INDUSTRY COMMENT

MATERIAL BENEFITS

The supply of treated wastewater to textile industries in India provides lessons for the UK on enabling industrial growth.

In the Water White Paper, the UK Government commits to look at ways of helping drive reuse and rainwater management uptake for large non-household developments and large water users. It said: "This will help support future water needs and growth within industry and ensure competing areas of growth, like housing, are not compromised."

Lessons and a promising model can be found in a partnership between the municipality and textile industres in Surat, India.

The Surat Municipal Corporation (SMC) has set up three large-scale municipal sewage reuse facilities to produce high-quality industrial-grade water from treated sewage. All three facilities have been designed, built, and are operated by Enviro Control Private Limited. They are based on advanced membrane technologies including ultra filtration followed by reverse osmosis.

Surat is a major textile city with more than 450 dyeing and printing houses. Pandesara Industrial Estate, one of the largest clusters with over 125 dyeing and printing units and other chemical industries, was merged into the municipal limits in 1986. Since 1998, SMC has been supplying potable water for industrial purposes but rising industrial demand was putting pressure on conventional water resources. To address this, SMC initiated a project to treat secondary sewage and generate industrial-grade water for reuse, reducing dependency on freshwater and meeting the growing water needs of industry.

With support from user industries and the state government, SMC built its first 40 MLD tertiary wastewater treatment plant in 2014, which became a successful operational model. Following this success, Pandesara Industries demanded additional capacity, leading to the commissioning of another 40 MLD plant at Dindoli under the Smart City Mission. Inspired by these achievements, adjacent industrial clusters also sought treated water, resulting in a 35 MLD facility supplying Sachin GIDC since November 2020. This progression demonstrates how assured quantity and quality of treated wastewater can drive industrial adoption and sustainability. Together, the three plants provide a total output of 115MLD to 249 textile units in Surat. As of September 2025, the facilities supplied 2,29,428 million litres of recycled water.

Cost and collaboration

The project operates on a win-win model between the Municipal Corporation and industry associations. The freshwater cost to industries as of 2025-26 is $0.74/M³) but the reuse water supply rate from SMC is $ 0.43/M³. SMC has generated ~$78m in revenue from all three plants as of September 2025. This model highlights how reclaimed water can serve as a sustainable resource while generating significant revenue, exemplifying a perfect example of circular economy.

There is also a collaborative framework in the model between SMC and industry associates. SMC conceptualised the project, prepared detailed designs, secured funding, allotted land, executed construction, and continues to pay electricity bills. User industries committed to guaranteed quantities for defined durations, accepted mutually agreed tariffs with price variation linked to RBI indices, and ensured timely payments. Enviro Control is responsible for monitoring inlet and outlet parameters, constructing plants to meet desired standards, and managing comprehensive operation and maintenance, including repairs and replacements. This collaborative framework ensures reliability and sustainability while reducing dependence on illegal groundwater extraction and avoiding the higher costs of irrigation water.

Reliable quality

The treated water consistently meets stringent industrial standards. For example, colour is reduced from 55 Hazen units at the inlet to less than 5 at the outlet, pH remains within 6 to 7.5, hardness drops from 750mg/L to below 148mg/L, and total dissolved solids decrease from 1500mg/L to under420 mg/L. BOD and COD are reduced to less than 2mg/L and 9mg/L respectively, and suspended solids are brought down to less than 1mg/L. These results confirm the reliability of the treatment process for industrial applications (see table).

Multiple benefits

This initiative delivers multiple benefits. It reduces the diversion of potable water for non-potable purposes, conserves groundwater resources, and promotes an environmentally sound circular water economy. It provides an assured resource for textile clusters and generates substantial revenue for SMC.

Looking ahead, Enviro Control UK (which is a 100% subsidiary of Enviro Control India) intends to transfer its technological know-how and operational experience from large-scale municipal sewage reuse facilities to support new water recycling projects in the UK water sector. UK water utilities can replicate this proven model for upcoming water recycling projects for indirect portable reuse and also for large-scale reuse projects for AI data centres. By leveraging this experience, Enviro Control UK can position itself as a leader in advanced water reuse and revenue generation.

Dr. Anand Vashi is managing director of Enviro Control UK Anand.Vashi@enviro-uk.com

QUALITY RESULTS

Parameters	Inlet of TTP	Outlet of TTP	Drinking water standard IS-10500
Colour (Hazen units)	55	<5	5
pH	6.5-7.5	6-7.5	6-8.5
Total Hardness as CaCO3 (mg/L)	750	<148	300
Iron as Fe (mg/L)	0.63	<0.05	0.30
Manganese as Mn (mg/L)	0.12	<0.1	0.10
Total Dissolved Solids (mg/L)	1500	<420	500
BOD(mg/L)	20	<2	-
COD(mg/L)	100	<9	-
Suspended Solids (mg/L)	30	<1	5.0(NTU)
Total Nitrogen as N (mg/L)	14	<5	10.20
Total Phosphorous as P (mg/L)	8	<0.8	-
Residual Chlorine (mg/L)	0.5	<0.5	<0.25