



Instituto 17

Questionnaire

Sustainable Manufacturing and Environmental Pollution: A Case Study of Textile and Apparel Sector in Pakistan

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May/2021

Part of the Program Sustainable Manufacturing and
Environmental Pollution (SMEP)



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Sustainable Manufacturing and Environmental Pollution: A Case Study of Textile and Apparel Sector in Pakistan

Export-led industrialisation is putting pressure on the natural environment and livelihoods.

Objective: identify/map institutions (industry associations, international organisations) and private sector initiatives (MSME and large enterprises) implemented to achieve sustainable manufacturing, control pollution and related environmental and health impacts, and enhance workers safety.

Research Focus: Export-oriented manufacturing enterprises in the textile and Apparel Manufacturing Sector value chain: MSME and large enterprises, known as Readymade Garment (RMG).

Environmental Considerations

1. Business organisations start paying attention to the natural environment and the environmental degradation from industrial activities. This is mainly due to Government (through legislation), society, domestic and global market pressures. As a result, natural environment preservation, pollution prevention and environmental management initiatives and practices are gaining a place. A paradigm change. How is this happening in Pakistan, particularly adopting environmental management initiatives and tools by the private sector?

KII (Key Informant Interview): There is no easy answer to this query. Business organisations are not a monolith. That is to say, and we can't make an all-encompassing statement that speaks to how they operate. For example, a tannery in Sialkot emptying its wastewater openly without treatment is a business organisation, as is a multinational corporation with offices/ factories located across Pakistan. Ideally, they would both be responsible for maintaining emission standards that meet the Government mandated NEQS. But you'll find that it does not happen, especially in locally operated organisations and to a lesser extent in multinationals. This has to do with regulatory oversight or lack thereof.

So you may have laws, and we have some great ones. But if we do not have the capacity (technical/ financial) to implement them, they are not worth the paper they are written on. So we end up with business organisations that openly flaunt environmental laws. Some have environmental policies on paper (to show their international counterparts, e.g.), but they are equally guilty. The international entities are more likely to follow environmental standards if they respond to a corporate headquarters located in Europe or North America. Hence, they are mandated to follow best sustainable practices. Unfortunately, this has not always been the case. In the past, such entities have known to take advantage of lax local laws with grave consequences. See, for example, Union Carbide in Bhopal, India.

So is a paradigm shift happening? On a personal level, I don't think so. Environmental laws have been around for well over four decades. Each of the previous two generations also felt that we are in the midst of a paradigm shift.

Source: Ms Anam Zeb

Organisation: National Disaster Risk Management Fund (NDRMF)

Position: Assistant Manager

Contact: anam.zeb@gmail.com

Desk research: Usually, multinational and local corporates have such internal standards, regardless of whether it is an oil company or a bank. Exporters are required to maintain standards. Others do not and violate provincial Env Quality Standards EQS.

KII (Key Informant Interview) 3: I would say that in the recent past, the corporate sector has started paying more attention to environmental management initiatives (over the last decade or so). However, in my opinion, most of the time, this is simply greenwashing rather than meaningful change to change their production and procurement practices. In my opinion, many of Pakistan Environmental Quality Standards and even ordinances relating to the subject are pretty much watertight and well-drafted, if outdated. However, because the enforcement is so low and current government policies are geared towards encouraging the business sector, businesses can avoid adhering to the rules and laws. Moreover, in some cases, there are other loopholes where multinationals do not have to adhere to local policies and regulations. To sum up, businesses are paying more attention to the environment. Still, most of the time, it's also a marketing ploy or just an eyewash, i.e. a cement company planting trees but not addressing the considerable carbon and environmental footprint they have.

Source: Mr Haseeb Kiani

Organisation: LEAD Pakistan

Position: Senior Consultant BISP/Ex Project Manager, LEAD Climate Leadership Adaptation Project

Contact: haseebkiyani@hotmail.com

Desk Research: One study explores some interesting perspectives of "green/sustainable practices in Pakistan". First, the study exposed that organisations in Pakistan are in various phases of adopting & implementing green/ sustainable practices. Second, "environmental pressures" identified as the most powerful motives behind the adoption & implementation of green/ sustainable practices. Moreover, globalisation, consistent demands from international players, and competitive (industry) pressures were identified as some other effective drivers for implementing green/ sustainable practices. Third, this study explores the role of inter-firm knowledge dissemination in promoting & implementing green/ sustainable practices. In this regard, it has been observed that OEM's in Pakistan are effectively engaged in knowledge dissemination. OEM's use both explicit and implicit knowledge to disseminate knowledge within their suppliers' network. Regular seminars, training sessions and/or workshops with exclusive & informative documents, reports and manuals have been reported as a frequent means to disseminate knowledge and to promote green/sustainable practices.

Additionally, OEM's give due consideration to environmental achievements like ISO 14000 and/or ISO 26000 in their supplier selection that substantiate the efforts of OEM's in promoting green/sustainable practices. Furthermore, the study exposed that OEM's are disseminating knowledge in almost all the key supply chain areas, i.e. production/ manufacturing, material (packaging) reduction, designing, procurement, labelling/logos, technologies. However, comparatively weak sharing has been reported in eco-logistics and eco-inventory systems. Lack of sharing is because many organisations are struggling hard to adopt & implement eco-logistics and eco-inventory systems. Hence, knowledge dissemination in these areas is almost negligible. Finally, this study identifies valuable gains attained from green/ sustainable practices. For example, scrap reduction, production optimisation, reduction in packaging material, visible achievements in 'on-time deliveries, radical structural & procedural changes have been reported as major gains attained from green/ sustainable practices.

