Impact of Environmental Regulations on the Textile Sector of Pakistan

By
Atif S. Malik

Country Paper Prepared for Expert Meeting on Environmental Requirements and International Trade October 2-4, 2002, Geneva

1. INTRODUCTION

The textile sector holds a lead role in the development of the manufacturing sector in Pakistan. It comprises almost 30% of the manufacturing value added, provides employment to more than 40% of the manufacturing sector labour force and it is a major foreign exchange earner for the country. Nearly 63% of the total exports of Pakistan comprise textile products. The trade in textiles is directly effected by the phenomenon of globalisation that is leading to lower tariff barriers and removal of quantitative trade restrictions. Multi Fibre Arrangement adopted in early 70s by the developed countries to protect their domestic textile industry was replaced by the Agreement on Textiles and Clothing (ATC) in 1994. The ultimate objective of the ATC is to phase-out the quota restrictions on the import of textiles by 2005.

The textile sector globally remains a heavily protected industry. Case in point is the country commitment of the USA under WTO. The USA has committed itself to reduce tariffs by 34% for all the industrial products. However, the textile and clothing sector has remained an exception with the commitment of a reduction of 12%, almost one third of other industrial products. This phenomenon clearly brings out one thing that the developed countries will try to limit exports of textile products from the developing countries to provide certain degree of protection to the domestic industry. With the phase out of quantitative restrictions on the textile imports, the developed countries are left with limited options to provide protection to the domestic sector. Tariff can only be used as a potent tool in case of dumping by any country or to impose countervailing duties as safeguard measure. These limitations are likely to usher a new era of trade barriers i.e. Non Tariff Barriers (NTBs). Although the Uruguay round addressed the issue of technical barriers to trade by introducing the Agreement on TBT, but still it provides sufficient room to impose quality standards, both product and process specific.

The subject of NTB currently appears to have no clear-cut demarcation and there exist a lot of grey areas. This dynamic broad spectrum of non-tariff trade restrictions may include the following:

Product and process standards: refer to the quality and specification of a particular product and also processes

Social Accountability: pertains to the responsibility of manufacturers and industrialists to provide due social protection to the workers including hygiene at the work place, proper working environment, etc

Environment: probably the broadest area imposing restrictions on processes and certain intermediate processing products, which are detrimental to the overall environment.

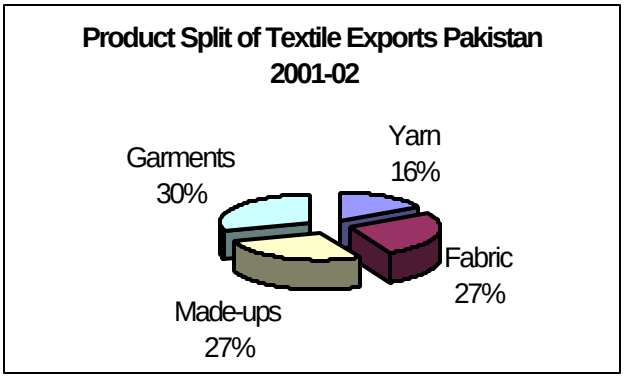
The scope of this short paper is limited to the identification of certain issues related to the exports of textile products from Pakistan and the impact of various environment regulations that may impede the future growth of textile sector in the country.

2. PAKISTAN; KEY INDICATORS

Pakistan is primarily an agrarian economy, agriculture sector comprises almost one fourth of the total GDP. The manufacturing sector has over the past several years remained stagnant with a share of 17% in the GDP. The GDP, currently at US $ 63 billion ranks 160th in the world, has not been able to achieve a sustainable growth of 5%. The total population of the country exceeds 140 million, with dismal economic performance the per capita income has been hovering around US $ 450. The population growth rate of Pakistan is one of the highest in the world, between 2.2% and 2.5%. According to the World Development Report 2000-01, over 30% of the population survives below poverty line i.e. earns less than one dollar/day. Almost 85% of the population earns less than two dollars/day. Only 45% of the total population is literate, which also includes persons who only have the capability to read and write their names. The exports of the country have over the past twenty years been struggling to surpass the psychological barrier of US $ 10 billion. Every year major portion of the annual outlay is spent in debt servicing both domestic and foreign with little fiscal space for the government to initiate development programmes.

