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# Frequent Firework Factory Explosions in India: Causes and Concerns

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Recent deadly explosions in firework factories in states like Tamil Nadu and Kerala have once again highlighted the recurring issue of industrial safety lapses in the fireworks sector, raising concerns over regulatory enforcement and worker safety.?

## Background and Context

India is one of the largest producers of fireworks, with Tamil Nadu's Virudhunagar (Sivakasi region) accounting for nearly 90% of the country's production. The industry is labour-intensive and involves handling highly combustible chemicals, making it inherently hazardous.

Repeated accidents over the years indicate systemic issues in safety compliance, infrastructure, and regulation, rather than isolated incidents.

## Why Firework Factory Explosions are Common

### Highly Combustible Raw Materials

Fireworks contain chemicals such as aluminium powder, barium nitrate, sulphur, and potassium nitrate, which are extremely reactive and can ignite easily due to friction, heat, or sparks. Even minor mishandling can trigger explosions.

### Climatic and Environmental Factors

High temperatures, especially during summer, increase the risk of spontaneous ignition

Dry conditions enhance flammability of materials

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Heatwaves in southern India have been linked to recent incidents

### **Safety Lapses and Poor Compliance**

Violation of licensing norms and safety protocols

Overcrowding of workers in small production units

Improper storage of explosive materials

Lack of adequate fire safety equipment and training

Industrial accidents are often linked to weak enforcement of safety regulations.

### **Informal and Unregulated Sector**

Many units operate as small-scale or informal enterprises

Limited monitoring and inspections

Use of untrained labour, including women and migrant workers

### **Production Pressure During Festivals**

Increased demand during festivals like Diwali and local temple events

Factories often exceed permitted limits of production and storage

Workers may handle chemicals beyond safe capacity

### **Lack of Mechanisation**

Heavy reliance on manual mixing of chemicals

Minimal use of automation increases human exposure to risk

Legal and Regulatory Framework

### **Key Laws**

Explosives Act, 1884

Explosives Rules, 2008

Regulated by the Petroleum and Explosives Safety Organisation (PESO)

### **Provisions**

Licensing of units

Restrictions on storage and handling

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Safety distance norms

Worker protection guidelines

### **Significance for Governance and Economy**

Industrial Safety

Highlights need for strict enforcement of safety norms

Raises questions about inspection mechanisms

### **Labour Welfare**

Workers face high occupational risks

Lack of insurance and social security in many cases

### **Regional Economy**

Fireworks industry supports livelihoods in regions like Sivakasi

Balancing economic benefits vs safety concerns is crucial

### **Challenges**

Weak enforcement despite existing laws

Prevalence of illegal or unlicensed units

Limited awareness and training among workers

Inadequate disaster preparedness

### **Way Forward**

Strengthening inspection and compliance mechanisms

Promoting automation and safer technologies

Better training and safety awareness programs

Strict penalties for violations

Encouraging eco-friendly alternatives to fireworks

### **Conclusion**

Firework factory explosions in India are not isolated events but a result of structural issues such as hazardous materials, weak regulation, and unsafe practices. Addressing these requires a combination of policy enforcement, technological intervention, and labour protection measures.

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