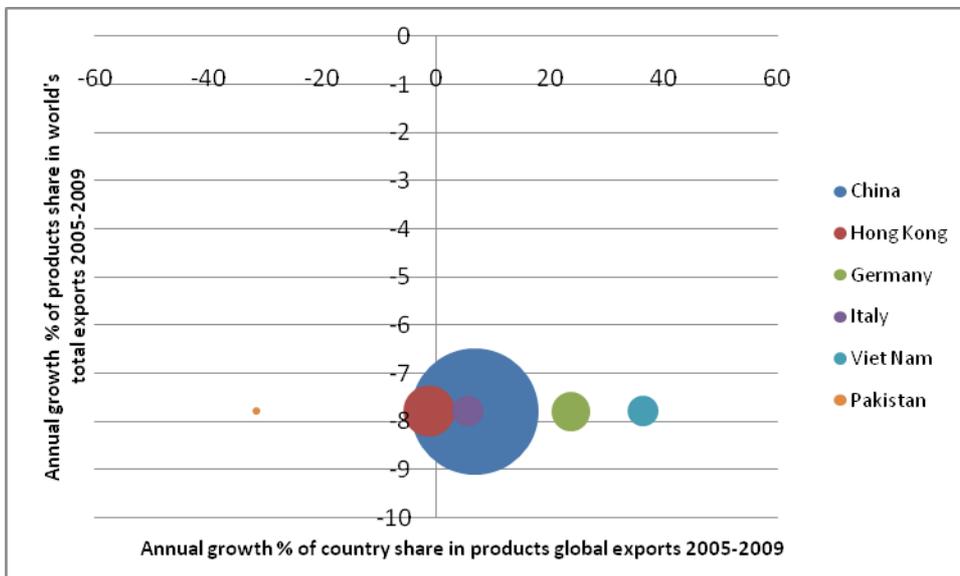
Chart: Average % Export Market Shares for 8215 (2005-09)



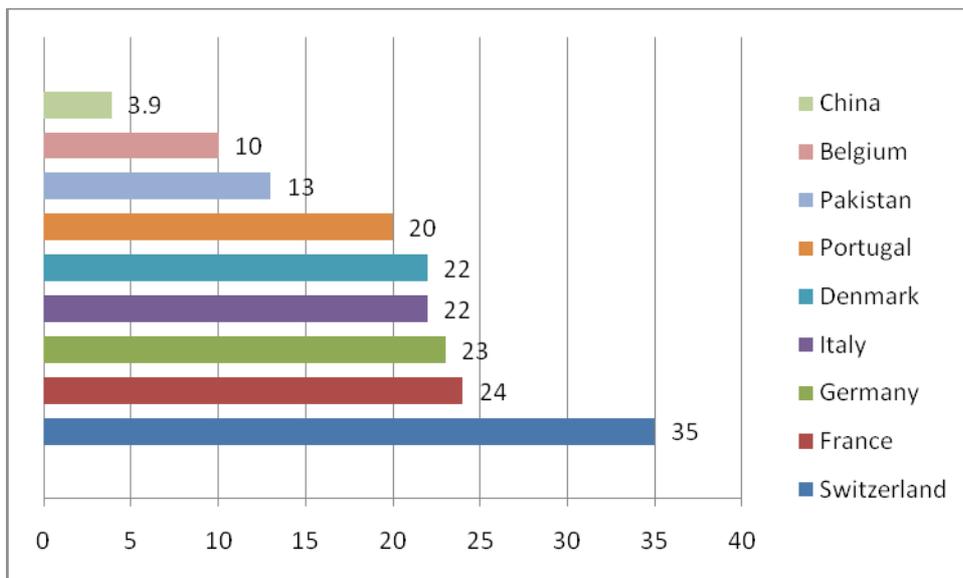
**Chart: Average % Import Market Shares for 8215 (US\$ Mn) (2005-09)**



