

## NOTES FROM THE FIELD

# Why Regulations Come Up Short? Some Observations from a Field Study of the Kanpur Leather Industry

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## 1. INTRODUCTION

Poor water quality adversely impacts the environment and public health. The quality of river water in India has been declining drastically. The number of “severely polluted” river stretches increased from 34 to 45 during 2015–2017 (CPCB 2018). CPCB (2019) has identified 17 categories of highly polluting industries, of which the leather industry is among the most damaging. Effluents from leather factories contain toxic chemicals such as chromium, sulphates, and chlorides. Exposure to tannery pollutants is hazardous to human health and can cause diseases such as stomach and lung cancer; further, improper disposal of pollutants can adversely affect soil and groundwater quality (Bosnic *et al.* 2000; Pure Earth 2016).

The Government of India has set an upper limit for effluent discharge from leather industries and provides technical support to install effluent treatment plants to treat wastewater before it is discharged into water bodies. Despite stringent regulatory standards, the quality of water bodies remains alarmingly low in leather clusters. Thus, this study examines why regulations have failed in addressing the problem of leather pollution. We undertook a field study of Kanpur’s leather industry, one of India’s most polluted leather clusters and a significant contributor of pollution in the Ganges (CLRI 2012). Our field survey of the tanning industry in Kanpur in

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2018 showed that asymmetric information and the lack of incentives within environmental regulations are responsible for the industry’s unresolved pollution problem.

## 2. KANPUR LEATHER INDUSTRY

The Kanpur leather industry was founded at the beginning of the nineteenth century. It developed rapidly under British rule due to the demand for leather boots, saddlery, and harness equipment. Easy access to the cantonment area that was in continual need of military equipment, such as leather boots, the availability of water supply from the Ganges, labour, raw materials, and large areas of vacant land, led to the development of the cluster (CLRI 2012). Kanpur has two leather clusters—Jajmau in Kanpur city has 250 operational tanneries and Unnao, 35 km from Kanpur, has 50 operational tanneries.

**Table 1.** Number of tanneries in non-compliance with effluent standards

Year \ Region	Jajmau	Unnao
2016	20 out of 198 (10%)	8 out of 42 (19%)
2015	28 out of 173 (16%)	7 out of 47 (14%)
2014	26 out of 129 (20%)	12 out of 43 (27%)
2013	14 out of 105 (13%)	10 out of 43 (23%)

**Source:** UPPCB Kanpur

The responsibility of ensuring that Kanpur leather tanneries conform with regulatory norms lies with the Uttar Pradesh Pollution Control Board (UPPCB), which records data on pollution and levies penalties on defaulters. About 85% of the tanneries operating in Kanpur are small scale and have a primary effluent treatment plant (PETP) to pre-treat their pollutant discharge before it is treated at a common effluent treatment plant (CETP). The UPPCB monitors two parameters of the effluent discharge from the PETPs—total suspended solids (TSS) and chromium (Cr), the permissible limits being 600 mg/l and 2 mg/l, respectively. We analyzed the UPPCB pollution data for 2013–2016 and found that 80% of the tanneries discharge effluents that meet permissible limits (See Table 1). The official data seemed quite puzzling given the severity of the pollution problem in the cluster (Mukherjee 2013; Parthasarathy 2016; Sengupta 2017; Koshy 2018). The discrepancy compelled us to study the regulation and monitoring of these industries.

### **3. ISSUES OF ASYMMETRIC INFORMATION AND INCENTIVE COMPATIBILITY WITHIN REGULATIONS**

The objectives of our field study were two-fold. Firstly, we studied the loopholes in the monitoring of pollutants in tanneries, and secondly, we examined if the regulations adequately incentivize tanneries to treat their industrial discharge.

#### **3.1. Asymmetric information**

The UPPCB monitors tanneries at random using the “grab sampling” method, wherein the sample collected reflects the concentration of pollutants only at one point in time. However, the concentration of effluents in discharge varies for different processes in leather manufacturing. Thus, the results may be misleading as the pollutant concentration may vary across the day. Tanneries often discharge pollutants illegally at night. Thus, random checks are inadequate to monitor such practices.

Furthermore, pollution data shows that most tanneries are inspected only four to five times a year. There is also scope for manipulation during sample collection. One of the officials we interviewed mentioned that once news of an upcoming inspection spreads among tanners, they reduce the concentration of pollutants by re-arranging the on-going leather manufacturing process. In such cases, the official sample does not reflect the actual toxicity of discharge (personal conversation with a UPPCB officer, March 25, 2018). Thus, we find that a classic example of information asymmetry emerges, where the polluters know more about their pollutant discharge than the regulators.

