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Policy framework to overcome barriers to environmental improvement in Pakistan's leatherworking SMEs

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Abstract

Environmental degradation is one of the major challenges of this ear. Alongside other actors, SMEs are taking various measures to address this issue. However, their environmental engagement varies across countries and industry sectors. Nevertheless, the majority of SMEs find it hard to take environmental protection measures proactively. Often it is attributed to their internal capacity constraints and lack of support from actors operating in their business environment. This research is about the leatherworking industry of Pakistan, an under-research economy context, where SMEs face a number of internal and external environmental barriers which limit their effective environmental engagement. Internal environmental barriers relate to limited financial resources, labour related issues and shortage of physical area. External environmental barriers range from policy related challenges to poor infrastructural facilities, societal barriers and inconsistent support from cleaner production centres. To deal with such environmental barriers some pragmatic policy measures are offered which if operationalised effectively are hoped to provide the much needed support to leatherworking SMEs for proactive engagement with environmentally responsible business practices. These policy measures relate to addressing the institutional voids in the country, improving infrastructural facilities, raising environmental awareness amongst masses, institutionalising cleaner production practices, providing platform to SMEs for getting environment-specific loaning facilities and improving the governance of tannery clusters. The paper makes an empirical contribution by uncovering the environmental barriers in an under-researched developing economy context, Pakistan. Its practical contributions are twofold. First, it offers insights to SME owner-managers for developing better strategies to address the identified barriers. Second, its findings can be useful for those formal and informal actors (local as well as international) engaged in formulating interventions focused at supporting SMEs to become environmentally responsible.

Key words: Environmental barriers, SMEs, policy framework, Pakistan, leatherworking industry

1   Introduction

Around the world, SMEs are appreciated for making a contribution to economic growth. However, their environmental impact is also considered to be significant (Wahga et al., 2018; Blundel et al., 2013; Parker et al., 2009; Vickers et al., 2009). For example, in the European region SMEs are estimated to be responsible for 64% of total industrial pollution (Calogirou et al., 2010). Similalry, in Paksitan it has been observed that toxic chemcials contaminiate water which leads to the detrioration of health of SME workers, alongside affecting the local communities and damaging the marine life (Wahga et al., 2018; Lund-Thomsen, 2009; Malik, 2002; Khan, 1995). Realising the environmental impacts of SMEs on the wider natural environment and in the wake of achieving sustainable development goals, various actors are now pushing these firms to reduce their environmental footprints (Vogt and Hassan, 2011; Gold, et al., 2010; Lund-Thomsen, 2009). In response, SMEs have started to take initiatives to become environmentally responsible (Wahga et al., 2018; Brammer et al.,2012). Yet, SMEs find it hard to meet the environmental demands of their stakeholders due to various constraints.

Prior research shows that at the internal level SMEs are generally constrained by lack of 'eco-literacy' skills (Tilley, 2000) of owner-managers and employees resulting in limited interest in and ability to implement environmental innovations (Murillo-Luna et al., 2011; Redmond and Walker, 2009). Lack of financial resources is another environmental barrier (Parker et al., 2009; Dahlmann et al., 2008; Hillary, 2004; Pimenova and van der Vorst, 2004; del Brío and Junquera, 2003). Then due to limited time available to SME owner-managers to develop and deploy environmental strategies (Walker et al., 2008; Revell and Blackburn, 2007; Vernon et al., 2003; Pimenova and van der Vorst, 2004), and in some instances because of their inability to realise economic and competitiveness gains attached with environmental protection measures (Brammer et al., 2012; Rathi, 2003) SMEs do not proactively adopt environemntal measures. Another reason is that some SME owner-managers do not consider their firms to have a considerable impact on the natural environment (Vickers et al., 2009; Tilley, 1999a).

Not only are these the internal factors that limit proactive environmental engagement of SMEs, a number of external factors also constrain these firms from becoming eco-friendly businesses. A major external barrier is the complexity of environmental regulations, which SMEs are found not to be competent enough to comprehend (Wilson et al., 2012; Mir, 2008; Dahlmann et al., 2008; Simpson et al., 2004; Petts et al., 1999). In addition, environmental compliance often requires SMEs to take such measures that are resource intensive, like buying advanced cleaner technologies, and these firms are generally found to be at a resource disadvantage (Parker et al., 2009; Hillary, 2004; del Brío and Junquera, 2003) not permitting them to cope with regulatory environmental requirements. Moreover, in some countries although regulations are made, these are not enforced effectively (Hamann et al., 2015; Ortolano et al., 2014; Massoud et al., 2010; Zhang et al., 2009; Dahlmann et al., 2008; Revell and Blackburn, 2007). Particularly, in developing countries firms think that it 'is cheaper to pollute and pay taxes rather than improving environmental performance' (Ciccozzi et al., 2003, p. 635). This gives an escaping route to those not willing to adopt eco-friendly practices. Consequently, even those SMEs that are willing to adopt environmental practices get deterred because they anticipate non-compliant peers out-competing them not only on the basis of prices but in terms of profitability as well (Revell and Blackburn, 2007). Research shows that limited market opportunities can also serve as a barrier for some SMEs to go green (Vickers et al., 2009; Dahlmann et al., 2008). At the same time, limited inter-firm collaboration and poor infrastructural support are also discussed as factors constraining SMEs from environmental engagement (Allet, 2015; Revell et al., 2010; Vickers et al., 2009; Vernon et al., 2003). In some instances, lack of pressure from the community and customers, in addition to the negligible

environmental requirements from supply chain partners are also reported as factors constraining SMEs from adopting responsible business practices (Shen et al., 2015; Massoud et al., 2010; Vickers et al., 2009; Zhang et al., 2009; Dahlmann et al., 2008; Studer et al., 2006). Some studies also report SMEs' discontentment with a perceived lack of support from national government for addressing environmental issues (Seidel et al., 2009; Dahlmann et al., 2008; Revell and Blackburn, 2007). It implies that in some countries institutional 'voids' (Silvestre, 2015; Parmigiani and Rivera-Santos, 2015; Khanna and Palepu, 1997) or 'gaps' (Littlewood and Holt, 2015b; Kolk, 2014) hamper environmental improvement in SMEs.

While prior literature has investigated environmental barriers in SMEs both in developed and developing economies, there is still merit in examining these barriers in the context of developing economies. It is mainly because due to their local and regional peculiarities SMEs might be facing a different set of internal barriers in developing countries compared to their counterparts in developed regions. Moreover, developing economies due to their distinct institutional structures when compared to developed countries can offer new insights about the external environmental barriers faced by SMEs. Given the diversity in economies across the globe, environmental barriers for SMEs as identified in various developed and developing countries cannot be accepted universally. There is hence merit in examining these barriers in specific country context for better a understanding and informing policy more effectively. *This qualitative study aims to contribute to literature by investigating the barriers to environmental improvement in leatherworking SMEs of Pakistan, a developing country, and offering a policy framework to overcome such barriers in this specific country context.*

Pakistan is a developing economy. And, according to a recent Economic Survey (2017-18), its leatherworking industry is the third largest source of export earnings (4.5% of major exports) for the country. Majority of firms operating in this industry sector are SMEs. While this industry generates considerable economic activity, it is also regarded one of the most polluting sectors (Wahga et al., 2018). However, a number of actors, locally as well as internationally, are now pushing leather manufacturing firms to take environmental protection measures (Ortolano et al., 2014; Lund-Thomsen, 2009). In response, many of these firms are now thus taking measures to reduce their pollution load (Wahga et al., 2018). However, they are not able to overcome all of the pollution related issues because of being constrained by multiple factors, which this study has investigated. Findings of this research has the potential to inform both policy and practice. While SME owner-managers can better understand the environmental barriers and formulate strategies to address these, public policy managers and environmental support institutes can get better informed for designing interventions aimed at enabling SMEs to improve their environmental performance.

Rest of this paper is structured in five sections. Section 2 explicates the theoretical underpinnings of the paper. Methodology is outlined in Section 3. Section 4 presents findings. It is followed by discussion in Section 5. Finally, a framework of policy measures is offered in Section 6 for dealing with the identified environmental barriers that leatherworking SMEs face.

2   Theoretical underpinnings of the research

This study draws on a hybrid theoretical lens, which is underpinned by resource-based view of the firm (RBV) and institutional theory. There is merit in using these theoretical lenses simultaneously, and prior literature validates this approach as well (Meyer et al., 2009; Sarkis et al., 2011; Oliver, 1997). While resource-based view can lend support to identify the absence of resources at the internal level that constrain environmental improvement in leatherworking SMEs, institutional theory is deemed helpful to examine institutional-level factors operating

externally in the organisational field of these firms and limiting their better environmental engagement. Hence, the hybrid theoretical framework as proposed in this research helps to examine simultaneously both internal and external factors limiting environmental engagement of sample firms.

RBV is generally attributed to Wernerfelt (1984). However, its roots can be traced in the seminal work of Penrose (1959) who described the firm as a pool of resources and discussed that being an administrative unit its role is to organise and use the available resources to generate economic rents. She also argued that resources are the determining factors of firm's growth. Therefore, in order to grow, firms would have to increase their resource stock. Later on, Wernerfelt (1984) discussed that resources could be used to create barriers to entry for earning better economic returns than competitors. However, to sustain high returns, the barrier creating resources should neither be easily accessible to others nor tradable in the market. Thus, RBV asserts that valuable, rare, inimitable and non-substitutable resources can enable a firm to perform better and gain competitive advantage (Eisenhardt and Martin, 2000; Barney, 1991). However, if a firm lacks the required resources it cannot become and remain competitive in a market.