3. THE TEXTILE SECTOR IN PAKISTAN

The textile sector enjoys a pivotal position in the exports of Pakistan. More than 60% of the total export earnings are contributed by this sector. In absolute terms a total of US $ 5.8 billion worth of textile merchandise were exported during 2001-02. Although the growth in the exports has remained erratic over the past few years but exports have been oscillating between US $ 5 billion and US $ 6 billion.



High value added products i.e. garments and textile made-ups have over the years progressively increased their share in the textile export portfolio. Currently these products constitute 57% of the total textile exports. During early nineties the textile exports were dominated by yarn and greige fabric which had a share of almost 56% in the total exports. As far as the markets are concerned 60% -70% of the merchandise is exported to the USA and the EU, with very limited exports in the non-quota markets.

The textile industry in Pakistan is organised in a manner that majority of the spinning industry operates in the organised sector. There are over 400 spinning units with 8.5 million installed spindles. Some of these units comprise composite units with in-house weaving, dyeing and finishing facilities. Over 200,000 individuals are employed in this sector.

The total woven fabric production including cotton and synthetic fabric is estimated at 5.5 billion square meters. A limited number of modern looms operate in the integrated mill sector, with the exception of few modern facilities installed with air jet and shuttle-less weaving machines operating as independent weaving units. Over 300,000 power looms, both in the cotton and synthetic weaving sector are operating all over Pakistan. This sector accounts for almost 70% of the fabric production and majority of the units in this segment are small and medium sized entities. Nearly 300,000 individuals are employed by the weaving industry in the country.

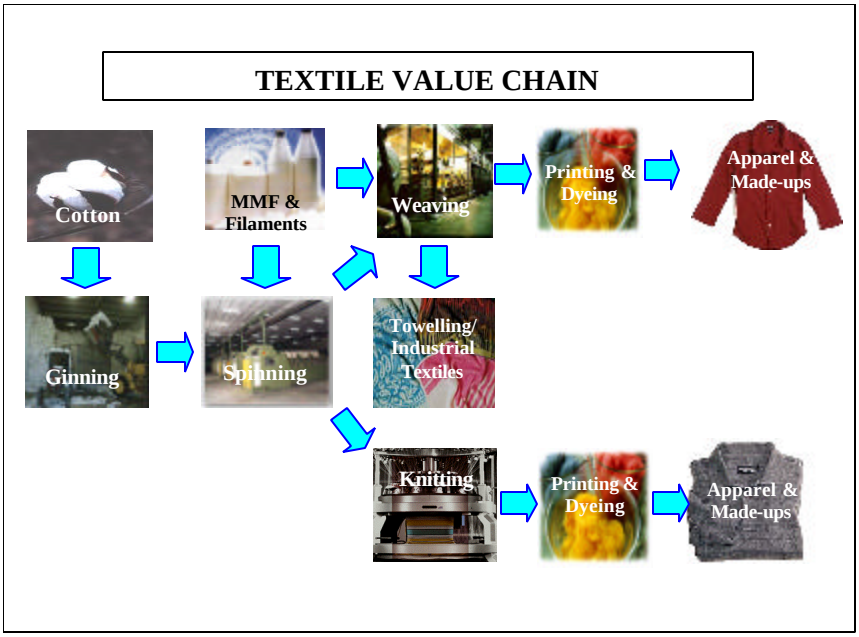
The processing sector, comprising dyeing, printing and finishing sub-sectors, has the capacity to process 4.6 billion square meters of fabric. There are over 650 units with an estimated number of 30 - 40 units operating in the organised sector at a large scale, whereas rest of the units operate as small and medium sized units. This sector employs around 100,000 individuals. The printing segment dominates the overall processing industry with a share of 52% of the total installed fabric processing capacity in the country, followed by textile dyeing industry having a share of 26% and fabric bleaching facilities with a share of 22%.

