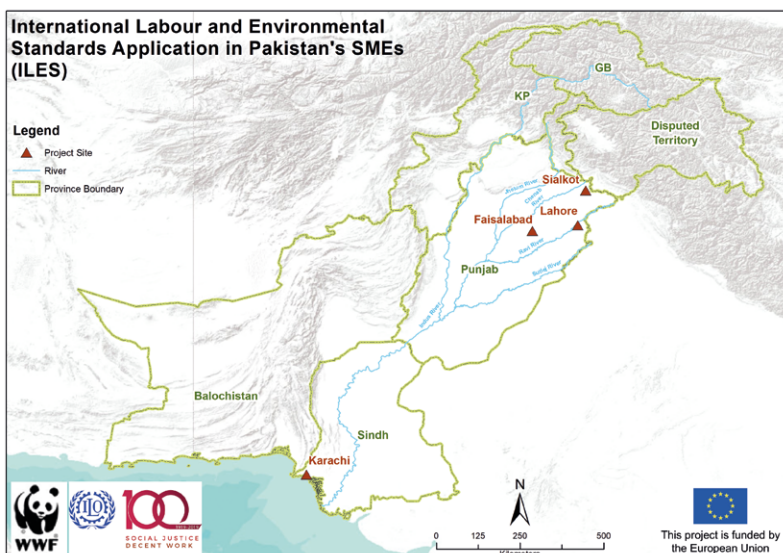




## INDUS BASIN - PAKISTAN



The Indus River (locally referred to as Sindhu) is one of the longest rivers in Asia, originating in the Tibetan Plateau (in the vicinity of Lake Manasarovar) and flowing through Pakistan until it enters the Arabian Sea. In Pakistan, the Indus river has an annual average flow of (140 MAF) (173 Billion cubic meters) and supports industrial and agricultural production as well as many of the country's major cities. However, unsustainable water consumption and mismanagement of water resources have led to Pakistan's transition from being a water-abundant country (with 1,700 m<sup>3</sup> of water per person in 1992) to one that is water-scarce (with below 1,000 m<sup>3</sup> per person in 2016).

	Pakistan	Indus basin*
<b>Total area</b>	796,096 km <sup>2</sup>	1.165 Million km <sup>2</sup>
<b>Population</b>	210 Million	180 Million

\*Transboundary basin overlapping Afghanistan, Pakistan, India and China

## TEXTILE SECTOR

Pakistan hosts 19 Ramsar sites—wetlands of international importance—covering more than 1.3 million hectares and supporting 18 threatened mammals, 20 threatened bird, 12 reptile, and two endemic amphibian species. Many of these wetlands are dependent on rivers or groundwater sources, and are therefore influenced directly by water resource management. The textile sector and, in particular, cotton production are among the largest users of groundwater and surface water (mainly through open channel irrigation), and are major polluters of water resources. Pakistan is the world's fourth largest cotton producer, with cotton having the highest irrigation demand compared to other crops in the country. Cotton accounts for 14% of Pakistan's total cropland area, employs 20% of the agricultural workforce, and represents nearly 12% of the agricultural added value. Around 1.3 million farmers grow cotton in the country, mostly on smallholdings of less than 5 hectares. Around 80% of the crop is grown in Punjab while 20% is grown in Sindh, two provinces that are highly dependent on the Indus river system. Textiles and leather are two key export-oriented sectors and they contribute 8.5% and 5% of the GDP, respectively. The textile sector employs 40% of the country's labour force and there are more than 1,500 textile processing mills in Pakistan. The majority of these factories are also in the Punjab and Sindh provinces.

## Main Challenges in the Basin

## Potential Impacts from the Sector

## Implications for Business

### WATER QUANTITY

Water availability is significantly affected by over consumption from agricultural irrigation, evaporative losses and unregulated groundwater abstraction, which is exacerbated by a lack of legal abstraction limits and low agricultural water prices.

Key contributors to water overuse are textile processing, leather tanning, pulp and paper, and sugarcane processing, primarily via unsustainable ground-water abstractions. As a consequence, wetlands are drying up and deteriorating over time.

Businesses already face water shortages due to rapidly depleting water tables, increased industrial water prices and increased competition for water from agricultural production. Due to the water shortage, businesses are up against physical risks, such as their supply chains being impacted by droughts and floods.

### WATER QUALITY

Untreated industrial, domestic and municipal wastewater is discharged directly into rivers, contaminating surface water bodies.