However, the study also pinpoints some challenging areas, particularly inventory reduction, logistical improvement, customer goodwill and financial improvement. These areas need due attention to reap benefits from green/sustainable practices. Journal of Quality and Technology Management | 69 In the context of Pakistan, this study provides valuable insight regarding major motives behind the adoption & implementation of green/ sustainable practices. Additionally, this sheds light on some interesting facts regarding the role of inter-firm knowledge dissemination in promoting & implementing green/sustainable practices. Lastly, this study provides valuable insight into the major gains attained from green/sustainable practices through empirical evidence. Reportedly significant gains itself may purposefully be publicised for promoting & implementing green/sustainable practices. It is argued that the outcomes of this study will help business managers enhance their understating of green/sustainable practices. The findings of this study will also facilitate organisations in Pakistan to review their existing green/ sustainable practices and revise new strategies accordingly. Based on some bitter facts, the prevailing situation invites the Ministry of Production and Ministry of Environmental Affairs (Government of Pakistan) to review existing rules & regulations instead of assist organisations and their supply chain networks in implementing green/ sustainable practices.

2. Do global markets exert any kind of pressure to boost Pakistani enterprises to change to sustainable manufacturing? For instance, is there any kind of pressure from external bodies, international organisations, international society, foreign buyers (businesses)? If positive, how are they exerting such pressure? Does this pressure impact MSME or only large companies? What

are the results of such pressure? Do they give any kind of support to enterprises, particularly MSME (technical, financial)?

KII (Key Informant Interview): Yes, global 'markets' do have an impact. We know that Nike / Adidas etc. forced Pakistan to do away with child labour, for example. Similarly, some major corporations have been able to focus on ensuring labour welfare in their factory outlets. The pressure tactic has been simple. Change, or we'll take our business to Bangladesh or Vietnam. So, for example, if you focused on Tanneries alone, you may find that 20 years ago, UNIDO helped develop something known as the National Cleaner Production Centers (NCPC), which helped make some tannery operations sustainable. However, where UNIDO's support was lacking, the situation still hasn't changed.

Source: Mr Rafay Alam

Organisation: Lahore University of Management Sciences/Urban Unit/Punjab Environment Protection Council

Position: Professor/Environmental Lawyer and Activist/ Vice Chairman of the Urban Unit and Member of the Punjab Environment Protection Council.

Contact: +92 3214442526

3. Do importing countries or importing companies require that Pakistani export enterprises comply with home country environmental regulations and standards? How does this happen? Do they give any kind of financial or technological support?

Desk Research: The awareness about the environmental issues related to industrial pollution has increased the demand for environmentally friendly products and services from consumers and buyers internationally. The international trade organisations are also incorporating environmental problems into their policy framework. Against this backdrop, the industry in Pakistan is facing competitive challenges because of the toughening international environmental laws and legal requirements. Their biggest challenge is the investment requirements in terms of capital and human resources to meet these requirements. Cleaner Production provides an incentive to industries to achieve partial compliance with NEQS and get a direct financial return.

In 1989, the United Nations Environment Program (UNEP) first introduced the concept of Cleaner Production (CP). Before that, effluent treatment or end-of-pipe (EOP) treatment was considered the only approach for pollution reduction. According to UNEP, waste is considered a "product" with negative economic value. Therefore, any approach that eliminates or reduces waste generation increases the productivity of a business by decreasing the negative economic

value. Cleaner Production aims to minimise possible environmental impacts by changing the entire product itself or improving the efficiency and life cycle¹.

In Pakistan, the idea of CP has got the attention of the industry owners as it is a cost-efficient way of meeting environmental and legislative requirements. Moreover, the investments involved in CP implementation is paid back through process and cost-efficiency. The potential benefits like the improved working environment, reduction in resource consumption and waste generation, lower production cost, financial return through resource conservation, reduction in compliance cost through wastewater load reduction, improved production efficiency and product quality, a good reputation as an environmentally conscious industry in national and international markets², and development of continuous improvement capability within the production system have mainly fetched the focus of donor agencies, environmental protection agencies and other stakeholders on CP for improvement of industrial environmental conditions in the country.

4. What are the key drivers to sustainable manufacturing? International pressure (society, businesses that are customers of Pakistani RMG industries)? Cost reductions? Legislation compliance?

Desk Research: The initiatives taken by Pakistan's textile industry for environmental protection are being appreciated around the world. At the Heimtextil 2020, the largest global exhibition of home textile products, being held in Frankfurt from January 7-10, buyers from the US and Europe, especially the large retail chains, expressed keen interest in Pakistan's eco-friendly textile products. During the exhibition, the textile industry of Pakistan was cited as an example of protecting the environment.

Speaking to The Express Tribune on the sidelines of the inaugural press conference, Head of the United Nations Office for Cooperation Lucie Bringham praised the initiatives of Pakistan's textile industry, particularly the denim manufacturers, for turning their processes more environment-friendly.

She stressed that the textile industry played a vital role in achieving the Sustainable Development Goals (SDGs) set by the United Nations.

She believed that Pakistan's textile industry had to make its products and processes environment-friendly to improve its overall competitiveness. Bringham expressed pleasure that Pakistan's industry was rapidly moving towards eco-friendly practices.

The UN official called for strengthening synergy between the Government and the industry to enhance the sustainability of Pakistan's textile sector. She emphasised that the UN provided complete support to its member states, including Pakistan, in lifting capacity.