Institutional theory is one of the most widely used theoretical frameworks in the field of management. It is a useful theoretical lens to examine the influence of external forces on the structures and behaviours of organisations. In general, this theory asserts that in an organisational field different institutional actors can exert pressure on firms to change their behaviour, practices, processes and strategies to legitimise their existence (Scott, 2010; Oliver, 1991; Scott, 1987; DiMaggio and Powell, 1983; Hannan and Freeman, 1977). Therefore, firms are expected to conform to the expectations of an organisational field i.e. they are expected to modify themselves to become compatible with environmental changes in order to achieve social fitness and therefore survive (DiMaggio and Powell, 1983). However, this will only happen if institutional set ups are strong enough to exert considerable pressure on, and in certain cases offer the desirable support to, actors in an organisational field. Thus, when responding to changes in and pressures from the organisational field, firms can adopt different response strategies ranging from conformance to reshaping these pressures (Scott, 2008; Oliver, 1991). Oliver (1991) has categorised the strategic responses of firms into five domains, which are: acquiescence, compromise, avoidance, defying and manipulation. While acquiescence and compromise responses entail adhering to institutional demands without questioning these much, avoidance, defying and manipulation refer to a more reactive response i.e. distancing from institutional pressures.

3   Methodology

This research has adopted multiple case study design aiming to develop a better understanding of the phenomena and achieve robustness in findings (Bryman and Bell, 2007; Easterby-Smith et al., 2008; Yin, 2009). Following Parrish (2010, p. 514), cases have been considered as a 'multilevel phenomena stretching between the individual entrepreneurs and collective organisation'. Purposive and snowball sampling techniques have been used to recruit the study participants (Easterby-Smith et al., 2008). Initial access was gained using referrals from trusted organisations and individuals. Fieldwork started with establishing links with the industry associations and environment support institutes, such as Pakistan Tanners Association (PTA), Cleaner Production Centre (CPC), Cleaner Production Institute (CPI) and Small and Medium Enterprises Development Authority (SMEDA). These organisations proved helpful to establish access to some SMEs, which then offered support to further the sample.

35 interviews were conducted with different owners and managers from 22 SMEs (Appendix 1). In some firms, more than one person was interviewed. Depending on the need for clarification of issues some follow up interviews were also conducted. The sample SMEs were from the Punjab province (areas include: Lahore, Kasur, Sialkot, Gujranwalla, Sheikhupura and Muridkey) and the Sindh province (areas include: Karachi). These two provinces house the largest number of tanneries in the country.

Depending on the nature and scale of environmental practices of sample firms (Appendix 2), these were classified into three categories; environmentally progressive, environmentally moderate and environmentally distanced SMEs (Appendices 2 and 3). *Environmentally progressive SMEs* display a higher level of environmental commitment. They proactively acquire ecological knowledge, innovate their production processes and adopt advanced cleaner technologies. *Environmentally moderate SMEs* also display a higher level of environmental commitment and proactively adopt various cleaner production practices. However, they struggle to achieve the similar level of environmental improvement as their environmentally progressive counterparts do. This is largely due to the resource scarcity, which constrains these firms, for instance, from acquiring and diffusing the latest cleaner technologies. In contrast to both these categories, *environmentally distanced SMEs* display a lower level of environmental commitment and do not proactively take environmental protection measures. This is not only due to their internal capacity constraints and a stronger focus on economic imperatives, but also because of the limited interest of their owner-managers in addressing environmental issues.

A number of other industry stakeholders were also interviewed in this study (Appendix 4). This included detailed discussions with the representatives of environmental support institutes, such as Cleaner Production Institute (CPI), Cleaner Production Centre (CPC), Kasur Tanneries Waste Management Agency (KTWMA) and Korangi Wastewater Management Project (Karachi), and a leather sector specialist from SMEDA - a representative agency of the national government's Ministry of Industries and Production. Representatives from industry associations, including the PTA, Pakistan Gloves Manufacturers and Exporters Association (PGMEA), Tanneries Association (Dingarh, Kasur) and Small Tanneries Association (Kasur) were also interviewed.

All the interviews were semi-structured and face-to-face. These were digitally recorded (having gained consent of the study participants) and later on transcribed for analysis. Only in two cases, owner-managers were not comfortable with recording, so notes were taken while interviewing them. A number of photographs were also taken during the site visits to gather additional evidence on firms' environmental practices. The review of secondary documents included the annual reports of the industrial associations, sector specific reports etc.

Data were analysed using NVIVO software. Grounded analysis approach informed the data analysis phases (Easterby-Smith *et al.*, 2008; Gioia et al., 2013; Williamson *et al.*, 2006; Miles and Huberman, 1994). After getting familiarised with the data in a first reading, transcripts were re-read to draw initial concepts and starting to develop the coding scheme. In the second round, the initial concepts were catalogued before developing consolidated themes in the third stage of analysis. Where considered necessary, recoding was done to refine the themes. Finally, following Gioia et al. (2013), themes were collated to inform the research aim more precisely by developing aggregated and analytical dimensions in the form of internal and external environmental barriers (Appendices 5 and 6).

4 Findings

Sample firms were classified into three categories; environmentally progressive, moderate and distanced SMEs (Appendix 3). The first part of this section presents findings about environmental barriers that environmentally progressive and moderate SMEs face. These firms provided insights about 'revealed' (D' Este et al., 2012) environmental barriers, the barriers which evolved out of the experiences that firms gained while actually adopting environmental practices. In contrast, the second part of this section reports on findings from the category of environmentally distanced SMEs. These firms offered evidence about 'deterring' (D' Este et al., 2012) environmental barriers, the barriers which were not based on their practical experiences but largely on their perceptions and judgements. So, 'deterring' barriers limit SMEs from initiating a proactive environmental engagement journey.

4.1 Revealed environmental barriers – the case of environmentally progressive and moderate SMEs

Informed by the theoretical underpinnings (RBV and institutional theory) of this paper, environmental barriers that environmentally progressive and moderate SMEs face have been rendered to a binary classification: internal and external environmental barriers.

4.1.1 Internal environmental barriers

The leading internal environmental barriers in environmentally progressive and moderate SMEs were related to financial constraints and human resource issues (mainly labour-force). Some of the environmentally moderate SMEs also regarded shortage of physical space as an environmental barrier.

4.1.1.1 *Financial constraints*

Owner-managers of environmentally progressive and moderate SMEs were much interested in taking more environmental measures, but budgetary constraints were not allowing them to materialise all of their aspirations. These constraints were however much more strongly mentioned by the respondents from environmentally moderate firms. Possibly because, compared to their environmentally progressive counterparts, firms in this category had smaller volumes of sales and thus lesser surplus budgets to make environmental investments. For example, as owner-managers of two of the environmentally moderate firms, SME 10 and SME 11 stated respectively:

> *'The only problem is limited resources. If I have sufficient resources, I might take even more measures for pollution reduction [...]' (SME10).*

> *'[...] being a part of cottage industry, whatever we could do with the available resources, we have done a lot. We wish to do more [...]' (SME 11).*

Environmentally progressive SMEs also regarded financial constraints as a limiting factor. For example, the owner-manager of SME 13 asserted that a major hurdle for them to buy a solar system for becoming more eco-efficient was limited financial resources:

> *'Many people are talking about solar, but that is very expensive [...]' (SME 13).*

However, in some regions, SMEs took collaborative measures to overcome financial barriers through cluster level environmental innovations. For example, in Kasur and Karachi clusters, by sharing their limited financial resources and attracting the financial and technical support from some other stakeholders, such as UNIDO and district government, they set up combined effluent treatment plants. Such cluster based environmental initiatives were not possible in regions like Sialkot, Muridkey and Sheikhupura where SMEs were sparsely situated. Nevertheless, collaborative initiatives of SMEs in Pakistan suggest that in a developing economy where formal institutional support from the government departments remains limited, SMEs can collectively overcome their internal environmental barriers through cluster level environmental innovations.

4.1.1.2 Labour-related barriers

Generally, employees (mainly the labour-force and leather technicians) in Pakistan's leather industry had a passive approach towards tackling environmental problems. Due to this, environmentally progressive and moderate SMEs were finding it difficult to use their human resources for environmental improvement effectively. Consistent with some prior studies, the main reasons for environmentally passive behaviour of employees were related to their rigid approach towards adopting environmental innovations, lack of education and absent/limited 'eco-literacy' skills (Ortolano et al., 2014; Murillo-Luna et al., 2011; Walker et al., 2008; del Brío and Junquera, 2003; Tilley, 2000). For example, as a respondent from SME 4, one of the environmentally progressive firms, said:

> '[…] at times, when a new process is adopted, that appears difficult because you leave a routine for a change. Due to this, some tension remains there between the R&D department and those who look after the processes' (SME 4).

Respondents from environmental support institutes, the Cleaner Production Centre (CPC) and Cleaner Production Institute (CPI), also shared similar experiences:

> 'Particularly, they [labour] resist when we tell them to change some process, which they have been following for many years [...] it is mainly because they are uneducated. So, if we tell them something, which is new for them, they do resist […]' (Programme manager, CPI).

The above findings suggest that that tannery workers in Pakistan are trapped in skills lock-in (Montalvo, 2008; Rathi, 2003), which constrain them from unlearning old tanning processes and acquire new skills of leather manufacturing.