The garments manufacturing segment generates the highest employment within the textile value chain. Over 730,000 jobs are created by more than 4,500 units. 80% of the units comprise small sized units. The garments industry has the capacity to produce 57 million dozens garments per annum. In addition to this there are 700 knitting units with the capacity to produce 46 million dozen knitted garments. The knitwear industry operates at 60% capacity in the country with a large number of factories operating as integrated units.

It is pertinent to mention here that Pakistan is the fourth largest cotton producer in the world. Total production of cotton is more than 10 million bales/annum. This has helped tremendously in establishing a strong textile manufacturing base in the country. In

addition to this around 2 million bales of man-made fibres are also produced in the country and consumed by the spinning industry. Although this is not in line with the global trends which are biased towards the man-made fibre rather than natural fibres but still the industry in Pakistan has the capacity and the capability to convert and process both natural as well as man-made fibres.

The statistics of textile industry speak volumes regarding the importance of this sector in the industrial development of Pakistan. Besides serving as the major source of foreign exchange earning, it creates majority of the jobs in the manufacturing sector. However, with the recent changes in the shape of globalisation resulting in lowering of tariff barriers and phase wise elimination of quantitative restrictions, the textile sector of Pakistan also needs to realign itself to maintain its position in the global textile markets. The extent of preparedness and current status of the industry in reference to new regulatory regime which aims at preservation of environment though restricting and improving hazardous processes and implementation of quality systems and standards will be discussed at a later stage. The most effected segment in the textile value chain is the processing industry which generates high volumes of waste water and uses hazardous processing chemicals. The level of compliance with environment regulations in this segment ensures the sustainability of trade in other segments including textile made-ups and garments, etc.



4. PAKISTAN AND ENVIRONMENTAL DEGRADATION

Pakistan is classified by the multi-lateral agencies as a low-income economy. The overall economic indicators need no further elaboration as they reveal a dismal situation.

The facilities of sanitation and hygiene are available to limited urban population. An estimated amount of 17.5 million tons of solid waste is generated every year in Pakistan. Only half is collected and dumped in low-lying land without applying proper sanitary methods. Rest is disposed of at vacant areas, gutters and sewerage system. As far as wastewater management is concerned only three sewerage treatment systems exist. The untreated water flows into stream rivers and irrigation canals. Forests account for only 4.5 million ha which is 5.2% of the total land territory. Deforestation is taking place in the country at a rapid pace. A recent study conducted by the Japanese International Cooperation Agency (JICA) on ambient air quality in three major cities namely, Lahore, Rawalpindi and Islamabad revealed that the average suspended particulate matter in these cities was 6.4 times higher than the WHO guidelines and 3.8 times higher than the Japanese standards.

4.1. Industrial Pollution

The industrial sector in Pakistan accounts for 16% of the total oil consumption in the country and generates 285 tons CO, 162 tons NOx, 378 tons of SOx and 4,400 tons of particulate matter. A large number of intermediate industrial processes are conducted through imported chemicals that produce effluents and emit hazardous gasses. A survey of 150 industrial establishments conducted by the Environment Protection Agency of Pakistan reported extreme deviations from the levels given in the National Environment Quality Standards (NEQS).

Another survey of leather tanneries in the city of Sialkot and Kasur revealed that the tanneries are discharging effluent with chrome concentration ranging between 182-222 mg/litre against the NEQS of mg/litre. The Chemical Oxygen Demand (COD) range of these facilities was between 5,000-7,320 mg/litre against the prescribed limit of 150 mg/litre in the NEQS. These wide deviations from the existing environment standards reflect the poor state of compliance in the industry. The organised sector, large scale industrial units realise the detrimental consequences on the exports of Pakistan of non-compliance with the environment regulations and at the same time enjoy the capacity to develop systems in order to comply. The issue has much greater negative effect on the small and medium sized concerns which in the first place are not even aware about the environment laws and regulations, the environmental degradation caused by their industrial operations and most importantly do not have the required financial as well as managerial capability to comply with these standards.