Speaking at the press conference, Messe Frankfurt Textiles and Textile Technologies Vice President Olaf Schmidt said meeting environmental protection requirements was one of the most critical challenges facing the textile industry at present.

Talking about Pakistan, he termed the country's textile sector progressive and a rapidly growing industry. At the event, representatives of Pakistani export firms highlighted that competition in the global market was becoming easier for the companies producing eco-friendly products as they received reasonable prices.

Fashion Art International Director Mohammad Asif said his company manufactured towel products and had been exporting for about 20 years. Its major buyers were from the US and Europe.

"Our customers demand environment-friendly products, and we have no other option left but to make our processes eco-friendly", he said.

He added that his company invested Rs40 million over the past two years to make its processes environment-friendly and received the Sustainable Product Manufacturer Certificate a year ago from Oeko-Tex.

He pointed out that the demand for "Made in Green" products was increasing rapidly. Made in Green is a label issued by Oeko-Tex for textile products that ensure that an article has been tested for harmful substances.

He added that major global textile chains only purchased products from the manufacturers possessing the Made in Green licence.

Yunus Textile Director Sales and Marketing Mohammad Imroz Iqbal said under the Made in Green licence, the water used in the process must be disposed of through environment-friendly methods.

KII (Key Informant Interview): "From threads to fibres, dyes and chemicals, everything must be processed through environment-friendly methods," he said. "Also, nature has to be protected from the gases emitted during the process. The focus on eco-friendly products was gaining momentum throughout the world, he said and added that the trend in Pakistan was very limited. Iqbal said the companies making eco-friendly products were given priority over the firms relying

on traditional methods of production, which improved their market access and provided good value for their products.

Source: Mr Rafay Alam

Organisation: Lahore University of Management Sciences/Urban Unit/Punjab Environment Protection Council

Position: Professor/Environmental Lawyer and Activist/ Vice Chairman of the Urban Unit and Member of the Punjab Environment Protection Council.

Contact: +92 3214442526

KII (Key Informant Interview): The only pre-requisite is a green vision of the future one needs to know how things will work in the future once that multiplies across sectors, such as; in a circular materials economy for a sector, in new relationships with others, you will already be experiencing in business. At this point, one needs to make an organisational commitment to values, standards, certifications, or procedures and be discriminatory. We don't much have it quite this way, but it does resonate with traditional thinking, So, that's the moral, cultural worldview you will be practising.

Source: Mr Haseeb Kiani

Organisation: LEAD Pakistan

Position: Senior Consultant BISP/Ex Project Manager, LEAD Climate Leadership Adaptation Project

Contact: haseebkiyani@hotmail.com

5. What are the barriers, difficulties, opportunities for MSME and large enterprises to implement environmental management initiatives and tools from the policy and management

KII (Key Informant Interview): The CP implementation process has seen many active and passive periods since the idea was introduced in Pakistan. The main risks include inconsistent economic growth rate of the country, government changes, fluctuating behaviour of industrial associations due to their political setup, changes in international trade climate, energy crisis of the country, behaviour and policies of enforcement agencies and shifting priorities of the donor and bilateral development agencies.

Source: Mr Haseeb Kiani

Organisation: LEAD Pakistan

Position: Senior Consultant BISP/Ex Project Manager, LEAD Climate Leadership Adaptation Project

Contact: haseebkiyani@hotmail.com

6. Private sector-led initiatives: adoption of pollution prevention practices, environmental management initiatives, tools and their current implementation status by MSME and large enterprises:

KII (Key Informant Interview): APTMA (All Pakistan Textile Mills Association) – member mills are 100% compliant corporate entities. International and national agencies strictly monitor the performance of industries. Compliance with International and local sustainability standards like SA 8000, OekoTex made for green, step etc. Textile mills contribute to implementing Sustainable Development Goals (5th goal is pertinent to gender equality and women empowerment). APTMA members are fully compliant with 27 conventions of GSP plus status, including conventions related to gender equality. Strict compliance of "THE PROTECTION AGAINST HARASSMENT OF WOMEN AT THE WORKPLACE ACT 2010" and "PUNJAB PROTECTION AGAINST HARASSMENT OF WOMEN AT THE WORKPLACE ACT 2012". Any incidence of harassment in any forum, if reported by any female employee, is promptly dealt with under rotation against harassment. Awareness campaigns are launched to educate female employees about provisions of anti-harassment.

Source: Mr Waheed

Organisation: All Pakistan Textile Mills Association (APTMA)

Position: Manager

Contact: mis.pz@aptma.org.pk

7 - Pakistan RMG manufacturing sector is dominated by MSMEs (around 90%). Talk about the adoption of sustainable manufacturing, pollution prevention practices by those enterprises.

Desk Research: <https://cerb.pbc.org.pk/publications/sustainability-reporting-the-evolving-lands-cape-in-pakistan/>

8. For the enterprises that have implemented those initiatives, what drove them? Would they go beyond?

KII (Key Informant Interview): Large Units have money as exporters have to show their reports, and International contracts have a clause regarding environmental impact and sustainable measures. Small industries involved in local production do not pay any concern about environmental impact due to their production.

Source: Mr Kamran Sandhu

Organisation: Pakistan Readymade Garments Manufacturers and Exporters Association

Position: Director Research

Contact: drsandhu@prgtti.pk

9. What are the enterprises' perceptions on sustainable manufacturing: an opportunity to cut costs, improve efficiency, competitiveness, reduce environmental and health impacts, international relations or an extra cost?

KII (Key Informant Interview): Companies take a step towards sustainability due to external pressure and market conditions. Their cost of business does increase, which is not feasible for micro, small, and to a certain extent, medium enterprise.