Communities cannot rely on a supply of good quality water. More than 40% of hospital bed occupancy in Pakistan is due to water borne diseases.

1% of total wastewater is treated. The vast majority of industries are discharging their wastewater into water bodies without abiding by any law.

Most industries in Punjab are dependent on groundwater. However, due to over abstraction in major cities (eg. Lahore), arsenic concentrations have increased in the groundwater.

For the textile clusters in Lahore, Faisalabad and Karachi regions, most wastewater is discharged directly into water bodies, resulting in businesses facing reputational and regulatory risks along with physical risks.

### WATER ECOSYSTEMS

Due to the shortage of water flows in different tributaries, many fish species have vanished: For example, where the River Ravi flows through Pakistan, more than 20 species are now extinct.

The Indus Dolphin is also threatened within its river habitats, such as being stranded in nets and having to move downstream of the Kotri barrage.

The eco-system is disturbed due to the water pollution, the water bodies are shrinking due to climate change as well as due to human activities and industrialization.

Due to lack of understanding on e-flows and water allocation, the Indus tributaries are suffering with minimum flows (Ravi and Sutlej) in order to sustain the ecology of the rivers.

### WATER GOVERNANCE

A lack of understanding of, and non-compliance with, international standards and brand protocols is the main barrier for local industries to compete in the global market. There is a lack of trust among different stakeholders, such as the government and the private sector.

There is a need to build capacity for government officials on environmental monitoring and in assisting industries in environmental compliance

In general, there is a lack of capacity related to Multi-lateral Environmental Agreements (MEAs) and the Generalized Scheme of Preference Plus (GSP) reporting, resulting in issues associated with regulatory compliance. No comprehensive law exists for groundwater in the provinces, (except Baluchistan).

There is little interest and incentives/ support for business "transformation" opportunities, gaps in planning/regulation which threaten long term business security, and a lack of government alignment with global standards

There is no comprehensive plan to restore rainwater for the recharge zones.

## PROJECT INFORMATION

Long-Term Vision: Priority rivers in the Indus Basin have improved water quality and quantity, and critical freshwater habitats are protected.

The achievement of this vision is supported by the Industry and Agricultural Water Stewardship Programme that engages the most water-intensive industries and commodities in Pakistan. Currently, the main water stewardship projects being implemented are the following\*:

Project	Description	Timeline	Partners
<b>International Labour and Environmental Standards Application in Pakistan's SMEs (ILES)</b>	ILES aims to build the capacity of government and the private sector on environmental compliance, to assist in the adoption of sustainable practices (SDG 12) and to improve the environmental laws and standards in the region, supporting the reduction of negative impacts on rivers and habitats. A city-wide partnership forum was created to mobilize stakeholders for voluntary initiatives around water quality and quantity etc.	September 2016 – August 2022	International Labour Organization (ILO)  Donor: European Union (EU)
<b>Basin Assessment Scenario Intervention Tool</b>	BASIT is a hydrological modelling tool used to assess integrated surface and groundwater resources in one of the most important tributaries of the Indus River: the River Ravi. A sub-group of groundwater experts (Groundwater Working Group) in the City-Water Stewardship Partnership (CWSP) are playing an advisory role to ensure that the tool is suitable for use in supporting real-world decision making by the government.	July 2017 – June 2020	WWF-US, Earth Genome, Arizona State University (ASU)  Donor: Levi Strauss (LS&Co)
<b>River Ravi Revitalization Project (2018–19)</b>	The project will address the industrial pollution of the River Ravi. Output 1 will be a situational assessment of industrial pollution and ecosystems of the river Ravi basin; Output 2 is focused on multi-stakeholder visioning of cleaner production; and Output 3 will contribute to developing a long-term, multi-sectoral plan to revitalize and build resilience in the basin, including the formulation of recommendations for investment projects and institutional reform.	February 2018 – September 2019	Asian Development Bank (ADB)

\*Click here for information on the water stewardship work in WWF Pakistan.  
[www.wwfpak.org/our\\_work/\\_water/\\_water\\_stewardship/](http://www.wwfpak.org/our_work/_water/_water_stewardship/)