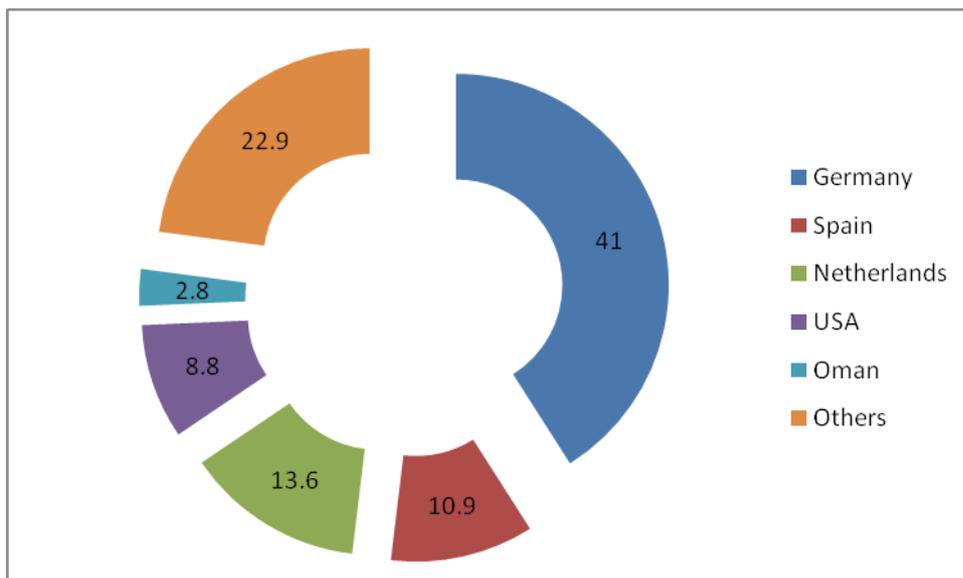
**Chart: Positioning of Major Exporter's of 8215 2005-2009**



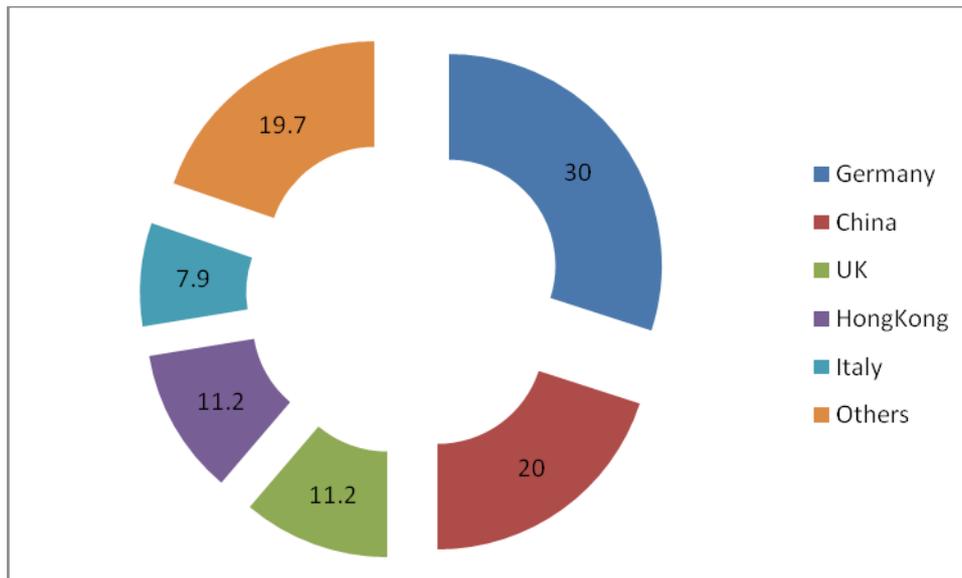
**Chart: Average Export Price US\$/Kg for Product 8215**