Source: Mr.Kamran Sandhu

Organisation: Pakistan Readymade Garments Manufacturers and Exporters Association

Position: Director Research

Contact: drsandhu@prgtti.pk

10. Moving from (1) free pollution to (2) pollution control (command and control, compliance with national and international environmental legislation and standards), to (3) pollution prevention, to (4) making the difference, seeing the adoption of environmental management initiatives as a business strategy and competitive advantage. In which step are Pakistani RMG enterprises?

KII (Key Informant Interview): In the 90s, when there was a wave of environmental and sustainability awareness in the west, major textile brands like Benetton, who were manufacturing garments from Pakistan, had a requirement put that the dyes used in the garments should be chemical-free so Pakistani Textile Manufacturers felt a shock, and they updated their system to meet International regulations and removed chemical dyes in their production. Similarly, during 2010-2013, when there was an Energy crisis, export-oriented SMEs started shifting to renewable energy resources and stopped using furnace or diesel-based sources, So the companies, due to market and external pressure, have to take steps towards sustainability. APTMA also started a centre of Energy Efficiency so people from the textile sector can learn from 3-4 processors how they can make their processes energy efficient. The enterprises do not think about climate change unless their clients put pressure on them. The 3rd Cycle of sustainability, which focuses on water conservation in the Upper Punjab where there is water shortage, is not used in stitching water. Still, in dyeing, water is used, and the enterprises

are finding that their water resources are on the decline, so few industries are improving their water conservation. For Example, WWF has a program called Water stewardship where they visit the SMEs factory and conduct water audits of how much and where water is used and recommends ways to minimise, recycle, or conserve water usage. They have converted 40-50 industries which is only a tiny number.

Source: Mr Rafay Alam

Organisation: Lahore University of Management Sciences/Urban Unit/Punjab Environment Protection Council

Position: Professor/Environmental Lawyer and Activist/ Vice Chairman of the Urban Unit and Member of the Punjab Environment Protection Council.

Contact: +92 3214442526

11. Does Pakistan have environmental programs/ strategies nationwide (for example, pollution prevention and/or cleaner production, industrial symbiosis, eco industrial parks, and/or circular economy promotion at the country level)?

KII (Key Informant Interview): Yes to a certain extent because Pakistan is a signatory to different International Treaties on Environment and Climate Change and is a member of the Rio Conference. There are also laws and penalties related to non-compliance. Please refer to the Sustainable Development Policy Institute Website (<https://sdpi.org>) for more information.

Source: Mr Haseeb Kiani

Organisation: LEAD Pakistan

Position: Senior Consultant BISP/Ex Project Manager, LEAD Climate Leadership Adaptation Project

Contact: haseebkiyani@hotmail.com

12. Regarding climate change, do RMG enterprises consider/have knowledge about the physical impacts of climate change, the effects on the business, particularly raw materials (ex: cotton) and natural resources (ex: water) availability, and the costs associated with it? Do they know about the country vulnerability to climate change? If positive, what measures are being taken?

KII (Key Informant Interview): The enterprises do not know the impacts of climate change. There are 90K – 100 K industries in Pakistan, and a majority are SMEs. Only a few export-oriented enterprises in textile or leather have water treatment plants, but most do not know.

Source: Mr Haseeb Kiani

Organisation: LEAD Pakistan

Position: Senior Consultant BISP/Ex Project Manager, LEAD Climate Leadership Adaptation Project

Contact: haseebkiyani@hotmail.com

13. Business awareness and compliance with environmental regulations

Desk Research: <https://cerb.pbc.org.pk/wp-content/uploads/The-Economics-of-Climate-Change-in-the-Asia-Pacific-region.pdf>

<https://cerb.pbc.org.pk/wp-content/uploads/Transforming-Business-Culture-in-the-Business-Sector-of-Pakistan.pdf>

i. Environmental Law compliance?

KII (Key Informant Interview): In some cases, when the industry is being set up, permission has to be taken from Environment Protection Department, and the department tries to mitigate any effects by analysing the processes it may cause on the environment. When they are established, the environmental laws apply to them and maintain environmental quality standards.

Source: Mr Haseeb Kiani

Organisation: LEAD Pakistan

Position: Senior Consultant BISP/Ex Project Manager, LEAD Climate Leadership Adaptation Project

Contact: haseebkiyani@hotmail.com

ii. Environmental Law enforcement by a government authority?

KII (Key Informant Interview): They are applicable in every industry operating, but their enforcement is weak.

Source: Mr Haseeb Kiani

Organisation: LEAD Pakistan

Position: Senior Consultant BISP/Ex Project Manager, LEAD Climate Leadership Adaptation Project

Contact: haseebkiyani@hotmail.com

iii. Environmental Protection Department monitoring/inspection?

KII (Key Informant Interview): They do monitoring, but there are 12000 industries in Lahore, and the department has only nine environmental inspectors. They do not have enough equipment or laboratories to conduct air and water tests, so law enforcement is weak.

Source: Mr Haseeb Kiani

Organisation: LEAD Pakistan

Position: Senior Consultant BISP/Ex Project Manager, LEAD Climate Leadership Adaptation Project

Contact: haseebkiyani@hotmail.com

iv. Is monitoring data shared? Data transparency?

KII (Key Informant Interview): Unfortunately, the data is not shared. The department has issued new guidelines according to which data should be available, but it is not. Data transparency is not according to our requirements.