Owner-managers of environmentally progressive and moderate SMEs had the realisation that for proactively adopting environmental practices they would have to educate and train their workers. They, therefore, took measures for on the job environmental training of employees:

> 'We train our employees according to the European standards and customer requirements […] Whatever the CPC and the Environment department tell, our foreman gives awareness about that to our employees and labour. As some of the labour is not educated, we have put up sign posts [posters] to show them that how they are expected to work […] We keep educating our employees that when they are not working no extra lights should be left switched on' (SME 9).

Nevertheless, maximum benefits from such trainings and support initiatives were hard to achieve because of the high turnover of workers: *'Then there used to be lectures for the*

management and employees. But as I have told you about the turnover of employees, benefit of all this is lost' (SME 12). It is a common practice in Pakistan's leather industry to hire contractual labour on daily wages. Some of them are even seasonal workers. SME owner-managers were therefore sceptical about spending money on environmental education and training of such workers who might quit job at any time or would not turn up in the following season.

4.1.1.3   Shortage of physical space

There was only a minority of environmentally moderate SMEs that mentioned about the shortage of physical space as a barrier to their environmental improvement. Particularly, these were the firms that had grown in the last few years and were eager to improve their environmental performance alongside economic achievements. Due to limited physical space they could not construct lagoons to settle down sludge, set up wastewater treatment and recycling plants, fit energy efficient boilers and shift generators to a distanced place to address noise pollution.

> *'Actually, we have some area problem […] we are trying to buy some
> more area nearby so that we can have a treatment plant over there […]
> we need a boiler but, as I have told you earlier, we have shortage of
> space. We cannot put any boiler here […]' (SME 18).*

These challenges of environmentally moderate SMEs are not much different from what has been observed in some other Asian countries including China, India, Sri Lanka, the Philippines and Vietnam, where due to the shortage of space SMEs have been struggling to install new equipment or modify the existing technologies for reducing their environmental footprints (Thiruchelvam et al., 2003, p. 980).

4.1.2   External environmental barriers

External environmental barriers that environmentally progressive and moderate SMEs faced were related to policy barriers, infrastructural barriers, societal barriers and inconsistent support from some intermediary organisations.

4.1.2.1   Policy related barriers

These environmental barriers comprised the limited support from national government, tougher environmental regulations and their weaker enforcement. Collectively, the identified policy-related barriers referred to the pervasiveness of institutional 'gaps' (Littlewood and Holt, 2015b; Kolk, 2014) in Pakistan's economy in that the formal institutions, such as the Ministry of Environment, Ministry of Industries and Production, Ministry of Commerce, were there but they were not performing their functions as efficiently as was required.

Talking about the inherent complexity of environmental regulations in the country, owner-manager of SME 19, one of the environmentally progressive firms, for example, asserted that these regulations were not realistically made and were therefore too difficult to comply with:

> *'Look, the thing is that too many things [regulations] are imposed on
> us […], which cannot be met. These [environmental regulations] are
> not realistic' (SME 19).*

These findings are consistent with some previous studies (e.g. Wilson et al., 2012; Mir, 2008; del Brío and Junquera, 2003) that have identified the complexity of environmental regulations as one of the environmental barriers for SMEs.

Although Pakistan's government had introduced tougher environmental regulations to mend the environmentally less responsible behaviour of firms, a considerable policy failure was identified in the form of their weaker enforcement. A major reason for this was attributed to environmental inspectors not performing their duties diligently. They were not inspecting tanneries regularly and were also bribed by owners and managers of some environmentally non-compliant SMEs, a similar situation to the one also observed by Studer et al. (2005) in another Asian country, India.

> *'You know this problem mainly exists because of the negligence of government agencies. Everything can be cleared, but if the environment department wants to do that [...] the problem is that unfair means are used to settle the issues' (SME 5).*

SME owners and managers also showed considerable discontentment regarding the support from the national government for addressing environmental issues:

> *'They [government departments] should be active and visit different tanneries and occasionally they should arrange seminars and invite us. They should invite us to share knowledge about pollution and environment. They should do such activities frequently' (SME 17).*

In summary, findings about policy related barriers refer to stringent institutional 'gaps' (Littlewood and Holt, 2015b; Kolk, 2014) in Pakistan which hinder government departments to extend support to SMEs for improving their environmental performance. In the long run, such a situation can discourage firms from proactively adopting environmental practices. Thus, there is a pressing need that Pakistani government take steps to address pervasive institutional gaps.

4.1.2.2   Infrastructural barriers

During the field visits, it was observed that the drainage system was in wretched condition across tannery clusters in both Punjab and Sindh provinces. Its maintenance and development was not only a responsibility of district governments, equally liable were the management of combined effluent treatment plants. However, during the last few years, these institutions had become less efficient in delivering their services because of having limited access to resources. For instance, as two respondents from environmentally moderate firms, SME 2 and SME 20, said respectively:

> *'[...] if weather turns bad [...] the road outside gets flooded. It becomes difficult to walk here. I mean this area gets filled with water coming from different tanneries. The area becomes muddy with lots of mosquitos around' (SME 2)*

> *'I do not think at the moment much working is done on this [...] drains, which they have built separately for those tanneries doing beam house processes, are broken' (SME 20)*

Another form of infrastructural barrier was underdeveloped local chemical industry. Mainly, these were the environmentally moderate firms who, due to financial constraints, were finding it hard to buy expensive imported chemicals. By using locally produced chemicals, these firms

could not comply with REACH standards which was a basic requirement of international customers. This was also constraining them from establishing responsible supply chains (Huang et al., 2012; Gold et al., 2010). To comply with international environmental standards, SMEs had to buy imported chemicals. This was increasing transaction costs and also limiting them from achieving their eco-efficiency targets (van Berkel, 2007):

> '[…] some chemicals are produced here, some are imported from China or India or from some other countries, and the problems are there […] such chemicals […] do not meet the REACH parameters. This is something which the government will have to control' (SME 11).

Lack of access to utilities such as gas and power was another challenge for environmentally progressive and moderate SMEs. For example, because of having limited or in some cases no access to natural gas, which was a less polluting and cheaper input, they had to use LPG or power to run boilers and steamers. Both these inputs were expensive and were hampering eco-efficiency of SMEs. At the same time, SMEs did not have access to the uninterrupted supply of power. Due to this, they had to use electricity generators. These generators, on one hand, were cost ineffective, and, on the other hand, a source of both air and noise pollution. Their use was therefore restricting SMEs in both categories from displaying environmentally sustainable behaviour.

> '[…] we cannot avoid running generator because of power shortage. Though we do not want to run it, but it is unavoidable' (SME 15)

> 'If we are provided gas, many problems can be solved. I set up this factory in 1996, but until today we do not have gas in this area […]' (SME 14)

4.1.2.3   Societal barriers

Consistent with some earlier studies (Mittal and Sangwan, 2014; Massoud et al., 2010; Studer et al., 2006), societal barriers, such as limited concerns of local communities towards environmental degradation and lack of demand for environmentally responsible products from local customers, were also amongst the factors constraining some of the SMEs from considerable environmental improvement. SMEs could have done more for environmental improvement if their customers and local communities had exerted considerable pressure on them. While such firms were exporting their products, they were only selling to environmentally lesser sensitive buyers:

> '[…] we are doing business with those customers who are not much sensitive about the environment. They do not ask too much about environment […]' (SME 17).

There was limited social accountability of SMEs regarding their polluting activities (Shen et al., 2015; Zhang et al., 2009) because local communities had become used to the polluted environment. Being less aware about the implications of pollution they were not pressurising tanneries to minimise the indiscriminate discharge of wastes:

> 'No one is interested in it. Even local people do not take interest. They say it is OK' (SME 2), '[…] fact is that these people do not have much awareness' (SME 10) '[…] no one has said anything about this until today. No one troubles us here. Anyhow business is running, and it is running for many years now […]' (SME 11) '[…] residents […] have

become used to it [pollution] now. It is going traditionally and therefore people have become used to it' (SME 17).

Other reasons for the community to have remained less sensitive towards environmental degradation were related to the limited interest of general public in environmental issues because of them lacking environmental education and orientation, as the following evidence suggests:

'[…] environment is not a big issue talked about in Pakistan' (SME 16)

'Look, in our country environmental consciousness is absent because we have never considered environment as our priority. People are not educated about it' (Project manager, CPC)

4.1.2.4   *Inconsistent support from some intermediary organisations*

With the help of international sponsors, Cleaner Production Centre (CPC) and Cleaner Production Institute (CPI) extended valuable environmental support to leatherworking SMEs. However, due to the project funding coming to an end, CPC was now struggling to deliver its services with the same propensity. As a result, SMEs mainly in Sialkot region appeared to have lost an active avenue for discussing their environmental problems and seeking advice and training for adopting cleaner production processes. This loss was seen more strongly in environmentally moderate SMEs that did not have sufficient resources to access information that CPC had been providing them as free after collecting from other sources:

'[…] at the moment CPC is also disconnected, it is quite a while now they are not around. They used to do it with the support from the Norwegian government, and they are not connected with them now. The government of Pakistan is not helping them. There are no more training systems […]' (SME 6).

The project manager from CPC also mentioned about the limited support from national government to ensure sustainability of the centre, while also highlighting its implications for environmental improvement in leatherworking SMEs:

'This project was signed in 1998, and in 1999-2000 it was practically implemented. The project remained with us until 2003, but it had so much encouraging results that it was extended up to 2006. We carried on with its implementation until 2006, but then the aid stopped […] This is a dark side' (Project manager, CPC).