Our interaction with the tanners revealed that there is rampant corruption during the monitoring of tanneries. UPPCB officials take bribes to manipulate the collected sample. For example, instances of tannery units providing a sample of mineral water instead of the discharge from the PETP were reported by one of the tanners. Another tanner revealed that tanneries pay UPPCB officials to continue operating illegal tanneries that were officially shut down by the UPPCB. Bribes are predominant even if firms abide by the law. Corruption discourages firms from adopting cleaner technologies, as tanneries prefer to pollute and bribe than to reduce pollution. A higher concentration of effluents is found in the inflows of wastewater at the CETP, indicating that norms are not strictly followed (personal conversation with CETP Manager, April 5, 2018). Thus, informational asymmetries and rent-seeking practices undermine the monitoring process.

### 3.2. Incentives incompatibility

The command and control regulations impose the same standards on all and fail to recognize the differential ability of firms of varying sizes to meet effluent standards. Our conversation with a few members of the Kanpur Tannery Association revealed that the primary aim of tanners is to meet the increasing demand for their products rather than to meet environmental hazard reduction requirements. Big exporting houses like Mirza International and Super House Ltd. are more interested in ensuring the quality of leather exported to the European market. Europe has enforced the stringent REACH (Registration, Evaluation, Authorization and Restrictions of Chemicals) policy, which regulates the use of hazardous chemicals like azo dyes, formaldehyde, and chromium by the exporter in their leather products. One of the tanneries reported that importing countries often send their teams to inspect the leather manufacturing process and the quality of chemicals used by their exporting houses. Central Leather Research Institute (CLRI) certifies exporting firms to ensure the quality and fulfilment of chemical limits. CLRI undertakes a thorough examination of the leather samples from tanneries, and samples are kept with them in case of re-evaluation/falsification later. The exported leather is checked at the ports of the importing European countries to examine whether they meet the standards of the REACH policy, wherein non-compliance will lead to the rejection of the shipment. Therefore, big exporting tanneries have adequate incentives to voluntarily comply with strict environmental standards to maintain the reputation of, and demand for, their products.

On the other hand, small tanneries operate in a highly price-competitive domestic market with meagre profit margins. Hence, small leather firms prefer to use cheap chemicals over environment-friendly chemicals while manufacturing leather goods. Discussions with one CLRI official revealed that only 12 big tanneries in the cluster had adopted expensive cleaner technologies like waterless chrome tanning, which helps to increase the uptake of chemicals so that fewer chemicals are discharged in the wastewater. The large firms are incentivized to adopt sustainable practices through duty drawback to export high quality, sustainable leather goods. In contrast, small firms that sell in the domestic market have no such incentive. Furthermore, regulations require tanneries to contribute to the CETP's operational costs based on their production capacity. Since the contribution to CETP's operational cost is based on production capacity, the tanneries have no incentive to reduce pollution below effluent standards. Rather, the tanneries under-report their official production capacity to reduce monetary burden.

#### 4. CONCLUSION

Our field observations highlight that the poor quality of pollution data presents a flawed picture of regulatory compliance by tanneries who, in reality, evade pollution norms. The main driver of this problem is asymmetric information and lack of incentives to treat pollution. We have the following recommendations to address the issue.

Firstly, a shift from the present monitoring practice of “grab sampling” to “composite sampling” for evaluating the discharge from tanneries effectively is required. Composite sampling will require the collection of discrete samples at regular intervals over 24 hours and will represent the average performance of effluent treatment plants during the collection period. Random monitoring at different hours of the day, including the night, can also be fruitful to catch the defaulters. Involving third parties like research institutions and non-governmental organizations (NGOs) in monitoring may help reduce the probability of corruption. Secondly, designing policies to incentivize small tanners to reduce pollution is urgently needed. The incentive could be linked to a measurable outcome—in this case, recovery of chrome from the effluent. The subsidy amount can be linked to the extent of chromium recovered and reused. Where the tanners adopt waterless chrome tanning, the subsidy can be linked to avoided use of chromium. Disbursal of subsidies in the form of direct benefit transfer would act as an incentive for tanners and improve compliance. Loans could be extended to tanners for investing in technologies to treat sludge and wastewater. Targeted subsidies based on a measurable outcome will offer incentives for reducing effluent discharge and shift the burden of monitoring and demonstrating compliance from pollution control authorities to the tanneries themselves. Targeted subsidies will act as a premium for tanneries to reveal accurate information about their pollution abatement levels and reduce the cost of enforcing regulations.

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