Source: Mr Haseeb Kiani

Organisation: LEAD Pakistan

Position: Senior Consultant BISP/Ex Project Manager, LEAD Climate Leadership Adaptation Project

Contact: haseebkiyani@hotmail.com

v. Non-compliance can be attributed to financial constraints (cost of implementing BAT, technology acquisition, maintenance, operating costs)?

KII (Key Informant Interview): Financial constraints and technological know-how, some people are unaware that you have to take permission from the department. Few of the industries are still using outdated technology like brick kilns. If few industries jointly make a waste treatment plant in the industrial estates, it would be cost-efficient. For example, in Sialkot, Surgical Manufacturers together bought land and made waste treatment plants.

Source: Mr Haseeb Kiani

Organisation: LEAD Pakistan

Position: Senior Consultant BISP/Ex Project Manager, LEAD Climate Leadership Adaptation Project

Contact: haseebkiyani@hotmail.com

vi. Non-compliance equals fines/penalties application?

KII (Key Informant Interview): They try to internalise the external environmental damage, and It is a financial penalty, but sometimes the industry is sealed due to non-compliance.

Source: Mr Haseeb Kiani

Organisation: LEAD Pakistan

Position: Senior Consultant BISP/Ex Project Manager, LEAD Climate Leadership Adaptation Project

Contact: haseebkiyani@hotmail.com

vii. Enterprises prefer to pollute and pay fines in comparison to implement the best available technology (BAT)?

KII (Key Informant Interview): Enterprises prefer to hire a lawyer to defend their case.

Source: Mr Haseeb Kiani

Organisation: LEAD Pakistan

Position: Senior Consultant BISP/Ex Project Manager, LEAD Climate Leadership Adaptation Project

Contact: haseebkiyani@hotmail.com

viii. Industrial effluent discharge, industrial waste management and disposal, industrial air emissions: control, monitoring, reporting, compliance with existing standards. How does this happen?

Answer: Not Applicable.

14. What is civil society perception and awareness about industrial pollution? Do they have knowledge about the damage to the environment and on people's health?

KII (Key Informant Interview): Civil society only operates at an emotional level. All the industries have different requirements. They are more concerned about deforestation, cutting of trees and do not have any substantial effect. They provide background support, but they do not have technical skills.

Source: Mr Rafay Alam

Organisation: Lahore University of Management Sciences/Urban Unit/Punjab Environment Protection Council

Position: Professor/Environmental Lawyer and Activist/ Vice Chairman of the Urban Unit and Member of the Punjab Environment Protection Council.

Contact: +92 3214442526

15. Case study: focus on environmental initiatives, solutions, interventions adopted/implemented by MSME and large enterprises in the RMG sector.

KII (Key Informant Interview): There are many, and you will find them in Resource Efficient Cleaner Production (RECP). Sustainability is a principle, and for implementation, the industry has to do cleaner production and many industries in Pakistan who are exporting to the USA and Europe implement cleaner production technologies.

Source: Mr Haseeb Kiani

Organisation: LEAD Pakistan

Position: Senior Consultant BISP/Ex Project Manager, LEAD Climate Leadership Adaptation Project

Contact: haseebkiyani@hotmail.com

Social Issues

1. Are there social regulations?

Desk Research: Social regulations are ignored in Environmental laws, although the environment includes the social environment also. There is no social impact assessment.

2. What measures are taken by trade partners, international buyers/brands, international agencies to ensure social standards compliance? And in case of non-compliance?

Answer: Not Applicable.

3. Case studies: focused on social initiatives/ projects implemented by MSME and large enterprises in the RMG sector

KII (Key Informant Interview): Multinational companies implement projects as part of their Corporate Social Responsibility (CSR) initiative, and around 1% of the profit is spent on the community. Major companies are Oil and Gas sector, and they do major projects for the social sector. Chenab Group is an example.

Source: Mr Haseeb Kiani

Organisation: LEAD Pakistan

Position: Senior Consultant BISP/Ex Project Manager, LEAD Climate Leadership Adaptation Project

Contact: haseebkiyani@hotmail.com

Capacity Building

1. Pakistan RMG technical education and training system?

KII (Key Informant Interview): Pakistan Readymade Garment Technical Training Institute (PRGTTI) was established in 1997 to offer management practices through training programs that make a meaningful contribution towards the global industry development.

Since its inception in the training industry, the institute has built rapport in the market for its quality training programs

PRGTTI understands the importance of training in practical and theoretical knowledge and has successfully designed short course programs aimed at training all sectors of the garment industry.

Source: Mr Kamran Sandhu

Organisation: Pakistan Readymade Garments Manufacturers and Exporters Association

Position: Director Research

Contact: drsandhu@prgtti.pk

2. Employer support towards employees capacity building? (integration between industry and education institutions (universities, institutes and other training institutions; investment in Technical Education and the effects on industrial productivity)

KII (Key Informant Interview): Technical Training Institutes in the private and public sectors provide training facilities to the workforce. TEVTA Training institutes helps its students in getting apprenticeship leading to permanent jobs in the sector.

Source: Mr.Kamran Sandhu

Organisation: Pakistan Readymade Garments Manufacturers and Exporters Association

Position: Director Research

Contact: drsandhu@prgtti.pk

3. Women entrepreneurship support/initiatives?

Answer: Not Applicable.

4. Investment in labour skills improvement (staff training, managers training)?

Answer: Not Applicable.

5. Investment in research and development (R&D)?

Answer: Not Applicable.

6. Case study: focused on capacity building and women entrepreneurship initiatives/ projects implemented by MSME and large enterprises in the RMG sector

Answer: Not Applicable.

