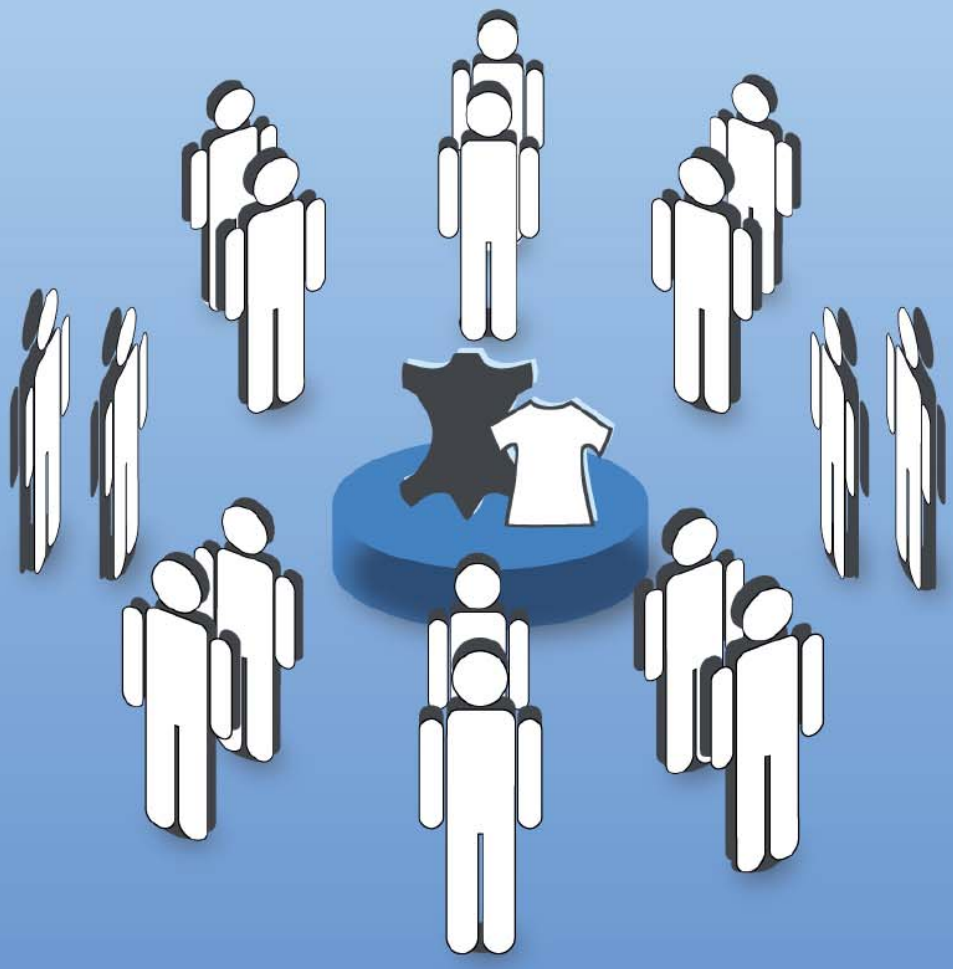
SCI-Pak

Sustainable and cleaner production in the manufacturing Industries of Pakistan

Opportunity Analysis of the Policy Framework



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Using this booklet

What can this booklet offer?

This booklet provides an analysis of the existing policy framework for SMEs of the textile and tannery sector in Pakistan. It demonstrates existing legislation and identifies opportunity areas that could benefit most from improvements on the goal of increasing sustainable production in SMEs.

Who should read this booklet?

This booklet provides relevant information for:

- Policy makers responsible for shaping future and existing regulation in Pakistan.
- Representatives of public authorities responsible for implementing and monitoring existing policies.
- Representatives of SMEs looking for an overview on existing legislation affecting their activities.
- Institutions and donors planning to introduce new initiatives for SMEs in Pakistan.

How to read this booklet?

There are several ways to read this booklet:

- If you want to obtain a quick overview on existing policy intervention for sustainable production in SMEs of the textile and tannery sector in Pakistan go directly to section 3.
- If you want to read the recommendations for tackling the opportunities in the policy environment deriving from the analysis, go to section 4.
- If you want to learn in detail about the existing legislation, their impact and recommendations for improvements read section 1 and 2.

How is this booklet structured?

1. First, the booklet shows six opportunity areas that are most relevant in terms of policy intervention to support sustainable production in SMEs in the textile and tannery sector in Pakistan.
2. Secondly, the booklet presents insights on existing policies for each of the six areas and reveals impacts of the policy interventions and recommendations for improving them based on interviews with policy representatives and literature.
3. Thirdly, the booklet sums up the analysis of all six opportunity areas.
4. Finally, recommendations for improving the policy framework for sustainable production for SMEs in textile and tannery sector are given.

1 Opportunity areas for policy intervention for Pakistan

Two major opportunity areas for policy intervention: By addressing the two major opportunity areas for policy intervention, policy makers can tap the full potential that sustainable production offers to the country as a whole and to SMEs in specific.

The first area: The first area of intervention addresses the areas in the production phases and activities of SMEs where the highest potential for improvements in terms of energy and resource efficiency and social aspects lies. For the textile and tannery sector, based on a hot spot analyses for both sectors these policy priorities have been defined as:[1]

- Increasing SMEs' efficiency in raw material and water consumption and decreasing waste and wastewater
- Increasing SMEs' energy efficiency
- Increasing workers' health and safety

The second area: The second area with high benefits from policy intervention addresses SMEs' abilities to improve their production towards sustainable production. The SCI-Pak project has identified the following three priority areas:

- Increasing SMEs' capacities
- Increasing technology innovation and transfer
- Increasing SMEs' access to finance

Policy instruments connected to the areas: The first field for policy intervention is mostly connected to regulatory and economic policy instruments whereas the second field by nature makes more use of research and educational instruments, cooperation instruments and informational instruments. However, it is important to understand that the combination of different instruments and the intervention in both fields is necessary for a successful intervention.

[1] Fore more detailed information on the methodology of identifying the opportunity areas, please see: CPI (2009): Simplified Life Cycle Assessment. Hot spot identification.

2 Assessing the opportunities

Guideline of assessment: For assessing the opportunities for policy intervention, the following steps are taken for each policy priority:

1. The existing policy intervention for the area is briefly described
2. The impact that the current intervention has is shown
3. Opportunities for improving the policy intervention in the respective area are demonstrated

Policy layers: Policy intervention for each opportunity area can be seen on different levels. The top layer consists of policy strategies, the middle layer of policies and policy instruments. For the opportunity areas increasing capacities, technology innovation and transfer and access to finance, additionally to these layers also institutions offering services and support are listed.