4.2. Environment and the Textile Industry of Pakistan

The processing industry in the textile value chain holds an important position as far as value addition is concerned. Garments and made-ups comprising the downstream industry rely heavily on the processing sector for the provision of value added fabrics and materials. Unfortunately the processing segment also is the most susceptible area that can be effected by global environmental regulations regime. More than 650 units are

in operations majority of which operate at a small and medium sized scale. These units carry out processes including:

- Bleaching of Fabric
- Dyeing and finishing of fabric
- Printing and finishing of fabric

The major area of concern for the textile processing sector is wastewater. Textile processing is a water intensive process. Almost[1] .08-0.15 m^3 of water is consumed to produce one kilogram of finished fabric, translating into 1,000-3,000 m^3 of wastewater generation per day against a production of 12-20 ton/day of finished fabric. Currently the wastewater generated by the industry is discharged into the local environment without any treatment that serious negative effect on the environment.

A wide range of chemicals are used by the processing industry for dyeing and printing operations. These include bleaching agents, vat dyes, azo dyes, sulphur dyes, disperse dyes and colour pigments, which are manufactured by using chemicals such as formaldehydes, hydrochloric acid, ammonia, chromium salt, soda ash, caustic soda, sodium sulphate, sulphuric acid, etc. Extensive usage of these chemicals by the processing industry results in discharge of toxic elements as effluents, which if not treated properly have the potential to cause significant environmental degradation.

Characteristics of Wastewater (Textile Processing in Pakistan)

Parameters	Prevailing Ranges	NEQS Limits
Biological Oxygen Demand (BOD)	120-440	80
Chemical Oxygen Demand (COD)	300-1,100	150
Total Dissolved Solids (TDS)	200-5,000	3,500
Total Suspended Solids (TSS)	50-240	150
PH Value	8-11	6-10
Oil and Grease	10-45	10
Chromium	0.5-2.5	1.0

All values in parts per millions (ppm), except pH

Source: ETPI effluent survey

The above mentioned table clearly depicts the status of existing effluents discharged by the textile processing industry. The prevalent ranges of almost all the parameters exceed the limits prescribed in the National Environment Quality Standards (NEQS). In certain cases the minimum prevalent limits, such as BOD and COD, are much higher than the maximum limits prescribed in the NEQS.

[1] The Textile Sector, Environmental Report by Environment Technology Programme for Industry

Similarly if individual processes are evaluated and compared with NEQS, there exist a great deal of discrepancy between the prevalent parameters of effluents as regards to recommended values. Certain processes generate greater degree of pollution as compared to others. In dyeing, mercerising and bleaching the values of COD, TSS, and TDS by far exceed the NEQS recommended values. This effluent when discharged in either the sewerage system which finally is thrown into rivers, etc or discharged in ground water reservoir can play havoc with the eco-system.

Characteristics of Wastewater from Individual Process (Textile Processing)

Process	Temp. Deg Centi	pH Value	BOD	COD	TDS	TSS	O&M	Cr	SM	SO4
Bleaching/Scouring	50-80	10-11	200-300	1,100-1,400	1,400-1,500	100-200	150-200			
Mercerising	60-70	13-14		700-800	20,000-30,000	300-800	90-100			
Dyeing	60-70	10-11		2,000-4,500	10,000-30,000	300-1,000			>1.0	
Printing	Room. T	8-11	80-120	300-3,000	1,000-3,000	50-300			>1.0	
Colour Kitchen	30	7-8.5	80-100		1,000-1,500	10-15				
Boiler	100	11-12		>100		150-200				
Screen Development		1.5-2.5					0.04	500-1,000		
Laboratory		9-10		>100	~1,000	~10	~10			3,000-4,000
NEQS	**40**	**6-10**	**80**	**150**	**3500**	**150**	**150**	**1**	**150**	**600**

All values in PPM

Source: ETPI Effluent Survey

4.3. Effect of Non-Compliance with Environment Standards on Textile Exports

As the phase-out plan for quantitative restrictions on textile has progressed towards the final stages, the quality standards and environment compliance requirements of buyers from the developed world have also increased. These Non-Tariff Barriers are likely to negatively effect textile exports from developing countries due to the reasons discussed above. It is worth mentioning that standards to be imposed in future will not be limited to one particular segment or sub-sector rather they will encompass the whole value chain. An ideal example in this regard is the ECO-Labelling system.