These findings suggest that there is a need to ensure sustainability of positive environmental interventions in the country.

The next section reports on environmental barriers that environmentally distanced SMEs perceived were deterring them from getting engaged environmentally.

4.2   Deterring environmental barriers - the case of environmentally distanced SMEs

Environmentally distanced firms (SME1, SME3, SME21 and SME 22) took two types of environmental measures: (a) reduction in water usage and (b) trimming of skins before processing these (Appendix 2). However, these measures were not environmentally-led but purely driven by the economic imperatives. In fact, all of the environmentally distanced firms were located in tannery clusters that had common effluent treatment facilities. And these firms

had no other choice but to drain their wastewater through the channels of these plants. The management of treatment plants were charging them in accordance with the volume of wastewater they discharged. Thus, these firms had considered reducing their use of water in order to control their costs and seek legitimacy of their existence, in that they were to comply with the (informal) rules for operating in their respective clusters. For instance, as the owner-manager of SME1 said:

> *'[...] we have given attention to this issue. For example, if a tap was opened, we never cared about that. But now when we know that we have to pay the bill, we try to keep an eye on this thinking that instead of paying Rs. 10,000 let us try to reduce it to Rs. 7,000 [...]' (SME 1).*

Unlike their environmentally progressive and moderate counterparts, environmentally distanced SMEs had not adopted other cleaner production practices such as using environmentally less harmful chemicals and adopting eco-efficient production practices (Appendix 2). Moreover, they were not engaging in the environmental capacity building of their human resources and making investments in cleaner technologies. In fact, environmentally distanced SMEs displayed a mixed behaviour of being 'profit-driven' as well as 'compliance-driven' firms (Parker et al., 2009; Simpson et al., 2004) in that they did not opt for environmental stewardship and largely focused on controlling costs by avoiding to take environmental initiatives proactively.

Owner-managers of these firms had got acclimatised with the polluted environment and they, therefore, were not much bothered to take environmental protection measures: *'[...] everything has penetrated into our mind so we do not feel much about pollution' (SME 3).* Partly, the behaviour of such entrepreneurs can be attributed to their lack of interest in and awareness about the impacts of environmental degradation, which seems to be further aggravated by their limited ability to comprehend the eco-friendly production processes: *'[...] they educate us about precautionary measures for controlling pollution, but we cannot follow these measures' (SME 1).*

Considering that environmental improvement was an expensive process, SMEs in this category were avoiding it. They regarded environmental improvement an additional financial burden: *'[...] they visualise it as a leakage from their profits [...] They say it is an additional activity [...]' (Project manager, CPC).* Moreover, they also perceived financial scarcity a main reason for their environmental disengagement:

> *'Not only the facilities are limited; the shortage of resources is also there. What can an individual do' (SME 1).*

> *'Smaller units cannot access the resources for better environmental engagement' (SME 22).*

5   Discussion

Leatherworking SMEs in Pakistan face multiple internal and external environmental barriers. These barriers range from being individual specific (e.g. eco-illiterate owner-managers and labour-force) to organisational level (e.g. financial constraints), societal level (e.g. environmentally less sensitive community), and institutional level (e.g. lack of support from national government and weaker enforcement of regulations). Although the environmental barriers as identified do not appear to be surprisingly new to greening business literature on SMEs, this research makes an important contribution to literature by uncovering the contextually situated constraints in three different categories of leatherworking SMEs: (a)

environmentally progressive, (b) environmentally moderate and (c) environmentally distanced firms. Such knowledge can be useful for informing both policy and practice.

During the inductive coding process of data analysis (Appendices 5 and 6), environmental barriers were rendered to a binary classification, internal and external. However, in practice, instead of having a piecemeal impact, often these multilevel (micro-meso-macro) barriers operate in tandem with each other and impede SMEs' ability to curtail their environmental footprints. In fact, some of these barriers mediate the presence of others. For example, an environmental support institute, Cleaner Production Centre (CPC), has been operating at the industry level (meso level) with the financial assistance from an international sponsor, Norwegian Agency for Development and Cooperation (NORAD). However, in the recent years due to this financial support coming to an end and national government not backing this centre, it has been struggling to offer consistent environmental support to SMEs. It has constrained the access of SME owner-managers and their workers (micro level) to environmental information, education and trainings, which in turn is seen to have hampered environmental improvement in some firms in Sialkot region, more specifically in the category of environmentally moderate SMEs because they lack sufficient resources to gather the similar information from expensive alternative sources.

At the same time, due to poor infrastructural facilities (macro level), environmentally progressive and moderate SMEs (micro level) are facing challenges in achieving eco-efficiency (van Berkel, 2007) because they have to arrange inputs at a higher cost, such as buying expensive imported chemicals and relying on expensive modes of electricity generation like diesel generators. In addition, because of complex environmental regulations and their weaker enforcement (macro level), environmental monitoring of industry's polluting activities is seen to have remained poor (meso level) allowing some SMEs (micro level) to adopt a resistant environmental strategy and 'display omitted environmental behaviour' (Tilley, 1999b) which hampers the environmental competitiveness of their peers (micro level) and discourages them from taking environmental measures.

Findings also provide an opportunity to highlight that some environmental barriers operate as critical or 'effective' constraints (Murillo-Luna et al., 2011), while others as lesser intense inhibitors. For example, for environmentally progressive SMEs labour-related barriers that are primarily caused by their lack of education and rigid attitude towards learning and diffusing eco-innovations serve as critical constraints to environmental improvement (Murillo-Luna et al., 2011; Walker et al., 2008; del Brío and Junquera, 2003; Tilley, 2000). Financial barriers were not much strongly mentioned by respondents in this category. Possibly, because these firms were progressing well and often were able to manage the economic resources needed for their environmental improvement. On the other hand, amongst environmentally moderate SMEs, critical environmental barriers (Murillo-Luna et al., 2011) are seen to arise mainly from the budgetary constraints (Seidel et al., 2009; del Brío and Junquera, 2003) and environmentally conservative attitude of employees which is underpinned by their lack of eco-literacy skills (Murillo-Luna et al., 2011; Walker et al., 2008; del Brío and Junquera, 2003; Tilley, 2000). In the third category of SMEs, environmentally distanced firms, critical environmental barriers (Murillo-Luna et al., 2011) are seen as limited environmental competency of owner-managers (Revell and Blackburn, 2007; Tilley, 1999a), which is further reinforced by them getting acclimatised with polluted environment and, in some cases, by their behavioural rigidities (Murillo-Luna et al., 2008; Shi et al., 2008) towards adopting environmental practices.

At the external level, critical environmental barriers relate to institutional 'gaps' (Littlewood and Holt, 2015b, Kolk, 2014) that prevail because of lack of support from the national

government (Massoud et al., 2010) and complex environmental regulations (Wilson et al., 2012; Mir, 2008) coupled with their weaker enforcement (Shi et al., 2008). These findings from Pakistan reinforce the argument that

> *'Traditional command-and-control approaches to environmental protection and occupational safety are largely ineffective due to lack of enforcement capability, inadequate legislative frameworks, pervasive informality, high rates of poverty, and limited human capital in most developing countries. They tend to place a heavy burden on governmental enforcement agencies that have limited human and financial resources'*
> (Wenner et al., 2004, p. 108).

Another equally crucial external barrier is under-developed infrastructure (Revell et al., 2010; Vernon et al., 2003), which is seen to have been limiting SMEs' access to appropriate drainage facilities, internationally accredited laboratories at the local level, uninterrupted supply of utilities and environmentally less harmful inputs from the local chemicals industry. These barriers not only challenge leatherworking SMEs, more specifically resource deficient environmentally moderate firms, to reduce their environmental footprints by controlling pollution but also constrain them from achieving eco-efficiency.

The gravity of these critical external barriers seems to increase manifold when SMEs do not face strict social accountability of their environmentally irresponsible behaviour (Shen et al., 2015; Ortolano et al., 2014). Crucially, the tolerance level of the community for environmental degradation appears to be quite high in Pakistan. Major reasons for this are seen as the absence of environmental awareness amongst general public at a larger scale and their limited interest in the issues of environmental deterioration, in addition to the acute dependency of local communities on leatherworking firms in terms of their earnings.

6   Policy framework for overcoming environmental barriers

For leatherworking SMEs to survive in international supply chains and become able to achieve the tripartite benefits (economic, environmental and social) simultaneously, and contribute towards achieving sustainable development goals some key policy options are offered.

First, Pakistan's economy is characterised by considerable institutional 'gaps' (Littlewood and Holt, 2015b; Kolk, 2014) as far as the support for and control over environmental engagement of SMEs is concerned, and it undermines the effective enforcement of environmental regulations offering an easy escape from penalties to environmentally non-compliant leatherworking SMEs. The national government can allocate the resources required for the capacity building of environmental inspectors who are considered under-trained to perform their duties. At the same time, a reasonable increase in the salaries of environmental inspectors and other staff monitoring the issues of pollution in leather industry is vital so that they do not fall prey to unfair earnings limiting them from performing their duties honestly. Only then it is possible that environmental behaviour of leatherworking SMEs is monitored effectively. Given the fact that non-regulatory drivers such as sustainability-values of owner-managers and motivational campaigns of environmental support institutes have been influential in developing pro-environmental behaviour amongst SMEs, effective enforcement of regulations can further speed up the process to achieve sustainability targets in the leather industry. Implementing recommended measures require sufficient resources. These can be arranged through mobilising political will in the country. This can be achieved through starting a discourse in the national assembly making the parliamentarians realise that if funds at not directed towards environmental improvement of the leather industry, the contribution of this economically

vibrant sector to national export earnings can decline. There are successful examples of mobilising politicians for socio-economic causes in the country. For example, in order to achieve the Millennium Development Goals (MDGs) by reducing chronic poverty, a bill was passed to start supporting marginalised families in the country through Benazir Income Support Programme (BISP). It is since 2008 that the programme is running successfully. Thus, through political will resources for addressing environmental issues in the country can also be generated.