Strategies: Each opportunity area is subject of one or several national strategies, which are overarching policy goals introduced at the national level for broader topics. They are planning instruments often containing a vision, strategic objectives, sometimes specific targets and actions (Switch Asia Network Facility: Sustainable Consumption and Production Policies).

Policies and policy instruments: Policies and policy instruments describe in more detail how the goals introduced in the strategies are implemented.

Institutions: For the opportunity areas increasing capacities, technology innovation and transfer and access to finance several institutions are relevant which offer services and support for SMEs.

Expert interviews: The impact assessment and the recommendations for improving the policy intervention are based on qualitative interviews carried out with by IHT and CPI for the SCI-Pak project with the interviewees listed in box 1 as well as on documents, which provide recommendations for improving the policy framework based on qualitative and quantitative assessment of the current status.

Box 1: Experts interviewed for the SCI-Pak Project

Interviewees
1. Ministry of Labour - Muhammad Javaid Iqbal, Central Labour Advisor, Ministry of Labour and Manpower
2. ENERCON - K.M. Zubair, Chief ENERCON (no consent to quote him)
3. Ministry of Industries and Production - Ms. Shaista Sohail, Joint Secretary
4. Ministry of Commerce - Dr. Safdar A. Sohail, Director General Trade Policy
5. Ministry of Environment - Jawed Ali Khan, Director General (Environment)
6. Alternate Energy Development Board - Mr. Imran Ahmed, Director (RE Program)
7. Environmental Protection Agency Punjab - Mr. Nawaz Manik, Deputy Director (Legal and Enforcement)
8. Small and Medium Enterprise Development Authority (SMEDA) - Ms. Nadia Jahangir Seth, Manager (Policy and Planning)

Policy priority 1: Increasing SMEs' efficiency in raw material and water consumption and decreasing waste and wastewater

A more efficient use of raw material and water by SMEs in the Pakistani textile and tannery sector reduces the costs for the companies.

The production phases with a high potential for improvement are the textile processing phase in the textile sector and the tanning phase in the tannery sector. In terms of water consumption, textile processing and the slaughtering phase are the most important opportunity areas.

By optimizing their raw material consumption and process technology along the life cycle, SMEs can reduce the amounts of waste and wastewater arising from production.

The policy areas of waste and wastewater provide opportunities for policy intervention. The textile processing, tanning process and tannery solid waste use and disposal phases require priority attention in this regard.

Which policy intervention exists for this goal?

Policy Name, year	By whom implemented	Type of instrument	Enforcement Mechanism	Expected Impact
National Environmental Policy, 2005	Federal Government, Provincial Governments, Federal Administrated Territories, Local Governments	Strategy	• Promote metering of water consumption to discourage the indiscriminate use of water for industrial and municipal purposes • Enforce the NEQS and Self-Management and Reporting System (SMART)	• Optimize water consumption within industries • Encourage reduction, recycling and reuse of municipal and industrial solid and liquid wastes • Introduce discharge licensing system for industry • Devise and implement master plans for treatment of municipal and industrial wastewater in urban and rural areas

Pakistan Water Sector Strategy, 2002	Ministry of Water and Power	Strategy	• Identify financial needs for industry to comply with EPA effluent disposal regulations • Draft and enact new legislation for industrial effluent control and a national industrial pollution control plan • Establish a water quality monitoring programme	• Ensure the provision of sufficient water to industry • Ensure environmental sound disposal of industrial waste water
Pakistan Environmental Protection Act (PEPA), 1997	Pakistan Environmental Protection Agency (Pak-EPA) and Provincial EPAs	• Strategy • Minimum standards	• National Environmental Quality Standards (NEQS) • The Self Monitoring and Reporting Tool (SMART)-software is used by the industries for gathering and compiling data on environmental variables to report to environmental agencies. • Firms exceeding the permitted value of pollutants in liquid effluent or air emission have to pay the fine in amounts determined by the EPAs.	• Enable industries systematically to monitor and control their performance with regards to 48 environmental parameters – 32 for liquid effluents and 16 for air emissions and report to (EPAs) • Bare firms/persons from discharging or emitting any effluent or waste in an amount, concentration or level which is in excess of the NEQS

Other related intervention

National Industrial Policy, 2010 (draft), Textiles Policy 2009-14, National Sanitation Policy, 2006 (Draft) Guidelines for Solid Waste Management, 2005, The Pollution Charge for Industry Rules, 2001, Environmental Tribunal Rules, 1999, Pakistan National Conservation Strategy, 1992.

How big is the impact of the policy intervention?

According to Government of Punjab less than one percent of the polluting industries are complying with the NEQS (Government of Punjab, 2008). A reason for this can be seen in the fact that the National Environmental Quality Standards (NEQS) mentioned in the Pakistani Environmental Law are not realistic and do not match with the situation of Pakistani industry and its environmental condition. (4) For the case of waste water for example, challenges for SMEs lie in financing on-site effluent treatment (Pakistan Water Sector Strategy, 2002). For waste in general, systems for collection of waste generated by SMEs in the textile and tannery sector are non-existed or insufficient (National Solid Waste Management Strategy of Pakistan, 2005).

One reason for this can be found in the fact that the instruments have not been designed in consultation with the relevant stakeholders. “The existing National Environmental Quality Standards (NEQS) were developed in isolation without consulting all the stakeholders. That is the reason why these Standards are non-productive and

hard to implement in their present form" (National Industrial Policy, 2010).

In terms of reducing the amounts of waste water, impact of the existing policies is limited due to inadequate monitoring of industrial effluent and inability to enforce the effluent quality regulations (Pakistan Water Sector Strategy, 2002).

The instruments described in the table above for decreasing industrial waste have been in place for a long time and hardly saw any modifications or improvement. According to the World Bank's review of the interventions regarding waste management in Pakistan, the responsibilities for the enforcement of regulations lie with the local authorities but there are no duties set related to financing and tariff setting. Some other duties like pre-collection/segregation at source, recycling or treatment facilities are only found in the hospital waste management rules. The World Bank identified that the local authorities have limited technical expertise of policy implementation for waste management (The World Bank, 2007, pp. 42-58).

How could the policy intervention be improved to reach the goal?

