

# Using evidence to improve pollution regulation in India

## About 3ie evidence impact summaries

[Read](#) how 3ie verifies and classifies evidence impact

## Highlights

### Evidence impact

- The Gujarat Pollution Control Board (GPCB) acted on the evaluation's recommendations to allocate independent third-party auditors to polluting firms on a random basis and pay them a predetermined fee.
- The researchers and GPCB continue to collaborate to design and evaluate new methods for monitoring and regulating industrial pollution.
- Findings informed discussions of best practices in Indian environmental regulation at the national level and amongst other state pollution control boards.
- Findings informed US Environmental Protection Agency guidance to its regulators on how to include resource-efficient and evidence-informed environmental compliance tools.

### Factors that contributed to impact

- The political economy context was a major factor. Gujarat's unique institutional history of judiciary-monitored industrial pollution regulation, citizen activism and broad agreement amongst key stakeholders, including industries and auditors, that the third-party audit system was not working were all important.
- The GPCB was formally and strongly involved from the start, approving interventions being studied and participating on the study team.
- The evaluation produced convincing findings on the extent of false reporting by third-party auditors, which supported clear and actionable recommendations for improving auditing.
- Researchers engaged on an ongoing basis, championing the evidence in Indian government agencies and with the US Environmental Protection Agency.

## Evidence use brief

### Using evidence to improve pollution regulation in India

This brief analyses the factors that helped spur evidence-informed innovation in regulating industrial pollution.

## Impact evaluation details

Title: [Truth-telling by third-party audits and the response of polluting firms: experi...](#)

Authors: Esther Duflo, Michael Greenstone, Rohini Pande and Nicholas Ryan

Status : Completed March 2013



## Context

Rapid industrial growth in India has greatly improved living standards, but it has come with the cost of widespread environmental damage, including high levels of particulate matter, air

**pollution and contaminated water resources. Despite recent research linking the high levels of air pollution to avoidable death and disease, pollution control agencies struggle to enforce environmental regulations.**

**This challenge is prominent in Gujarat, home to India's most critically polluted industrial cluster and six of its most polluted river stretches. The state government's emphasis on economic growth and ease of doing business has spurred industrial expansion – particularly in highly polluting industries, such as petrochemicals, pharmaceuticals and textiles – that environmental regulatory capacity has not been able to match. The resulting pollution has increasingly spurred citizen outrage and activism to reduce it. As a result, Gujarat is the only state implementing a court-mandated third-party industrial pollution audit system on top of checks by the GPCB.**

**While the court-imposed monitoring system to audit industrial pollution was being implemented, none of the parties affected by the mandate – the pollution control board, civil society, industries or private auditors – felt it was working. Between 2009 and 2013, 3ie supported an impact evaluation to find out what would work to improve the state's environmental audit system for monitoring and regulating industrial pollution. The evaluation, developed by researchers affiliated to Abdul Latif Jameel Poverty Action Lab in close collaboration with the GPCB, studied the effects of changes designed to improve the GPCB's third-party audit system.**

**The team identified three mechanisms to improve the audit system as part of the evaluation: (1) random allocation of third-party auditors to firms; (2) predetermined payments from a central pool; and (3) on-site rechecking of a random sample of the auditors' work.**

## **Evidence**

**The study showed that the existing arrangement of industrial firms' hiring and paying their own auditors encouraged corruption and misreporting of industrial emissions. Independent audits with predetermined payments and on-site rechecking of audit data on a random basis produced more accurate information and prompted firms to lower pollution. Compared to firms audited under the earlier system, false reports of compliance with emissions norms reduced by 80 per cent.**

## **Evidence impacts**

### **Improved Gujarat's third-party environmental audit norms**

**The 3ie-supported impact evaluation's recommendations prompted the GPCB leadership to formally approve modifications to the board's environmental audit scheme in 2012. Their revised environmental audit scheme, dated January 2015, cited the findings of the 3ie-supported study. Under the new scheme, independent third-party environmental auditors would be randomly allocated to industrial plants, paid a predetermined fee and have their work rechecked by expert academic auditors.**

### **Spurring further research with GPCB to improve regulation**

**In India, discussions about the study led to a new collaboration to design and evaluate market-based instruments for measuring air pollution from industrial plants. The research team has been working with the GPCB to test continuous emissions monitoring systems and [design an evaluation of an emissions trading pilot project](#).**

### **Informed the design of environmental regulation in other contexts**

Lessons from the evaluation have influenced [the National Clean Air Programme action plan](#), which the Ministry of Environment, Forest and Climate Change issued in 2018. It advises states on 15 measures for multisectoral action on air pollution. The programme encourages other states to adopt the modified Gujarat third-party audit scheme. The national government's think tank, Niti Aayog, has also highlighted the modified third-party audit scheme as a [best practice](#). More recently, Niti Aayog endorsed the audit norms that the study recommended in its [Breathe India Action Plan for Combating Air Pollution](#).

Researchers' engagement with the US Environmental Protection Agency about the study findings resulted in the agency's [Next Generation Compliance initiative](#) (2015–2017), including third-party certification as a resource-efficient compliance tool for federal and regional environmental regulators. Guidance and a publicly available [compendium of examples](#) from the initiative cite the 3ie-funded study in illustrating how to establish effective independent verification.

## Suggested citation

International Initiative for Impact Evaluation (3ie), 2019. Using evidence to improve pollution regulation in India (online summary), Evidence Impact Summaries. New Delhi:3ie.

## Related

### [Strengthening third-party audits to reduce pollution](#)

Abdul Latif Jameel Poverty Action Lab's case study of how research has informed decision-making in Gujarat

Evidence impact summaries aim to demonstrate and encourage the use of evidence to inform programming and policymaking. These reflect the information available to 3ie at the time of posting. Since several factors influence policymaking, the summaries highlight contributions of evidence rather than endorsing a policy or decision or claiming that it can be attributed solely to evidence. If you have any suggestions or updates to improve this summary, please write to [influence@3ieimpact.org](mailto:influence@3ieimpact.org)

*Last updated on 30th October 2019*