5. WHAT IS AN ECO-LABEL?

Eco-label is a quality label which ensures that the product is manufactured through an environment friendly process and meets the ecological criteria set by the European Commission. This standard is based on a life cycle analysis e.g. in case of garments, the product can only qualify for this standard if it proves that it has been prepared through an environment friendly process. In actual terms it covers the whole value chain from fibre to spinning, weaving, processing and stitching. In each stage the process should be able

to control air, water, and solid waste pollution by eliminating or reducing the usage of hazardous chemicals and substances, within the prescribed limits. A t-shirt manufactured by an apparel manufacturer in Pakistan through fabric processed under the conditions given above can never be able to qualify for the use of eco-labels. This could have serious consequences if the buyers individually or a country decides to impose this quality standard for imported products.

Putting the eco-label on your products means that they have the following assets:
✓ *Reduced water and air pollution during fibre production*
✓ *Limited use of substances harmful to the environment and in particular to the aquatic environment and health*
✓ *Guarantee of shrink resistance during washing and drying*
✓ *Guarantee of colour resistance to perspiration, washing, wet and dry rubbing and light exposure*
✓ *Whole production chain covered*

Source: European Union Official Website. Europa

6. RESTRICTIONS ON AZO DYES IN EU

The most commonly and widely used dyestuff accounting for almost 60-70% of all dyes can be classified in this category of azo dyes. The dyestuff containing azo dyes provides one of the most cost effective dyeing solution as compared to dyes of other different origin. Due to the negative health effects of azo dyes, the imports of fabric processed by using these dyes have been banned by Netherlands, Austria and Germany. The European Commission has recently tabled a draft proposal to amend the EU Directive 76/769/EEC on ban of azo dyes. The proposal provides list of products including clothing, bedwear, towels, footwear, purses/wallets, breifcases, upholstery fabric and toys, etc. The said directive can be considered as a broad step to impose restrictions on the import of products containing azo dyestuff above a certain detection limit. This will also have negative effect on the exports of textile products from Pakistan to the EU.

7. ISO 14000 SERIES AND INDUSTRIES IN PAKISTAN

With the unprecedented increase in the trade growth primarily driven by high investments in off-shore operations by the developed countries. A number of developed economies started developing environment standards Examples of these standards include some two dozen eco-labeling schemes worldwide the

British Standards Institute's BS 7750 (Specification for Environmental Management Systems), the Canadian Standards Association's Z750 (A Guide for a Voluntary Environmental Management System), and the EU EMAS (Eco-Management and Audit Scheme). Other similar environmental management standards have been developed by the French Standards Association, the South African Bureau of Standards and the Spanish Standards Association.

In order to provide a level playing field to the developing countries and stop further proliferation of environment standards, the International Standards Organisation (ISO) after the UN summit on environment in 1992 at Rio de Jeneiro, Brazil, started working on the development of ISO 1400 series. The ISO 14000 series addresses environmental management systems, environmental auditing, environmental labelling, environmental performance evaluation, and life cycle assessment. These International standards are voluntary standards for the establishment of a common world-wide approach to management systems that will lead to the protection of the earth's environment while spurring international trade and commerce. Although, the standards do not prescribe performance levels, performance improvements are invariably achieved by any business if its commitment to environmental care is emphasised and employees are trained and aware of the policies in place to protect the environment.