**Chart: % Pakistan's Export Market's for product 8215 (2009)**



**Chart: % Switzerland's Export Market's for product 8215 (2009)**



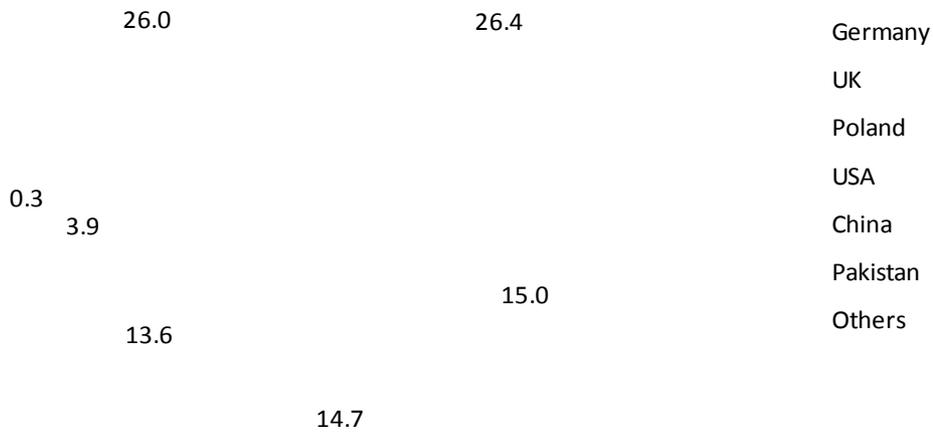
**821220**

Safety Razor Blades

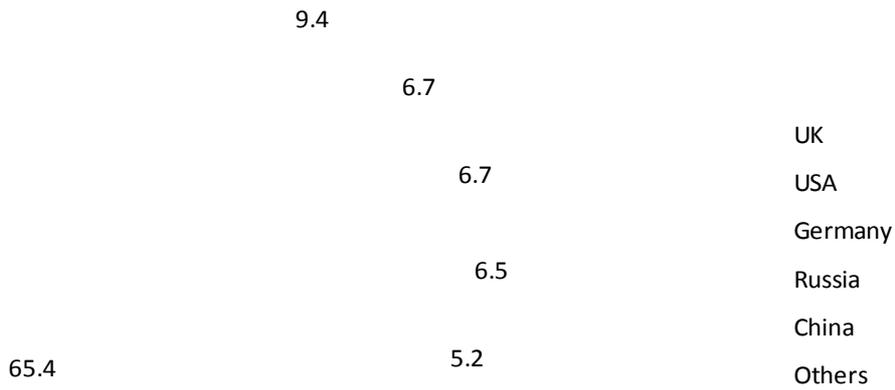
**Chart: Pakistan Exports in Product Category 821220 US\$ (Mn) (2005-2009)**



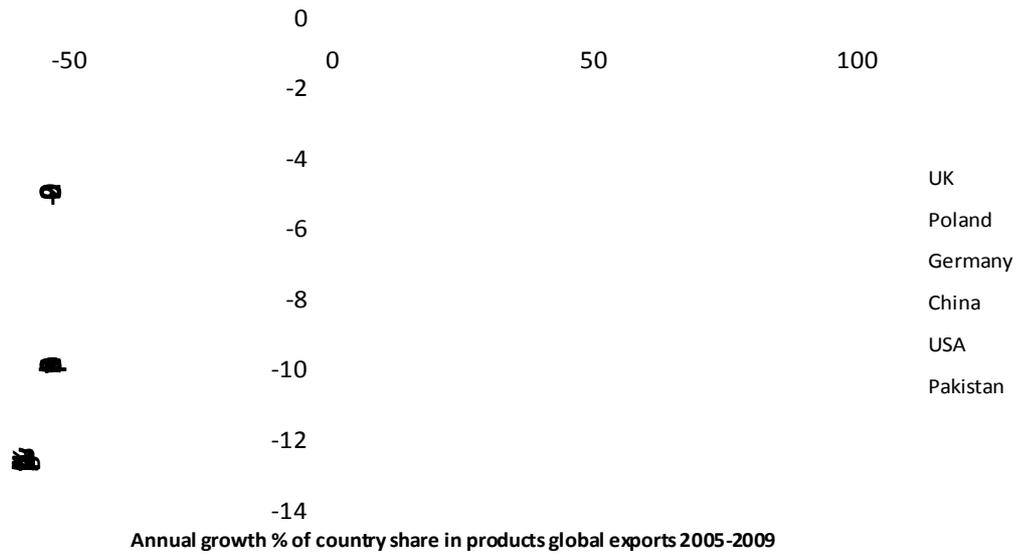
**Chart: Average % Export Market Shares for 821220 (2005-09)**



