



PESTICIDES, POWER, AND PROTECTION: A SOCIO-LEGAL CRITIQUE OF AGROCHEMICAL REGULATION IN RURAL INDIA

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ABSTRACT

Introduction: Pesticide exposure is an important public-health, occupational-safety, and environmental-justice concern in rural India. This commentary examines the legal architecture governing agrochemicals and the unequal distribution of pesticide risks. **Objectives:** To evaluate the Insecticides Act 1968, the proposed Pesticide Management Bill 2020, constitutional environmental-rights jurisprudence, and the endosulfan litigation; and to propose rights-based regulatory reforms. **Methods:** Doctrinal and socio-legal analysis was undertaken using Indian statutes, Supreme Court materials, official government sources, WHO/FAO guidance, and peer-reviewed literature. Distributive, procedural, and recognitional environmental justice were used as analytical categories. **Results:** The existing framework regulates registration and trade but provides insufficient protection across the pesticide life cycle. Rural workers may face exposure without local-language information, protective equipment, health surveillance, or accessible compensation. The endosulfan proceedings demonstrate both the possibility and limits of judicial intervention. **Conclusion:** A modern pesticide regime should adopt hazard-based restrictions, independent registration review, mandatory training, poisoning surveillance, statutory compensation, transparent residue monitoring, and meaningful participation by farmers and agricultural workers.

KEYWORDS : Pesticide Regulation, Agrochemicals, Rural India, Environmental Justice, Article 21, Pesticide Poisoning, Insecticides Act 1968.

1. INTRODUCTION

Pesticides are central to modern agricultural production, yet their benefits are accompanied by risks to workers, rural households, consumers, ecosystems, and future generations. India's Insecticides Act, 1968 regulates the import, manufacture, sale, transport, distribution, and use of insecticides, but its framework predates contemporary evidence on chronic exposure, cumulative risk, and environmental injustice.

The problem is not solely one of individual "misuse." Agricultural labourers may apply toxic chemicals without adequate information, protective equipment, bargaining power, health surveillance, or access to effective remedies. A global systematic review estimated 385 million cases of acute unintentional pesticide poisoning each year, demonstrating the scale of pesticide-related harm in agricultural settings.

This commentary argues that pesticide regulation must be evaluated as a constitutional and socio-legal issue. Where preventable exposure is tolerated without effective safeguards, monitoring, medical response, or remedy, the State's responsibility cannot be reduced to licensing and inspection. The analysis therefore examines the relationship between pesticide governance, rural power structures, and the constitutional commitment to life and dignity.

2. Objectives

The objectives of this article are:

1. To examine India's statutory framework governing pesticide registration, sale, use, monitoring, and enforcement.
2. To analyse the constitutional implications of pesticide exposure under Articles 14, 21, 48A, and 51A(g).
3. To examine the endosulfan proceedings as a case study of regulatory failure, judicial intervention, and community vulnerability.
4. To propose reforms that centre occupational safety, public health, environmental justice, transparency, and accessible remedies.

3. METHODS

This study uses doctrinal and socio-legal research. Primary materials include the Insecticides Act, 1968, the Environment (Protection) Act, 1986, the Food Safety and Standards Act, 2006, the Pesticide Management Bill, 2020, Indian consti-

tutional provisions, and reported judicial materials.

Secondary materials include peer-reviewed studies, WHO/FAO guidance, official government publications, and institutional research. The analysis applies three environmental-justice dimensions: distributive justice, concerning the allocation of chemical burdens; procedural justice, concerning participation and access to information; and recognitional justice, concerning the experiences of rural workers, women, smallholders, and marginalised communities.

This is a doctrinal and socio-legal article and does not report original fieldwork, clinical data, or laboratory testing. Epidemiological figures are used only where supported by identified sources.

4. RESULTS

4.1 Statutory Architecture

The Insecticides Act, 1968 was enacted to regulate insecticides and prevent risks to human beings and animals. It establishes a statutory structure for registration, licensing, inspection, sampling, and offences. However, it does not provide a comprehensive modern system for chronic-exposure surveillance, independent health-impact assessment, or no-fault compensation for affected workers.

The Environment (Protection) Act, 1986 supplies a broader legal basis for environmental protection and improvement. It can support action against environmental contamination associated with agrochemicals, but it is not a complete substitute for a dedicated pesticide-safety regime.

The Food Safety and Standards Act, 2006 establishes the Food Safety and Standards Authority of India and provides for science-based food standards. It is relevant to pesticide residues in food, although residue regulation cannot address occupational exposure at the point of mixing, transport, and application.