In case of Pakistan the export-oriented industries can be said to be the most progressive ones, as the international competition forces this class firms to constantly improve quality in order to stay competitive in the global market place. More than 8,000[2] industrial establishments are registered under the factories Act 1934 with the Government of Pakistan. ISO 9000 and ISO 14000 certified industrial establishments only comprise 17% of the total. In absolute terms 1,356[3] ISO 9000 and ISO 14000 certified organisations are operating in the country. These are mostly dominated by manufacturing sector concerns, with the exception of few working in the services sector.

The textile sector which accounts for more than 30% of the industrial manufacturing enterprises has a fairly decent number of organisations which are ISO 9000 and 14000 certified. A total of 363 textile manufacturing concerns have these systems in place, accounting for almost 27% of the total ISO 9000 and 14000 certified companies in the country. It is important to mention here that majority of the textile entities that have obtained ISO certifications operate at a large scale with sufficient managerial capability and financial muscle to implement these systems. Around 290 enterprises, 80% of the total certified textile sector entities, include large spinning, weaving and processing units.

[2] Census of Manufacturing Industries 1995-96. Some of the units have stopped operations , for which data is not available.

[3] ISO 9000 Quality and ISO 14000 Environmental Management Systems Certified Companies Directory of FPCCI-Pakistan.

The apparel sector, in which majority of the firms are of a small and medium size, only 73 (20% of textile certified concerns) firms have ISO 9000 and ISO 14000 certifications.

8. INSTITUTIONAL AND REGULATORY SUPPORT BY THE GOVERNMENT TO PROTECT ENVIRONMENT

The Government of Pakistan realised the importance of environment preservation way back in the early 1980's. The Environmental Protection Ordinance was promulgated in 1983. Under this Ordinance the Pakistan Environmental Protection Council was to be formulated as an apex body for setting up environment policies in the country. Unfortunately after a lapse of almost nine years the first meeting of the council was convened after which no progress could be made. The Environmental Protection Ordinance 1983 was finally replaced with a new Act of Parliament in 1997.

During this period of uncertainty the UN International Summit on Environment was held in 1992 in Rio de Janeiro. The objective of which was to highlight the importance of environment protection and to promote sustainable development. Pakistan also became a signatory of this summit. After which the Government of Pakistan developed a National Conservation Strategy to serve the purpose of a road map of sustainable development and determined environmental improvement programme. At the federal level the subject of environment is dealt by the Ministry of Environment, Local Government and Rural Development.

8.1. National Conservation Strategy (NCS)

The NCS was adopted in 1992 after a long consultative process involving various stakeholders including government agencies, academia, NGOs and civil societies working in the area of natural resource conservation. The NCS comprising of 14 core areas of intervention provides a broad framework for addressing environmental concerns in Pakistan. The NCS Plan of Action can be classified into four broad components:

- Strengthening of institutions
- Creation of supportive framework of regulation and economic incentives
- Broad based communications campaign of mass awareness
- Implementation of projects in NCS core areas.

The core areas of interventions identified in the NCS include the following:

1. Maintaining soils in cropland
2. Increasing irrigation efficiency
3. Protecting watersheds
4. Supporting forestry and plantations
5. Restoring rangelands and improving livestock
6. Protecting water bodies and sustaining fisheries

7. Conserving biodiversity
8. Increasing energy efficiency
9. Developing and deploying material and energy renewables
10. Preventing/abating pollution
11. Managing urban waste
12. Supporting institutions for common resources
13. Integrating population and environment programmes
14. Preserving the cultural heritage

The implementation of this broad agenda under NCS is an enormous task as merely problem identification does not have sufficient impact to resolve the actual issues. A mid-term review of the NCS was conducted in the year 2000 with the assistance of foreign experts where it was found that the focus of implementation has remained in institutional strengthening and awareness building. Although the importance of these two fundamentals should not be underestimated but still a lot more needs to be done. It was also found during the review that against an envisaged investment of Rs. 150 billion stretched over 10 years, only Rs. 77 billion were actually invested over a period of nine years, showing limited activity and actual programme development and implementation.