**Chart: Average % Import Market Shares for 821220 (US\$ Mn) (2005-09)**



**Chart: Positioning of Major Exporter's of 821220 2005-2009**



**Chart: % Pakistan's Export Market's for product 821220 (2009)**

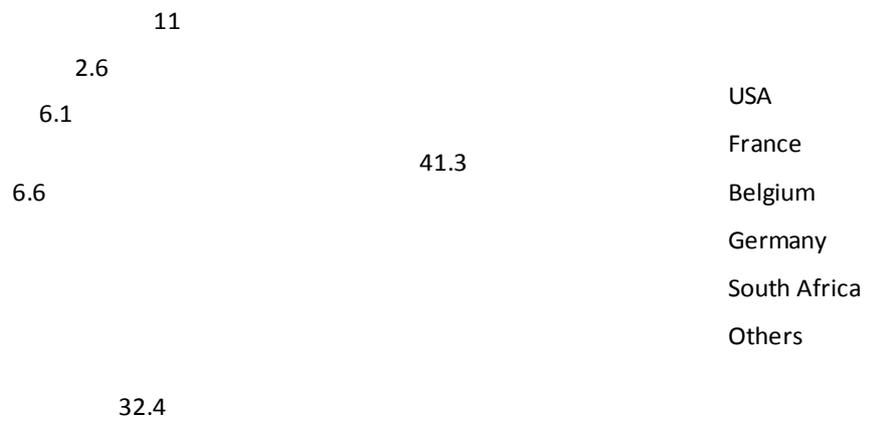
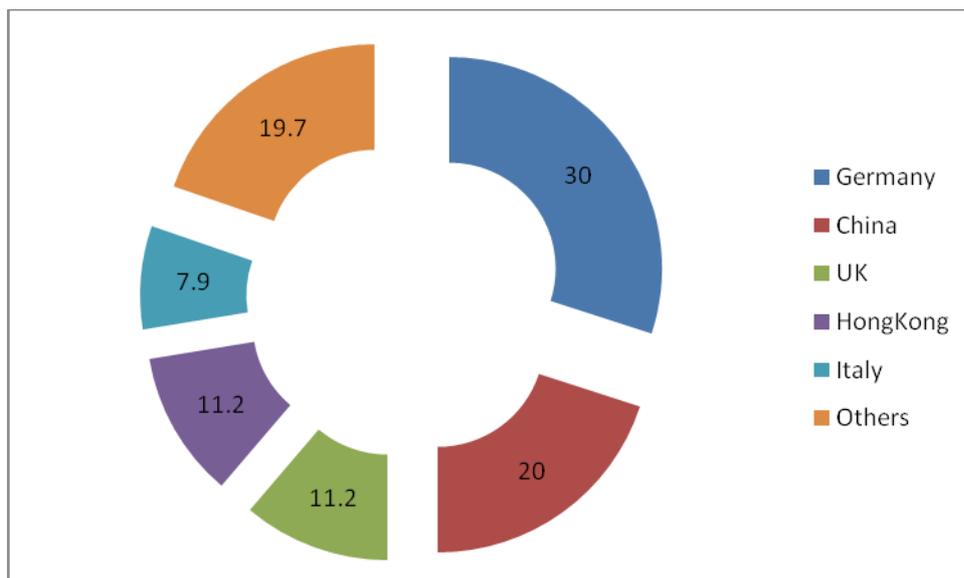


Chart: % Switzerland's Export Market's for product 821220 (2009)

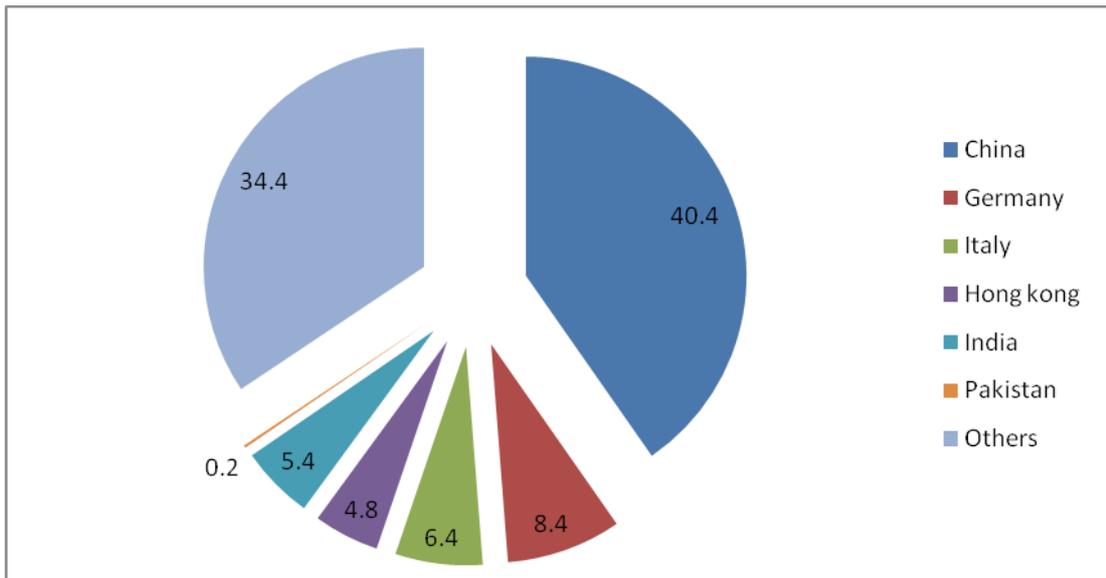


<b>732393</b>	Table Kitchen items of stainless steel
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Chart: Pakistan Exports in Product Category 732393 US\$ (Mn) (2005-2009)