Public Governance

1. Multiple regulatory agencies and institutions, probably with overlapping mandates, roles. How does the inter-government agency coordination run? Are there synergies between them? For example, is there institutional charts of agencies responsible for environmental pollution control and the textile sector industry?

KII (Key Informant Interview): The department knows its mandate and its limitations, and there may be some overlapping. Different departments have a rule of business defined.

Source: Mr Rafay Alam

Organisation: Lahore University of Management Sciences/Urban Unit/Punjab Environment Protection Council

Position: Professor/Environmental Lawyer and Activist/ Vice Chairman of the Urban Unit and Member of the Punjab Environment Protection Council.

Contact: +92 3214442526

2. Does the government support enterprises, particularly MSME, to comply with environmental regulations/standards and/or implement environmental management initiatives /tools (technical, financial)?

KII (Key Informant Interview): Not much.

Source: Mr Rafay Alam

Organisation: Lahore University of Management Sciences/Urban Unit/Punjab Environment Protection Council

Position: Professor/Environmental Lawyer and Activist/ Vice Chairman of the Urban Unit and Member of the Punjab Environment Protection Council.

Contact: +92 3214442526

3. If the government, due to external pressure, strengthens environmental regulations, what would be the effect on enterprises, particularly MSME? What would be the effect on people jobs?

KII (Key Informant Interview): The environmental regulations are linked to product specifications received from the client. It increases the cost of doing business. The industries make enough profit to invest in environmental management initiatives, but they do not do it.

Source: Mr Rafay Alam

Organisation: Lahore University of Management Sciences/Urban Unit/Punjab Environment Protection Council

Position: Professor/Environmental Lawyer and Activist/ Vice Chairman of the Urban Unit and Member of the Punjab Environment Protection Council.

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4. Would the country lose competitive advantage in the global market due to merchandise price increase as a result of salaries increase or/and as a result of the adoption of more stringent pollution control measures?

KII (Key Informant Interview): Not at all.

Source: Mr Rafay Alam

Organisation: Lahore University of Management Sciences/Urban Unit/Punjab Environment Protection Council

Position: Professor/Environmental Lawyer and Activist/ Vice Chairman of the Urban Unit and Member of the Punjab Environment Protection Council.

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Specific Questions

0. MSME and large enterprises definition in Pakistan

Desk Research: Annual Turnover: 0-150 million is small, 150 to 800 million is medium, and above 800 million is large.

1- How many textile and apparel (T&A) factories are there in Pakistan? Among those, how many are micro, small, medium and large enterprises? How many T&A are direct exporters?

KII (Key Informant Interview): At present, there are 1,221 ginning units, 442 spinning units, 124 large spinning units and 425 small units which produce textile. Total textile mills are 464 in Pakistan.

Source: Mr Waheed

Organisation: All Pakistan Textile Mills Association (APTMA)

Position: Manager

Contact: mis.pz@aptma.org.pk

2. How many workers are directly and indirectly employed by the T&A sector?

KII (Key Informant Interview): About 150 million workers are employed by the T&A sector.

Source: Mr Waheed

Organisation: All Pakistan Textile Mills Association (APTMA)

Position: Manager

Contact: mis.pz@aptma.org.pk

3. CPI – Cleaner Production Institute and NCPC - National Cleaner Production Centre Foundation: cleaner production projects and initiatives in the T&A sector. Their contribution towards a transition to cleaner production systems.

Desk Research: Cleaner Production Institute (cpi.org.pk) conducts environment Audit. The objective of this study was to observe the current practices and consumption patterns for dyes, chemicals and utilities in that specific Textile Unit. EAs were conducted for 3-4 days in the entire mill.

These audits included discussions with management, collecting production and utility data, general observations for physical settings and mill practices and monitoring pollution factors through electronic gadgets. These findings were compiled, and specific areas were identified where improvements could be made. The report also highlighted suggestions for these particular areas.

In total, environmental audits were conducted in 100 selected (29 Karachi, 29 Lahore and 42 Faisalabad) textile processing units. The audits were aimed to understand the environmental problems, current situation and collect the data of textile processing units. The environmental audits followed the UNIDO & UNEP's standards. One of their projects, CTP-Textile CTP-Textile, mainly focused on the capacity building of the textile processing sector of Pakistan for compliance with the national and international environmental standards. The motto was to make textile processing mills environment friendly.

The project aimed to:

- Create awareness about the key environmental issues, health and safety concerns and environmental legislation.
- Improve the process efficiency and resource conservation.
- Help in enhancing workforce productivity due to a healthier and efficient work environment.
- Conduct environmental audits and preparation of Environmental action plans to implement CTs for at source pollution reduction.
- Prepare a detailed design for the implementation of wastewater treatment plants.
- Assist Textile Processing Mills to implemented Environmental Management System (ISO 14001) and get Eco-label certifications.

NCPC National Cleaner Production Center Foundation (NCPC) aims to introduce and promote Cleaner Production (CP) techniques and processes for Pollution Prevention at source along with integrated waste management. It was established by the United Nations Industrial Development Organization (UNIDO) in 1999 with the collaboration of the United Nations Environment Programme (UNEP), United Nations Development Programme (UNDP), EPA's, Ministry of Climate Change (MOCC) and Ministry of Petroleum and Natural Resources (MNPR). It is registered under Section 42 of the Companies Ordinance, 1984 by the Government of Pakistan and is certified by Pakistan Centre for Philanthropy (PCP) and the Federal Board of Revenue (FBR).