Revising and improving NEQS

With regard to NEQS, the Ministry of Industries and Production recommended to revise the NEQS in consultation with all the stakeholders. The new NEQS should then be specific to the industry and the sector. (National Industrial Policy, 2010, p. 30). To improve policy intervention, a life cycle assessment of different product lines should be done identify the important areas of interventions. (4)

Cooperation for reducing waste

In order to decrease the costs of environmental compliance, SMEs should cooperate and share facilities to treat waste or waste water. Policy should facilitate the joint building and running of facilities like effluent treatment plants. Effluent treatment plants could also be used for disintegrated power generation. (5)

Additionally, cooperation between different industry sectors should be supported to re-use waste of one industry for other industries. The leather industry could greatly benefit from this. (5)

Economic incentives for waste prevention and reduction

To support companies that want to establish effluent treatment plants or to obtain an ISO 14001 certification, the National Industrial Policy 2010 recommends to offer tax incentives, tax rebates or other financial incentives. (National Industrial Policy, 2010, p. 29-30, Pakistan Water Sector Strategy, 2002)

Policy priority 2: Increasing SMEs' energy efficiency

Energy efficient manufacturing brings SMEs significant improvements in their economic and environmental performance. Energy efficiency is a key factor for cost saving and securing competitive advantages. Improving energy efficiency in SMEs means "acting to maintain the same unit of output without reducing the quality or performance of the output, while reducing the amount of energy required to produce that output" (Secretariat, 2004, p. 64). A more efficient use of energy reduces the need and therefore the costs for electricity or other energy sources and minimises environmental degradation connected to energy.

The opportunities for the improvement of energy efficiency exist in the phases of ginning, spinning, weaving, processing and stitching in the textile sector. Similar opportunities also lie in the tannery process phase in the tannery sector.

Which policy intervention exists for this goal?

Policy Name, year	By whom implemented	Type of instrument	Enforcement Mechanism	Expected Impact
National Energy Conservation Policy (NECP), 2006	ENERCON	• Subsidies • Education and training	• Regular energy audits • Use of computer based information systems for measuring and optimizing energy consumption • Incentives to install fast-payback energy conservation measures • Small scale technology programs for small and medium sized enterprises (SMEs) to raise awareness to energy efficiency potential	Achieve energy efficiency improvement in industries by providing support to industry for energy audits, better housekeeping and implementing low cost and fast pay-back energy conservation measures
Pakistan Energy Efficiency and Conservation Bill, 2010 (draft)	ENERCON	• Norms and standards	• ENERCON or its designated agency is authorized to require firms/person to control the wastage of energy and take corrective measures within a suggested period of time. • Under the national energy conservation bill a penalty is proposed against the firm/person violating the instructions of the ENERCON.	• Enforce the application of energy conservation practices and technologies in SMEs

Alternative and Renewable Energy Policy, 2011 (draft)	Alternate Energy Development Board (AEDB)	• Subsidies • Other financial instruments	• To encourage generation of renewable energy, the policy aims at introducing Net Metering. • Further mechanisms to be introduced are banking / billing of energy, feed-in-tariff and wheeling i.e., companies / investors can establish the renewable energy systems at the renewable energy corridors and deduct the amount of energy they produce from the industrial energy inflow they account for. • For investors undertaking investment for generating renewable energy, the incentives are given in the form of assurance by the government to purchase 17-18% of the power. • The government is covering the resource risk and provides connectivity to grid. • Counter guarantees are offered by the Asian Development Fund in addition to sovereign risk guarantees by the government of Pakistan together with the financing at 2-3% below market interest rate by the State Bank of Pakistan for projects up-to 10 Mega Watt (MV). The producers are exempt of tax.	• At least 5% of total commercial energy is supplied through alternative and renewable energy by 2030.

How big is the impact of the policy intervention?

Increasing SME's energy efficiency

The policies in place to support energy efficiency in Pakistani SMEs do not have the impact that they were envisioned to have. There are several reasons for that: First of all the national energy conservation policy was lacking of effective institutional backup to implement it. (2) ENERCON which coordinates energy conservation programs in the country faced institutional problems as well as lacking financial resources in the past. The general political commitment was also not sufficient (Asian Development Bank, 2007). However after the promulgation of the Energy Efficiency and Conservation Bill, ENERCON's position will change and it will act as regulatory body. (2)

Another important reason was that there is a number of disaggregated policies on aspects relevant for energy efficiency, like for Petroleum, Natural Gas, or Renewable Energy. (2) Other legislation, like the existing Boiler Code of Pakistan only deals with the safety parameter of the boilers. It does not have any provision for

environmental impacts or energy efficiency. (2)

Finally, from the perspective on SMEs energy efficiency is not a priority as they are not fully aware of the benefits connected to energy efficiency and sustainability, because they can't afford to recruit highly professional staff and don't have the latest information. (2)

Energy generation by SMEs

There are external and internal barriers to the implementation of the policy. As a result of high oil prices delivery times of equipment manufacturers i.e. wind turbine manufacturers, were as high as 5 years by the time the policy was issued. The internal barriers resulted from lack of security, weak law and order situation, and circular debt that had further hindered the investors to invest in the areas. (6)

How could the policy intervention be improved to reach the goal?

Create an integrated energy plan and program for Pakistan

In order to bring together existing fragmented approached on energy use and efficiency and to cover areas which are currently not covered, an integrated energy plan for Pakistan should be developed. (2) The basis for an energy and cleaner production programme matching the reality and needs of industry, sector-wide energy audits should be conducted. Based on the recommendations of the audit, incentives to the industry to shift towards more energy efficient production methods and technology should be provided. It should include measured so that firms would save energy, conserve water, control pollution, ensure safety of machines and equipment, improve health and safety of workers, improve environmental conditions and the image of the firms at the local and international level. For establishing such program, close coordination between departments and ministries responsible for finance, banking matters, commerce and trade, science and technology and others would be required. (National Industrial Policy, 2010)

Discourage purchase of inefficient products

To avoid the purchase of inefficient appliances, several measures could be taken: The list of inefficient appliances prepared by ENERCON could be included in the negative list of imports. The same can be done for the inefficient machinery. This is especially relevant as many of the machineries imported are second hand inefficient ones. (4) Also for the general use, codes and standards for different energy consuming thermal and electrical utilities should be developed to phase out inefficient ones. (8)

Providing financial support for increasing efficiency

To support incentives of SMEs for increasing their energy efficiency, funding should be made available. The government should financially support acquisition of modern and emerging electronic technologies (National Industrial Policy, 2010). The proposal to form an Energy Conservation Fund under the auspices of ENERCON to fund the energy conservation projects should be put in place. (8)

Policy priority 3: Increasing workers' health and safety

The social aspects of manufacturing are an important area of SCP. Increasing workers' health and safety helps to avoid accidents and sickness. While workers benefit from more security and long-term health, companies save

costs due to reduced absences of their workers, better performance and less confrontation with workers unions. Motivation and commitment of workers are increased when social conditions are improved.

The health and safety aspect of workers shows highest potentials for improvement in the ginning phase of the textile sector and tanning process phase in the tannery value chain.

Which policy intervention exists for this goal?