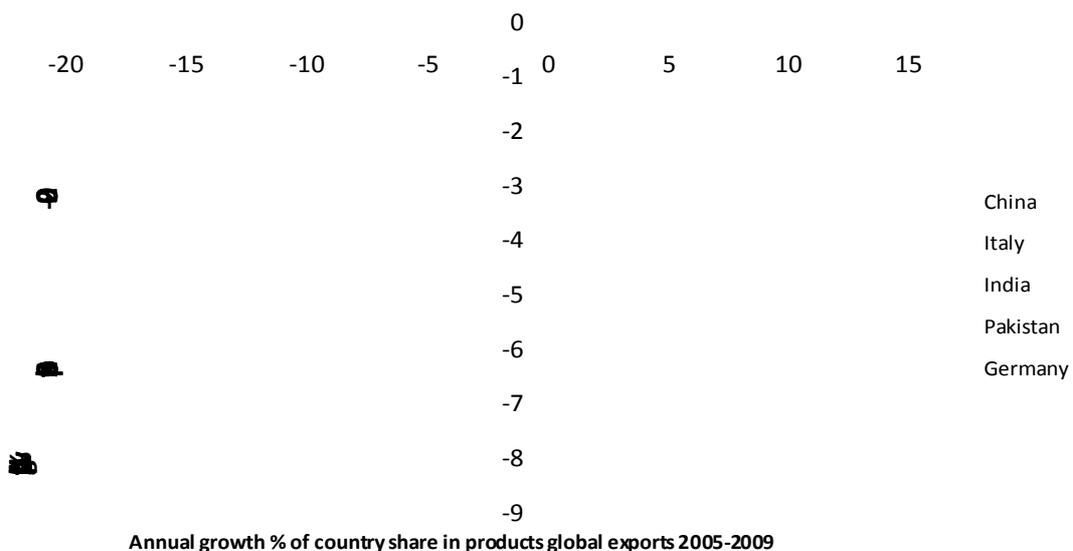
**Chart: Average % Export Market Shares for 732393 (2005-09)**