4. Talk about resource-efficient and clean production (RECP) promotion and adoption in Pakistan. Current state, challenges and opportunities, investments at an enterprise level.

Desk Research: The CP implementation process has seen many active and passive periods since the idea was introduced in Pakistan. The main risks include inconsistent economic growth rate of the country, government changes, fluctuating behaviour of industrial associations due to their political setup, changes in international trade climate, energy crisis of the country, behaviour and policies of enforcement agencies and shifting priorities of the donor and bilateral development agencies. Results and Outcome Results and Outcomes

The CP initiatives have resulted in two major changes. It has resulted in environmental investment and, thereupon, developed a big market for environmental products and services. The environmental investments of the industry in the recent years, as well as the projected potential investments of Pakistan industry in the near future, approximately stand at:

2000-2005 = 10 million USD/annum approx.

2005-2010 = 15 million USD/annum approx.

2010-2015 = 20 million USD/annum approx⁴

The success of CP initiatives has also attracted Government, NGOs and other international development agencies to take similar steps to facilitate and promote CP in industry.

The establishment of the Cleaner Production Institute in Lahore and the Cleaner Production Center in Sialkot, Pakistan, are important examples. In addition, WWF Pakistan is also doing capacity building and knowledge development projects to promote better environmental practices in the textile industry.

Cleaner Production Institute facilitates educational and research institutions in the government sectors to set up courses in CP at postgraduate levels. In association with its development partners, CPI has also developed the human resources and institutional capacity of the Ministry of Environment and industrial associations.

CPI has catalysed the improvement in the industrial environment in different industrial sectors of Pakistan and has brought about cultural changes as per applicable legal and resource conservation requirements. As a result, the industry has developed mainly ownership of the environmental movement and has shown keen interest in energy and resource conservation by making huge investments.

5. Elaborate about China-Pakistan Economic Corridor (CPEC): projects/initiatives/actions towards sustainability?

KII (Key Informant Interview): CPEC has no focus on climate change or environmental sustainability. If you look at major public documents, they have no mention of climate impact. The Government of Pakistan has requested the Chinese Government to put in clauses for the environmental impact.

Source: Mr Rafay Alam

Organisation: Lahore University of Management Sciences/Urban Unit/Punjab Environment Protection Council

Position: Professor/Environmental Lawyer and Activist/ Vice Chairman of the Urban Unit and Member of the Punjab Environment Protection Council.

Contact: +92 3214442526

6. What are the positive and the negative environmental and social impacts of trade liberalisation/trade agreements in Pakistan?

KII (Key Informant Interview): There is no mention of environmental impacts in any trade agreements.

Source: Mr Rafay Alam

Organisation: Lahore University of Management Sciences/Urban Unit/Punjab Environment Protection Council

Position: Professor/Environmental Lawyer and Activist/ Vice Chairman of the Urban Unit and Member of the Punjab Environment Protection Council.

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7. What's the role of the Cleaner Production Institute and the National Cleaner Production Centre Foundation towards pollution prevention, cleaner production and occupational health and safety? Initiatives/projects implemented in the T&A sector?

Desk Research: Environmental audits were conducted in 100 selected (29 Karachi, 29 Lahore and 42 Faisalabad) textile processing units. The audits were aimed to understand the environmental problems, current situation and collect the data of textile processing units. The UNIDO & UNEP's standard were followed to conduct the environmental audits. One of their projects, CTP- Textile CTP-Textile, mainly focused on the capacity building of the textile processing sector of Pakistan for compliance with the national and international environmental standards. The motto was to make textile processing mills environment friendly.

8. Information regarding the Punjab Green Development Program, in partnership with the World Bank.

KII (Key Informant Interview): The project has not yet started, although the funding has been received from the World Bank.

Source: Mr Rafay Alam

Organisation: Lahore University of Management Sciences/Urban Unit/Punjab Environment Protection Council

Position: Professor/Environmental Lawyer and Activist/ Vice Chairman of the Urban Unit and Member of the Punjab Environment Protection Council.

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9. Industrial activity is concentrated around major cities like Punjab, Karachi, Lahore, Faisalabad, Multan, Gujranwala, Sialkot. Many T&A are located in those cities, some in clusters or economic zones (EZ). Being located in a cluster or EZ makes a difference regarding enterprises environmental performance improvement and/or adoption of environmental management tools?

KII (Key Informant Interview): Economic or Industrial Zone is located in every city, as the cities have expanded, so these zones have come in the middle, Policy Implementation is there as Government have allocated lands to them but as such collaboration like waste and water treatment plants are not made collectively.

Source: Mr.Kamran Sandhu

Organisation: Pakistan Readymade Garments Manufacturers and Exporters Association

Position: Director Research

Contact: drsandhu@prgtti.pk

Source: Mr. Muhammad Mudassar Khan

Organisation: Sarena Apparel

Position: General Manager Operations

Contact: mudassar.khan@sarenapk.com

10. Punjab is the most industrialised province; the industrial sector is highly polluting, but there is scope for a transition to cleaner production systems (WB, 2019). How is this happening?

KII (Key Informant Interview): If industries have capital, they go for more production measures rather than thinking about climate impact etc. They lack the technical expertise and do not have enough money to do it. Due to lack of resources and technical expertise, the policy implementation gap is there as the Government do not make policies considering ground realities like the expenses and technical knowledge, So the solution is not cost-effective, and technology is not indigenous.