4.2 Proposed Legislative Reform

The Pesticide Management Bill, 2020 was introduced in the Rajya Sabha to replace the Insecticides Act, 1968. Its scope covers manufacture, import, packaging, labelling, pricing, storage, advertisement, sale, transport, distribution, use, and disposal. This life-cycle approach is an improvement in legislative design.

The Bill should nevertheless be strengthened by including independent health-impact assessment, public disclosure of registration data, a statutory compensation mechanism, protection for whistle-blowers, and a clear transition plan away from highly hazardous pesticides.

4.3 Constitutional Protection

Article 21 has been interpreted by Indian courts to protect conditions necessary for dignified life, including a healthy environment. Articles 48A and 51A(g) reinforce environmental protection within the constitutional structure.

The constitutional question is not whether every pesticide is prohibited. It is whether the State has adopted reasonable, non-arbitrary, and evidence-based safeguards against preventable harm. A regulatory system that systematically leaves agricultural workers without information, protective equipment, surveillance, and remedy may raise concerns under both Articles 14 and 21.

4.4 The Endosulfan Proceedings

The endosulfan litigation demonstrates how chemical exposure can become a constitutional and public-accountability issue. The Supreme Court's interim order of May 13, 2011 in W.P.(C) No. 213 of 2011 prohibited endosulfan, and India's official PPQS material records final disposal of the matter on January 10, 2017.

The proceedings illustrate delayed recognition of harm, the difficulty of obtaining medical and compensatory support, and the dependence of rural communities on judicial intervention. They also show that compensation orders must be accompanied by continuing medical care, transparent victim identification, and effective administrative implementation.

4.5 Health and Information Deficits

A systematic review of Indian studies identified 186 papers reporting 16,659 poisoning deaths between 1999 and 2018 and found pesticides to be a major category of lethal poisoning. NCRB's official reporting also records deaths from accidental intake of insecticides and pesticides, confirming that pesticide harm includes more than deliberate self-poisoning.

The regulatory burden is therefore broader than product approval. It includes safe storage, container disposal, training, emergency response, clinical diagnosis, public-health reporting, and compensation. Weakness in any one part of this chain can convert a manageable risk into a serious injury.

5. DISCUSSION

5.1 Power and Rural Inequality

The term "power" refers to who determines which substances are registered, what evidence is disclosed, which risks are considered acceptable, and whose experiences count in regulatory decisions. Small farmers and landless agricultural workers generally have less influence than manufacturers, distributors, and large purchasers.

A socio-legal approach therefore asks whether labels are understandable, whether information is available in local languages, whether employers provide protective equipment, whether health facilities diagnose poisoning, and whether survivors can realistically obtain compensation.

5.2 Rights-Based Reform Agenda

A modern pesticide statute should adopt the following measures:

- Hazard-based restrictions and a transparent process for phasing out highly hazardous pesticides where safer alternatives are available.

- Independent registration review based on publicly available toxicological and epidemiological evidence.
- Mandatory local-language training, safe-use instructions, protective equipment, and safe-storage standards.
- District-level poison-information and reporting systems linked to primary-health centres.
- A statutory, no-fault compensation mechanism for pesticide-related injury, disability, illness, and death.
- Public disclosure of registrations, toxicological assessments, inspection results, residue violations, and enforcement actions.
- Representation of farmers, agricultural workers, women's groups, public-health professionals, and affected communities in regulatory processes.

5.3 International Benchmark

The WHO/FAO International Code of Conduct on Pesticide Management provides voluntary standards for entities involved in pesticides throughout their life cycle, from production to disposal. Its life-cycle approach is a useful benchmark for Indian law. Regulation should not end at registration or sale; it must extend to transport, storage, application, waste disposal, residue monitoring, medical response, and remediation.

5.4 Food and Environmental Monitoring

Food-residue monitoring should be integrated with occupational and environmental monitoring. Sampling should be regular, geographically representative, and transparent. Results should be publicly accessible, and authorities should disclose corrective action where residues exceed applicable limits. Rural water, soil, and household-storage pathways also require attention because food-only monitoring cannot capture the full exposure profile.

6. CONCLUSION

Pesticide regulation in rural India should be treated as a matter of constitutional protection, public health, labour rights, food safety, and environmental justice. The Insecticides Act, 1968 provides a foundational framework, but it is insufficient for contemporary chemical risks and rural inequalities.

A modern regime must shift from merely regulating products to protecting people and ecosystems across the pesticide life cycle. Reform should strengthen prevention, independent oversight, worker safeguards, accessible remedies, and the participation of communities that carry the heaviest burdens of agrochemical exposure.

The endosulfan proceedings show that judicial intervention can secure urgent protection, but durable pesticide justice requires legislative reform, administrative capacity, public-health surveillance, and meaningful accountability. The central question is therefore not only how pesticides are regulated, but whose lives are protected when regulation fails.

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