Policy/legislation Name, year	By whom implemented	Type of instrument	Enforcement Mechanism	Expected Impact
Labor Policy, 2010	Ministry of Labor and Manpower	• Strategy • Norms and standards	• Preparation and bringing into force of new laws • Establishing a Tripartite Council on Health and Safety to identify health and safety hazards for workers to make recommendations	• Improve the legal framework • Advocate rights of workers and employers • Improve implementation of laws
Factories Act, 1934 (amended in 1997)	Provincial Chief Labor Inspector and Labor Inspectors and Certifying surgeons (and medial practitioners authorized by him), District Magistrate at district level	Command and Control	• The Act Establishes minimum rules to foster human rights and occupational health and safety requirements at factories • Examination of factories for compliance with the provisions of the Factories Act by the Labor Inspectors • The occupiers of the factory or manager found guilty for violating the Act can be fined	• Establish minimum worker rights and safety regulations for factories
Employees' Social Security Ordinance, 1965	Employee Social Security Institutions (ESSI)	Laws and regulations	To insure against employee's health and safety contingencies at the workplace, the provincial governments collect a contribution at the rate of 6 percent of the wages of the secured workers from employers.	Insured workers and their family member receive health services and through hospitals and dispensaries established by the Employee Social Security Institution (ESSI)

Other related intervention:
Industrial Relations Ordinance, 2008, West Pakistan Shops and Establishment Ordinance, 1969, Provincial Factories Rules, 1963, Hazardous Occupation, 1963, Mines Act, 1923, Workman's Compensation Act, 1923, Dock Labourers Act, 1934.

How big is the impact of the policy intervention?

The impact of the legislations is lacking behind its descriptions. As the Ministry of Labour and Manpower states, the current interventions for workers health and safety remain only partially effective and need improvement. The Social Security Scheme and the Employees' Old-Age Benefits Scheme have not achieved their full potential. There is currently no functional system to inspect the implementation of labour laws. The old Labour Inspection System is dysfunctional since 2003 due to corruption allegation. One mayor problem is, that the capacity and capability as well as commitment of people in the department is missing. A new system for inspection was proposed but never realised. (1)

Specific challenges arise from the fact that factory owners avoid implementing Employers Health and Safety requirements by

- hiring employees on daily wages instead of permanent/contract basis
- Bribing labour inspectors to use lower workers numbers
- Not allowing workers to form unions
- Misuse of human resource management departments for the companies' short term benefits (1).

For the specific case of the tannery industry, the labour force is unaccounted because they are put under the category of home based workers (1).

How could the policy intervention be improved to reach the goal?

Improve enforcement of existing legislation

Three angles should be used to improve enforcement of existing legislation:

First, to strengthen the Ministry of Labour and to increase compliance with existing legislation, the principle of merit to ensure an efficient running of the Ministry of Labour and its departments should be followed. transparency should be increased and political pressures reduced in the Ministry of Labour. The wages for staff and replace costs as per requirement should be adjusted to avoid corruption in the lower staff. (1)

The second angle reaches to the employers directly: In order to get workers rights in place, voluntary commitments by employers should be encouraged. Employers should commit to a voluntary/self-registration of workers to social insurance schemes for old-age benefits and health services (Ministry of Labour and Manpower, 2010).

The third angle should be to form partnerships with the Civil Society and NGOs to improve workers conditions and the enforcement of labour laws. (1)

Policy priority 4: Increasing SMEs' capacities

The ability of a company to develop and apply sustainable production procedures is determined to a large extent by the capacity of its people. The World Bank defines capacity building as "A coordinated process of deliberate interventions to (i) upgrade skills (ii) improve procedures, and (iii) strengthen organizations."

Many of the capacities required for E&RE lie outside the everyday needs of enterprises and are conceived as being too costly to develop. The appropriate policy intervention can help overcome the capacity challenges of SMEs.

Which policy intervention exists for this goal?

Intervention/ Policy Name or Institution, year	By whom implemented	Type of Instrument	Enforcement mechanism	Expected impact
SME Policy, 2007	Small and Medium Enterprise Development Authority (SMEDA)	Strategy	• Policy recommendations for human resource development	• Supporting SMEs' human resource development
Labor Policy, 2010	Ministry of Labor and Manpower in coordination with Provincial Labor departments, The National Training Board Skills Standard and Certification System and National Vocational and Technical Education Commission (NAVTEC),	• Education and training	• Engagement of trade unions for the identification of skills development of workers and management of training institutes • Involve the private sector in providing training services to enhance productivity of the labor force • Train the Trainers to effectively maximize the capacity in supplying mass training to labour force in related skills • Use of apprenticeship schemes and on-job-training • Deploy of mobile training units and trade-tests for mass-level labor skill building	• Identification and of the primary training needs of the workers with the help of trade unions • Establishment of training institutes in the private sector allowing access to quality training to the workers • Establishment of Labor Market Information System to ensure jobs for workers meeting appropriate skill criteria

National Productivity Organization	National Productivity Organization	• Education and Training	• Training and capacity building • Compilation of local best practices in energy saving • Publishing guide books for increasing resource efficiency	• Engage the services of international experts for the capacity building of the local industries for cost-effective and resource-efficient production solutions • Train the industries in managing investments to enhance their productivity and quality
Small and Medium Enterprise Development Authority (SMEDA)	Small and Medium Enterprise Development Authority (SMEDA)	• Education and Training	• Provision of Energy audits trainings • Registration of energy efficiency consultants and energy service companies (ESCOs) • Collaboration with universities for courses on cleaner production	• Development of capacities of SMEs in energy auditing • Implementation of SME sector specific energy management projects tailored to individual energy conservation needs • Joint projects for capacity building of local energy service providers
Kasur Tannery Pollution Control (KTPC), 1996	United Nations Industrial Development Organization (UNIDO), Kasur Tanners Association (KTA), the Export Promotion Bureau of Pakistan (EPBP), Government of Punjab	• Education and Training	• The organization of on-job training programs • Pilot projects to demonstrate low waste leather processing methods	• Provide training to local leather manufacturers on tanning processes using environmentally safe and low health risk chemicals • Capacity building for plant retaliation, operations and maintenance as well as benefits of methods like chemical recovery and by product conversion • Improve living and working conditions in the tannery cluster and develop the technical and management skills of the tanners

Other related interventions:

National Industrial Policy, 2010 (draft), National Vocational & Technical Education Commission (NAVTEC) Ordinance, 2009, Textiles Policy, 2009-14, Draft Textile Industry (Development, Promotion and Standards) Act., 2010, The National Skills Strategy, 2009-2013, The National Training Board Skills Standard and Certification

How big is the impact of the policy intervention?