Source: Mr.Kamran Sandhu

Organisation: Pakistan Readymade Garments Manufacturers and Exporters Association

Position: Director Research

Contact: drsandhu@prgtti.pk

Source: Mr. Muhammad Mudassar Khan

Organisation: Sarena Apparel

Position: General Manager Operations

Contact: mudassar.khan@sarenapk.com

11. What are industry associations like Pakistan Readymade Garment Manufacturer & Exporter Association (PRGMEA), All Pakistan Textile Mill Association (APTMA) and Pakistan Textile Exporters Association (PTEA) roles in promoting sustainability in the RMG sector? Are there initiatives/projects being developed/implemented? Do they provide enterprises with technical assistance in implementing sustainability initiatives?

KII (Key Informant Interview): Not as such. APTMA started a Renewable energy centre during the energy crisis in 2010-2013.

Source: Mr.Kamran Sandhu

Organisation: Pakistan Readymade Garments Manufacturers and Exporters Association

Position: Director Research

Contact: drsandhu@prgtti.pk

Source: Mr Waheed

Organisation: All Pakistan Textile Mills Association (APTMA)

Position: Manager

Contact: mis.pz@aptma.org.pk

12. Does Pakistan adopt any market-based solutions (pollution charges, tradable permits, carbon pricing).

KII (Key Informant Interview): Carbon cell is established since 2006.

Source: Mr Rafay Alam

Organisation: Lahore University of Management Sciences/Urban Unit/Punjab Environment Protection Council

Position: Professor/Environmental Lawyer and Activist/ Vice Chairman of the Urban Unit and Member of the Punjab Environment Protection Council.

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13. Pakistan Stock Exchange Limited and Karachi Stock Exchange (KSE, total listed companies = 549, many are textile - composite, spinning, weaving): listed companies x corporate social responsibility x sustainability. Is there any commitment by listed companies to promote / to improve environmental and social performance? To disclosure environmental and social performance?

KII (Key Informant Interview): Not in Pakistan

Source: Mr Rafay Alam

Organisation: Lahore University of Management Sciences/Urban Unit/Punjab Environment Protection Council

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14. Pakistan Stock Exchange Limited has a list of the 'Top 25 Companies for the Year 2019'. Selection criteria considered environmental and social performance?

Desk Research: No.

15. Elaborate about the 18th Constitution Amendment (2010). What were the effects of decentralisation in environmental protection and environmental management from the industries perspective?

KII (Key Informant Interview): After the passage of the 18th Amendment, the laws are the same, but now it is the provincial government's responsibility to implement them. Apart from Sindh,

all other three provinces still follow the same law. Sindh has to change the Air Pollution limit due to its climatic conditions.

Source: Mr Rafay Alam

Organisation: Lahore University of Management Sciences/Urban Unit/Punjab Environment Protection Council

Position: Professor/Environmental Lawyer and Activist/ Vice Chairman of the Urban Unit and Member of the Punjab Environment Protection Council.

Contact: +92 3214442526

16. The role/achievement/contribution of the Textile Policy (2014/2019 & 2020/2025) in building a self-sustaining export-oriented industrial sector? Policy provisions toward sustainable manufacturing? Labour conditions and welfare enhancement? Infrastructure improvement?

KII (Key Informant Interview): There is no focus on sustainability in the policy, and the target is more on enhancing exports.

Source: Mr. Col® Alamdar Bajwa

Organisation: Fabro International (Pvt) Limited

Position: Chief Executive Officer

Contact: alamdar@fabroint.com

17. Does the Textile Policy have provisions for Textile clusters and Export Processing Zones promoting sustainable manufacturing or adopting environmental management instruments, such as environmental management system certification among enterprises?

KII (Key Informant Interview): The Textile Policy 2014-2019 states that the Ministry of Textile Industry will pursue enactment of a plant breeders' rights legislation and an amendment to the Seed Act, 1976 to attract new technologies and availability of quality seeds. Through the Better Cotton Initiative, the Textile Policy also places sector focus on improving environmental and social impacts of cotton cultivation on land, climate, environment and people.

Source: Mr. Col® Alamdar Bajwa

Organisation: Fabro International (Pvt) Limited

Position: Chief Executive Officer

Contact: alamdar@fabroint.com

18. Pakistan has established Garment cities (Faisalabad, Karachi, Lahore) and Pakistan Textile City Limited to produce value-added garments, textiles, and garment accessories under public-private partnerships. What about sustainability in those "cities" (LEED certification, EMS certification cleaner production, industrial symbiosis, circular economy, etc.)?

Desk Research: The export-oriented companies operating at a large scale have certification to comply with international standards related to sustainability and cleaner initiatives.

General Questions

1. Industrial Symbiosis (IS) opportunities at cluster level?

KII (Key Informant Interview): Industrial Symbiosis is not in the textile industry as the company's waste is not useful for another. Industrial symbiosis is present in the electronics sector, where wastage is used for scrap.

Source: Mr. Col® Alamdar Bajwa

Organisation: Fabro International (Pvt) Limited

Position: Chief Executive Officer

Contact: alamdar@fabroint.com

2. Eco-Industrial Parks (EIP) development? Transformation of operating industrial states in EIP?

Answer: Not Applicable.

3. Industrial symbiosis opportunities at Eco-Industrial Parks? Pilot EIP and/or industrial symbiosis program/ project being developed?

Answer: Not Applicable.

4. Circular economy promotion at clusters, economic zones and/or at eco-industrial parks?

Answer: Not Applicable.

5. Consolidation and establishment of special economic zones and development of industrial clusters?

Answer: Not Applicable.

6. Political instability and insecurity: is there a predictable and stable policy environment for industrial development?

Answer: Not Applicable.

References

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