

**ARTICLE**

## **Topic Modeling and Sentiment Analysis: Understanding Public Concerns About Chinese Fireworks**

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### **Abstract**

This study investigates the impact of Chinese fireworks on the Indian fireworks market through a comprehensive analysis of qualitative and quantitative data. A Focused Group Discussion (FGD) was conducted in Sivakasi, India's fireworks hub, involving 30 stakeholders from various levels of the industry, including manufacturers, distributors, and representatives from fireworks associations. The study employs Latent Dirichlet Allocation (LDA) for topic modeling and two sentiment analysis tools, TextBlob and VADER, to analyze stakeholder feedback and related textual data. Topic modeling uncovered five key themes: risks associated with Chinese fireworks, competition between Indian and Chinese products, regulatory challenges involving illegal imports, lax enforcement of import regulations, and the prevalence of banned products. Sentiment analysis revealed a predominance of negative sentiments, highlighting widespread concerns about safety, regulatory enforcement, and the adverse impacts of Chinese imports on the local market. The study also compared TextBlob and VADER sentiment classification, observing agreement in 16 cases and disagreement in 10, with VADER offering more nuanced sentiment insights. The findings emphasize the need for stricter enforcement of regulations, enhanced consumer safety measures, and strategic support for the domestic industry to mitigate the adverse effects of foreign competition.

**Keywords:** Chinese Fireworks, Indian Fireworks Industry, Topic Modelling, Sentiment Analysis, Latent Dirichlet Allocation (LDA).

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