Second, in areas where combined effluent treatment plants are operational, some SMEs are seen to have been cheating by draining their wastewater through those channels that do not fall in lagoons of these treatment plants. While such actions of firms save them money (they do not pay or pay lesser charges for wastewater treatment), contaminated wastewater discharged through unauthorised channels adds to pollution which is harmful to the wider natural environment. Thus, there is a need for better governance of cluster level pollution controlling arrangements (de Oliveira and Jabbour, 2015). Possibly, institutions at the local level can be strengthened for achieving this. For example, management of effluent treatment plants, who do not have enough human resources, can collaborate with district governments and by seeking support from their staff can start strict surveillance of environmentally non-compliant SMEs. This can improve governance mechanisms of existing leather clusters. In this, there is also a lesson for those tannery clusters that are in their developing phase, such as Sialkot Tannery Zone. They can ensure that better governance systems are institutionalised right from the outset so that the set environmental targets are achieved effectively.

Third, compared to end-of-pipe treatment technologies, such as wastewater treatment plant, which are too expensive for the majority of leatherworking SMEs to buy, a number of cleaner production initiatives, like control of input intensity of processes and installation of dust and solid waste collectors, are less capital intensive measures, and many firms have started to adopt these. There is hence a considerable scope to control tanneries' pollution through institutionalising cleaner production, as a respondent from CPI also asserted: *'They are least interested in doing end-of-pipe treatment because that is a very capital-intensive process. However, they show interest in adopting cleaner production' (Programme manager, CPI).* While leatherworking SMEs are not seen to have generally been facing considerable informational barriers because intermediary organisations and input suppliers have been sharing with them the latest ecological knowledge, much needs to be done to disseminate environmental education amongst environmentally distanced SMEs for making them realise the economic, environmental and social benefits attached to cleaner production. Since a number of SMEs in Pakistan's leather industry are still in the initial phases of adopting cleaner production (Wahga et al., 2018; Ortolano et al., 2014), continuous adoption of these practices requires a motivational push and informational support. This calls for consistent support from intermediary organisations. Industry associations in collaboration with environmental support institutes, multilateral donors, Ministry of Environment, Ministry of Industries and Production and Trade Development Authority of Pakistan (TDAP) can perform these functions efficiently.

At the same time, lack of environmentally literate labour-force is one of the major challenges to the adoption of cleaner production in SMEs. This is an area where government departments working under Ministry of Environment and Ministry of Industries and Production, such as Small and Medium Enterprises Development Authority (SMEDA), can collaborate with industry associations, environment support institutes and industry related educational institutes to start training labour. There is also a need to develop the culture of permanent employment in the industry so that SME owner-manager also actively offer support for environmental training of their workers.

Fourth, lack of social accountability is also one of the barriers limiting environmental improvement in SMEs. There is hence a need to raise environmental awareness amongst general public so that they can hold leatherworking SMEs accountable for their environmentally irresponsible practices. In this regard, the government can make an effective use of media campaign such as advertising on TV channels and making announcements on radio, in addition to using billboards across the roads to disseminate information about harmful effects of pollution generated by leather industry. Recently, such advertising campaigns have been useful in bringing behavioural changes amongst communities in the country. For example, people were made aware of dengue fever, and the majority of them took protection measures. Media campaigns as recommended can, therefore, raise social and environmental responsibility in leatherworking firms by pushing them to take initiatives for protecting the wider natural environment.

Fifth, underdeveloped infrastructure is a considerable environmental barrier for SMEs. Thus, there is a scope for district governments, management of effluent treatment plants, industry associations, and SMEs to collaborate and raise the needed financial resources to develop infrastructure such as channels to drain wastewater. Government should ensure a consistent supply of utilities, such as gas and power, to SMEs so that they can undertake their economic activities because only if they are progressing financially, they can then progress environmentally. Also, there is a need to develop the local chemicals industry which should start producing less harmful inputs according to international standards. This can be useful for SMEs to establish responsible supply chains within the domestic economy and also save transaction costs by not buying or at least buying less from international markets.

Finally, limited financial resources are also seen as a critical barrier to environmental improvement, particularly for buying advanced cleaner technologies. There is a business opportunity for financial institutions. They can extend loans to SMEs for buying cleaner technologies. However, given the cultural and religious values of the larger community in Pakistan, generally, SME owner-managers avoid borrowing from conventional banks which charge interest; because paying interest is prohibited in Islam. While Islamic banking is already progressing in the country, conventional banks can introduce 'sharia' complaint loaning facilities and fulfil this need in the market. Moreover, the financial challenges of leatherworking SMEs also need attention from the central bank and national government who, through policy interventions, can direct financial institutions to offer environment-specific loaning facilities on relatively less strict terms.

References

Abdelzaher, D. M. and Abdelzaher, A. (2015) 'Beyond environmental regulations: exploring the potential of "eco-islam" in boosting environmental ethics within SMEs in Arab markets', *Journal of Business Ethics*, [Online]. Available at http://link.springer.com.libezproxy.open.ac.uk/ article/10.1007 /s10551-015-2833-8#article-contents (Accessed 15 November 2015).

Aftab, Z., Ali, L., Khan, A. M., Robinson, A. C. and Irshad, I. A. (2000) *Industrial policy and the environment in Pakistan,* UNIDO, NC/PAK/97/018.

Allet, M. (2015) 'Mitigating environmental risks in microenterprises a case study from El Salvador', *Business & Society*, [Online]. Available at http://bas.sagepub.com/ content/early/2015/03/05/ 0007650315574738.full.pdf (Accessed 10 December 2015).

Bansal, P. and Roth, K. (2000) 'Why companies go green: a model of ecological responsiveness', *Academy of Management Journal*, vol. 43, no. 4, pp. 717-736.

Barney, J. (1991) 'Firm resources and sustained competitive advantage', *Journal of Management*, vol. 17, no. 1, pp. 99-120.

Battaglia, M., Bianchi, L., Frey, M. and Iraldo, F. (2010) 'An innovative model to promote CSR among SMEs operating in industrial clusters: evidence from an EU project', *Corporate Social Responsibility and Environmental Management*, vol. 17, no. 3, pp. 133-141.

Blundel, R., Monaghan, A. and Thomas, C. (2013) 'SMEs and environmental responsibility: a policy perspective', *Business Ethics: A European Review*, vol. 22, no. 3, pp. 246- 262.

Brammer, S., Hoejmose, S. and Marchant, K. (2012) 'Environmental management in SMEs in the UK: practices, pressures and perceived benefits', *Business Strategy and the Environment*, vol. 21, no. 7, pp. 423-434.

Bryman, A. and Bell, E. (2007) *Business research methods,* Oxford, Oxford University Press.

Calogirou, C., Sørensen, S., Bjørn Larsen, P. and Alexopoulou, S. (2010) *SMEs and the environment in the European Union,* PLANET SA and Danish Technological Institute. European Commission, DG Enterprise and Industry.

Ciccozzi, E., Checkenya, R. and Rodriguez, A. (2003) 'Recent experiences and challenges in promoting cleaner production investments in developing countries', *Journal of Cleaner Production*, vol. 11, no. 6, pp. 629-638.

D'este, P., Iammarino, S., Savona, M. and Von Tunzelmann, N. (2012) 'What hampers innovation? revealed barriers versus deterring barriers', *Research Policy*, vol. 41, no. 2, pp. 482-488.

Dahlmann, F., Brammer, S. and Millington, A. (2008) 'Barriers to proactive environmental management in the United Kingdom: implications for business and public policy', *Journal of General Management*, vol. 33, no. 3, pp. 1-20.

Del Brío, J. Á. and Junquera, B. (2003) 'A review of the literature on environmental innovation management in SMEs: implications for public policies', *Technovation*, vol. 23, no. 12, pp. 939-948.

Dimaggio, P. and Powell, W. (1983) 'The iron cage revisited: institutional isomorphism and collective rationality in organization fields', *American Sociological Review*, vol. 48, no. 2, pp. 147-160.

Easterby-Smith, M., Thorpe, R. and Jackson, P. (2008) *Management research,* London, Sage. Eisenhardt, K. M. (1989) 'Building theories from case study research', *Academy of Management Review*, vol. 14, no. 4, pp. 532-550.

Eisenhardt, K. M. and Martin, J. A. (2000) 'Dynamic capabilities: what are they?', *Strategic Management Journal*, vol. 21, no. 10-11, pp. 1105-1121.

Gioia, D. A., Corley, K. G. and Hamilton, A. L. (2013) 'Seeking qualitative rigor in inductive research: notes on the Gioia methodology', *Organizational Research Methods*, vol. 16, no. 1, pp. 15-31.

Gold, S., Seuring, S. and Beske, P. (2010) 'Sustainable supply chain management and inter-organizational resources: a literature review', *Corporate Social Responsibility and Environmental Management*, vol. 17, no. 4, pp. 230-245.

Gop (2017-2018), Pakistan economic survey. Islamabad, Pakistan, Ministry of Finance, Government of Pakistan.