8.2. Pakistan Environment Protection Act

The Environmental Protection Ordinance of 1983 was replaced by a new Act of Parliament in 1997 i.e. Pakistan Environmental Protection Act 1997. Under the new law various rules, regulations and institutions have been established to ensure proper implementation of environmental laws in the country. The following actions have been taken by the Ministry for Environment, Local Governments and Rural Development:

1. National Environmental Quality Standards (Self-monitoring and Reporting by Industries) Rules, 2001
2. Environmental Samples Rules, 2001
3. Provincial Sustainable Development Fund (Procedure) Rules, 2001
4. Provincial Sustainable Development Fund (Utilization) Rules, 2001
5. Pollution Charge for Industry (Calculation and Collection)Rules, 2001
6. Composition of Offences and Payment of Administrative Penalty Rules 2000
7. Hazardous Substances Rules, 2000
8. National Environmental Quality Standards (Environmental Laboratories Certification) Regulations, 2000
9. Pakistan Environmental Protection Agency (Review of IEE/EIA Regulations, 2000)

8.3. Major Initiatives in the Public and Private Sector to Protect Environment and Increase Compliance Capacity

- ✓ *The Government of Pakistan established Environmental Protection Agency (EPA) in 1983. This was further strengthened to implement Environmental Protection Act 1997. EPA has its presence in all the four provinces through delegating powers to Provincial Environmental Protection Agencies in order to ensure implementation across Pakistan. Mostly the actions are taken to prevent deviations base on National Environment Quality Standards (NEQS). As a part of implementation EPA has so far served 143 notices to polluting industries*
- ✓ *The federal government has established two Environmental Tribunals to dispose of cases related to infringement of environment laws. The government plans to establish three more such tribunals*
- ✓ *The government plans to develop testing infrastructure by establishing laboratories through out the country*
- ✓ *With the funding of Rs. 5 million each, the provinces of Punjab, NWFP and Balochistan have established Sustainable Development Fund*
- ✓ *ENERCON has been provided with the agenda to implement Government's National Conservation Strategy*
- ✓ *A two pronged approach is being adopted to effectively implement the NEQS viz. introduction of self-monitoring and reporting system coupled with development of Environmental Improvement Plans (EIPs)*
- ✓ *The Federation of Pakistan Chamber of Commerce and Industries (FPCCI) with the assistance of Dutch funding, initiated Environment Technology Programme for Industry (ETPI) at a cost of Rs. 260 million. This can be considered as the first step that instigated industrial units to make investment in the environmental improvement. Investigative reports, surveys and proposals have been formulated under this programme for various sectors in including leather and textiles.*
- ✓ *After several meetings with trade and industry and the provincial governments consensus have been obtained on the mechanism of calculation, collection and deposition of* ***Pollution Charge****. The pollution charge will be collected from non-complying industries and will be deposited in the Provincial Sustainable Development Funds*
- ✓ *The federal government offered incentives of reduction in customs duties on import of anti pollution equipment*
- ✓ *A Cleaner Production Centre has been established for the petroleum sector that is functioning. A similar initiative in collaboration with UNIDO for the leather sector of Sialkot is in final stages of implementation*
- ✓ *The Ministry of Science and Technology provided a one time grant of Rs. 200,000 to manufacturing export industries for compliance with ISO 9000 and ISO 14000 systems*
- ✓ *Pakistan with the establishment of Pakistan Standards and Quality Control Authority (PSQCA) has adopted the ISO standards and domestic standards. Pakistan is also part of Member Bodies of International Standards Organisation (ISO) and enjoys the right to vote in the proceedings of standard formulation by ISO*

9. SUMMING UP

The scope of this brief paper was limited to finding out the impact of environmental regulations on the export performance of textile sector of Pakistan. It has been observed during the discussion presented above that the exports of Pakistan rely heavily on the growth of exports in the textile industry. This industry comprises of a large number of small and medium sized enterprises which provides means of living to thousands of individuals and households. Over the past few years numerous measures have been adopted by the developed countries that have put extra pressure on the firms to comply with environment standards. Regulations of dyestuffs effect textile sector exports, almost 20 azo dyes are banned by the European countries based on rodents studies, showing carcinogenic implications. The small and medium sized textile processing units in the country do not have the capacity to install effluent treatment plants in order to control industrial pollution and comply with national environment standards.