The existing interventions for capacity building regarding sustainable production procedures in the industries are not coherent. They focus on particular objectives for sustainable production and cannot be called a strategic intervention to foster sustainable production within SMEs. Additionally, the existing government interventions for providing vocational training and skills are not synchronized to the demands of the industry (National Industrial Policy, 2010).

How could the policy intervention be improved to reach the goal?

Establishment of institutes/centres for capacity building

Sector specific training institutes and Centres of Excellence should be established in Pakistan. They should offer education and training as well as demonstration activities. These institutions should be located in proximity to the relevant industries. To ensure that the training is addressing the actual needs, continues feedback loops between industry and the institutes should be established. (2) (National Industrial Policy, 2010) (SME Policy, 2007)

Capacity building for SME specific needs

To tackle the specific needs of SMEs, tailored skills development initiatives should be initiated. They should put emphasis on quality management systems, training support for entrepreneurial and managerial development of SMEs and training and benchmarking for designing lean manufacturing techniques" (National Industrial Policy, 2010, p. 27). Trade unions should be engaged in identifying training needs and priorities of SMEs (Labour Policy, 2010).

Facilitating dialogue between industry and government

In order to facilitate a dialogue on issues of capacity building between the government of Pakistan and the industry, sector specific Industry Advisory Groups (IAG) should be established. The IAG would consist of representatives from large, medium and small industry, including all sub-industries that fall within the category, as well as international employers, and national employees. Their responsibilities would be to carry out periodic sector surveys, identify skill needs in their sectors, indicate new emerging areas and occupations and determine and update contemporary standards of work. (National Industrial Policy, 2010, p. 22)

Policy priority 6: Increasing technology innovation and transfer

The development and use of environmental sound technologies is essential for sustainable production. New technology leads to cost savings and environmental benefits enabling greater output per machine hour while reducing labour and material inputs. However, environmental sound technologies do not only comprise "individual technologies, but total systems which include know-how, procedures, goods and services and equipment as well as organizational and managerial procedures" (Agenda 21, article 34.3.).

As different enabling factors need to come together in order make technology innovation and transfer happen (know-how, funding, experts from different areas, technology itself…), policy makers have an important role to support this process.

Which policy intervention exists for this goal?

Intervention/Policy Name or Institution, year	By whom implemented	Type of Instrument	Enforcement mechanism	Expected Impact
National Environmental Policy, 2005	Federal Government, Provincial Governments, Federal Administrated Territories, Local Governments	Strategy	• Financial and other incentives like reduction/elimination of tariffs, low-interest loans, appreciation certificates and awards	• Support upgrading of technology, adoption of cleaner technology, and implementation of pollution control measures and compliance with environmental standards
SME Policy, 2007	Small and Medium Enterprise Development Authority (SMEDA)	Strategy	• Policy recommendations for technology innovation and transfer	• Support national technology innovation
National Energy Conservation Centre, 1986	ENERCON	• Subsidies • Education and training	• Award industries with outstanding energy conservation work • Demonstrate cost-saving potential from energy efficiency in industries through pilot projects	• Enable private sector for investing to improve the efficiency of production processes • Develop fact sheets for the industry with the aim of fostering optimized use of technologies and equipment in industries
Small and Medium Enterprise Development Authority (SMEDA)	Small and Medium Enterprise Development Authority (SMEDA)	• Technology transfer • Research and development	• Collaboration with universities for courses on cleaner production • Cooperation with international development agencies (GTZ/JICA) for technology transfer	• Joint projects for increased technology transfer

State Bank of Pakistan (SBP)	State Bank of Pakistan (SBP)	• Subsidies	• Make financing through State Bank at reduced interest rates for investors willing to modernize the technology in SMEs or set up new power plant using renewable energy sources	• Encourage a shift towards renewable energy in meeting the demand of energy for production • Finance import of machinery to be used in new power projects using renewable energy sources in industries

Other related intervention:

National Industrial Policy, 2010 (draft), Multi-Annual Strategic Plan Development Cooperation the Netherlands-Pakistan, 2009-11, Cooperation Program on Trade Related Technical Assistance (TRAT II), 2010-2014, Renewable Energy and Energy Efficiency Program (REEE) supported by the Deutsche Gesellschaft für Technische Zusammenarbeit (GTZ) GmbH, Textiles Policy, 2009-14, Kasur Tannery Control Project (KTPC), Alternate Energy Development Board (AEDB).

How big is the impact of the policy intervention?

The availability of consultants who can develop models of efficient technologies is a barrier for more sustainable production in SMEs. (8)

The interventions in the area of technology innovation and transfer in Pakistani industries saw improvement in the recent decades. In the past, the policy interventions used to place emphasis on penalizing entrepreneurs rather than supporting them in adopting less polluting processes and technologies (Luken & Hesp, 2004).

How could the policy intervention be improved to reach the goal?

Steering technology imports to Pakistan

As both textile processing and tannery SMEs tend to use second hand inefficient machinery, policies should be developed to restrict the import of these inefficient machines. An opportunity could lie in transferring better technology from India. (4) While the overall goal should be to develop technology in Pakistan, in the interim period the government should ensure low prices for imported efficient cleaner production equipment (National Industrial Policy, 2010, p. 29)

Supporting technology transfer

In order to enable technology transfer, business associations in collaboration with donor agencies should jointly create demonstrable models for local industry to follow. Pilot projects that help demonstrate costs and benefits of private investment in cleaner production technologies should be initiated. The efforts should be sector specific. One example of such an incentive is the project of Cleaner Cotton Production by the Ministry of Commerce. Here efforts were made to review the cotton production practices and replace the existing pesticides with permissible

alternatives. (4) (National Industrial Policy, 2010)

A capital subsidy for investment in new technologies should be provided to SMEs (National Industrial Policy, 2010, p. 27)

Supporting new technology development

A variety of suggestions exist to foster technology innovation in Pakistan: Incubation centres should be established between universities and industries for problem solving and development of new technologies. (5) Industrial estates and zones should be facilitated to support modern methods of production. A science & technology park in Pakistan with the aim of promotion of technology commercialization, transfer and diffusion should be established. Universities should supply trained human resources and a knowledge based for industrial innovation. SME specific training programs should be established in universities. State-of-the-art laboratories should be established in universities with the collaboration from industry for R&D needs of businesses. In order to promote and sell new technologies, a vendor development program should be initiated under which 'buyer-seller meets' exhibitions are organized at regular intervals and at dispersed locations. (SME Policy, 2007) (National Industrial Policy, 2010)

Additionally, sector specific training institutes and centres of excellence in proximity to relevant industry should be established in order for them to benefit from new technologies and to facilitate information flows between local and international training institutes and industry (National Industrial Policy, 2010).