Hamann, R., Smith, J., Tashman, P. and Marshall, R. S. (2015) 'Why do SMEs go green? an analysis of wine firms in South Africa', [Online]. Available at http://bas.sagepub. com/content/early/2015/03/13 /0007650315575106.full.pdf+html (Accessed 10 March 2016).

Hannan, M. T. and Freeman, J. (1977) 'The population ecology of organizations', *American Journal of Sociology*, vol. 82, no. 5, pp. 929-964.

Hart, S. L. (1995) 'A natural-resource-based view of the firm', *Academy of Management Review*, vol. 20, no. 4, pp. 986-1014.

Hillary, R. (2004) 'Environmental management systems and the smaller enterprise', *Journal of Cleaner Production*, vol. 12, no. 6, pp. 561-569.

Hsu, J. L. and Cheng, M. C. (2012) 'What prompts small and medium enterprises to engage in corporate social responsibility? a study from Taiwan', *Corporate Social Responsibility and Environmental Management*, vol. 19, no. 5, pp. 288-305.

Huang, X., Tan, B. L. and Ding, X. (2012) 'Green supply chain management practices: an investigation of manufacturing SMEs in China', *International Journal of Technology Management and Sustainable Development*, vol. 11, no. 2, pp. 139-153.

Jamali, D., Lund-Thomsen, P. and Jeppesen, S. (2015) 'SMEs and CSR in developing countries', *Business & Society* [Online]. Available at http://bas.sagepub.com.libez proxy.open.ac.uk/content/early/ 2015/03/01/0007650315571258.full.pdf+html (Accessed 10 September 2015).

Khan, J. A. (1995) 'From greening to sustaining: transformational challenges for the firm–a case study of pollution abatement from tanneries in Kasur, Pakistan', *Business Strategy and the Environment*, vol. 4, no. 4, pp. 180-185.

Khanna, T. and Palepu, K. (1997) 'Why focused strategies may be wrong for emerging markets', *Harvard Business Review*, vol. 75, no. 4, pp. 41-48.

Kolk, A. (2014) 'Linking subsistence activities to global marketing systems: The role of institutions', *Journal of Macromarketing*, vol. 34, no. 2, pp. 186-198.

Littlewood, D. and Holt, D. (2015b) 'Social entrepreneurship in South Africa exploring the influence of environment', *Business & Society,* [Online]. Available at: http://journals.sagepub.com.libezproxy. open.ac.uk/doi/pdf/10.1177/0007650315 613293 (Accessed 10 June 2016).

Lund-Thomsen, P. (2009) 'Assessing the impact of public–private partnerships in the global South: the case of the Kasur tanneries pollution control project', *Journal of Business Ethics*, vol. 90, no. 1, pp. 57-78.

Malik, A. S. (2002), Impact of environmental regulations on the textile sector of Pakistan. Country paper for expert meeting on environmental requirements and international trade*,* Geneva, Switzerland.

Massoud, M. A., Fayad, R., El-Fadel, M. and Kamleh, R. (2010) 'Drivers, barriers and incentives to implementing environmental management systems in the food industry: a case of Lebanon', *Journal of Cleaner Production*, vol. 18, no. 3, pp. 200- 209.

Meyer, K. E., Estrin, S., Bhaumik, S. K. and Peng, M. W. (2009) 'Institutions, resources, and entry strategies in emerging economies', *Strategic Management Journal*, vol. 30, no. 1, pp. 61-80.

Miles, M. B. and Huberman, A. M. (1994) *Qualitative data analysis: an expanded sourcebook,* London, Sage.

Mir, D. F. (2008) 'Environmental behaviour in Chicago automotive repair micro-enterprises (MEPs)', *Business Strategy and the Environment*, vol. 17, no. 3, pp. 194-207.

Mittal, V. K. and Sangwan, K. S. (2014) 'Development of a model of barriers to environmentally conscious manufacturing implementation', *International Journal of Production Research*, vol. 52, no. 2, pp. 584-594.

Murillo-Luna, J. L., Garcés-Ayerbe, C. and Rivera-Torres, P. (2007) 'What prevents firms from advancing in their environmental strategy?', *International Advances in Economic Research*, vol. 13, no. 1, pp. 35-46.

Nahapiet, J. and Ghoshal, S. (1998) 'Social capital, intellectual capital, and the organisational advantage', *Academy of Management Review*, vol. 23, no. 2, pp. 242- 266.

Oliver, C. (1991) 'Strategic responses to institutional processes', *Academy of Management Review*, vol. 16, no. 1, pp. 145-179.

Ortolano, L., Sanchez-Triana, E., Afzal, J., Ali, C. L. and Rebellón, S. A. (2014) 'Cleaner production in Pakistan's leather and textile sectors', *Journal of Cleaner Production*, vol. 68, pp. 121-129.

Parker, C. M., Redmond, J. and Simpson, M. (2009) 'A review of interventions to encourage SMEs to make environmental improvements', *Environment and Planning C: Government and Policy*, vol. 27, no. 2, pp. 279-301.

Parmigiani, A. and Rivera-Santos, M. (2015) 'Sourcing for the base of the pyramid: constructing supply chains to address voids in subsistence markets', *Journal of Operations Management*, vol. 33-34, pp. 60-70.

Parrish, B. D. (2010) 'Sustainability-driven entrepreneurship: principles of organization design', *Journal of Business Venturing*, vol. 25, no. 5, pp. 510-523.

Petts, J., Herd, A., Gerrard, S. and Horne, C. (1999) 'The climate and culture of environmental compliance within SMEs', *Business Strategy and the Environment*, vol. 8, no. 1, pp. 14-30.

Pimenova, P. and Van Der Vorst, R. (2004) 'The role of support programmes and policies in improving SMEs environmental performance in developed and transition economies', *Journal of Cleaner Production*, vol. 12, no. 6, pp. 549.

Rathi, A. (2003) 'Promotion of cleaner production for industrial pollution abatement in Gujarat (India)', *Journal of Cleaner Production*, vol. 11, no. 5, pp. 583-590.

Redmond, J. and Walker, E. (2009) 'Environmental education in small business: the owner- manager's perspective', *Australian Journal of Environmental Education*, vol. 25, pp. 117-128.

Revell, A. and Blackburn, R. (2007) 'The business case for sustainability? an examination of small firms in the UK's construction and restaurant sectors', *Business Strategy and the Environment*, vol. 16, no. 6, pp. 404-420.

Revell, A., Stokes, D. and Hsin, C. (2010) 'Small businesses and the environment: turning over a new leaf?', *Business Strategy and the Environment*, vol. 19, no. 5, pp. 273- 288.

Sarkis, J., Zhu, Q. and Lai, K.H. (2011) 'An organizational theoretic review of green supply chain management literature', *International Journal of Production Economics*, vol. 130, no. 1, pp. 1-15.

Scott, W. R. (1987) 'The adolescence of institutional theory', *Administrative Science Quarterly*, vol. 32, no. 4, pp. 493-511.

Scott, W. R. (2008) 'Approaching adulthood: the maturing of institutional theory', *Theory and Society*, vol. 37, no. 5, pp. 427-442.

Scott, W. R. (2010) 'Reflections: the past and future of research on institutions and institutional change', *Journal of Change Management*, vol. 10, no. 1, pp. 5-21.

Seidel, M., Seidel, R., Tedford, D., Cross, R., Wait, L. and Hämmerle, E. (2009) 'Overcoming barriers to implementing environmentally benign manufacturing practices: strategic tools for SMEs', *Environmental Quality Management*, vol. 18, no. 3, pp. 37- 55.

Shen, L., Govindan, K. and Shankar, M. (2015) 'Evaluation of barriers of corporate social responsibility using an analytical hierarchy process under a fuzzy environment—a textile case', *Sustainability*, vol. 7, no. 3, pp. 3493-3514.

Shi, H., Peng, S., Liu, Y. and Zhong, P. (2008) 'Barriers to the implementation of cleaner production in Chinese SMEs: government, industry and expert stakeholders' perspectives', *Journal of Cleaner Production*, vol. 16, no. 7, pp. 842-852.

Silvestre, B. S. (2015) 'Sustainable supply chain management in emerging economies: environmental turbulence, institutional voids and sustainability trajectories', *International Journal of Production Economics*, vol. 167, pp. 156-169.

Simpson, M., Taylor, N. and Barker, K. (2004) 'Environmental responsibility in SMEs: does it deliver competitive advantage?', *Business Strategy and the Environment*, vol. 13, no. 3, pp. 156-171.

Studer, S., Welford, R. and Hills, P. (2005), Drivers and barriers to engaging small and medium-sized companies in voluntary environmental initiatives. *The Centre of Urban Planning and Environmental Management, Hong Kong, The University of Hong Kong.*

Thiruchelvam, M., Kumar, S. and Visvanathan, C. (2003) 'Policy options to promote energy efficient and environmentally sound technologies in small-and medium-scale industries', *Energy Policy*, vol. 31, no. 10, pp. 977-987.

Tilley, F. (1999a) 'The gap between the environmental attitudes and the environmental behaviour of small firms', *Business Strategy and the Environment*, vol. 8, no. 4, pp. 238-248.

Tilley, F. (2000) 'Small firm environmental ethics: how deep do they go?', *Business Ethics: A European Review*, vol. 9, no. 1, pp. 31-41.

Van Berkel, R. (2007) 'Cleaner production and eco-efficiency in Australian small firms', *International Journal of Environmental Technology and Management*, vol. 7, no. 5- 6, pp. 672-693.

