What are the lessons from Telangana blast? | Explained

What are the safety and quality concerns, particularly in smaller pharmaceutical firms? Are regulatory checks not being carried out? What are the protocols to be followed? Are pollution norms being adhered to? How big is the pharma market?

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Distressed family members at Sigachi Industries in Pashamylaram outside the site of explosion at Sigachi Industries pharma plant, Pashamylaram in Sangareddy district. | Photo Credit: MOHD ARIF

The story so far: On the morning of June 30 at 9.10 a.m., an explosion tore through Sigachi Industries, a pharmaceutical factory, and flattened a three-storeyed building in Pashamylaram on the outskirts of Hyderabad. The stock market-listed entity estimated the death toll at 39 of the 143 workers who were on-site during the explosion.

Emergency services personnel seen on site after the explosion at the Sigachi Industries Pvt. Ltd. factory in the Pashamylaram industrial area in Sangareddy district on Wednesday, July 02, 20215. | Photo Credit: NAGARA GOPAL

What happened?

A four-member committee is investigating the cause of the explosion. The committee is led by B. Venkateshwar Rao, emeritus scientist at CSIR-IICT, and includes T. Prathap Kumar, chief scientist at CSIR-IICT; Surya Narayana, retired scientist at CSIR-CLRI; and Santosh Ghuge, safety officer at CSIR-NCL, Pune. While the cause is

being investigated, the pharmaceutical company has issued a statement, “The accident was not caused by the reactor explosion.”

Sigachi Industries was incorporated in 1989 and was in the business of manufacturing microcrystalline cellulose. This is nothing more than refined wood pulp or powder. This powder is shaped into tablets and serves as an excipient or a non-reactive carrier of medicine. The wood pulp or slurry is processed in a spray dryer that strips it of moisture using hot air. Once processed like this, the wood pulp turns into a fine powder or microcrystalline cellulose. This fine powder is suspected to have blown up on that fateful Monday morning. One of the first such ‘dust explosions’ recorded was in Turin in Italy in 1785 when a boy working with flour in a bakery created a cloud of flour that got lit by the lamplight. Two persons, including the boy, were injured. There is a long record of similar dust explosions in flour mills, coal mines, and grain silos killing dozens across the world. Fire forensic experts say the blast at Sigachi was a dust explosion considering the scale of damage, raw materials used and processes involved. Initially, the explosion was suspected to be a Boiling Liquid Expanding Vapour Explosion, a technical term regarding the pressure built up inside the reactor. But this has been ruled out by the company, as well as experts.

Was there a regulatory failure?

The laxity of the regulatory framework was stark on the day of the explosion. When fire department and emergency personnel rushed to the site they did not have any information about what they were up against. The State and central pollution control boards mandate a board outside factory premises listing details about the pollution potential of the institution and factory operations. The fire fighting and disaster

rescue operations are guided by this information. The green board or environment display boards outside the Sigachi Industries did not have proforma environmental data leaving fire and disaster rescue workers clueless about the nature of material involved and how to douse the fire. A tough regulatory framework with periodic check-ups would have ensured that information was available for a faster emergency response.

This incident comes close on the heels of other serious accidents in pharmaceutical firms in India. Six persons were killed in Sangareddy in the SB Organics factory in 2024, 17 were killed in August 2024 in Anakapalli in Andhra Pradesh, and two were killed in Parawada, Andhra Pradesh in June 2025.

Chukka Ramulu CPM Party State Excutive Mmeber along with District CPM Leaders Staging dharna Against Sigachi Indutry and Government infront of Collector office at Sangareddy in Sangareddy district. | Photo Credit: MOHD ARIF

What are the implications for the sector?

An American investments and real estate company in its April 2025 report said: "Telangana has emerged a pivotal contributor to India's life sciences landscape accounting for approximately one third of the country's pharmaceutical production,

one fifth of pharmaceutical exports, and one third of global vaccine production. The State's position as a pharmaceutical manufacturing hub has attracted significant investments, with over $1.49 billion channelled into the life sciences sector over the past four years." It also analysed the role of Hyderabad in this scheme of things. Over 20 life sciences and medical technology incubators are located in Hyderabad, which is the highest concentration in the country.

India, with Telangana as its hub, has emerged as a powerhouse in the pharmaceutical sector. But safety and quality concerns have dogged smaller pharmaceutical firms. The U.S. is one of the biggest markets for Indian medical exports that is regulated by the U.S. Food and Drug Administration (FDA). The United States Pharmacopeia-National Formulary has a set of standards that regulate identity, strength, quality, purity, and packaging and labelling through the chain of manufacture and use. To keep being plugged into this profitable market, the standards have to match.

Safety is one of the key aspects of branding for the pharmaceutical industry that helps build trust among customers. Any laxity in any aspect of the drug processing has a cascading effect for the company as well as the industry. At stake is not just the safety of one factory but the systems and workflow that are hallmarks of stable and safe drug production. Two books, *The Truth Pill - The Myth of Drug Regulation in India* and *Bottle of Lies: Ranbaxy and the Dark Side of Indian Pharma*, by Dinesh S. Thakur and Prashant Reddy T. and Katherine Eban respectively have chronicled the regulatory leeway, and documented the dangerous practices resorted to by Indian pharma firms to keep costs low and profit margins high.

What about pollution control norms?

Hyderabad and Telangana's pharmaceutical industry growth has been aided by lax zoning and regulatory norms. Industrial areas have to be necessarily away from residential areas. The IDA Pashamylaram was established in the early 1980s drawing some of the biggest pharmaceutical firms to the area, away from Balanagar and Patancheru that led the initial growth of the industry in Hyderabad. The initially isolated industrial area is now surrounded by residential areas. In the absence of robust and reliable public transport, worker colonies have cropped up close to the factories and industrial area. This affects the livelihood and health of people in the industrial cluster and surrounding areas.

Environmentalists have documented how tonnes of toxic chemicals and effluents have been released into the ground and into water bodies around the region. The Musi River remains highly polluted with a study on 'Pharmaceutical pollution of the world's rivers' placing it in the 22nd position worldwide in terms of concentration of active pharmaceutical ingredients. This high pollution is linked to poor waste water management infrastructure, and pharmaceutical manufacturing processes. The chemicals in the water have also been linked to a rise in antimicrobial resistance.

What next?

The pharmaceutical sector holds the potential to attract investments and create high employment opportunities in Hyderabad and other places in India. To capitalise on this potential, India must establish a robust regulatory framework. The explosions and accidents are loud warning signs for the industry and the country.

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