A fund should be established to provide support in terms of indigenization of technologies and development of local technology. (3) (8)

Policy priority 7: Increasing SMEs' access to finance

SMES need to be able to access financial resource under appropriate conditions in order to finance capacity building and technology innovation and transfer. SMEs find it difficult to access capital, which is necessary for developing and buying new technologies and adapting new production processes. The provision of business plans and guarantees would help to create the necessary trust between financial institutions and SMEs resulting in the approval of financial support.

Policy makers can support SMEs in accessing existing funding opportunities and pressure financial institutions to improve conditions for SMEs.

Which policy intervention exists for this goal?

Intervention/Policy Name or Institution, year	By whom implemented	Type of Instrument	Enforcement mechanism	Expected Impact

SME Policy, 2007	Small and Medium Enterprise Development Authority (SMEDA)	Strategy	• Policy recommendations for access to Finance	• Increase access to Finance and Related Services for SMEs
The Trade Policy, 2009-10	Ministry of Commerce, Trade and Development authority (TDA)	• Strategy	• Fee of cost training and guidance	• Support various quality, environmental and social certifications in consultation with the industry
State Bank of Pakistan's Credit Schemes for Modernization of SMEs, 2010	State Bank of Pakistan	• Subsidies	• Credit Guarantees • Insurance against SME's bona fide losses • Medium to long-term financing on import of modern production technology for SMEs	• Provision of credit guarantees to Small and Rural Enterprises • In case of bona fide losses share 60% of the participating financial institution's portfolio of financing to SMEs • Provide short and long-term financing to encourage sponsors of SMEs to modernize their mills/units to produce quality products
Small and Medium Enterprise Development Authority (SMEDA)	Small and Medium Enterprise Development Authority (SMEDA)	• Education and Training	• Information provision and training on available funding options for SMEs	• Increased awareness of SMEs to available lending schemes of banks and develop their capacities in accounting and book-keeping to meet lending requirements

Other related intervention:

National Industrial Policy, 2010 (draft), National Energy Conservation Centre, Securities & Exchange Commission of Pakistan (SECP), SME Finance Department, Pakistan Industrial Credit & Investment Corporation (PICIC), SME BANK Pakistan, Industrial Development Bank of Pakistan, Export Investment Support Fund as proposed in the Trade Policy 2009-2010, Textiles Investment Support Fund (TISF) and Technology Up-gradation Fund (TUF) as proposed in the Textiles Policy 2009-14.

How big is the impact of the policy intervention?

Despite the funding options available, SMEs face difficulties in accessing credits due to information asymmetries which result in high collateral requirements for SMEs. The high degree of documentation required for loan application is another factor that deters them from accessing funding on the formal sector credit-market. (National

Industrial Policy, 2010). (2)

High interest rates of around 17% for so called soft loans offered by banks make it unattractive for SMEs to use them. (5)

Due to the excessive borrowing from the government the venture capital fund of the State Bank of Pakistan is not utilized for SMEs. (3)

How could the policy intervention be improved to reach the goal?

Establishment of financial mechanisms suited for SMEs

New financial mechanisms for SMEs undertaking the efficiency measures should be established. (2) The following measures should be established: Venture capital funding for start-ups should be established, transparent and competitive R&D grants should be provided and invoice based financing, where borrower gives accepted invoices (or receivables) of its business customers or downstream buyers, as collateral to the commercial bank should be promoted by the State Bank as an alternative to collateral based lending (National Industrial Policy, 2010). Performance contracting would also be a way for promoting models of energy and resource efficiency in Pakistan. They would allow for risk sharing between the contractor, bank and the SMEs of the innovative ventures of sustainability. (2) Additionally, SME financing should be incorporated into the Annual Credit Plan of the SBP. Credit Guarantee and Credit Insurance agencies to provide incentives and risk cover for banks should be established. Financial institutions should be supported in designing and launching industry based program-lending schemes (SME Policy, 2007).

A wage subsidy programme should be established to support on the floor training of workers. The firms should pay seventy percent of the minimum wage to the worker, whereas the remaining thirty percent would be government's contribution payable through the training institute directly to the worker. Additionally, leading firms should sponsor a training unit within a public sector institute, where trainees can be trained specifically on their machines and according to their requirements and standards. (National Industrial Policy, 2010)

Make access to finance easier for SMEs

To make SMEs aware of the Credit Guarantee Scheme for Small and Rural Enterprises and other options for formal financing and good accounting the government should help in disseminating through various business/industry associations representing SMEs around the country (SME Policy, 2007) (National Industrial Policy, 2010).

In order to overcome information asymmetries between SMEs and institutions providing financing a Credit Rating Agency specializing in the SME sector should be established as the Pakistan Credit Rating Agency does not cover the SME sector. (National Industrial Policy, 2010)

Additional barriers to implementation and enforcement of policies

Organizational Capacity

Political institutions are too weak operate in a way that would be needed to create a framework for energy and resource efficiency in Pakistan. Deficits in autonomy and transparency are major causes of institutional weaknesses. Capacities of the institutions to enforce legislation were weak due to corruption and a system based

on seniority not based on performance. To monitor and enforce compliance, manpower, resources and trainings are missing. In the case of the ministry of environment for example necessary instruments are not available and hence enforcement of laws becomes a problem because the quantifiable violation can not be measured from a reliable instrument and hence no case can be formed. Similar challenges aroused from the fact that no benchmarks were available for companies and had to be developed (2)(4)(5)(7)(8).

Organisational setup

Responsibilities for environmental and related legislation and tasks is not always located in the ministry or agency best suited for it, like the Clean Development Mechanism in Pakistan. (4) In addition to this, institutions that detect non-compliance of industry with environmental standards have not necessarily the regulatory power to stop the environmental violation. EPAs for example face this challenge. (7)

Funding

Lacking or shrinking funding is one major problem for the proper implementation of policies and success of development projects. (2) (3)

Lobbying and stewardship

Lobbying activities from various sectors has some reverse impacts on policy making and on the implementation of environmental regulatory instruments. Environmental laws were not strict enough from the beginning. (3)(7)

On the other hand, some pressure groups as well as the post WTO regime for export oriented groups was supporting the implementation of the environmental legislation. (5)