**Chart: Average % Import Market Shares for 732393 (US\$ Mn) (2005-09)**

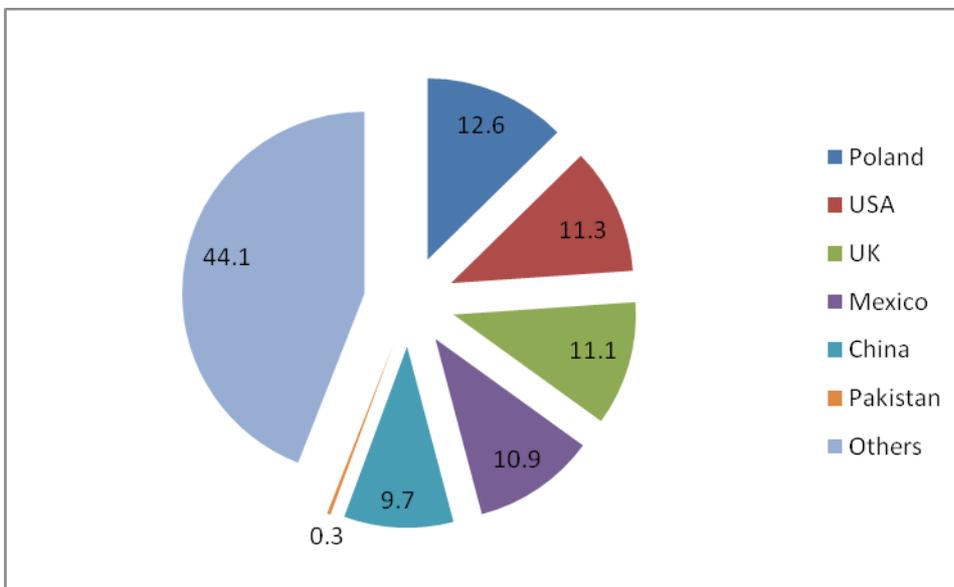


Chart: Positioning of Major Exporter's of 732393 2005-2009



821210	Razors
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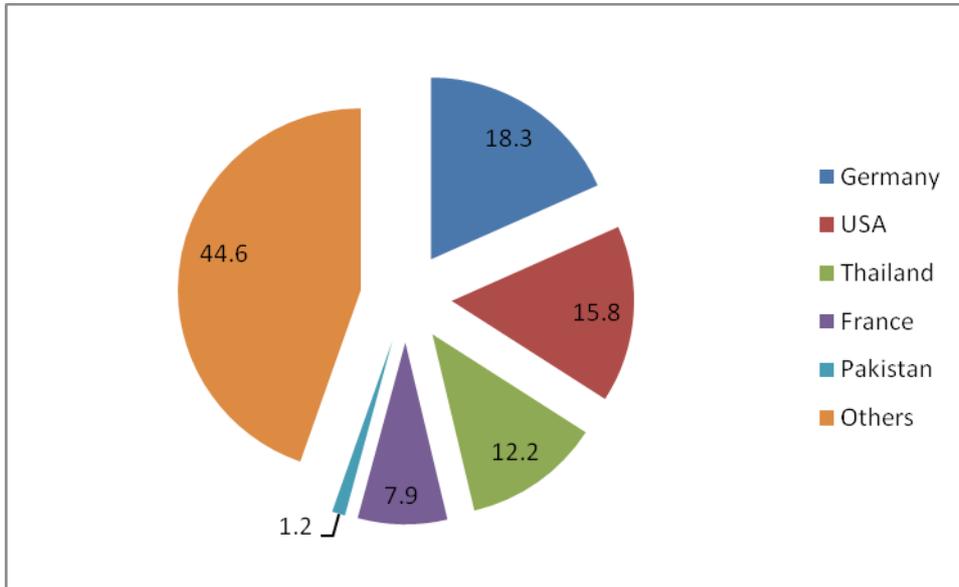
Chart: Average % Export Market Shares for 821210 (2005-09)



9307

Swords, cutlasses, bayonets

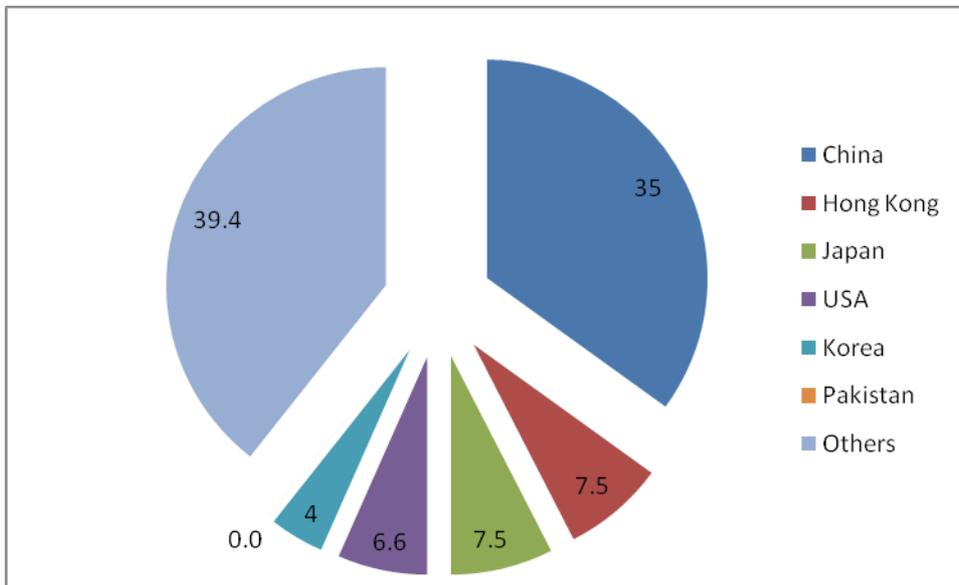
Chart: Average % Export Market Shares for 9307(2005-09)



9507

Fishing & Hunting Equipment

Chart: Average % Export Market Shares for 9507 (2005-09)



8208

Knives & Cutlery Blades

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**Chart: Average % Export Market Shares for 8208 (2005-09)**