Although not related to textiles but it has been observed that environment related regulations can sometimes result in putting undue responsibility at the end of suppliers/exporters from the developing countries. Case in point is the ban imposed by the USA in 1996 on the imports of shrimps that have been caught without taking special measures to save the sea turtle. This was done under the Endangered Species Act of the USA. After years of deliberations the WTO passed a judgement against the US law but the point of concern is that during this period a number of poor fisherman in the developing countries including Pakistan suffered due to the restrictions imposed by the USA.

The agreement on Technical Barriers to Trade in WTO clearly says that market access can or should only be restricted through imposition of standards based on scientific findings and rationale. Practically the developed countries are at a freedom to immediately impose trade restrictions even to investigate a particular case or an export consignment. It is still not clear how the effect of this grey area will be minimised to ensure market access to developing countries transparently.

The Government of Pakistan has taken certain measures to set up the regulatory and institutional infrastructure for the protection of environment in the country. These measures, although a step in the right direction, but seem to be insufficient to address the problem confronted by the exporting industries. Some of statistics depict large scale deviations from the actual standards. This can only be addressed by adopting an integrated approach that caters to the sector specific needs. The actions should not be limited to development of regulatory infrastructure alone, but concrete development programmes need to be developed which can be implemented to prevent vulnerable sectors such as textile processing, leather, etc from the brunt of trade restrictions

It appears that the SMEs are most likely to face difficulties in complying with environment regulations. The reasons include lack of awareness, lack of compliance capacity due to limited managerial capability, lack of technical know how and most importantly limited financial resources. In these circumstances ideally the Government should adopt a Cluster Development Approach, where a collection of a targeted set of firms benefit from a focussed initiative of the Government to protect environment. The selection of clusters can be based on a well-structured priority criteria.

10. REFERENCES AND BIBLIOGRAPHY

- Textile Vision 2005 – Reflections and Future Direction – Small and Medium Enterprise Development Authority (SMEDA)
- Mid Term Review of Textile Vision 2005 – April 2002, SMEDA
- Environmental Challenges and Responses, Ministry of Environment, Local bodies and Rural Development, Pakistan
- Kaushik Atul, Strengthening Research and Policy Making Capacity on Trade and Environment in Developing Countries. November 1999
- Pakistan Environment Profile, Japan International Cooperation Agency (JICA), 1999
- The Textile Sector, Environmental Report. Environment Technology Programme for the Industry (ETPI). FPCCI
- Pakistan's Development Progress, The World Bank 2001
- World Development Report 2001-02, The World Bank
- Khan Asif, Industrial Pollution in Pakistan
- National Environment Quality Standards (NEQS), Ministry of Environment, Local Bodies and Rural Development
- Jha Veena, Trade and Environment, Seattle and Beyond
- Ara Shamim, Physical Profile of Pakistan Textile Processing Mills
- Hyvarinen Antero, Eco-labelling and Environmentally Friendly Products and Production Methods Affecting the International Trade in Textiles and Clothing, International Trade Centre, Geneva
- Information on Eco-labelling, Europa Website. Official Website of European Union
- Census of Manufacturing Industries 1995-96- Pakistan Federal Bureau of Statistics
- ISO 9000 Quality and ISO 14000 Environmental Management Systems, Certified Companies Directory and Resource Guide, 3rd Edition, FPCCI
- Business Guide to Uruguay Round, International Trade Centre, Geneva
- Shahrukh Rafi Khan, Mahmood A. Khwaja, Abdul Matin Khan, Haider Ghani and Sajid Kazmi Environmental Impacts and Mitigation Costs Associated with Cloth and Leather Exports from Pakistan
- International Standards Organisation Website