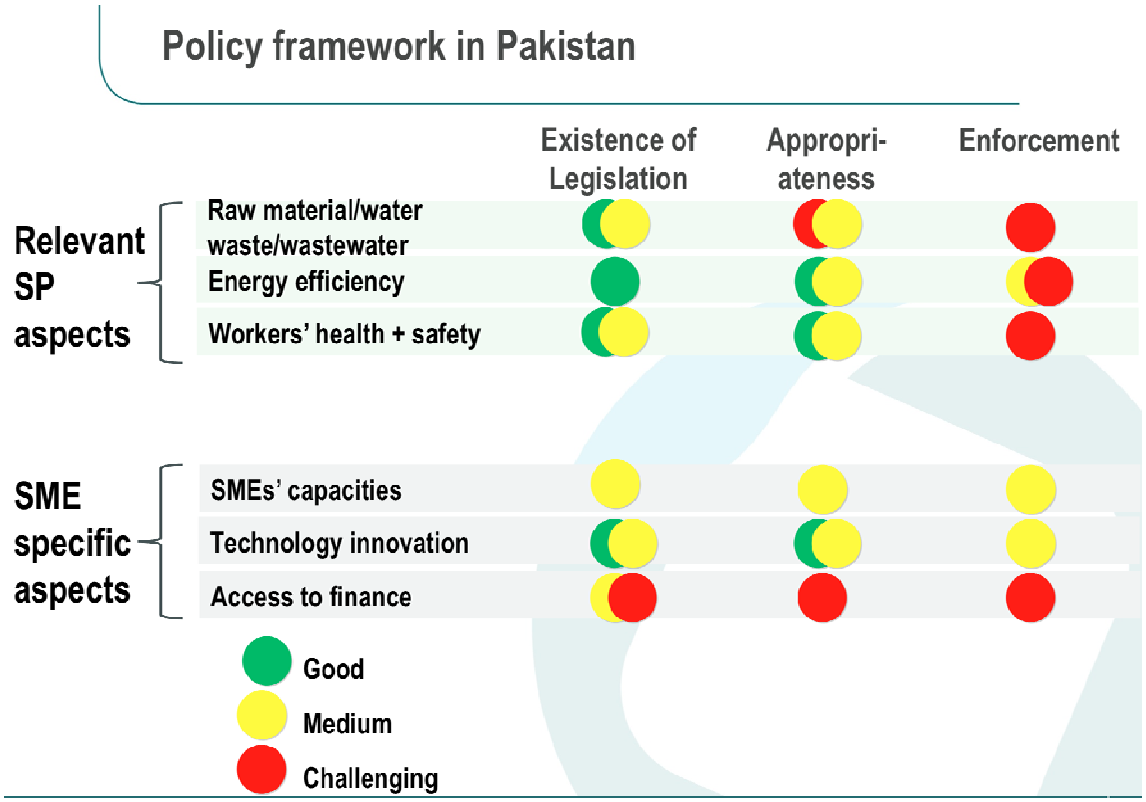
With regard to the Pakistani society, stewardship for the environment is as the focus had been more on self projection in the past. (7)

Making the business case

Environmental legislation in Pakistan lacks the link to business consideration. There is a need to put more emphasis on the potential economic benefits arising from environmental compliance like the opportunity for entering new markets. SMEs could be better reached if success stories were concretely demonstrated and they could replicate them. (4)(5)

3 Summary of opportunity areas in the policy framework

Overview of the analysis of the policy framework: The graph demonstrates the most relevant intervention areas for increasing sustainable production in Pakistani SMEs. The insights into the relevant sustainable production aspects and the SME specific aspects are summarised and evaluated. It is shown whether legislation and policy intervention exists in the area, whether it is appropriate and how well it is enforced. The green dots stand for a good meeting of the criteria, yellow for medium and red for challenging. At the same time, the red dots indicate the biggest potentials for improvement. As can be seen the opportunities lie mainly in the enforcement of the policy intervention as well as in the area of access to finance. But the yellow coloured dots also show where opportunities lie in improving or extending legislation which is already in place.



Increasing SMEs' efficiency in raw material and water consumption and decreasing waste and waste water: The area is covered among others in the National Environmental Policy, 2005, the Pakistan Water Sector Strategy, 2002, and the Pakistan Environmental Protection Act (PEPA), 1997 which identity areas and goals for policy intervention. However, it becomes clear that the main focus is the correct handling of waste and waste water, and not on reducing the amount of waste and waste water that is produced in the first place. These so called "end of pipe solutions" are commonly used but often not the most appropriate measures to reduce effluents and costs for the complying industries.

While standards for effluents produced by industry exist in form of the National Environmental Quality Standards

(NEQS), they are not realistic nor practical to meet for the local SMEs. As monitoring and enforcement of these standards is insufficient, compliance of SMEs with the standards is very low. The standards don not give any incentive or support to SMEs to reduce the amount of effluents by changing the production processes.

Increasing SMEs' energy efficiency: The past attempts of policy intervention to increase energy efficiency of SMEs were restricted by missing political commitment and lacking capacities and funding of the implementation and monitoring bodies. Policies on energy efficiency were disaggregated, which lead to a mismatch of the objectives of the single policies and made enforcement more difficult. Some specific policies also did no take environmental aspects into account and only focussed on safety aspects. Not enough emphasis was put on educating SMEs on why and how to increase their energy efficiency.

Based on the Pakistan Energy Efficiency and Conservation Bill, 2010 the National Energy Conservation Authority (ENERCON) will be turned into an autonomous body of making it the sole focal authority to exercise powers and perform functions related to energy efficiency. This change has the potential to have a positive impact on enforcement and support for SMEs to increase energy efficiency. As ENERCON will also have the power to make new legislations, the potential for a more coherent and inclusive policy framework for energy efficiency exists.

Whether the provisions of the Alternative and Renewable Energy Policy 2011 (draft which is currently under review) will have the effects it is aiming for will most likely be depended also on external factors as the timely availability of renewable energy appliances on the world market as well as the interest of international funders to invest in renewable energy in Pakistan.

Increasing workers' health and safety: The new Labour Policy 2010 acknowledges the need to adopt the existing labour laws to recent developments and to consolidate the fragmented single laws. The enforcement of the laws lacks behind due to insufficient monitoring and information flows. Some crucial aspects for heath and safety in the textile and tannery sector – as the fact that workers in the tannery industry are unaccounted by the law because they are put under the category of home based workers – need to be covered by the law.

The new Labour Policy 2010 takes first steps to change the current situation: According to the Labour Policy 2010, a Tripartite Council on Health and Safety will be set up "to identify health and safety hazards for workers of all economic sectors and to make recommendations for safety measures on a continuous basis". This council could take all currently uncovered hazards into account and help resolving them by recommendations.

The Labour Policy 2010 also recommends the set up of a Tripartite Monitoring Committees at District, Province and Federal level to monitor implementation of Labour Laws, particularly with reference to payment of wages, working environment and working time. This demonstrates that lacking enforcement of labour rights is acknowledged and could be improved due to the work of the monitoring committee.