Vernon, J., Essex, S., Pinder, D. and Curry, K. (2003) 'The 'greening'of tourism micro- businesses: outcomes of focus group investigations in South East Cornwall', *Business Strategy and the Environment*, vol. 12, no. 1, pp. 49-69.

Vickers, I., Vaze, P., Corr, L., Kasperova, E. and Fergus, L. (2009) SMEs in a low carbon economy, Centre for Enterprise and Economic Development Research (CEEDR), Middlesex University, URN 09/574.

Vogt, P. and Hassan, Z. A. (2011) *Value chain analysis of the gems jewellery and leather sector in Pakistan,* European Commission, 2011/267906.

Wahga, A.I., Blundel, R. and Schaefer, A. (2018), "*Understanding the drivers of sustainable entrepreneurial practices in Pakistan's leather industry: A multi-Level approach", International Journal of Entrepreneurial Behaviour & Research*, vol. 24, no. 2.

Walker, B., Redmond, J., Sheridan, L., Wang, C. and Goeft, U. (2008) Small and medium enterprises and the environment: barriers, drivers, innovation and best practice. A literature review. Small & Medium Enterprise Research Centre, Edith Cowan University, Perth, Australia.

Wassmer, U., Paquin, R. and Sharma, S. (2014) 'The engagement of firms in environmental collaborations: existing contributions and future directions', *Business & Society,* vol. 53, no. 6, pp. 754-786.

Wenner, M. D., Wright, N. and Lal, A. (2004) 'Environmental protection and microenterprise development in the developing world: a model based on the Latin American experience', *Journal of Microfinance/ESR Review*, vol. 6, no. 1, pp. 95-122.

Wernerfelt, B. (1984) 'A resource-based view of the firm', *Strategic Management Journal*, vol. 5, no. 2, pp. 171-180.

Williamson, D., Lynch-Wood, G. and Ramsay, J. (2006) 'Drivers of environmental behaviour in manufacturing SMEs and the implications for CSR', *Journal of Business Ethics*, vol. 67, no. 3, pp. 317-330.

Wilson, C. D. H., Williams, I. D. and Kemp, S. (2012) 'An evaluation of the impact and effectiveness of environmental legislation in small and medium-sized enterprises: experiences from the UK', *Business Strategy and the Environment*, vol. 21, no. 3, pp. 141-156.

Yamakawa, Y., Peng, M. W. and Deeds, D. L. (2008) 'What drives new ventures to internationalize from emerging to developed economies?', *Entrepreneurship Theory and Practice*, vol. 32, no. 1, pp. 59-82.

Yin, R. K. (2009) *Case study research: design and methods,* London, Sage.

Zhang, B., Bi, J. and Liu, B. (2009) 'Drivers and barriers to engage enterprises in environmental management initiatives in Suzhou industrial park, China', *Frontiers of Environmental Science & Engineering in China*, vol. 3, no. 2, pp. 210-220.

Appendices

SMEs interviewed for this study

Firms	Year of establishment	Size of firm	Number of employees	Location (City)	Market(s) of operation	Product(s)	Person(s) interviewed	No. of interviews
SME 1	1992	Small	10-15	Kasur	Domestic	Finished leather	Owner-managers	2
SME 2	2001	Medium	50 - 60	Kasur	Export	Finished leather	Production manager	1
SME 3	1992	Small	15-20	Kasur	Domestic and export	Finished leather	Owner-managers	2
SME 4	1974	Medium	200-240	Sheikhupura	Export	Finished leather	Manager	1
SME 5	2001	Medium	50 - 60	Kasur	Export	Finished leather	Owner-manager	2
SME 6	1989	Small	6 - 7	Sialkot	Domestic	Finished leather	Owner-managers	2
SME 7	1997	Medium	60-70	Sialkot	Domestic	Finished leather	Owner-manager	2
SME 8	1989	Medium	100	Sialkot	Export	Gloves, work wear, motorbike suits	Owner-manager	1
SME 9	1984	Medium	55-70	Sialkot	Export	Leather garments	Owner-manager and general manage	2
SME10	1988	Medium	50	Sialkot	Domestic and export	Working gloves	Owner-manager	1
SME11	1992	Medium	40-50	Sialkot	Domestic	Leather processing services	Owner-manager and general manage	2
SME12	2005	Medium	50-60	Kasur	Domestic and export	Finished leather for shoes and garments	Owner-manager	2
SME13	1971	Medium	150-200	Kasur	Domestic and export	Semi-finished Leather for shoes, sofas, jackets, upholstery	Owner-manager and other partners	2
SME14	1996	Small	10-12	Sialkot	Domestic	Finished leather for gloves	Owner-manager	1
SME15	2001	Medium	200	Sialkot	Export	Leather garments	Owner-manager	2
SME16	1989	Medium	40-60	Sialkot	Export	High performance leather clothing	Owner-manager	1
SME17	2003	Medium	30-40	Sialkot	Domestic and export	Gloves	Owner-manager	1
SME18	1992	Medium	100	Sialkot	Export	Leather garments, gloving leather, shoe upper, motorbike leather and fancy leather	General manager and production manager	2
SME19	1949	Medium	200-240	Muridkey	Domestic and export	Leather shoes	Owner-manager	2
SME20	1980	Medium	200-250	Karachi	Domestic and export	Finished leather	General manager	1
SME21	1991	Medium	100-120	Karachi	Domestic and export	Finished leather	Owner-manager	1
SME22	1985	Small	15-20	Karachi	Domestic and export	Leather garments	Owner-manager	2
Total								**35**

Source: Developed by the researchers.

Environmental initiatives of sample leatherworking SMEs

Environmental initiatives	Environmentally Progressive SMEs				Environmentally Moderate SMEs														Environmentally Distanced SMEs			
	4	13	15	19	2	5	6	7	8	9	10	11	12	14	16	17	18	20	1	3	21	22
Water conservation practices – using measured water and closed door washing	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	×	×	×	×
Trimming of skins/hides before tanning to conserve chemicals	✓	✓	✓	✓			✓	✓	✓	✓	✓		✓	✓	✓	✓	✓	✓	×	×	×	×
Collaborating with intermediary organisations for environmental learning	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓				
Responsible disposal of solid waste – selling smaller pieces of leather to by-product producers	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓				
Product testing to determine its harmful effects	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓				
Using better quality and less harmful chemicals	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓				
Using recycled inputs	✓	✓	✓	✓	✓	✓	✓				✓		✓	✓	✓		✓	✓				
Collaborating with input suppliers for environmental learning	✓	✓	✓	✓	✓	✓	✓	✓		✓	✓			✓	✓			✓				
Using energy efficient machines	✓	✓	✓	✓	✓	✓		✓		✓	✓	✓	✓		✓							
Using dust collectors to control air pollution	✓	✓	✓	✓			✓	✓	✓	✓		✓	✓	✓		✓	✓					
R&D for process innovation – aimed at controlling pollution load as well as conserving inputs	✓	✓	✓	✓	✓	✓	✓	✓	✓						✓	✓		✓				
Solid waste control using screens	✓	✓	✓	✓	✓	✓	✓			✓		✓	✓		✓			✓				
Environmental training of labour force	✓	✓	✓	✓	✓	✓			✓	✓		✓			✓		✓	✓				
Environmental management planning			✓	✓				✓	✓		✓	✓	✓		✓		✓					
Using efficient water heating systems – such as steamers	✓	✓	✓	✓		✓		✓					✓									
Providing better working environment to employees		✓	✓		✓	✓							✓				✓	✓				
Infrastructure development - building lagoons and drains for controlling sludge			✓	✓				✓			✓	✓	✓			✓						
Adopting advanced technology for eco-efficiency	✓	✓	✓	✓	✓	✓					✓											
Collaborating with (international) customers for environmental learning				✓				✓	✓					✓		✓						
Investing in new environmental projects	✓		✓	✓							✓		✓									
Insulation of pipes to conserve heat and save energy	✓	✓											✓	✓			✓					
Modifying machinery to conserve resources like gas, electricity and hot water			✓		✓	✓	✓	✓					✓									

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
Gardening and plantation					✓	✓		✓		✓												
Own wastewater treatment plant	✓	✓	✓	✓																		
Using combined effluent treatment plant					✓	✓											✓	×	×	×	×	
Desalting of skins to reduce pollution load	✓	✓											✓									
Solar heating system	✓		✓	✓																		
ISO 14001 certification	✓							✓	✓													
Using colour coating machine – roller coating machines		✓	✓																			
Using air filters for controlling air pollution			✓				✓															
Controlling noise pollution										✓					✓							
Overall initiatives	**21**	**20**	**24**	**21**	**15**	**17**	**14**	**17**	**13**	**12**	**14**	**12**	**16**	**14**	**12**	**11**	**11**	**14**	**2**	**2**	**2**	**2**

Source: Developed by the researchers, based on the interview data, fieldwork journal and photographs taken during data collection.

