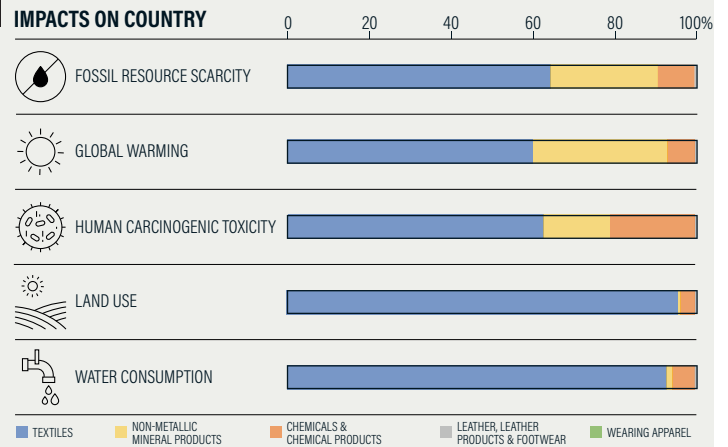


Pakistan exported USD 22,1 billion of manufactured products in 2019. This production oriented by foreign markets causes significant pollution impacts at source. A lifecycle analysis of selected manufacturing exports from Pakistan reveals various effects on the environmental and human health.

The analysis shows the importance of the textile sector in all the impact categories, considering the cradle-to-gate and the gate-to-gate system boundary. The textile industry has been considered one of the most polluting sources in the world. The impact is mainly related to the use of harmful chemicals, high consumption of water and energy, and the generation of large quantities of solid and gaseous wastes.

Textile sector is selected based on the economic relevance, LCA impacts and available data.

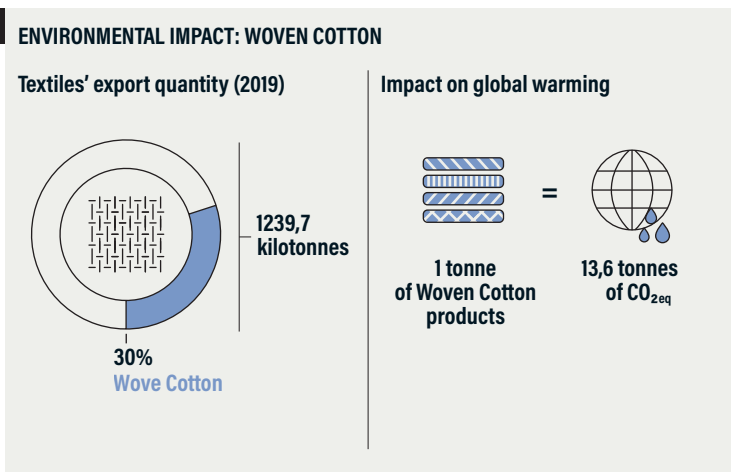


**PUBLIC GOVERNANCE** : formal and informal arrangements that determine how public decisions are made and how public actions are carried out

Challenges	Achievements	Improvements
<ul style="list-style-type: none"> <li>– There are institutional capacity constraints and gaps at the federal and provincial levels, such as human, financial and operational resources.</li> <li>– Limited institutional capacities.</li> <li>– The public environmental governance has many gaps and challenges to control pollution related to the exports in the textile sector.</li> </ul>	<ul style="list-style-type: none"> <li>– The National Environmental Policy brings provisions to avoid the negatives impacts of trade liberalisation, strategies such as certification of laboratories and business, capacity building, and subsidies.</li> <li>– The Pakistan Environmental Protection Agency implements, enforces environmental laws and regulations, and defines environmental quality standards.</li> </ul>	<ul style="list-style-type: none"> <li>– Strengthening institutional capacities for law implementations and enforcement.</li> <li>– To raise awareness of trade-environment nexus regarding technology transfer related to cleaner production measures.</li> <li>– Design of future RTAs and BTAs with provisions that create legal bridges with national environmental law and technical cooperation in the environmental sector.</li> </ul>

**PRIVATE GOVERNANCE** : social mores that determine acceptable market behaviour, professional standards and codes of conduct

Challenges	Achievements	Improvements
<ul style="list-style-type: none"> <li>– Limited access to funding, weak environmental regulations and enforcement, lack of cleaner production experts covering management and technical staff, and government incentives for cleaner production measures</li> <li>– Limited capital access to invest in more efficient technologies, lack of skills among employees, local cleaner production technology availability, and service providers.</li> </ul>	<ul style="list-style-type: none"> <li>– Cleaner Technology Programme for Textile aims to make companies environmentally friendly focused on capacity building to comply with international environmental standards.</li> <li>– The programme for Industrial Sustainable Development aims to comply with environmental requirements, adopt best energy efficiency practices, and industrial parks.</li> </ul>	<ul style="list-style-type: none"> <li>– To overcome the high capital costs associated with investments in cleaner technologies, suggested developing local technologies instead of importing.</li> <li>– Pakistan shall invest in capacity building, regulation, policies fostering industrial symbiosis and eco-industrial parks implementation.</li> </ul>



Woven cotton is the most exported product in the Textile sector in Pakistan.

A process-based LCA identified that woven cotton production has an impact on marine ecotoxicity and human noncarcinogenic toxicity due to the fertilizer and pesticide use during seed-cotton production and land occupation. Untreated domestic and industrial wastes are a prominent contributor of pollution through direct and indirect wastes discharge and effluents in the adjacent coastal waters. Batch dyeing is crucial for marine ecotoxicity and human carcinogenic toxicity due to toxic emissions from wastewater disposal during textile production.

At the plant level, weaving, bleaching, batch dyeing, and finishing are stages that can be predominantly associated with ecotoxicity and human toxicity. These impacts result in local damages to ecosystems and human health.