Increasing SMEs' capacities: Several initiatives of different institutions exist for capacity building in Pakistan. Specific needs of SMEs are addressed as are issues of energy and resource efficiency. However, existing efforts to increase capacities of workers in SMEs are not coherent and lack overarching goals and coordination. It becomes also obvious that the topic of energy and resource efficiency is not recognised as important and beneficial by all relevant institutions. Nor the Labour Policy 2010 nor the SME Policy, 2007 put any emphasis on training of the labour force for the topics of energy and resource efficiency.

Based on the information available, no judgement can be made on the quality of the existing incentives.

Increasing technology innovation and transfer: State institutions as well as international institutions support

technology innovation on the national level as well as the transfer of technological know-how from abroad. However, the coverage of technologies relevant for increasing energy and resource efficiency of SMEs is yet too small to enable SMEs to have an easy access to the technologies they need. As much of the machinery is second hand machines that are imported from other countries, legislation is needed to avoid that old and inefficient technology is imported and used in Pakistani SMEs.

As already demonstrated above, more emphasis should be put on mainstreaming the topic of energy and resource efficiency into all areas of policy making so that new technologies can deliver solutions to energy and resource efficiency challenges.

Increasing SMEs' access to finance: Currently, SME's access to finance in Pakistan is inappropriate. The mayor problem can be seen in the complicated formal requirements for loans which are not well suited for SMEs and in the high interest rates for SMEs which make it loans unattractive to them.

To improve it, interventions need to be made on the demand side of SMEs themselves, the banks as the supply side and intermediary and regulatory institutions (like SBP and SMEDA). However, the topic of energy and resource efficiency needs to be part of all these efforts to increase access to finance of SMEs.

4 Recommendation

The analysis of the Pakistani policy framework for SMEs demonstrates that there are great opportunities for improvement and tackling the full benefits of improved energy and resource efficiency. The most essential overarching recommendations for improving the policy framework are given here as well as more concrete recommendations for the different intervention areas.

General and overarching recommendations:

Increase levels of compliance with existing policies by SMEs: It is essential to improve the impact of regulations by monitoring compliance of SMEs with existing legislation and where necessary to enforce it. The most important areas are to ensure that staff of ministries and institutions has the knowledge, technical equipment and funding to monitor and enforce laws and that this work is not impeded by corruption. The government has to provide the resources necessary for this. To fight corruption, programmes within the ministries should be run.

Mainstream the topic of sustainable production into all policy areas: Sustainable production as can be seen above consists of many different aspects that fall under the responsibilities of different ministries. To ensure that the goals can be met, additionally to the institutions traditionally concerned with the issue like the Ministry of Environment, the Environmental Protection Agency or ENERCON, the Ministry of Industries and Production, the Ministry of Textile Industry, the Ministry of Labour, the Ministry of Commerce, the Ministry of Finance, SMEDA and the Alternate Energy Development Board. To make efforts coherent and coordinate regulations, capacity building and availability of funding and technical requirements, strong cooperation between the different institutions is needed. A national sustainable production action plan would ensure that the objectives are met in all areas of policy intervention.

Encourage SMEs to adopt sustainable production practices: Sustainable production helps SMEs to use less energy and resource, to become more productive and to produce better products. Their employees can be healthier and more motivated to work. SMEs should be convinced of the benefits of sustainable production by information campaigns and trainings. They should be supported in changing their production practices with trainings offered at the local level, as well as by improved access to modern technologies and attractive options for funding them.

Area specific recommendations

Increasing SMEs' efficiency in raw material and water consumption and decreasing waste and waste water

- Focus on supporting SMEs in reducing amounts of hazardous waste and waste water by applying new technologies and improving processes.
- Revise, monitor and enforce the existing standards and convince SMEs to comply with them.
- Create systems for waste collection and waste water treatment by supporting cooperation between SMEs and between SMEs and local authorities. Integrate possibilities for reuse of waste of one industry by another industry.

Increasing SMEs' energy efficiency

- Create an integrated energy action plan which covers all energy related areas from supply or energy, generation of energy based on renewable sources to the efficient use of energy.
- Limit the purchase of inefficient appliances by SMEs.
- Providing financial support for SMEs to invest in energy efficient technologies and capacity development for efficient behaviour.
- Empower and support ENERCON to become a strong national body for energy efficiency.

Increasing workers' health and safety

- Establish a Council on Health and Safety to ensure a legal framework which covers all workers and relevant aspects.
- Establish and empower the Tripartite Monitoring Committees at District, Province and Federal to efficiently and strictly monitor compliance with labour rights.
- Start an incentive for employers to directly commit to improve working conditions in their companies.

Increasing SMEs' capacities

- Establish a coherent framework for capacity building of SMEs to benefit from synergies and avoid contradictions and repetitions.
- Ensure general definitions of capacity building for SMEs include the topics of energy and resource efficiency.
- Offer more high quality capacity building opportunities for energy and resource efficiency tailored to SMEs' needs.

Increasing technology innovation and transfer

- Support technology innovation and use of energy and resource efficient technology by setting minimum standards for use and import of technologies.
- Support technology innovation and transfer tailored to specific needs of SMEs to ensure they can benefit from it.
- Mainstream the goal of energy and resource efficiency into all technology innovation efforts in Pakistan.

Increasing SMEs' access to finance

- New financial mechanisms should be established that suit the needs for access to finance of SMEs and specifically include financing options for increasing energy and resource efficiency.
- Reduce transaction costs for both SMEs and financial institutions be decreasing levels of paper work, distance between banks and SMEs and increasing SMEs' capacities to comply with requirements.

5 Read more

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6 About the project

6.1 The Switch programme

The SWITCH-Asia Programme aims to promote economic prosperity and poverty reduction in Asian countries through sustainable growth with reduced environmental impact by industries and consumers, in line with international environmental agreements and processes. The projects under the SWITCH-Asia Programme focus on the issues of sustainable production and sustainable consumption patterns and behaviours. The programme is funded by the European Commission.

6.2 The SCI-Pak Project

The Project „Sustainable and Cleaner Production in the manufacturing industries of Pakistan –SCI-Pak“ is operating under the SWITCH-Asia network facility. Head of the project is the ttz Bremerhaven, supported by the UNEP/Wuppertal Institute Collaborating Centre on Sustainable Consumption and Production (CSCP). Implementation partners from Pakistan are the Iqbal Hamid Trust (IHT), a non-for-profit Development consulting firm and the Cleaner Production Institute (CPI).

The programme aims to develop a model of sustainable production through the implementation of Energy- and Resource efficiency (E&RE) initiatives among small and medium-sized enterprises (SMEs) in the textile and tannery sector in Pakistan. Additionally to this immediate target group, the project aims to expand the number of industry stakeholders from additional SME manufacturing sectors, such as the Pulp & Paper, Sugar, and other energy intensive industries.