Summary characteristics of the three categories of sample firms as per their environmental behaviour

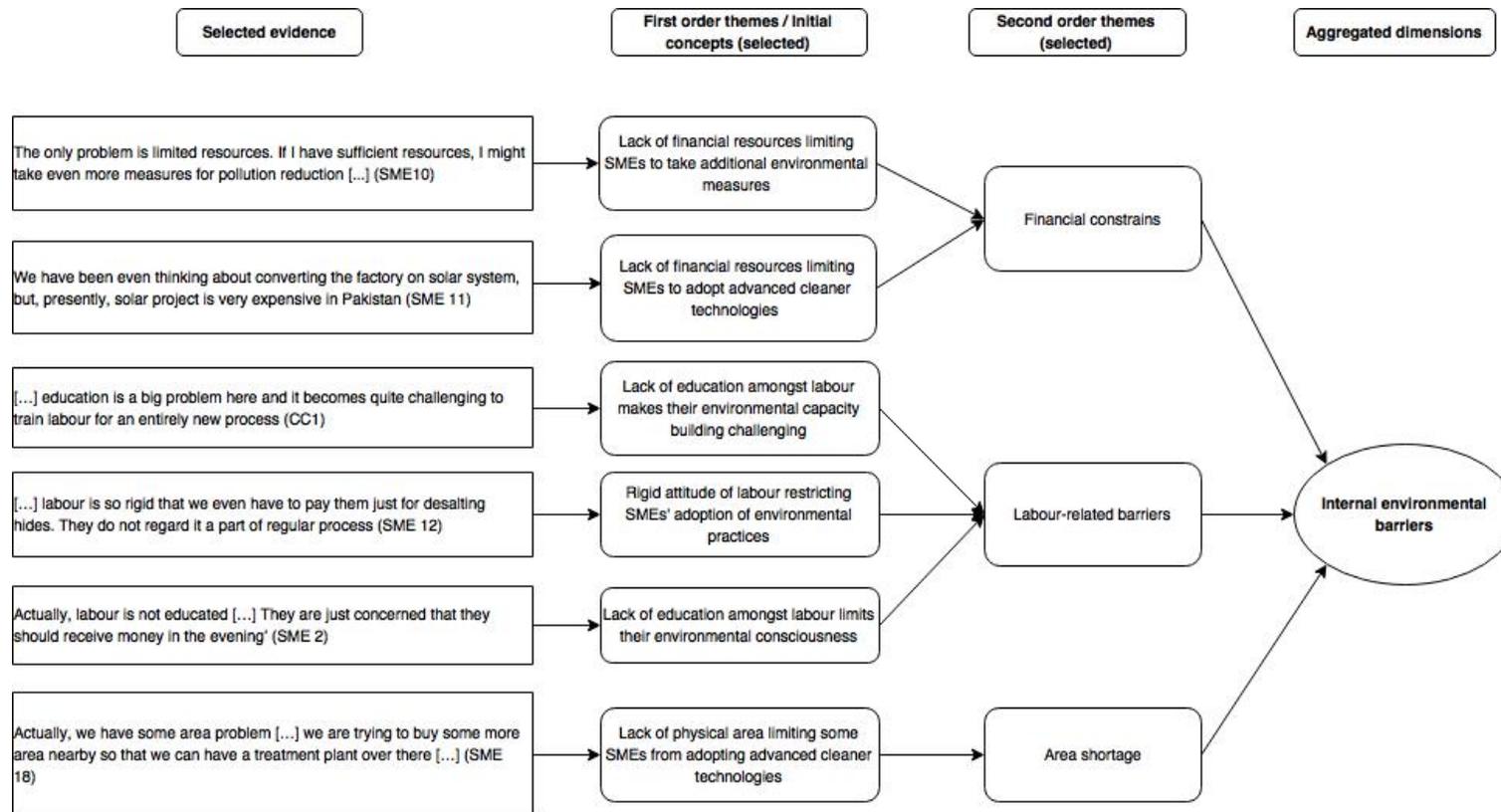| Key features	Environmentally progressive SMEs	Environmentally moderate SMEs	Environmentally distanced SMEs
Environmental orientation of owner-managers	SME owners and managers regard environmental issues as serious and pro-actively take considerable measures to address these issues.	SME owners and managers regard environmental issues as serious and proactively adopt cleaner production practices. They, however, cannot take all the required measures mainly because of the financial constraints.	SME owners and managers concentrate only on economic imperatives. They do not regard environmental issues as serious and/or are least interested in addressing these.
Markets of operation	Only export-oriented or predominantly export-oriented firms.	Some firms only export and some operate in domestic market only. However, some operate both in domestic and international markets.	Predominantly, these firms operate in the domestic market, with some of these also having partial export concerns. Those who export they do not sell to environmentally sensitive customers.
Environmental learning	Strongly embedded in ecological learning networks (locally as well as internationally) and regularly advance ecological knowledge resources through knowledge exploitation and exploration processes.	Embedded in ecological learning networks (generally locally), but do not acquire ecological knowledge as regularly as environmentally progressive SMEs do. Do not engage or get limitedly engaged with knowledge exploration initiatives.	Do not embed in ecological learning networks.
In-house R&D arrangements	Formal R&D arrangements for sustainability-oriented process innovations.	Generally, less formal R&D arrangements for sustainability-oriented process innovations. Often rely on external partners' support for this.	No R&D arrangements for sustainability-oriented process innovations.
Developing eco-literacy amongst human resources	Proactively advance 'eco-literacy' amongst labour-force - both at the internal level as well as with the support from intermediary organisations.	Regular environmental training of labour-force, but mainly with the help of intermediary organisations, and only limited internal arrangements.	No environmental training of employees.
Adoption of cleaner technologies	Proactively invest in (expensive) advanced cleaner technologies.	Proactively adopt cleaner technologies but these are not much advanced/expensive.	Do not adopt cleaner technologies. However, they have access to the combined effluent treatment plants because they are situated in larger tannery clusters which provide this common facility.
Demographic features	Medium sized firms. Labour-force: > 150 but < 250	Mostly medium sized firms. Few are also of small size. Labour-force: generally <150	Generally, these are smaller size firms, with few exceptions operating as medium sized units. Labour-force: generally <20

Source: Developed by the researchers, informed by the interview data, fieldwork journal and photographs of field visits.

Other stakeholders of the leatherworking industry interviewed for this study

Stakeholders	Nature of organisation	City	Person(s) interviewed	No. of interviews
Pakistan Tanners Association (PTA)	National level industrial association	Lahore	Secretary of the association and three members	4
Pakistan Gloves Manufacturers and Exporters Association (PGMEA)	National level industrial association	Sialkot	Chairman of the association and two members	2
Tanneries Association, Dingarh, Kasur (TADK)	Regional industrial association	Kasur	A representative member of the association	1
Small Tanneries Association, Kasur (STAK)	Regional industrial association	Kasur	A representative member of the association	1
Cleaner Production Centre (CPC)	Environment support institute	Sialkot	Project manager	3
Cleaner Production Institute (CPI)	Environment support institute	Lahore and Karachi	Two programme managers	4
Small and Medium Enterprises Development Authority (SMEDA)	A government entity- Ministry of Industries and Production Pakistan	Sialkot	Station officer	4
Kasur Tanneries Waste Management Agency (KTWMA)	A private-public partnership initiative - combined effluent treatment plant for a tannery cluster in Kasur	Kasur	In-charge	2
Common Effluent Treatment Plant, Karachi (CETPK)/ Korangi Wastewater Management Project (KWMP)	A private-public partnership initiative - combined effluent treatment plant for tannery cluster in Karachi	Karachi	Manager administration	1
SGS	Testing laboratory	Lahore	Senior executive officer/ marketing manager	1
National Institute of Leather Technology (NILT)	Industry related educational institute	Karachi	Staff member	1
Institute of Leather Technology (ILT)	Industry related educational institute	Gujranwalla	Principal and ex-principal	2
Pakistan Council for Scientific and Industrial Research (PCSIR)	Research and testing laboratories complex – an institute of national government	Lahore	Two staff members	2
CC1	Chemical supplier	Lahore	Staff member – technical manager	1
CC2	Chemical supplier	Lahore	Staff member – leather technician	1
CC3	Chemical supplier	Lahore and Karachi	Owner-manager	1
CC4	Chemical supplier	Lahore	Staff member	1
CC5	Chemical supplier	Kasur	Owner-manager	1
TS1	Cleaner technology seller - (e.g. solar tubes)	Lahore	Executive staff member	1
				34

Source: Developed by the researchers; informed by the interview data, fieldwork journal and photographs taken during field visits

Data structure for internal environmental barriers in environmentally progressive and moderate SMEs

Data structure for external environmental barriers in environmentally progressive and moderate SMEs

Selected evidence	First order themes / Initial concepts (selected)	Second order themes (selected)	Aggregated dimensions

Look, the thing is that too many things [regulations] are imposed on us […], which cannot be met. These [environmental regulations] are not realistic (SME 19) → Too tough regulations for SMEs to comply with

[…] whatever will be done, it will be done by the industry […] the supportive role of government is absent. (SME 12) → Lack of environmental support for SMEs from the government

In fact, implementation of regulations is weak here […] (SME 20) → Weaker implementation of environmental regulations

→ Policy barriers

[…] some chemicals are produced here, some are imported from China or India [...] such chemicals […] do not meet the REACH parameters [...] (SME 11) → Underdeveloped local chemical industry limits SMEs to comply with international environmental standards

[…] there is not any specific place for dumping solid waste in this area […] (SME 11) → Underdeveloped infrastructure limits SMEs to responsibly dispose solid waste

→ Infrastructural barriers

[…] residents […] have become used to it [pollution] now (SME 17). → Local communities have become used to living in polluted environment

[…] environment is not a big issue talked about in Pakistan (SME 16) → Generally, Pakistanis do not talk much about environmental degradaton

→ Societal barriers

[…] at the moment CPC is also disconnected, it is quite a while now they are not around. (SME 6) → Some SMEs not receiving consistent environmental support from CPC → Inconsistency in support from some environmental institutes

→ External environmental barriers