## NATIONAL, REGIONAL AND LOCAL PARTNERS

**Government stakeholders:** Ministry of Climate Change (MoCC) ■ Ministry of Water Resources ■ Provincial Irrigation Departments ■ Provincial Env. Departments (EPD Punjab, SEPA) ■ Provincial Industries Departments ■ Irrigation Research Institute (IRI) ■ Urban Unit ■ Water and Sanitation Agency (WASA) ■ University of Engineering and Technology (UET) ■ Textile department of the University of Agriculture (UAF) ■ Pakistan Council of Research on Water resources (PCRWR)

**Private Stakeholders:** All Pakistan Textile Mills Association (APTMA) ■ Pakistan Readymade Garments Manufacturing Exporters Association (PRGMEA) ■ Pakistan Tanners Association (PTA) ■ Sialkot Tanneries Zone (STZ) ■ Pakistan Hosiery Manufacturing & Exporters Associations (PHMA) ■ Chambers of commerce and industries



## MAIN ACHIEVEMENTS TO DATE

### Case 1: Partnership with Levi Strauss & Co.

From September 2016 to June 2017, WWF-Pakistan partnered with WWF-US and Levi Strauss & Co. (LS&Co) to raise awareness on water stewardship in the Indus Basin. The project activities included a rapid needs assessment of water risks for 5 vendors of LS&Co in Lahore.

Recommendations were provided for 'within the fence-line' water issues. Furthermore, business cases for Best Water Management Practices (BWMPs) were established to improve resource efficiency within the enterprises, and some industries adopted best practices in the reuse and recycling of treated water. For example, the Naveena denim industry in Lahore installed a large water tank in which they stored treated water for use in horticulture within the industry area.

### Case 2: International Labour and Environmental Standards Application in Pakistan's SMEs (ILES)

Under ILES, 36 leather and textile SMEs have been mobilized for environmental audits in Karachi, Lahore, Sialkot and Faisalabad. Out of these 36 SMEs, 10 enterprises have gone through the process of implementing interventions of Smart Environmental Management Practices (SEMPs) suggested by WWF-Pakistan. These interventions yielded benefits in terms of energy savings (5.82 M. KWh/year of electricity and 928,000 m<sup>3</sup> of natural gas), water savings (52,000 m<sup>3</sup>/year) and reductions in chemical use.

More information about ILES is available here:

[www.wwfpak.org/our\\_work/\\_water\\_/iles/](http://www.wwfpak.org/our_work/_water_/iles/)

### Case 3: Ravi Revitalization Project

WWF is a key knowledge partner for the Ravi Revitalization project funded by the Asian Development Bank and supported by Hagler Bailey (HB) as a project consultant. Our role is to assess the pollution status in the region as well as to develop pollution abatement plans, and to recommend feasible, cost-effective wastewater treatment technologies for pollution reduction and reuse of treated water. Outcomes so far include the development of an industrial database of more than 7 cities along the bank of River Ravi, mapping industries in the sub-basin. This is the first time this kind of activity has been carried out for pollution loads and categorization of these industries.



## BENEFITS FOR PARTNERS

WWF Pakistan is a trusted partner and has the unique ability to convene stakeholders together to create awareness, share innovations like the introduction of environmental standards, and facilitate the co-creation of long term water stewardship plans for our shared water resources.

### 1. Benefits for Suppliers

Supply chain partners are faced with more options for action than they can consider. Our projects and partnerships help supply chain partners identify material and meaningful ways to improve practices and basin stewardship, adding value to brand performance and local economy.

### 3. Benefits for Brands

With WWF Pakistan, brands have access to coordinated supplier training and aligned metrics for corporate sustainability reporting. Brands also gain insight into local production challenges and opportunities, primarily collective action opportunities that are designed to improve basin health and add business value.

## THIS PROJECT CONTRIBUTES TO THE ACHIEVEMENT OF:

6 CLEAN WATER AND SANITATION



9 INDUSTRY, INNOVATION AND INFRASTRUCTURE



11 SUSTAINABLE CITIES AND COMMUNITIES



17 PARTNERSHIPS FOR THE GOALS



[www.wwfpak.org](http://www.wwfpak.org)

Basin Lead: Sohail Ali Naqvi (WWF Pakistan)

For further information, please contact:  
[globalpartnerships@wwfint.org](mailto:globalpartnerships@wwfint.org)

#### Imprint

Authors Angela Ortigara (WWF Germany), Sohail Ali Naqvi (WWF Pakistan), Lindsay Bass and Nicole Tanner (WWF US).

Map WWF Pakistan

Pictures WWF Pakistan

Layout Marijke Küsters, [www.studioazola.com](http://www.studioazola.com)